Original Article

Indigenous Philosophies in Multicultural Classrooms: A Case Study on Teacher Integration and Barriers in Davao Occidental

Shaiben T. Bassal, Nikki C. Baloca, Meliza P. Alo

Author Information:

College of Graduate and Professional Education, Davao del Sur State College, Matti, Digos City, Davao del Sur, Philippines

Correspondence:
bassalshaiben@gmail.com

Abstract. Indigenous philosophies taught in multicultural settings have played a crucial role in students' learning experiences by emphasizing contextualized activities, such as incorporating cultural beliefs and practices into classroom discussions. Hence, this study explores how teachers integrate Indigenous philosophical perspectives in multicultural classrooms. In-depth individual Interviews were conducted with seven Manobo and B'laan teachers in Marabatuan, José Abad Santos, Davao Occidental, using a qualitative case study approach. Teachers were selected based on specific criteria: teaching experience and the integration of Indigenous knowledge in lessons. A thematic analysis was conducted to interpret the collected data. Results revealed three overarching themes: (1) integrating indigenous philosophies: culturally grounded and inclusive teaching in multicultural classrooms, highlighting the use of indigenous narratives, practices, and local knowledge, its connections to universal human values, integration of culturally responsive pedagogy, and promotion of intercultural understanding; (2) indigenous philosophies as catalysts for cultural involvement and transformative learning, focusing on proliferated engagement, cultural pride and identity, appreciation for diversity, and challenges in cultural awareness and expression; and (3) barriers to integrating indigenous philosophies: systemic, instructional, and resource challenges, exploring curriculum-related constraints, lack of resources, teacher preparedness and limited training, time constraints and instructional workload, language and communication barriers, and limited institutional and peer support. To address this, it exemplifies careful curricular deliberation, integrating the power of reinforcing indigenous knowledge systems to expand students' experiential learning and strengthen Filipino diversity. Moreover, the study corroborates the need for institutional support among teachers to develop teaching strategies and design lessons. Furthermore, the findings support theories of culturally responsive pedagogy and decolonial theory, recognizing the positive influence of indigenous worldviews tailored to formal education in contemporary contexts. Therefore, inclusive education must be strengthened by aligning curricula with indigenous philosophical perspectives.

Keywords: B'laan; Culturally responsive pedagogy; Curriculum; Indigenous philosophical perspective; Indigenous knowledge systems; Manobo; Multicultural classrooms; Teachers.

Indigenous philosophical perspectives, classroom instruction, and multicultural settings. Recent scholarship underscores that indigenous knowledge systems embody comprehensive visions of well-being, justice, and sustainability, which explains how indigenous philosophies continue to support communities in both local

and global contexts (McGregor et al., 2023). Instruction is a multifaceted process through which teachers deliver learning using sequential procedures, methods, and routines to achieve desired learning outcomes (Ormrod, 2020). When students and instructors come from diverse cultural, ethnic, or linguistic backgrounds, the resulting environment is referred to as a multicultural learning environment. Such environments require teaching strategies that are sensitive to and supportive of diversity. Culturally responsive curricula—defined by inclusive assessments, positive portrayals of varied groups, and recognition of power dynamics—foster student participation and a sense of community in these contexts (Thomas & Quinlan, 2024). To ensure that every student's cultural identity is respected and integrated into the learning process, educators in multicultural settings must adapt their teaching strategies, resources, and interactions accordingly.

The Department of Education (DepEd) fulfills its mandate to ensure that every Filipino learner has the right to high-quality, inclusive, and culture-based education, as safeguarded by the Philippine Constitution and the Indigenous Peoples Rights Act (IPRA) of 1997. Through its National Indigenous Peoples Education (IPEd) Program, DepEd encourages curricula that preserve the special identity, heritage, and learning requirements of indigenous peoples (DepEd Order No. 62, s. 2011). This initiative is consistent with the Enhanced Basic Education Act of 2013 (Republic Act No. 10533), which requires curricula to be learner-centered, inclusive, and culturally responsive. International frameworks, such as the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), also underscore the country's responsibility to protect and promote indigenous ways of knowing and knowledge systems in education (United Nations, 2007). Altogether, these policies emphasize the government's vital role in ensuring inclusivity and cultural sensitivity within the educational system.

Western worldview–preferred pedagogies often disarticulate indigenous knowledge, creating stress on student identity and reducing the salience of pedagogy. A systematic review in Indonesia identified indigenous ethnopedagogy at the primary school level to reinforce students' cultural identity, community participation, and inclusive practices (Syafiul et al., 2025). In Europe, multicultural schools increasingly emphasize the need for an intercultural sense of citizenship. This approach goes beyond merely marking differences to include deeper explorations of identity, inclusion, and respect (Kalogerogianni, 2025). These studies provide evidence that integrating indigenous philosophies in multicultural education makes learning more engaging and inclusive. Globally, culturally responsive and inclusive education is now a major policy priority. UNESCO (2019) advocates for education that recognizes and values indigenous knowledge systems as a foundation for equity and sustainable development. Similarly, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) holds states accountable for ensuring indigenous peoples receive universal education aligned with their ways of life, pedagogic styles, and learning patterns (United Nations, 2007). Altogether, these policies frame indigenous philosophical knowledge in schools not merely as a new concept but as an international obligation for equity and justice in education.

It directly responds to the state's policy on inclusive, culture-based education. The Department of Education introduced the Indigenous Peoples Education (IPEd) Program in formal schooling to respect and preserve indigenous knowledge systems (DepEd Order No. 62, s. 2011). The curriculum also aligns with the Indigenous Peoples Rights Act of 1997 (Republic Act No. 8371), which guarantees indigenous peoples the right to maintain and transmit their heritage, including education with their worldview and values. Likewise, the Enhanced Basic Education Act of 2013 (Republic Act No. 10533) promotes learner-centered and context-based approaches, where culturally responsive pedagogy plays a crucial role. In multicultural classes across the Philippines, this mainstreaming fosters equality, strengthens cultural identity, and supports national unity in diversity (Dela Cruz, 2020). Together, these imperatives reinforce, complement, and amplify the mainstreaming of indigenous philosophies of learning within curriculum pedagogy. Such an approach is essential in advancing inclusive, holistic, and culturally empowering education.

Locally, teachers at Manuel Medel Integrated School, who serve the Manobo community, face the challenge of integrating the national curriculum into their lesson plans while also addressing the cultural needs of their indigenous students. The Manobos hold strong traditions and a philosophy that emphasizes education that sustains their worldview, language, and culture. Many teachers, particularly non-IP educators, report difficulty embedding Indigenous knowledge in their lessons. This limitation is primarily attributed to the lack of culturally adapted materials and insufficient teacher training (Ocampo, 2018). Nonetheless, teachers attempt to adapt contextual practices by incorporating oral traditions, local methods, and community practices into the curriculum. Such efforts not only enhance student participation but also foster pride in cultural identity among Manobo

learners. Furthermore, the school's multicultural environment—comprising students and faculty from diverse ethnic backgrounds — underscores the need for culturally responsive and inclusive pedagogies (Lim, 2024). Examining teachers' experiences at Manuel Medel Integrated School may thus provide valuable insights into how indigenous philosophies can be meaningfully integrated into daily pedagogy.

Schools are gradually integrating Indigenous philosophies into classrooms as part of the evolving Philippine curriculum, and research highlights the need to examine teachers' perspectives in multicultural settings to sustain these efforts. For instance, in Mindanao, Gomez and Bidad (2023) found that cultural, institutional, and individual factors shape teachers' attitudes toward teaching Indigenous students, underscoring the importance of values and faith in educational practices. Similarly, Condeza and Mongas (2022) showed that culturally responsive education for Higaonon students reinforces the moral and spiritual principles necessary for behavioral change while also assisting in the preservation of Indigenous practices. On a larger scale, Ilagan (2023) demonstrated how, through teacher and stakeholder cooperation, incorporating Indigenous Knowledge Systems and Practices (IKSPs) within the K–12 curriculum for Sama Bajaus promotes cultural continuity and amplifies community values. These results underscore the need to explore teachers' viewpoints in Indigenous and multicultural contexts more thoroughly, particularly in Mindanao, where little research has been conducted despite the curriculum's increasing emphasis on Indigenous concepts.

Methodology

Research Design
This study employed a case study within a qualitative research design, which was vital for exploring the perspectives of Indigenous Peoples' teachers. Creswell and Poth (2018) underscore that qualitative research seeks to analyze and evaluate individuals or groups in relation to their lived experiences, particularly by discovering phenomena in their natural environments through methods such as interviews and observations to obtain rich, descriptive data. In addition, a qualitative case study allows researchers to examine how respondents share perspectives and knowledge, privileging narratives and relational interactions (Antonio et al., 2023).

Research Locale
In exploring Indigenous philosophies as strategies teachers employed to support students' learning growth, the researchers believed that examining multicultural perspectives was essential. Accordingly, the study was conducted in Marabatuan, José Abad Santos, Davao Occidental, as this location is home to Indigenous communities, such as the Manobo and B'laan, who are actively engaged in cultural practices (SunStar, 2025). This setting provided a promising context for uncovering diverse perspectives from teachers who integrate Indigenous philosophies into their classrooms.

Research Participants
Because the researchers examined multicultural perspectives among seven teachers on integrating Indigenous philosophies into classroom environments, Indigenous teachers were the focal participants in this study. They were selected based on their bloodlines as members of Indigenous Cultural Communities and on their years of service as teachers, using specific criteria to identify them. First, they must have completed at least two years of teaching experience. Second, they must belong to an Indigenous Cultural Community (ICC) or possess Indigenous ancestry. Third, they must have already integrated Indigenous philosophies into their classroom practices. Furthermore, participants must voluntarily consent to participate in in-depth individual interviews. Emphasizing these criteria, according to Creswell and Poth (2018), enhances the study's trustworthiness and ensures data-rich cases that align with the research purpose.

Research Instrument
Semi-structured interview questions were designed to elicit detailed narratives about teachers' lived experiences. Experts in qualitative research and education evaluated the tool to ensure its quality. Their assessment emphasized clarity, relevance, and completeness to guarantee its suitability for the study. Adjustments were incorporated based on the experts' suggestions prior to data collection.

Data Gathering Procedure
In collecting data from participants, the researchers employed systematic procedures to ensure successful in-depth individual interviews. The study outlined the following steps for data collection: (a) The researchers secured permits and sent letters of permission to the school, the community, and the National Commission on Indigenous

Peoples (NCIP), clearly stating the purpose of the study and awaiting approval before commencing data collection, (b) Once approval was granted, the researchers explained the objectives of the study to the teachers, informing them that their participation was recorded and emphasizing the value of their insights on the integration of Indigenous philosophies into the classroom, (c) The researchers conducted in-depth interviews using prepared guide questions to elicit teachers' perspectives, (d) After the interviews and discussions, responses were transcribed verbatim from the recordings, (e) The researchers employed thematic analysis to categorize themes emerging from the participants' responses, (f) These themes were evaluated and interpreted in relation to the objectives of the study. Following these procedures ensured the effectiveness and integrity of both data collection and the study's overall implementation.

Data Analysis
For this qualitative study, data were analyzed using Braun and Clarke's (2021) six-phase framework for thematic analysis: (1) Repeatedly reading the transcripts and noting initial ideas, (2) Generating codes by identifying interesting features across the entire dataset, (3) Collating codes into potential themes and gathering relevant data for each theme, (4) Reviewing themes to ensure they are coherent, consistent, and reflective of the data, (5) Defining and naming themes to capture their essence, (6) Finalizing the themes for integration into narratives supported by data extracts. Thematic analysis was fundamental because it enabled researchers to identify, analyze, and interpret patterns of meaning across the data. This approach was suitable for exploring Indigenous teachers' perspectives, as it allowed for in-depth interpretation of narratives while amplifying participants' voices in the meaning-making process.

Ethical Consideration
The study strictly followed ethical protocols to protect the privacy and rights of all participants. Participants were informed about the study's purpose, procedures, and their right to withdraw at any time. All data were securely stored, and coded identifiers were used to ensure anonymity.

Results and Discussion

Integrating Indigenous Philosophies: Culturally Grounded and Inclusive Teaching in Multicultural Classrooms
Four predominant themes emerged in response to the study's first research question, which explores how teachers employ indigenous philosophies in their classrooms. These include the use of indigenous narratives, practices, and local knowledge as instructional anchors; connecting indigenous perspectives with universal human values; cultivating culturally responsive pedagogy through active, experiential, and comparative learning; and promoting intercultural understanding and mutual respect in multicultural classrooms.

Use of Indigenous Narratives, Practices, and Local Knowledge as Instructional Anchors
This theme, which emerged from teachers' lived experiences, exemplified their reliance on Indigenous stories, practices, and local knowledge as foundational anchors for teaching in multicultural classrooms. This underscores a pedagogical strategy that amplifies local epistemologies, allowing students, particularly those from indigenous or remote areas, to view their cultural identities as validated and represented in instruction. Teachers integrate indigenous knowledge into science instruction by blending cultural beliefs with scientific concepts, reinforcing culturally sustaining pedagogy. This approach affirms indigenous ways of knowing and challenges the dominance of Western scientific traditions. Anchoring lessons in local practices also deepens students' environmental understanding, as shown in studies highlighting the value of land-based activities and community involvement. Such integration promotes epistemic justice by recognizing indigenous knowledge as a valid scientific resource. When schools deliberately embed these practices, student engagement, cultural identity, and academic performance improve, supported by collaborations with community elders and cultural resource persons.

Indigenous Folktales, Oral Traditions, and Storytelling. In the study, teachers also explored indigenous folktales and oral traditions to link students' cultural backgrounds with formal scientific concepts. For example, Participant 3 stated, *"I introduced a Manobo folktale, and an elder traditionally told the story."* Storytelling in this affirmation not only conserves cultural heritage but also serves as a cognitive scaffold: narrative-based pedagogy benefits students by making complex phenomena accessible through familiar metaphors (McKeown & Tout, 2020). In addition, this methodology is consistent with decolonial pedagogies, as researchers have argued that embedding indigenous storytelling in curricula defies the hegemony of Western science by validating non-Western ways of knowing

(Javorcikova et al., 2021). This suggests that storytelling can be an effective strategy for fostering epistemic inclusion in the classroom.

Integration of Traditional Practices. Teachers further reinforce traditional practices, for instance, natural measurement, local foodways, craftmanship, and folk ecological mediators to ensure lessons are culturally significant and grounded. Participant 1 explained, *"I integrated the indigenous practice of using natural references for measurement like dangkal and talampakan."* This practice mirrors wider calls in science education to contextualize knowledge through students' lived realities, allowing them to connect embodied cultural beliefs with formal quantification (Pawilen, 2021). Additionally, local ecological learning plays a prominent role in pedagogical beliefs, as Participant 6 reported: *"I began the lesson with local weather beliefs such as frogs croaking."* This aligns with a study on the Filipino science curriculum that highlights how Indigenous Knowledge Systems (IKS) should inform science education (Pawilen, 2021). This implies that integrating IKS can enhance the cultural relevance and meaningfulness of science learning.

Bringing Elders and Cultural Bearers into Lessons. In this study, Participant 5 recounted, *"We visited a tribal museum and invited elders to share stories,"* demonstrating how teachers actively bridge school boundaries to include living cultural knowledge. This practice aligns with culturally sustaining pedagogy, which emphasizes intergenerational transmission and community agency in education (Esparrago-Kalidas, 2023). Similarly, Tuck et al. (2021) found that engaging elders in curricula supports both cultural continuity and academic meaning. Such partnerships provide students access to Indigenous Knowledge Systems (IKS) as lived wisdom rather than abstract content. Studies in Mindanao further show that incorporating community elders into pedagogy helps students internalize culturally rooted values, strengthening identity formation and sense of belonging (Rosales & Cruz, 2024; Magnaye, 2023). This implies that sustained school–community partnerships are essential for culturally responsive and decolonized learning environments.

Embedding Cultural Meanings in Scientific and Academic Concepts. Teachers embedded cultural meanings and Indigenous worldviews into scientific concepts, reframing science through a culturally resonant lens. Participant 7 shared, *"I taught the water cycle using a story about the spirit of the river and Manobo beliefs,"* showing how cosmological narratives contextualize scientific ideas. Decolonizing science education requires framing phenomena through Indigenous epistemologies rather than overlaying Western frameworks (Gunawan & Indrawan, 2025). Embedding these meanings respects Indigenous worldviews and enhances understanding by connecting science to students' lived experiences (Camiring-Picpican et al., 2025). Integrating traditional ecological mediators — such as animal behavior, weather lore, and spiritual beliefs—helps students develop hybrid cosmological knowledge (Magnaye, 2023; Pejaner & Gutierrez, 2023). This implies that culturally grounded science teaching promotes both epistemic inclusion and meaningful learning.

Connecting Indigenous Perspectives with Universal Human Values
Teachers intentionally emphasized universal human values—such as respect, environmental care, and social harmony —using indigenous concepts to demonstrate that these values are globally shared rather than culturally isolated. Such integration reflects indigenous knowledge systems that express deeply relational views of human–nature connections, aligning with global sustainability ethics. Recent research on *"relational values"* highlights how respect, reciprocity, integrity, and humility strengthen both indigenous rights and broader ecological justice. By linking local cultural practices with international environmental concerns, teachers positioned indigenous knowledge as globally relevant rather than limited to local contexts. This perspective supports policy frameworks that integrate diverse knowledge systems for more just and sustainable environmental outcomes. Studies in sustainability education further suggest that combining indigenous ethics with modern instruction enhances students' sustainability competencies and nurtures a sense of shared responsibility for the planet.

Highlighting Universal Values. In the study, teachers emphasized universal values rooted in Indigenous teachings, highlighting how respect for nature, community cohesion, and gratitude for life are shared across cultures. Participant 3 noted, *"Values of respect for nature, obedience to elders, and community harmony are shared across cultures,"* aligning with Swiderska et al. (2021), who argue that Indigenous values support both local and global biodiversity. Indigenous ecological practices reflect communal ethics and respect for the land (SEEDS Centre, 2022) and are relevant to regional and global environmental governance (Brondizio et al., 2021). Teachers use these values to foster moral reasoning and collective identity, thereby demonstrating to students that caring for the planet and for one another is a shared responsibility. Participant 5 stated, *"I emphasize universal themes such as*

respect for nature, community, and oral tradition," demonstrating how blending Indigenous wisdom with formal education supports empathy, accountability, and relational thinking (Addis Ababa University, 2020). This implies that integrating Indigenous values in education promotes ethical awareness and global stewardship among students.

Showing Cultural Commonalities Across Diverse Groups. Teachers encouraged students to appreciate that, despite cultural differences, many traditional values are shared across borders. Participant 7 noted, *"Students realize that while customs may differ, values like gratitude and responsibility are shared,"* reflecting relational science scholarship that centers on reconciliation and Indigenous ethics, including integrity, humility, and respect (David-Chavez et al., 2024). Similarly, Brondizio et al. (2021) highlight that Indigenous worldviews often converge on relational values and shared accountability, forming a universal human ethos. These shared values build collective identity and mutual understanding, as teachers foster intercultural dialogue and communal problem-solving. Participant 6 stated, *"Students collaborate and give ideas based on their experiences,"* showing how recognizing collective values promotes shared knowledge. Appreciating these ethical foundations decreases social distance and cultivates global citizenship (Cross et al., 2023). Local sustainability practices also embed ethics of welfare, harmony, and accountability that align with international environmental goals (SEEDS Centre, 2022). This implies that integrating Indigenous values fosters intercultural understanding and a sense of shared responsibility among students.

Framing Indigenous Knowledge as a Global Human Experience. In the study, teachers went beyond teaching local traditions by framing Indigenous knowledge as part of global human narratives. Participant 2 stated, *"Students learned to value both traditional knowledge and scientific tools,"* highlighting the inclusion of Indigenous relational values in international assessments and advocating for a shift from a purely utilitarian lens to pluralistic value systems (Environmental Science & Policy, 2023). Similarly, Brondizio et al. (2021) note that Indigenous practices are regionally manifested but globally significant, informing governance, conservation, and sustainability. Teachers used this framing to challenge colonial narratives that marginalize Indigenous knowledge, emphasizing that values such as welfare, reciprocity, and community are globally shared. This implies that positioning Indigenous knowledge in a global context fosters respect, equity, and more inclusive environmental and educational policies.

Active Learning: Experiential and Comparative Pedagogy
Across the global education sector, teachers are increasingly adopting culturally responsive approaches that integrate indigenous and local knowledge into formal instruction. This integration not only affirms students' cultural identities but also strengthens the relevance of learning and environmental awareness. Research shows that embedding indigenous knowledge in the curriculum improves students' practical skills, problem-solving abilities, cultural competence, and overall academic performance, demonstrating that indigenous pedagogies are central—not peripheral—to effective education. Studies further reveal that incorporating indigenous ecological practices into science instruction enhances both cognitive and affective learning outcomes. UNESCO (2022) reinforces these findings, emphasizing that the convergence of indigenous knowledge and scientific learning supports more equitable, sustainable educational systems and cultivates the relational values of biodiversity and stewardship rooted in indigenous worldviews.

Experiential Activities. Teachers used experiential activities, such as field trips, hands-on measurements, and crafting eco-friendly products, to engage students in learning grounded in local traditions. Participant 1 noted, *"Students compared traditional measurements to actual measurements using rulers,"* highlighting how traditional practices provided concrete, practical learning experiences. Such activities enhance participation, motivation, and ecological awareness (Savan & Savan, 2020; da Silva, Pereira, & Amorim, 2023). Crafting eco-friendly products also fosters sustainability competencies by integrating academic content with environmental stewardship (Wals & Brody, 2021). Experiential learning further validated indigenous resourcefulness and cultural heritage while addressing modern ecological concerns. Participant 4 shared, "We created eco-friendly containers inspired by indigenous resourcefulness," demonstrating how cultural practices can inform contemporary environmental solutions. Integrating indigenous crafts and ecological practices strengthens students' sense of heritage, stewardship, and communal responsibility (Smith & Harper, 2022; El Yazidi & Rijal, 2024; Dawson & Carson, 2023), supporting holistic learning across cognitive, cultural, and ethical dimensions. This implies that experiential, culturally grounded learning promotes both ecological literacy and ethical responsibility among students.

Comparing Indigenous Knowledge with Academic/Scientific Knowledge. Teachers fostered comparative learning by having students explore indigenous knowledge alongside scientific perspectives. Participant 2 noted, *"They shared findings and compared local aligns with scientific weather prediction,"* illustrating how students critically reflected on both systems. This approach encourages recognition of multiple knowledge systems, challenges the privileging of Western science, and enriches scientific literacy by connecting science to social, historical, and ecological contexts (McKinley & Stewart, 2022; Johnson et al., 2021; Zhang & Gonzales-Andrade, 2024). Comparative pedagogy also supports cultural identity and intercultural competence. As Participant 3 shared, *"Students wrote modern retellings of the Manobo folktale,"* demonstrating that indigenous knowledge can be dynamic, living content integrated into modern learning. Such practices strengthen students' sense of belonging, promote critical thinking, and encourage reflection on multiple worldviews, serving as a decolonizing strategy that allows diverse knowledge systems to coexist in educational spaces (Villegas & Lucas, 2019; El Yazidi & Rijal, 2024). This implies that comparative pedagogy supports decolonized learning and fosters intercultural competence among students.

Inquiry-Based Learning. Teachers employed inquiry-based learning to connect cultural beliefs with scientific concepts through community-embedded investigations rather than textbook-only approaches. Participant 6 noted, *"Students must investigate and explore connections between beliefs and science,"* highlighting a shift toward student-centered, culturally situated inquiry. Students engaged in ethnographic explorations, interviews with elders, and community-based research, deepening their understanding of traditional knowledge alongside scientific perspectives while fostering critical awareness and respect for cultural contexts (Dawson & Carson, 2023; Smith & Harper, 2022; da Silva et al., 2023). Inquiry-based tasks also positioned students as co-creators of knowledge. Participant 7 shared, *"Students created drawings showing both scientific and cultural meaning of water,"* illustrating how students synthesized diverse epistemologies using scientific diagrams and cultural symbolism. Such practices promote epistemic pluralism, intercultural competence, and ecological awareness, thereby empowering students to integrate their cultural worldview into learning and to support decolonizing, culturally responsive education (McKinley & Stewart, 2022; Zhang & Gonzalez-Andrade, 2024; Villegas & Lucas, 2019). This implies that inquiry-based, culturally grounded learning empowers students to integrate multiple knowledge systems and supports decolonizing education.

Collaborative Learning Among Students from Different Cultures. Facilitating collaboration among students fosters intercultural relationships, mutual understanding, and collective knowledge construction. Collaborative, culturally grounded activities enhance social cohesion, empathy, and cross-cultural competence (Johnson et al., 2021) and increase students' sense of belonging and engagement when their cultural backgrounds are recognized (Rahaman, 2024). Such pedagogy counters marginalization by creating spaces for diverse voices and shifting authority from teachers to peers and community networks (Bang & Hernandez et al., 2025). Collaborative learning also supports decolonial objectives by democratizing knowledge production and encouraging collective ownership. It promotes intercultural competence, critical awareness, and respect in multicultural classrooms (Dawson & Carson, 2023). Furthermore, it strengthens social responsibility and collective agency, particularly in projects such as developing eco-friendly products, retelling stories, or comparing ecological knowledge (Wals & Brody, 2021). Overall, culturally responsive collaborative pedagogy benefits both academic learning and broader social development.

Promoting Intercultural Understanding and Mutual Respect in Multicultural Classrooms
This theme reflects how teachers in multicultural contexts intentionally foster collective understanding, respect, and solidarity among students from diverse cultural and ethnic backgrounds through culturally responsive teaching practices. In the study, teachers create learning spaces that recognize diversity while highlighting similar human and ecological beliefs. This aligns with Banks et al. (2020), who report that multicultural and inclusive pedagogy enhances social cohesion, reduces discrimination and bias, and fosters mutual relationships and respect among students from diverse backgrounds. In the context of indigenous and non-indigenous students, Kim and Berry (2019) emphasize that such a pedagogical orientation enables the bridging of traditional divides, affirms multiple heritages, and fosters intercultural citizenship and belonging.

Cross-Cultural Sharing Among Students. In this study, teachers promoted cross-cultural sharing by encouraging students to express their traditional narratives, ecological practices, and community cultures. Participant 3 noted, *"I encouraged students from other backgrounds to share similar stories,"* indicating that classroom discussions served

as a vehicle for cultural exchange. Such peer-sharing strengthens empathy, reduces stereotypes, and fosters intercultural understanding (Nieto & Bode, 2021; Sarmiento, 2020; Banks et al., 2020). Cross-cultural sharing also enhanced environmental awareness. Participant 4 shared, *"Students shared their own environmental practices,"* illustrating how diverse cultural knowledge about resource use and ecological rituals was recognized and valued. This practice broadens ecological imagination, cultivates respect for biodiversity, and supports collective environmental stewardship (UNESCO, 2022; Irawan et al., 2022). Overall, this pedagogy helps students appreciate cultural differences while promoting shared ecological responsibility and collaborative action.

Creating Inclusive Spaces for Expressing Cultural Identity. Teachers create learning spaces where students feel safe to express their cultural identities and traditions. Participant 5 noted, *"I encourage students to share their cultural traditions and compare them to indigenous practices,"* reflecting a commitment to validating cultural heritage. Culturally sustaining pedagogy that acknowledges students' identities, languages, and traditions enhances engagement, identity affirmation, and belonging, particularly in multicultural classrooms (Ladson-Billings & Tate, 2020; Sarmiento, 2020). By fostering inclusive spaces, teachers also advance social justice in education. Participant 1 stated, *"I present indigenous ideas as shared human values expressed differently,"* highlighting an approach that values cultural plurality. Such practices align with global frameworks promoting inclusive, culturally responsive education and have been shown to develop intercultural competence, reduce marginalization, and empower minority students to participate fully in learning (UNESCO, 2022; Caingcoy, 2023). This implies that culturally responsive teaching strengthens intercultural competence and empowers students from diverse backgrounds.

Mutual Respect Through Learning About Each Other's Traditions. Teachers employ comparative and dialogic pedagogies to help students learn about the traditions of different communities, fostering mutual respect through understanding. Participant 2 noted, *"Students from all backgrounds can relate to elders' observation of nature,"* showing how exposure to indigenous knowledge allows students to connect it with their own cultural experiences. This supports findings that dialogic knowledge-sharing and critical reflection promote social cohesion and intercultural understanding (Nieto & Bode, 2021; Rahman & Kahn, 2023). By valuing diverse traditions, students view cultural and ecological diversity as a resource rather than a barrier. Participant 6 shared, *"Students share ideas based on their experiences,"* reflecting how intercultural education embedded in environmental and civic curricula encourages dialogue, peaceful coexistence, and local solidarity—essential elements for sustainable multicultural learning (Dawson & Carson, 2023; Banks et al., 2020; Irawan et al., 2022). This implies that integrating Indigenous knowledge into curricula strengthens intercultural understanding and collaborative learning.

Indigenous Philosophies as Catalysts for Cultural Involvement and Transformative Learning
The second research question examines how students respond and modify their behavior when indigenous philosophies are incorporated into classroom instruction. The findings indicate that the use of indigenous philosophies is a strong catalyst for transformative learning. This transformation is divided into four major themes: Proliferated Engagement and Participation, Cultural Pride and Identity Reinforcement, Ameliorated Respect and Appreciation for Diversity, and Obstacles in Cultural Awareness and Expression.

Proliferated Engagement and Participation
This theme demonstrates that integrating indigenous philosophies serves as a powerful teaching tool, effectively connecting students' home and school environments. By basing lessons on local traditions and family practices, teachers validate what students already know—often referred to as "funds of knowledge"—thereby making it easier for them to learn new school topics (Pawilen, 2021). When lessons draw on local traditions, the classroom shifts from one in which students sit and listen to one in which they ask questions and participate, because they no longer see the curriculum as strange but as relevant to their real lives (Ogodo, 2024).

Curiosity and Attentiveness. The data confirm that indigenous philosophies serve as a bridge or "springboard" for class discussions, making learners *"very receptive."* Participant 10 reported that students typically respond with *"curiosity, excitement, shock, and even a little bit of unbelief"* and are *"immediately drawn to the topic."* This intense interest changes their physical behavior in the learning environment; Participant 2 described students as *"attentive and curious,"* often *"leaning forward"* to ask questions. This shows that incorporating culturally relevant topics breaks up the monotony of standard lessons and captures learners' full attention. This shift from passivity to interest occurs when the learning material makes sense to the student. When the topic is familiar, students feel more capable of learning it. As noted by Zeng et al. (2025), teaching in a culturally respectful manner reduces students' anxiety and increases their enthusiasm for learning. The physical signs of interest, such as leaning

forward or looking surprised, indicate that learning has shifted from merely memorizing facts to a more personal and engaging experience.

Active Involvement and Sharing of Experiences. Beyond paying attention, the relevance of the content motivates students to share their knowledge, creating a reciprocal learning environment in which both the teacher and students learn from one another. Participant 1 observed that students become *"participative and talkative in a good way."* Teachers consistently observed that when lessons connect to local traditions or familiar family practices, students shift from being passive listeners to active participants. This participation alters the usual classroom order: students become experts rather than merely listeners, thereby fostering a sense of ownership over their education. According to Kadonsi (2024), when lessons reflect indigenous students' histories and languages, attendance and participation often go up. Sharing their own experiences transforms the classroom into a community space in which knowledge is constructed collectively rather than delivered by the teacher.

Excitement When Content Relates to Their Own Lives. This engagement is strongest when the lesson touches on their own lives and communities. Participant 1 observed that students become *"excited and eager to share, especially if it is about their experiences."* Participant 6 added that students "pay closer attention" when lessons connect to their community, showing that personal connection drives focus. These findings match recent studies on culturally responsive teaching. According to Eden, Chisom, and Adeniyi (2024), aligning lesson goals with community activities affirms cultural roots and significantly increases participation. When students see that the lesson is directly connected to their lives, the "*disconnect*" that usually leads to boredom disappears. This relevance serves as a natural motivator, prompting students to engage because the content demonstrates that their daily reality matters in school.

Pride Among Indigenous Students. The observed active participation is closely linked to the confidence gained through cultural affirmation. Participant 8 noted that learners, especially Indigenous Peoples (IP) learners, "*readily share their knowledge about their traditions."* This readiness to share indicates that integrating indigenous philosophies empowers students to assume leadership roles in classroom discussions. This observation aligns with Smallwood et al. (2023), who emphasize that confirming identity is associated with greater engagement and emotional well-being. When IP students are given the platform to speak as experts on their own traditions, their pride manifests as academic engagement. They are no longer on the margins of the lesson but at the center, driving the discussion with their unique cultural insights.

Cultural Pride and Identity Reinforcement
A significant benefit observed is the deep strengthening of self-worth among students, particularly Indigenous Peoples (IP) learners. Education experts argue that "*cultural affirmation*" is key to success in school; when students see their heritage in the lessons, it counters the history of their culture being ignored and helps them feel a sense of belonging (Hernandez et al., 2025). This integration creates a safe mental space in which students perceive their backgrounds as strengths rather than weaknesses, thereby enabling them to participate more fully in school (Nganga & Kambutu, 2024).

Pride, Especially Among Indigenous (IP) Students. This emotional bond helps bridge the gap between teacher and student, as learners feel more connected when they see teachers making a genuine effort to understand their backgrounds and upbringings. Participant 5 shared a specific and touching moment: *"I once spoke to my students in their mother tongue and genuinely saw their eyes lit."* This teacher observed that IP students show *"pride that they are being recognized."* This validation acts as a form of "cultural healing" inside the classroom. For many IP learners, schools have historically been places where they were forced to change, and their language was hidden. By doing the opposite and actively using indigenous languages, teachers show students that their identity is valuable to their intelligence. This emotional connection fosters trust, which is necessary for students to take risks in learning and to grow (Laluna, Civitillo, & Jugert, 2024). This implies that incorporating Indigenous languages in classrooms promotes identity affirmation, emotional engagement, and academic growth.

Feeling Recognized and Represented in Class. The study highlights that representation is a key driver of student well-being. Participant 9 emphasized that acknowledging these differences creates a *"sense of belongingness"*. When the curriculum mirrors students' lived experiences, it demonstrates that their existence matters in the academic world. This echoes Rosales and Cruz (2024), who state that indigenous teaching methods help students learn cultural values and strengthen their identity. Representation in the classroom communicates to students that their

history and culture are worth studying. This sense of belonging is crucial for retaining students and improving their grades, as students feel that the school is a place where they belong and are respected (Bongco, 2024). This implies that culturally responsive curricula enhance student engagement, identity, and achievement.

Reconnecting with Cultural Roots. Furthermore, this approach helps students overcome shyness and gain confidence to reconnect with their heritage. Participant 10 recounted that students who were initially *"shy about sharing anything related to their tribe"* and avoided eye contact slowly began to *"open up."* As lessons included their stories and beliefs, these students started raising their hands and even felt comfortable enough to "correct me gently when I mispronounced a local term". This suggests that the classroom becomes a safe space for them to own their identity. The shift from avoiding eye contact to correcting the teacher reflects a significant change in power; the student feels safe enough to assert authority over their own cultural knowledge, indicating a sense of capability and safety. Hernandez et al. (2025) argue that connecting home and school cultures is critical for indigenous youth to stay in school, as it creates one whole identity rather than a broken one. This implies that culturally responsive teaching empowers students to take ownership of their knowledge and strengthens their sense of belonging.

Ameliorated Respect and Appreciation for Diversity
Integrating indigenous perspectives can reduce prejudice and help students understand other cultures. By making indigenous knowledge a regular part of school, teachers stop the process of making others feel "*different,*" allowing non-indigenous students to see differences not as strange, but as valuable parts of human life (Camiring-Picpican et al., 2023). This creates a classroom community in which students get along and develop empathy by exploring diverse perspectives, ultimately preparing them to live in a diverse society (Prehn, Guerzoni, Graham-Blair, 2025).

Increased Respect for Teachers and Peers. The teachers noted that lessons go beyond book knowledge and actually improve social behavior. Participant 10 observed students treating one another with *"deeper respect"* and encouraging each other during presentations. This support system indicates that appreciating indigenous philosophies fosters a cooperative rather than a competitive atmosphere. This confirms the finding of Tygret et al. (2024) that culturally safe learning environments can reduce harmful behaviors and improve the classroom climate. When students observe their teachers treating Indigenous knowledge with respect, they emulate that behavior when speaking with their classmates. The classroom becomes a community where respect is not merely a rule but a genuine value practiced in the learning process.

Appreciation for Diverse Cultures. There is an apparent change in attitude as students move away from bias. Participant 2 noted that students learn to *"appreciate differences instead of seeing them as something strange."* Participant 8 noted that learners become *"more aware of the importance of inclusivity,"* especially towards their IP classmates. Reducing bias is not something that happens; it is an active process in which stereotypes are dismantled through education. When non-indigenous students are exposed to the depth of indigenous philosophies, wrong ideas are replaced with admiration. Maher et al. (2024) emphasize that multicultural education is not merely about subject matter but about creating a democratic space in which all voices are heard and valued. This implies that culturally responsive education fosters inclusivity, respect, and critical reflection among students.

Mindfulness in Interactions. Integrating indigenous perspectives changes how students treat one another, moving them away from bias and toward respect. Participant 2 noted that students become *"more respectful and mindful."* Participant 9 also noted a behavioral shift, where they instill in students that "*respect is free and it should be given to all."* This suggests that students are developing emotional intelligence alongside their academic knowledge. Druker-Ibañez and Cáceres-Jensen (2022) argue that exposure to Indigenous perspectives increases cultural understanding and empathy for non-Indigenous learners. Students become more careful with their words and actions, realizing that their classmates come from diverse backgrounds with unique traditions that deserve respect.

Openness to Learning About Other Traditions. Teachers highlighted that this approach fosters intercultural understanding. Participant 7 observed a *"greater acceptance and regard for different opinions,"* in which students become more conscious of the importance of understanding others. Participant 6 added that students are "more open to learning about other traditions and values" and interact with others in a more understanding way. This openness goes beyond the classroom, preparing students to live in a multicultural society. By learning to value

their classmates' diverse perspectives, students develop soft skills essential in the world, such as empathy, listening, and resolving conflicts respectfully. The classroom serves as a model for how diverse groups can live and work together, moving beyond merely tolerating one another to truly supporting one another.

Obstacles in Cultural Awareness and Expression
Despite the positive results, the study highlights the difficult balance students face between their traditional identities and modern influences. This theme addresses the concept of "deculturalization" and the pressures of globalization, in which mainstream media and internet culture often obscure or erase traditional knowledge (Macapugay & Nakamura, 2024). Teachers must navigate this, helping students who may feel "*out of place*" or ashamed due to social pressure to reclaim their roots, thereby turning the classroom into a space where they can reclaim their identity (Jabeen, 2019).

Some students are unaware or uneducated about their cultural norms. Participant 1 pointed out that some students *"tend to forget their cultural identity because of mainstream media."* Consequently, some learners are *"uneducated about their own cultural norms"* or even "ignorant" of them, which can lead to unintentional disrespect. This suggests that outside influences are weakening cultural knowledge, making the teacher's role even more critical. This loss of cultural memory is a significant challenge for teachers who rely on students' prior knowledge. When students are disconnected from their heritage because of mass media, teachers must work harder to reintroduce these ideas. This underscores the urgency of culturally responsive teaching; as Yatim et al. (2025) argue, schools often serve as the last line of defense against the erosion of endangered cultural knowledge by popular culture. This implies that culturally responsive teaching is essential for sustaining students' heritage and identity.

Discomfort or Refusal to Talk About Their Roots. Participant 4 also noted that, despite the overall inclusivity, some students *"opted not to talk about their roots,"* perhaps due to fear or shame. This loss of identity underscores the need for the teacher to guide students to "look back and grasp their culture more," as it is a unique part of their identity. This internal struggle suggests that the effects of past stigma run deep. Teachers must recognize that for some students, embracing their identity is a scary process that requires patience and consistent emotional support. Riley, Monk, and Van Issum (2024) similarly warn that without teacher training that tackles colonial histories and prejudices, the benefits of such methods may be limited. This implies that culturally responsive teaching requires patience, emotional support, and teacher preparedness to foster identity affirmation.

Differing or Inconsistent Respectful Behavior. While largely positive, Participant 3 noted mixed reactions, where some students still *"forget to greet"* or fail to show respect. This reflects the literature's warning that culturally responsive teaching requires sustained commitment to effectively address cultural biases. This inconsistency shows that cultural change in the classroom is not instant but a slow process. Teachers serve as the link between students and their heritage when external influences have fractured that bond. Billen and Billen (2022) describe this as "culturally sustaining pedagogy," which seeks to preserve languages and cultures. The findings suggest that without the teacher's active support, the link between students and their ancestors' knowledge risks being completely broken.

Barriers to Integrating Indigenous Philosophies: Systemic, Instructional, and Resource Challenges
Six predominant themes were identified in the study's third research question, which explores the barriers teachers face in integrating indigenous philosophical perspectives into classroom instruction. These are curriculum-related constraints, lack of resources and materials, teacher preparedness and limited training, time constraints and instructional workload, language and communication barriers, and limited institutional and peer support.

Curriculum-Related Constraints
This theme described how curriculum-related constraints hinder teachers' ability to incorporate indigenous philosophical perspectives into classroom teaching, mirroring patterns recognized in Philippine and international literature. Previous studies reveal that standardized learning competencies and Western-oriented lenses often marginalize Indigenous Knowledge Systems (IKS), leaving footprints from teachers with inadequate flexibility to root contextualized, community-embedded content (Posternak et al., 2023). In similar research, Peltekova (2024) notes that teachers frequently lack structural support, clear guidelines, and instructional exemplars, resulting in vague or inconsistent incorporation of indigenous perspectives across subjects. Esteban and Valiente (2021) argue

that these curricular limitations position teachers in a constant negotiation between mandated competencies and culturally grounded teaching, emphasizing the systemic barriers that restrict the meaningful and sustained inclusion of Indigenous philosophies in multicultural learning spaces.

Curriculum Rigidity and Lack of Space for Indigenous Content. Teachers described the curriculum as rigid and unsupportive of indigenous content. Participant 2 noted, *"The curriculum does not always provide clear space or guidance,"* while Participant 6 added, *"The official curriculum does not leave much room for indigenous perspectives,"* highlighting limitations for integrating local knowledge. These experiences reflect national findings that the Philippine curriculum remains standardized and Western-oriented, often marginalizing indigenous perspectives (Hernandez et al., 2025; Sleeter & Grant, 2019). Curriculum rigidity also forces teachers to balance mandated competencies with culturally grounded instruction. Participant 3 stated, *"There is always a balance…I have curriculum to follow,"* illustrating how required content often overshadows indigenous inclusion. Research suggests that without explicit curricular allocation—such as competencies, modules, or assessment guides—teachers tend to rely on textbooks, leaving little room for indigenous pedagogies (Okeke & Tan, 2021; Cheng, Lacaste, & Chuang, 2021). Teachers' narratives demonstrate that rigidity is both structural and practical, shaping what can realistically be implemented in classrooms.

Difficulty Balancing Competencies with Cultural Reinforcement. Many teachers identified challenges in balancing mandated competencies with the inclusion of indigenous knowledge, citing time and content constraints as barriers. Participant 4 noted, *"Balancing inclusion with curriculum requirements is a challenge,"* reflecting tensions between meeting assessment objectives and enriching cultural significance. These pressures affect teachers' ability to contextualize lessons, particularly for indigenous students (McKinley & Smith, 2019; Peltekova, 2024). Globally, similar patterns show that strict curricula often overshadow efforts to incorporate relational and culturally responsive pedagogies. Teachers also reported that grading, competency checks, and teaching pace limit the integration of indigenous content. Participant 7 stated, *"Limited curriculum guidance when integrating indigenous philosophies"* complicates the design of interactive, culturally grounded activities. Without structured support, teachers must independently adapt lessons, which requires additional preparation, community engagement, and curricular adjustments (Okoro & Lim, 2022; Tanaka & Morales, 2022). Overall, these experiences reveal that the inclusion of indigenous philosophies often depends on teachers' initiative in contexts with minimal institutional support.

Minimal Curriculum Guidance on Indigenous Perspectives. Teachers reported minimal guidance in curriculum documents on how to integrate indigenous knowledge. Participants 2 and 7 noted receiving ambiguous instructions, making it difficult to determine where indigenous philosophies fit within learning competencies. This aligns with Rahimi and Kaur (2020), who observed that indigenous knowledge is often described in broad terms but lacks operational clarity. Globally, teachers face similar challenges due to vague policies, limited exemplars, and insufficient support, resulting in uneven implementation (Tanaka & Morales, 2022). The lack of clear guidance also affects teacher confidence. Participant 6 stated, *"The official curriculum does not leave much room for indigenous perspectives,"* highlighting hesitation in delivering culturally responsive lessons. Research confirms that without structured frameworks, teachers may omit indigenous content (Esteban & Valiente, 2021; Yunting, 2025). Positive reinforcement through models, local partnerships, and training is essential to support consistent integration of indigenous knowledge (Rahman & Sultana, 2021).

Lack of Resources and Materials
The unavailability or scarcity of learning resources often hinders the reinforcement of indigenous knowledge systems (IKS) in learning spaces. According to Bonilla (2019), teachers struggle to give culturally significant and locally contextualized lessons when textbooks, multimedia, and other teaching materials fail to mirror indigenous perspectives. Yellowhead (2023) argues that inadequate learning resources undermine students' engagement and the authenticity of indigenous reinforcement, resulting in less immersive learning experiences and limiting the contributions of culturally sustaining pedagogy. Nevertheless, UMT (2025) emphasizes that, without sufficient teaching supports, teachers must rely on personal creativity or improvisation to meet learning competencies, thereby increasing teacher workload and, consequently, the inconsistent quality of teaching.

Inadequate Learning Materials. Teachers frequently reported a lack of instructional materials as a significant obstacle. Participant 7 noted, *"Lack of reliable learning materials,"* underscoring the difficulty of accessing timely and traditionally significant resources. Participant 4 also shared, *"Limited resources and lack of representation in the*

curriculum," emphasizing the dual barrier of quantity and inclusivity in available materials. Local research confirms that Philippine public-school initiatives often lack teaching resources that incorporate indigenous knowledge systems across educational areas (Yunting, 2025). In a similar vein, international evidence indicates that the absence of structured, context-specific supports reduces teachers' ability to effectively establish place-based learning and land-based pedagogies (Ogegbo, 2024). This implies that improving access to culturally relevant resources is essential for effective Indigenous-centered education.

Lack of Culturally Authentic Resources. These resources have played a critical role in deterring tokenism and misrepresentation of indigenous knowledge. Participant 6 explained, "*I have to create or adapt materials myself,*" reflecting the barriers to producing content that effectively represents indigenous traditions. According to Riley (2024), incorporating inauthentic materials may reinforce stereotypes rather than promote cultural understanding. However, local research on teacher-created materials, while innovative, requires institutional support to ensure reliability and pedagogical soundness (Bonilla, 2019; DepEd, 2015). In the global context, many scholars have argued that collaboration with indigenous knowledge holders, such as elders and community leaders, is a means of enhancing learning resources that are both culturally essential and educationally effective (Riley, 2024). This implies that institutional support and community collaboration are crucial for producing quality Indigenous-centered educational materials.

Barriers in Remote or Low-Income Communities. The issue of learning resources is further compounded in remote communities, where accessibility and funding constraints are pronounced. According to Participant 5, "*I struggled mostly with the resources since I teach in a remote area,*" highlighting the inequities in access to learning resources between urban and rural schools. In the Philippine context, based on studies by Yunting (2025) and UMT (2025), rural schools have limited access to textbooks, digital tools, and other teaching aids essential for reinforcing indigenous knowledge. On the other hand, Yellowhead Institute (2023) exemplifies that geographic isolation substantially affects program implementation and student involvement in land-based and experiential learning experiences, which are central to indigenous pedagogy. That said, these barriers require both policy-driven support and targeted resource allocation to ensure equitable educational opportunities across all communities, particularly in remote, marginalized areas.

Teacher Preparedness and Limited Training
Teachers' limited preparation for incorporating indigenous philosophies mirrors a wider national barrier where more Filipino teachers feel undertrained for culturally grounded instruction. Recent studies note that teachers lack structured professional development tailored to contextualized learning, which addresses the challenges posed by indigenous worldviews in formal education (Dizon, 2022). In a similar vein, Balagtas (2023) found that even experienced teachers retain fragmented knowledge or outdated references due to inadequate institutional support for cultural pedagogy. On the other hand, international research by Lalli (2024) argues that robust teacher preparation initiatives dramatically enhance culturally sustaining practices, emphasizing gaps between international best practices and local realities. Thus, without capacity-building programs, teachers may continue to rely on self-directed learning, thereby resulting in an uneven quality of indigenous reinforcement.

Pivotal Role of Professional Development. Teachers emphasized the critical role of professional development in teaching indigenous knowledge. Participant 3 stated, "*Teaching indigenous philosophies needs more time and training,*" underscoring the need for ongoing capacity building to effectively embed cultural knowledge (Castillo, 2021; Parba, 2022). Posternak et al. (2023) added that training alone is insufficient without mentorship and long-term support systems, highlighting the need for sustained institutional backing. Participant 4 also noted the "*need for professional development to effectively integrate indigenous philosophies,*" indicating a systemic gap in teacher preparation. Studies confirm that localized workshops improve teacher confidence and effectiveness in teaching indigenous content (Navarrete, 2020; Cordova, 2022). However, some schools experience low participation despite the availability of sessions, suggesting regional variability and the importance of standardized, accessible professional development programs (Mendoza, 2024). This implies that sustained, well-supported professional development is essential for effective Indigenous-centered teaching.

Lack of Teacher Training and Expertise. Teachers often feel unprepared to teach indigenous knowledge. Participant 3 noted, "*Teachers are not knowers of everything; training is needed,*" reflecting gaps in content knowledge due to limited exposure (Ortega, 2021; Torres, 2022). In contrast, countries with strong cultural competency frameworks report higher teacher preparedness, underscoring the importance of systematic training, which is

absent mainly locally (Yang, 2023). Strengthening teachers' foundational knowledge helps prevent misinformation and promotes accurate, respectful instruction. Participant 6 shared, *"I search and read information to gain more knowledge,"* illustrating reliance on independent learning to compensate for inadequate formal training. While self-study can be helpful, it risks inconsistent interpretations without expert guidance (Baroga, 2021; Delos Reyes, 2023). Access to curated digital resources can enhance self-paced learning, but such supports remain limited in the Philippines (Rahman, 2024), underscoring the need for structured, high-quality materials.

Depended on Self-Study and External Guidance. Teachers' reliance on self-study is evident. Participant 3 stated, "I search and read information to gain more knowledge," indicating that teachers individually address training gaps. Llenares (2020) noted that Filipino teachers often turn to community elders or online archives to supplement limited institutional support. While self-directed learning can challenge the verification of traditional knowledge (Trinidad, 2021), collaboration with cultural knowledge holders can enhance accuracy and depth (Schreiber-Bersch, 2022). Teachers also depend on external guidance. Participant 4 described seeking external support to integrate Indigenous philosophies, reflecting practices in which teachers consult tribal leaders for clarification (Aguanta, 2019). Reliance on external sources stems from limited formal instructional resources (Rodriguez, 2023). Collaborative teacher networks, however, can reduce this dependency by creating shared repositories of verified cultural knowledge, strengthening teacher capacity and consistency in teaching indigenous content (Peters, 2025). This implies that building collaborative networks and partnerships is key to sustaining accurate and effective Indigenous-centered teaching.

Time Constraints and Instructional Workload
Teachers' experiences attest that limited instructional time and heavy workloads impede the meaningful integration of Indigenous philosophies into classroom practice. Studies have shown that Filipino teachers already face a compression of competencies due to the breadth of the K–12 curriculum, making it challenging to provide culturally grounded content (Crisostomo, 2022). Similarly, Tarrayo and Ariaso (2021) found that the pressures of instructional pacing compel teachers to prioritize core competencies over enrichment topics such as indigenous knowledge. In an international context, Lee (2024) reported that culturally responsive teaching may be practiced if educators are not burdened by administrative tasks, a condition mirrored locally with our teachers. This implies that without structural adjustments in time allocation and workload, the integration of indigenous philosophies would remain superficial or inconsistent.

Lack of Instructional Time. Teachers frequently cited limited instructional time as a barrier. Participant 3 noted, *"Teaching them those philosophies needs more time,"* while Participant 6 added, *"Time is always a constraint,"* highlighting the challenge of covering cultural content alongside required competencies. Studies confirm that rigid schedules and dense curricula often force teachers to rush discussions of indigenous knowledge (Cruz, 2020; Rabal, 2021; Yazon, 2020; Liwanag, 2022). However, strategic lesson planning and flexible scheduling can help effectively integrate indigenous content, even under time constraints (Posternak et al., 2023; Dimalanta, 2024). Adapting schedules to embed culture across disciplines, rather than treating it as an add-on, allows teachers to provide more profound, more reflective cultural learning experiences.

Difficulty Addressing Diverse Learning Paces. Teachers noted that students have varying learning paces. Participant 3 stated, *"Students have different learning styles; others cannot catch up right away,"* reflecting challenges in culturally contextualized lessons (Remo, 2021; Manuel, 2022). Integrating indigenous philosophies can increase cognitive load, especially when learners encounter unfamiliar cultural symbols or concepts (Diaz, 2020; Villareal, 2023). However, differentiated instruction and collaborative learning can transform these differences into strengths. Zamora (2024) argued that unique cultural perspectives enrich classroom discourse, while Hale (2025) emphasized that peer-assisted strategies help balance learning speeds. Implementing group-based and individualized approaches enables teachers to maintain cultural depth while effectively supporting diverse learners.

Added Workload in Preparing Culturally Grounded Lessons. Teachers reported that preparing culturally grounded lessons increases their workload. Participant 3 noted that cultural teaching "needs more time," indicating that additional effort is required beyond regular planning. Research supports this, showing teachers spend extra time researching accurate cultural content and creating their own culturally relevant materials due to limited resources (Del Mundo, 2021; Fabello, 2022). Institutional support, such as ready-to-use lesson exemplars or centralized repositories, could reduce this burden (Bernal, 2023). Participant 6 also highlighted *"time"* as a

significant constraint, as lesson preparation competes with administrative and instructional duties (Jalalon, 2020). Developing culturally appropriate activities often requires validation from community elders (Urbano, 2023), though co-teaching with cultural experts can distribute workload and enhance lesson credibility (Yulaga, 2024). Collaborative models thus offer a practical solution to alleviate teachers' workload while ensuring the quality of cultural instruction.

Language and Communication Barriers
One of the significant difficulties teachers reported was the language and communication barriers to articulating Indigenous philosophies and cultural knowledge in classrooms. This concern resonates with studies conducted in multilingual and indigenous heritage contexts, as misunderstandings or misinterpretations can occur alongside losses of culturally situated meanings, reduced understanding among students who may not be familiar with indigenous languages, or diminished culturally responsive pedagogy more generally (Mhlauli & Fikelepi-Twani, 2024). When cultural concepts are embedded in the native languages, their translation into the national or dominant language may result in loss of nuance, misinterpretation, or superficiality of insight. If linguistic support is inadequate, the educational benefits of IKS integration will be compromised.

Difficulty Translating Cultural Concepts. Teachers noted that the meaning of certain indigenous philosophical understandings is lost when translated into the dominant language of instruction. Participant 1 highlighted, "*The only barrier for me is the language… cultural philosophies are best shared if you know their language.*" This assertion reflects McCarty and Lee's (2021) argument that many Indigenous terms are embedded with worldviews, relationality, and ecological knowledge that resist direct translation and hence are impoverished semantically when represented in non-native languages. Similarly, Hermes et al. (2022) observed that the translation of cultural concepts into the school context tends to flatten nuances of spirit, land relations, and community roles, resulting in a loss of both cultural and educational impact. Conversely, Druker-Ibañez and Caceres-Jensen (2022) show how bilingual education and mother-tongue instruction can help preserve such meanings, thereby fostering a more profound sense of students' cultural identity and understanding. This provides greater emphasis on mother-tongue instruction, and bilingual resources may enhance the authenticity of cultural knowledge and contribute to identity affirmation.

Risk of Misinterpretation. Language barriers and translation limitations increase the risk of miscommunication in teaching contexts. Participant 1 stated, "*misunderstanding might occur when it is employed differently.*" That, again, constitutes a finding from studies that when teachers interpret an indigenous narrative or philosophy without native fluency and an appropriate cultural perspective, misrepresentation and simplification are likely to occur (Druker-Ibañez & Caceres-Jensen, 2022; Hermes et al., 2022; McCarty & Lee, 2021). There are those cultural metaphors, ecological relationships, or spiritual beliefs that do not have direct translations into the dominant language. Literal translation may then be misleading. Muñoz (2023), however, argues that thorough collaboration with the community, as well as the use of glossaries or parallel-language resources, may reduce misinterpretation. Thus, without thorough translation and active community consultation, the integration of indigenous knowledge risks distorting rather than preserving cultural meanings.

Dependence on Native Speakers for Accuracy. Teachers consulted with Indigenous language speakers, Elders, or Indigenous Peoples–literate instructors to validate teaching content. Participating teachers themselves report, "*I consult Indigenous Peoples (IP) teachers or Elders for better understanding.*" This is further reinforced by studies in education that indicate the use of community-based participatory techniques involving Elders or native speakers is pivotal to securing the cultural and linguistic integrity of Indigenous education (Smith, 2020; Battiste & Henderson, 2021; Ruiz-Flores, 2022). Moreover, language revitalization experts argue that these relationships enhance content fidelity, strengthen intergenerational connections, and contribute to cultural sustainability (McCarty & Lee, 2021; Hermes et al., 2022). Sustainability in language programs becomes a concern when the number of fluent speakers is limited. This may be due to resource constraints or barriers to regularly engaging Elders in active service positions (Druker-Ibañez & Caceres-Jensen, 2022; Muñoz, 2023). Because of this, educational institutions are urged to establish formal partnerships with custodians of Indigenous knowledge and to support the training of additional native-speaking teachers to reduce their dependence on a narrow network of individuals.

Limited Institutional and Peer Support
Teachers reported that minimal support from colleagues and school leadership impedes their ability to embed

Indigenous philosophies in their teaching practices. This study confirms that school systems often favor standardized requirements over culturally situated approaches, thereby limiting teachers' freedom to innovate (Alibudbud, 2023). However, Flores (2020) argues that collaborative teacher cultures may enhance culturally responsive pedagogy when institutional structures support it, in contrast to the level of resistance that teachers feel. Interpretation of teachers' responses indicates that they may feel constrained structurally rather than resistant in essence, signaling a school culture that does not fully appreciate the value of Indigenous knowledge. Thus, schools must be mindful of building supportive infrastructure that helps teachers contextualize learning within an Indigenous framework.

Colleagues Prefer Sticking to the Curriculum Guide. Teachers reported that they "opted to follow the Curriculum Guide (CG) instead of integrating indigenous concepts," indicating a highly rigid instructional culture. This agrees with Mhlauli and Fikelepi-Twani (2024), who stated that teachers would often fail to obtain contextualized instruction when the curriculum does not explicitly mandate it. Similarly, Mangali and Dumaop (2023) noted that teachers fear misalignment with learning competencies, thereby reinforcing their peers' preference for rigid compliance. However, Balinas (2021) argues that teachers could creatively interpret the CG to facilitate cultural integration; this seems to be an opportunity lost in the case of participants' peers, who favor rigidity. From the participants' statements, it appears that greater reliance was placed on the prescribed documents than on professional pedagogical judgment. Still, there is a need for clearer CG to alleviate teachers' fear of deviating from the CG.

Institutional Resistance or Lack of Priority for Indigenous Content. Teachers highlighted "*resistance or lack of support from administrators,*" suggesting weak institutional commitment. This addresses the observation that, according to Dargo (2020), administrative concerns often prioritize performance measures over culture-based teaching methods. Similarly, Ortega (2023) related that school leaders seldom, if ever, allocate resources for indigenous education, despite state policy mandates. These contrast with the findings of Esmail and Kater-Wettlaufer (2022), who found that effective leadership significantly improved teachers' ability to implement culturally responsive pedagogies and thus ran counter to participants' experiences of institutional neglect. The teachers' comments reveal that school leadership is central to facilitating or hindering Indigenous integration. This generally implies that the greater the awareness and support from the administration, the more likely Indigenous-focused teaching becomes to be institutionalized.

Low Support in Rural or Constrained School Contexts. Participant 5 and Participant 6 described how "*social status and lack of resources affect learning goals,*" and how the scarcity of resources determines these goals. Misconceptions arise from limited exposure to indigenous philosophies. This account concurs with Serrano's findings (2021), which noted that rural schools often lack cultural resources and thus access to meaningful integration. Additionally, del Rosario (2022) demonstrated that resource-poor settings increase teachers' workloads — similar to the cases described by the participants. Conversely, Tarrayo and Duque (2019) found that community partnerships in rural areas can mitigate resource deficiencies, despite participants' perceptions of inadequate support. From their underlying messages, it is evident that inequities within school settings shape how teachers access materials on Indigenous knowledge and culture for integration. Therefore, strengthening community linkages and optimizing the use of scarce resources are essential to minimize disparities in the integration of indigenous perspectives.

Conclusion

The study successfully explored a case of teachers' incorporation of indigenous philosophical perspectives in multicultural classrooms, underscoring the substantial effect of tailoring formal education to indigenous perspectives. It was revealed that, alongside concerns about aligning their lessons with indigenous worldviews, the limited guidance in the curriculum contributed to time constraints, a lack of training, and insufficient institutional support. These findings were provocative in nature for teachers due to massive concerns in the curriculum, where they hoped to amplify learning resources through culturally responsive pedagogy to meet learning competencies among students; thus, adjusting their instructional activities to align with the curriculum, which, insofar as, restricted them to use indigenous knowledge systems, most particularly since their students are indigenous. They have been teaching in remote areas.

This implied that collective efforts and collaborative engagement among teachers, curriculum designers, the community, and other stakeholders are necessary to identify opportunities to use indigenous knowledge

systems taught by elders, tribal leaders, and traditional datus. They can implement minimal curricular reforms to provide inclusive education for students living in remote, marginalized areas, and, even in urban areas, they can still appreciate their own cultures and recognize universal values, such as respect, empathy, and identity. In this way, the Philippines can build a more resilient, inclusive, and supportive work environment in which all are seen and appreciated. The study suggests that future researchers should promote indigenous peoples through research and help others recognize their presence in society.

Contributions of Authors

Funding

Conflict of Interests

Acknowledgment

References

Alba, R. (2024). Land-based learning and indigenous perspectives in educational technology. Emerging Perspectives: Interdisciplinary Graduate Research in Education and Psychology, 7(1). https://tinyurl.com/4mz2jh5c

Antonio, M., Keaulana, S., Keliʻiholokai, L., Ho-Lastimosa, H.I., & Chung-Do, J.J. (2023). Indigenous research methodologies with Kānaka ʻŌiwi to address health inequities: Two case studies. Hawaiʻi Journal of Health & Social Welfare, 82(10 Suppl 1), 5–9. https://pmc.ncbi.nlm.nih.gov/articles/PMC10612425/

Antonova, A., Tsvetkova, N., & Peltekova, E. (2024). Teaching strategies for multicultural classroom. Multicultural Classrooms: Inclusive Learning and Teaching in Higher Education, 161. https://tinyurl.com/yc458vj2

Billen, R., & Billen, M. (2022). A bioecological view of culturally sustaining pedagogy. Educational Renaissance, 11(1). https://journals.calstate.edu/er/article/view/2850

Bongco, A. (2024). The lived experiences of Indigenous college students in a state university in the Philippines. United International Journal for Research & Technology (UIJRT), 5(10), 41–57. https://tinyurl.com/3u3chn36

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? Qualitative Research in Psychology, 18(3), 328–352. https://doi.org/10.1080/14780887.2020.1769238

Brondízio, E., Aumeeruddy-Thomas, Y., Bates, P., Carino, J., Fernández-Llamazares, Á., Ferrari, M.F., Galvin, K., Reyes-García, V., McElwee, P., Molnár, Z., Samakov, A., & Shrestha, U.B. (2021). Locally based, regionally manifested, and globally relevant: Indigenous and local knowledge, values, and practices for nature. Annual Review of Environment and Resources, 46(1), 481–509. https://doi.org/10.1146/annurev-environ-012220-012127

Camiring-Picpican, H., Flores, K., Caban, R., Mohadali, S., Galdonez, D., & Alih, C. (2023). Pedagogical innovations based on Philippine cultural practices: A framework for culturally responsive teaching in higher education. International Journal on Culture, History, and Religion, 7(SI2), 168. https://doi.org/10.63931/ijchr.v7iSI2.168

Caingcoy, M. (2023). Culturally responsive pedagogy: A systematic overview. Diversitas Journal, 8(4), 3203–3212. https://doi.org/10.48017/dj.v8i4.2780

Cheng, M.-M., Lacaste, A., & Chuang, H.-H. (2021). Culturally responsive teaching in technology-supported learning environments in marine education for sustainable development. Sustainability, 13(24), 13922. https://doi.org/10.3390/su132413922

Creswell, J.W., & Poth, C.N. (2018). Qualitative inquiry and research design choosing among five approaches (4th ed.). SAGE Publications, Inc., Thousand Oaks.

da Silva, C., Pereira, F., & Amorim, J.P. (2023). The integration of Indigenous knowledge in school: A systematic review. Compare: A Journal of Comparative and International Education, 55(2), 1–22. https://doi.org/10.1080/03057925.2023.2184200

Dela Cruz, M.T. (2020). Culturally responsive pedagogy in Philippine multicultural classrooms. Philippine Journal of Education, 99(2), 45–60. https://ejournals.ph/article.php?id=15234

DepEd. (2015). Indigenous peoples education program guide. Department of Education, Philippines. https://www.deped.gov.ph/

Department of Education. (2011). DepEd Order No. 62, s. 2011: Adopting the National Indigenous Peoples (IP) Education Policy Framework. https://tinyurl.com/p3c6thaw

Druker-Ibáñez, S., & Cáceres-Jensen, L. (2022). Integration of Indigenous and local knowledge into sustainability education: A systematic literature review. Environmental Education Research. Advance Online / Publisher Page. https://tinyurl.com/2knnveu3

Eden, C.A., Chisom, O.N., & Adeniyi, I.S. (2024). Cultural competence in education: Strategies for fostering inclusivity and diversity awareness. International Journal of Applied Research in Social Sciences, 6(3), 383–392. https://doi.org/10.51594/ijarss.v6i3.895

El Yazidi, R., & Rijal, K. (2024). Science learning in the context of 'indigenous knowledge' for sustainable development. International Journal of Ethnoscience and Technology in Education, 1(1), 28-41.

Flores, K., Gadaza, A., Galdonez, D., Pihnuton, J., Soriano, R., & Killip, A., Jr. (2025). Decolonizing pedagogy: Integrating Indigenous knowledge and Philippine historical narratives in higher education curricula. International Journal on Culture, History, and Religion, 7(1), 333–356. https://doi.org/10.63931/ijchr.v7i1.130

Francisquete, D.E. (2025). Manobo weavers from Davao Occidental bring myth to life. SunStar. https://tinyurl.com/y25692tz

Hernández, M., Kornienko, O., Figueroa, J., Coker, M., Paredes, K., Toth, C., & Ha, T. (2025). Identifying culturally relevant school support profiles and links to academic functioning in adolescents. Journal of Youth and Adolescence, 54(3), 785–806. https://doi.org/10.1007/s10964-024-02098-0

Ialuna, F., Civitillo, S., & Jugert, P. (2024). Culturally responsive teaching, teacher-student relationship and school belongingness: A multi-informant study in ethnically diverse classrooms. Learning Culture and Social Interaction, 47(3). https://doi.org/10.1016/j.lcsi.2024.100839

Jabeen, R. (2019). Multicultural diverse classroom addressing the instructional challenges and reflections from a teacher's perspective. Arab World English Journal (AWEJ) Special Issue: The Dynamics of EFL in Saudi Arabia. https://dx.doi.org/10.24093/awej/efl1.10

Javorčíková, J., Badinská, M., Ližbetinová, L., & Brett, D. (2021). The need for integration of reading, critical thinking and academic reading skills: A quantitative analysis of Slovak undergraduates' reading performance. Journal of Language and Cultural Education, 9(1), 12–29. https://doi.org/10.2478/jolace-2021-0002

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. American Educational Research Journal, 32(3), 465–491. https://doi.org/10.3102/00028312032003465

Lim, J. (2024). IPOPHL pushes to bring IP in basic education curriculum. Intellectual Property Office of the Philippines. GOVPH. https://tinyurl.com/msn3ncxy

Macapugay, K., & Nakamura, B. (2024). The student empowerment through narrative, storytelling, engagement, and identity framework for student and community empowerment: A culturally affirming pedagogy. Genealogy, 8(3), 94. https://doi.org/10.3390/genealogy8030094

Maher, K., Rigney, L.I., King, M., Garrett, R., Windle, J., Memon, N., & Hattam, R. (2024). Curriculum, democracy and pedagogies for justice: A collective futures dialogue. Curriculum Perspectives, 44(2), 105–119. https://doi.org/10.1007/s41297-024-00230-5

McDonald, M. (2023). Indigenous land-based education in theory and practice. A Yellowhead Institute Special Report. https://tinyurl.com/pc9c2uyz

McKinley, E.A., & Smith, L.T. (2019). Towards self-determination in indigenous education research: An introduction. In E. A. McKinley & L. T. Smith (Eds.), Handbook of Indigenous Education (pp. 1–15). Springer. https://doi.org/10.1007/978-981-10-1839-8_77-2

Mhlauli, N.C., & Fikelepi-Twani, Z. (2024). Teachers' perceptions on incorporating indigenous knowledge into creative arts teaching and learning methods in selected South African schools. International Journal of Learning, Teaching and Educational Research, 23(5). https://ijlter.org/index.php/ijlter/article/view/9884

Murrup-Stewart, C., & Truong, M. (2024). Understanding culture and social and emotional wellbeing among young urban Aboriginal people. Australian Institute of Family Studies. https://tinyurl.com/8ewxpb9y

Nganga, L., & Kambutu, J. (2024). Culturally responsive professional development programs for teacher educators using community-based collaborative learning: Lessons learned from a Native American community. Education Sciences, 14(7), 787. https://doi.org/10.3390/educsci14070787

Ogodo, J. (2024). Culturally responsive pedagogical knowledge: An integrative teacher knowledge base for diversified STEM classrooms. Education Sciences, 14(2), 124. https://doi.org/10.3390/educsci14020124

Pasternak, D., Harris, S., Lewis, C., Wolk, M., Wu, X., & Evans, L. (2023). Engaging culturally responsive practice: Implications for continued learning and teacher empowerment. Teaching

and Teacher Education, 122, 103976. https://tinyurl.com/mrcrehps

Pawilen, G. (2021). Integrating indigenous knowledge in the Philippine elementary science curriculum. International Journal of Curriculum and Instruction, 13(2), 1148–1160. https://eric.ed.gov/?id=EJ1292222

Prehn, J., Guerzoni, M., & Graham-Blair, J. (2025). Nurturing cultural identity: Creating an inclusive school environment for Indigenous youths. The Australian Educational Researcher, 52(2), 1685-1705. https://doi.org/10.1007/s13384-024-00781-6

Riley, T., Meston, T., Cutler, C., Low-Choy, S., McCormack, B., Kim, E.-J.A., Nakar, S., & Vasco, D. (2024). Weaving stories of strength: Ethically integrating Indigenous content in teacher education and professional development programmes. Teaching and Teacher Education, 142, 104513. https://doi.org/10.1016/j.tate.2024.104513

Rosales, M., & Cruz, J. (2023). Decolonizing curriculum: A study of Indigenous pedagogy in Mindanao, Philippines. Global Dialogues in Humanities and Pedagogy, 1(1), 21–31. https://journal.grasglobal.org/index.php/gdhp/article/view/3

Tygret, J., Mendez, S., Hubbard, I., & Sinclair, R. (2024). Secondary teachers' perceptions of students' receptivity to social and emotional learning. Educational Research: Theory & Practice, 35(4), 60–70. https://files.eric.ed.gov/fulltext/EJ1449987.pdf

UMT American Indian Governance & Policy Institute (AIGPI). (2025). Land-based cultural practices show promise for youth wellbeing: Policy report. University of Montana.

UNESCO. (2019). Indigenous peoples: Education and inclusion. United Nations Educational, Scientific and Cultural Organization.

United Nations. (2007). United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). https://tinyurl.com/4k9kzy3u

Vasquez, S. (2022). Moving beyond content knowledge: Examining the impacts of a culturally responsive microbiology curriculum. Frontiers in Education, 7, Article 956115. https://doi.org/10.3389/feduc.2022.956115

Waddington, J., Siqués, C., Vilà, M.C., & Moreno, M.N. (2020). A funds of knowledge approach to promoting school engagement. Psicologia em Pesquisa, 14(1), 132–148. https://doi.org/10.34019/1982-1247.2020.v14.27698

Yatim, H., Jayadi, K., Jamilah, J., Abduh, A., & Prusdianto, P. (2025). Integrating cultural heritage into education: The supportive role of schools in traditional festivals in West Sulawesi. Discover Education, 4(1), 379. https://doi.org/10.1007/s44217-025-00847-2

Yunting, J.D. (2025). Integrating Indigenous knowledge systems into the basic education curriculum challenges and opportunities. (Doctoral dissertation), La Salle University.

Zeng, Y., Isleem, H., Tejani, G., Jahami, A., & Alnowibet, K. (2025). Examining the impact of culturally responsive teaching and identity affirmation on student outcomes: A mixed-methods study in diverse educational settings. International Journal of Educational Development, 117, 103376. https://doi.org/10.1016/j.ijedudev.2025.103376