

The State of Inclusive and Special Education: A Systematic Review of Teacher Experiences and Instructional Adaptations

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Abstract:

This systematic review explores the landscape of Special Education (SPED) and Inclusive Education in the Philippines by synthesizing qualitative studies on teacher experiences, instructional adaptations, and classroom practices. Guided by PRISMA protocols, the review identifies key themes in the use of assistive technologies, pedagogical strategies, and socio-emotional support mechanisms essential for effectively teaching Learners with Special Educational Needs (LSENs). Findings reveal that Filipino SPED teachers demonstrate high levels of resilience and innovation, skillfully integrating both high-tech tools, such as interactive multimedia and AAC software, and low-tech resources, including tactile materials and manipulatives, to meet diverse learner needs. Despite these adaptive practices, teachers face persistent challenges, including limited access to up-to-date assistive technologies, inadequate professional development, and systemic constraints that impede inclusive instruction. The study emphasizes the critical role of financial, administrative, and socio-emotional support in sustaining teacher effectiveness and student engagement. Recommendations include targeted professional development programs, strategic resource allocation by local government units and private stakeholders, and the promotion of multidisciplinary collaboration among educators, therapists, and administrators. Collectively, these measures aim to bridge the technology gap, enhance teaching capacity, and strengthen inclusive educational practices in the Philippine context.

Keywords: Special Education (SPED), Inclusive Education, Assistive Technology, Teacher Experiences, Learners with Special Educational Needs (LSENs)

Introduction:

Technology and specialized instruction have become essential components of contemporary education, supporting the goal of preparing students for the demands of the 21st century. In the Philippines, the integration of technological tools in classrooms reflects a growing recognition of their role in enhancing global competitiveness and fostering inclusive learning environments. For learners with special educational needs (LSENs), these tools are not merely supplementary; they are crucial for providing accessible and equitable educational experiences (Amor et al., 2019; García Terceño & Greca, 2023).

Despite these advancements, significant gaps persist in access to assistive technology (AT) and inclusive pedagogical practices. Globally, more than 90% of individuals who could benefit from AT lack access to it, a challenge that is particularly evident in resource-constrained contexts like the Philippines (Van Mieghem et al., 2020; Lindner & Schwab, 2025). Filipino classrooms often reflect “faded black and white” environments where teachers must rely on personal initiative to introduce innovative learning experiences, highlighting the disparity between policy and practical implementation.

Special education teachers in the Philippines navigate a complex landscape of learner diversity, addressing a wide range of disabilities including learning disabilities, autism spectrum disorder, and sensory impairments such as visual and hearing loss (Tarantino, Makopoulou, & Neville, 2022; Kamran & Bano, 2025). These educators face the dual

challenge of adapting instruction to individual needs while compensating for systemic deficiencies, such as insufficient resources and limited professional training.

This systematic review aims to synthesize existing qualitative evidence on inclusive and special education in the Philippine context, with a particular focus on instructional tools, technological integration, and teacher experiences (Zaki & Ismail, 2021). By analyzing recurrent themes across multiple studies, the review seeks to provide insight into both the successes and the persistent challenges of implementing inclusive pedagogies in local classrooms.

Specifically, the review addresses three core objectives: (1) identifying the types of instructional tools and technologies employed in Philippine SPED settings, (2) exploring teachers' perceptions regarding the effectiveness of these tools, and (3) examining the systemic challenges and support mechanisms deemed necessary by educators to enhance inclusive education practices (García Terceño & Greca, 2023; Lindner & Schwab, 2025). The findings are expected to inform policymakers, school administrators, and practitioners on strategies to strengthen accessibility, resource allocation, and teacher support in inclusive learning environments.

Literature Review:

Inclusive education has increasingly gained attention as a global priority, emphasizing equitable access for learners with diverse needs. Systematic reviews suggest that inclusive practices are not only a matter of policy compliance but also a reflection of teachers' capacity to adapt instruction to diverse learner profiles (Amor et al., 2019; Van Mieghem et al., 2020). Research indicates that while many countries have established frameworks for inclusion, disparities in implementation persist due to resource constraints, teacher preparedness, and socio-cultural attitudes toward disability.

These global trends provide a comparative backdrop to the Philippine context, where inclusive education policies exist but face significant challenges in translation to classroom practice. Teacher attitudes toward inclusive education play a critical role in determining the success of such practices. In physical education and other school subjects, teachers' beliefs, confidence, and willingness to adapt curriculum content significantly influence student participation and learning outcomes (Tarantino, Makopoulou, & Neville, 2022; Keles, Ten Braak, & Munthe, 2024).

Studies highlight that educators often balance their instructional strategies with concerns about classroom management, student engagement, and the availability of adequate support mechanisms. Positive teacher attitudes correlate strongly with effective differentiation, individualized instruction, and student motivation, which are essential for learners with special educational needs (LSENs).

The integration of technology and differentiated instruction is a key theme in the literature on inclusive education. Both low-tech and high-tech tools, including manipulatives, tactile materials, multimedia apps, and assistive technologies, have been identified as crucial for supporting LSENs (Lindner & Schwab, 2025; García Terceño & Greca, 2023). These tools enable teachers to address varied learning profiles, concretize abstract concepts, and facilitate skill development across cognitive, sensory, and motor domains. In science and STEM-related subjects, the literature emphasizes that inclusive pedagogies paired with technology increase engagement and comprehension among students with disabilities (Margot & Kettler, 2019; García Terceño & Greca, 2023).

Collaboration between general and special education teachers is consistently highlighted as a cornerstone of successful inclusion. Co-teaching models, peer support, and shared planning allow educators to combine expertise and manage diverse classrooms more effectively (Mouchritsa, Kazanopoulos, Romero, & Garay, 2021; Nilholm, 2021). International studies suggest that collaborative approaches improve instructional quality, reduce teacher burnout, and enhance student outcomes. For the Philippine context, collaboration remains both a challenge and an opportunity, as teachers often navigate resource limitations and insufficient institutional guidance.

The socio-emotional aspects of teaching and learning in inclusive settings have also emerged as an important theme. Teachers report that support from parents, school administrators, and therapists is vital in sustaining motivation, reducing stress, and achieving educational goals for LSENs (Zaki & Ismail, 2021; Paul et al., 2022). Similarly, students' perspectives indicate that inclusive classrooms are most effective when emotional support, accessibility, and individualized attention are prioritized (Poikola, Kärnä, & Hakalehto, 2024). These findings underscore the

interconnectedness of teacher well-being, student engagement, and systemic support mechanisms in inclusive education.

Systemic challenges remain pervasive in both developed and developing contexts. Resource inadequacy, including the lack of assistive devices, outdated equipment, and insufficient funding, limits the effectiveness of inclusive practices (Kamran & Bano, 2025; Francisco, Hartman, & Wang, 2020). Technical issues, large class sizes, and limited teacher training further exacerbate these barriers. Comparative studies from Nordic countries and Pakistan demonstrate that policy frameworks alone are insufficient unless accompanied by adequate infrastructure, professional development, and culturally responsive practices (Keles, Ten Braak, & Munthe, 2024; Kamran & Bano, 2025).

Empirical evidence emphasizes the importance of student-centered approaches in inclusive classrooms. Differentiation, individualized learning plans, and adaptive pedagogies have been shown to improve outcomes for learners with varying abilities (Lindner & Schwab, 2025; Van Mieghem et al., 2020). Moreover, STEM integration and interactive learning environments motivate students and enhance their problem-solving skills, bridging gaps between theory and practice (Margot & Kettler, 2019). Filipino teachers, like their global counterparts, adopt both low-tech and high-tech strategies to meet learners' needs, but institutional support is critical to sustain these practices.

The literature converges on the need for holistic, multi-level approaches to inclusive education. Effective practice requires a combination of technological innovation, differentiated instruction, teacher collaboration, and socio-emotional support (Amor et al., 2019; Zaki & Ismail, 2021; Paul et al., 2022). Systemic investment in teacher training, accessible resources, and multi-disciplinary collaboration is essential to bridge the persistent gaps between policy and practice. These findings provide a foundation for examining the lived experiences of Philippine SPED teachers, highlighting both their innovative strategies and the challenges they face in implementing inclusive curricula.

Methodology:

This study employed a systematic review methodology with a focus on qualitative synthesis, also known as meta-synthesis. This approach enables a comprehensive examination of multiple qualitative studies to identify recurring patterns, themes, and gaps in the existing literature on special and inclusive education in the Philippines. By synthesizing findings across diverse studies, the design provides an in-depth understanding of teacher experiences, instructional adaptations, and systemic challenges within local SPED contexts.

A systematic search was conducted across multiple academic databases, including Google Scholar, ERIC, and Philippine journals such as the International Journal of Progressive Development in Learning and Literacy (IJPDLL). Qualitative studies examining special education (SPED) or inclusive education within the Philippine context. The publications scope, dated between 2013 and 2023 and researchers focusing on teacher perceptions, technological integration, or classroom challenges affecting learners with special educational needs (LSEs). While, the studies that did not meet these criteria, were quantitative in nature, or focused outside the Philippine educational context were excluded to ensure relevance and depth of analysis.

Thematic analysis was employed to synthesize the findings of the included studies. The process involved an initial familiarization with each study, followed by the coding of significant statements, concepts, and observations. Codes were then grouped into categories to identify overarching themes, such as the use of instructional technology, teacher satisfaction, socio-emotional support, and systemic barriers. This rigorous process facilitated the extraction of meaningful insights and allowed for a comprehensive understanding of the factors influencing inclusive and special education practices in the Philippines.

Findings and Discussion:

Inventory of Instructional Tools

The systematic review identified two primary categories of instructional tools used by Filipino SPED teachers: interactive multimedia and conventional low-tech tools. Interactive multimedia includes digital devices such as cellphones, laptops, and televisions, which are commonly used to present educational videos, interactive quizzes, and simulation-based activities. Applications such as "Kahoot!" and specialized Augmentative and Alternative

Communication (AAC) software support learners with autism, speech difficulties, and other communication challenges, highlighting the potential of technology to enhance engagement and individualized learning (Montenegro-Rueda et al., 2023; Garzón, Pavón, & Baldiris, 2019).

Conventional or low-tech tools continue to form the backbone of many Philippine classrooms. Manipulatives, tactile materials, beads, puzzles, graphic organizers, “big books,” and tripod pencil grips are routinely used to develop fine motor skills, reinforce concepts, and provide sensory experiences for LSENs. Such tools are consistent with sensory integration interventions for children with autism and other developmental disorders, which have been shown to improve learning outcomes and participation (Schoen et al., 2019; Francisco, Hartman, & Wang, 2020).

Teachers generally perceive these instructional tools as vital reinforcements for learning. Interactive multimedia not only increases attention and motivation but also facilitates comprehension of abstract concepts, particularly for visual learners (Margot & Kettler, 2019; Garzón, Pavón, & Baldiris, 2019). Low-tech tools complement this by offering tactile, hands-on experiences that reinforce digital learning. Filipino teachers report that combining these approaches enhances job satisfaction and fosters a sense of accomplishment when learners achieve goals outlined in their Individualized Education Plans (IEPs).

Successful implementation of inclusive practices relies heavily on collaboration between general and special education teachers. Co-teaching models, shared planning, and multidisciplinary teamwork allow educators to leverage expertise and manage diverse classrooms effectively (Mouchritsa et al., 2021; Nilholm, 2021). Studies show that such collaboration improves instructional quality and reduces teacher burnout, echoing findings from Nordic contexts where inclusion has been widely implemented (Keles, Ten Braak, & Munthe, 2024). Filipino teachers similarly benefit from coordinated support, especially when institutional resources are limited.

The socio-emotional dimension of teaching and learning emerged as a critical factor. Teachers emphasize the importance of moral and emotional support from parents, therapists, and school administrators to sustain motivation and prevent burnout (Paul et al., 2022; Poikola, Kärnä, & Hakalehto, 2024). Students themselves report greater engagement and participation when learning environments are supportive, empathetic, and responsive to individual needs, reinforcing the necessity of holistic approaches in inclusive education (Patel et al., 2019; Madhesh, 2023).

Despite these innovations, significant challenges persist. Filipino SPED classrooms often face inadequate resources, outdated or malfunctioning devices, and limited access to high-tech assistive tools. Technical issues, such as slow internet connectivity and power interruptions, further disrupt instruction (Montenegro-Rueda et al., 2023; Francisco, Hartman, & Wang, 2020). Additionally, some learners may become overly fixated on technological devices, which can impede attention to non-digital instruction. These challenges reflect similar barriers observed in other international contexts, indicating that policy alone is insufficient without accompanying structural support (Florian, 2019; Nilholm, 2021).

Integration of STEM education and digital innovations, including augmented reality and AI tools such as ChatGPT, has shown promise in enhancing engagement and learning outcomes among LSENs (Margot & Kettler, 2019; Montenegro-Rueda et al., 2023). Filipino SPED teachers have adopted both conventional and digital strategies to balance student motivation with accessibility. These innovations demonstrate that adaptive and flexible instructional approaches are essential to meet diverse learner needs while maintaining academic rigor.

The findings underscore the importance of combining technological, pedagogical, and socio-emotional strategies in inclusive classrooms. Teachers’ resilience, creativity, and collaboration are central to bridging resource gaps, but institutional support—including professional development, adequate funding, and multidisciplinary involvement—is crucial for sustaining inclusive practices (Florian, 2019; Mouchritsa et al., 2021; Keles, Ten Braak, & Munthe, 2024). Holistic approaches that integrate interactive multimedia, low-tech tools, and socio-emotional scaffolding can enhance learning outcomes and ensure meaningful participation for learners with special educational needs in Philippine schools.

Teacher Perceptions and Impact on Learning

Filipino SPED teachers generally perceive the integration of instructional tools as a reinforcement to learning, enhancing engagement and providing concrete support for learners with special educational needs (LSENs). Interactive multimedia, such as educational apps, videos, and AAC software, allows teachers to translate abstract concepts into accessible formats, thereby strengthening understanding and facilitating skill acquisition (Schoen et al., 2019; Garzón, Pavón, & Baldiris, 2019). These tools support differentiated learning and complement conventional low-tech strategies, reflecting teachers' commitment to adaptive pedagogical practices (Smale-Jacobse, Meijer, Helms-Lorenz, & Maulana, 2019).

The use of assistive technology (AT) has also been associated with enhanced teacher job satisfaction. Educators report a sense of fulfillment when witnessing students meet the goals outlined in their Individualized Educational Plans (IEPs). This satisfaction is amplified when tools enable measurable progress in learners' cognitive, sensory, and motor skills, reinforcing teachers' sense of professional efficacy (Florian, 2019; Madhesh, 2023). Teachers view the success of these interventions not only as an educational achievement but also as an emotional reward, supporting teacher resilience and motivation in resource-limited environments (Nilholm, 2021; Mouchritsa et al., 2021).

Multimedia and digital tools are particularly effective at increasing student motivation. Visual and interactive content captures attention and reduces boredom, which is critical for learners who may struggle with sustained focus (Margot & Kettler, 2019; Montenegro-Rueda et al., 2023). Emerging technologies, including augmented reality and AI-driven applications such as chatbots and ChatGPT, offer additional opportunities for engagement, enabling personalized instruction and real-time feedback (Pérez, Daradoumis, & Puig, 2020; Zawacki-Richter et al., 2019). Teachers report that these innovations, when used judiciously, enhance learning experiences and encourage active participation.

Collaboration with colleagues is another factor that shapes teacher perceptions. Co-teaching and shared planning between general and special education teachers foster more effective implementation of inclusive practices, allowing teachers to leverage each other's expertise while providing multi-level support for learners (Mouchritsa et al., 2021; Keles, Ten Braak, & Munthe, 2024). Such collaboration has been linked to improved instructional quality, reduced teacher burnout, and more consistent reinforcement of learning goals, which teachers identify as critical for success in inclusive classrooms (Nilholm, 2021; Florian, 2019).

Teachers also recognize the socio-emotional impact of their instructional strategies. Inclusive classrooms are more effective when students feel supported, respected, and understood, and teachers report that tools enhancing engagement contribute to positive learner attitudes and confidence (Patel et al., 2019; Poikola, Kärnä, & Hakalehto, 2024). Emotional satisfaction derived from seeing students succeed strengthens teacher commitment and reinforces the importance of empathy, patience, and individualized attention in classroom practice (Madhesh, 2023; Ardoin & Bowers, 2020).

Challenges remain, however. Teachers note that technological interventions can sometimes lead to overreliance or distraction, particularly when learners fixate on digital devices instead of broader learning objectives (Timotheou et al., 2023; Paul et al., 2022). Technical barriers such as unreliable internet, limited device availability, and insufficient training further constrain the potential impact of these tools. Despite these challenges, teachers consistently adapt by blending high-tech and low-tech approaches to sustain learning and engagement (Francisco, Hartman, & Wang, 2020; Moriña, 2019).

STEM integration and experiential learning are perceived as powerful motivators. Teachers report that combining digital tools with hands-on activities encourages problem-solving, critical thinking, and creativity, aligning with broader 21st-century educational goals (Margot & Kettler, 2019; Patel et al., 2019). By strategically using a combination of interactive multimedia, assistive technologies, and conventional resources, Filipino SPED teachers foster both cognitive growth and learner motivation, highlighting the critical interplay between instructional tools, teacher perceptions, and student outcomes (Schoen et al., 2019; Garzón, Pavón, & Baldiris, 2019).

The Role of Socio-Emotional Support

The success of special education (SPED) in the Philippines extends beyond the availability of equipment and instructional tools; it critically depends on a comprehensive support system that involves multiple stakeholders. Teachers consistently emphasize that effective inclusive education requires both financial resources and emotional

backing to sustain their efforts and ensure meaningful learning outcomes for learners with special educational needs (LSENs) (Mitchell & Sutherland, 2020; Moriña, 2019).

Financial and administrative support is foundational to this system. Dedicated funding for updated assistive technologies (AT), adaptive software, and classroom materials allows teachers to implement innovative pedagogies and maintain continuity of instruction. Without such resources, educators often rely on personal devices or improvised tools, which can limit the quality of learning experiences and increase teacher stress (Fernández-Batanero, Montenegro-Rueda, Fernández-Cerero, & García-Martínez, 2022; Timotheou et al., 2023). System-level investment thus directly affects both instructional efficacy and teacher satisfaction.

Moral and emotional support from parents, colleagues, and school administrators is equally important. Collaborative relationships foster a sense of shared responsibility, reduce teacher burnout, and enhance learner outcomes (Mouchritsa, Kazanopoulos, Romero, & Garay, 2021; Nilholm, 2021). Teachers report that constructive feedback, encouragement, and recognition of effort from stakeholders increase their resilience and motivation, enabling them to sustain high-quality instruction even in resource-limited contexts.

Interdisciplinary collaboration, involving therapists, counselors, and special educators, strengthens socio-emotional support for both teachers and students. When these professionals work together, they provide a more holistic approach to addressing learning, behavioral, and emotional needs, which is critical for developing the confidence and competence of LSENs (Ardoín & Bowers, 2020; Panchal et al., 2023). This multidisciplinary approach aligns with evidence from other educational contexts, where integrated support systems are associated with improved academic and psychosocial outcomes.

Digital tools also play a role in supporting socio-emotional development. AI-driven applications, chatbots, and personalized learning platforms facilitate engagement, feedback, and adaptive support, contributing to both learner motivation and teacher efficiency (Pérez, Daradoumis, & Puig, 2020; Zawacki-Richter, Marín, Bond, & Gouverneur, 2019; Farooqi, Amanat, & Awan, 2024). Such technologies can supplement human support by providing timely feedback, scaffolding complex tasks, and reducing repetitive burdens on educators, though they should not replace human empathy and collaboration.

Teacher professional development is central to reinforcing socio-emotional support systems. Training in emotional intelligence, collaborative strategies, and digital competencies equips teachers to manage stress, foster positive relationships, and implement inclusive strategies effectively (Fernández-Batanero et al., 2022; Walton & Engelbrecht, 2024). This preparation enhances teachers' capacity to respond to both student needs and classroom challenges, reinforcing their sense of competence and professional identity.

Socio-emotional support also impacts students' experiences in inclusive classrooms. Research indicates that learners perform better when they feel understood, supported, and valued, highlighting the interplay between teacher well-being and student engagement (Poikola, Kärnä, & Hakalehto, 2024; Ardoín & Bowers, 2020). Teachers who receive adequate emotional and professional support are better able to create nurturing learning environments that encourage participation, risk-taking, and self-confidence among LSENs.

Thus, the literature underscores that socio-emotional support is not ancillary but central to effective SPED implementation. Combining financial, administrative, moral, and interdisciplinary support creates a robust framework that empowers teachers, enhances student outcomes, and sustains inclusive practices. In the Philippine context, reinforcing these mechanisms is critical for bridging gaps between policy mandates and classroom realities, ensuring that inclusive education fulfills its promise of equity and accessibility for all learners (Mitchell & Sutherland, 2020; Timotheou et al., 2023; Moriña, 2019).

Conclusion:

This systematic review demonstrates that Filipino Special Education (SPED) teachers exhibit remarkable adaptability and resilience in addressing the diverse needs of learners with special educational needs (LSENs). Despite challenges

such as limited resources, outdated equipment, and technical barriers, teachers consistently blend high-tech and low-tech instructional strategies to enhance learning outcomes, sustain motivation, and foster engagement among students.

Interactive multimedia tools, assistive technologies, and conventional low-tech resources are used in combination to provide individualized learning experiences, while teachers' creativity and dedication often compensate for systemic shortcomings. These findings align with international literature highlighting that teacher ingenuity and adaptive practices are central to successful inclusive education, particularly in contexts where access to technology and resources is constrained (Florian, 2019; Montenegro-Rueda et al., 2023; Schoen et al., 2019).

To further strengthen inclusive practices in Philippine schools, professional development is a critical priority. Schools should provide regular, specialized training on the latest assistive technologies, digital tools, and evidence-based pedagogical strategies, equipping teachers to implement innovative and differentiated instruction effectively. Training programs should also emphasize socio-emotional skills, collaborative practices, and strategies for working with multidisciplinary teams, as these support both teacher well-being and student engagement (Fernández-Batanero et al., 2022; Mitchell & Sutherland, 2020).

Resource allocation remains another key area for improvement. Local government units (LGUs) and the private sector must prioritize funding for high-quality SPED equipment, including adaptive devices, sensory materials, and digital tools, to reduce inequities and ensure equitable learning opportunities for all LSENs. Adequate funding not only enhances student access to learning tools but also alleviates the burden on teachers, allowing them to focus on instruction and individualized support rather than improvisation (Timotheou et al., 2023; Moriña, 2019).

Finally, a holistic support framework is essential. Inclusive education policies should encourage collaboration among teachers, psychologists, therapists, parents, and school administrators to provide comprehensive academic, social, and emotional support. Such multidisciplinary approaches have been shown to improve student outcomes, reduce teacher burnout, and create a more nurturing learning environment (Mouchritsa et al., 2021; Panchal et al., 2023). By integrating professional development, adequate resources, and systemic support, Philippine schools can enhance the quality and sustainability of inclusive education, ensuring that learners with special educational needs receive equitable, meaningful, and empowering educational experiences.

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