

Neurodiversity in the Classroom: Inclusive Teaching Strategies for ADHD and Autistic Students

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Abstract

This paper examines inclusive teaching strategies for supporting students with Attention-Deficit/Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD) in contemporary classrooms. Traditional educational approaches may fail to adequately address the needs of neurodivergent learners, contributing to academic, behavioral, and social barriers. Through a qualitative literature review, this study synthesizes contemporary research on Universal Design for Learning (UDL), sensory-friendly classroom environments, structured executive function support, and positive behavior interventions. The findings indicate that proactive, accommodation-based approaches can improve student engagement, emotional regulation, and academic outcomes. Overall, adopting an asset-based neurodiversity framework rather than a deficit-based model is essential for developing equitable and inclusive learning environments for neurodivergent students.

Keywords:

Neurodiversity, ADHD, Autism Spectrum Disorder (ASD), Inclusive Education, Universal Design for Learning (UDL), Differentiated Instruction.

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1. INTRODUCTION

The contemporary educational paradigm has undergone a significant transformation in its understanding of human cognitive diversity, increasingly recognizing conditions such as Attention-Deficit/Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD) as forms of neurological variation rather than solely as pathological deficits (Armstrong, 2022; OECD, 2024). Historically, school environments have operated under rigid and standardized instructional models that emphasize uniform pacing, prolonged sedentary attention, and conventional communication styles (DeLuca et al., 2022). Such approaches may inadvertently marginalize neurodivergent students, creating systemic barriers that contribute to academic difficulties, anxiety, behavioral misunderstandings, and social exclusion in mainstream classrooms (Gao et al., 2023).

Addressing these barriers requires a shift from a medical and deficit-based model toward an asset-based neurodiversity framework that recognizes students' individual strengths, including hyperfocus, pattern recognition, and creative problem-solving (Dwyer, 2022; Structural Learning, 2023). Recent data indicate that approximately 15% to 20% of children and young people exhibit neurodivergent traits, highlighting the growing need for educational environments that accommodate diverse cognitive, sensory, and behavioral profiles (Department of Education, 2024). Consequently, mainstream educators are increasingly expected to develop adaptable and inclusive learning environments that support diverse learners without isolating or stigmatizing them (Sileo & Prater, 2023).

One important approach to inclusive education is the implementation of Universal Design for Learning (UDL), an evidence-based framework that seeks to reduce instructional barriers before they interfere with learning (CAST, 2024; Rao et al., 2021). UDL is guided by three principles: providing multiple means of engagement, representation, and action and expression. These principles enable educators to develop flexible curricula that accommodate different sensory processing patterns and cognitive styles (AlRawi & AlKahtani, 2021; Guo & Wang, 2025). Previous research indicates that the systematic implementation of UDL can improve academic engagement and emotional well-being, particularly among learners who experience lower levels of engagement or developmental challenges (Guo & Wang, 2025).

In addition to curriculum design, addressing sensory processing differences is an important component of an inclusive classroom environment. Students with ADHD and ASD may experience differences in their responses to environmental stimuli, while classroom factors such as lighting, background noise, and crowded seating arrangements may contribute to sensory overload and emotional distress (NextGen Teachers, 2024). Sensory-friendly adaptations, including flexible seating, designated quiet areas, and tactile self-regulation tools, can therefore provide students with greater opportunities to regulate their attention and sensory needs (Adams et al., 2025; SENcastle, 2026).

Executive function support is another important consideration because many neurodivergent students may experience difficulties related to working memory, task initiation, emotional self-regulation, and time management (Diamond & Ling, 2020). Traditional instructional approaches may place considerable demands on independent executive control, particularly when students are required to manage unstructured transitions or complex multi-step instructions (Barkley, 2023). Structured supports, such as breaking complex assignments into smaller steps, using visual timers, and establishing predictable daily routines, can help scaffold students' cognitive independence (Middletown Autism, 2024).

Behavioral support strategies have also shifted from reactive and punitive disciplinary approaches toward proactive frameworks such as Positive Behavior Interventions and Supports

(PBIS) (Sugai & Horner, 2020). Punitive responses may increase anxiety and behavioral difficulties among neurodivergent students, potentially contributing to further disengagement from the school community (McIntosh et al., 2021). In contrast, proactive behavioral interventions emphasize environmental modifications, antecedent adjustments, and explicit instruction in emotional regulation to promote psychological safety and positive classroom interactions (Kaltman, 2024).

Despite the growing evidence supporting these inclusive strategies, significant systemic barriers continue to limit their implementation in educational settings. Educators may face challenges related to large class sizes, standardized testing requirements, limited resources, and insufficient professional development focused on neurodiversity-affirming practices (Eredics, 2023; Van Der Neut et al., 2023). Without adequate and continuous teacher training, inclusive education policies may remain difficult to translate into effective classroom practices, leaving educators insufficiently prepared to address diverse neurodivergent needs (Specht et al., 2022).

Furthermore, genuine inclusion extends beyond physical accommodations and instructional adjustments and requires greater acceptance of neurodiversity throughout the school community (Armstrong, 2022). Educating neurotypical peers about neurological differences can help reduce stigma and bullying while promoting empathy and positive social relationships (Singleton et al., 2022). When neurodiversity is recognized as a natural aspect of human variation, classrooms can become more equitable environments characterized by mutual respect and participation (Structural Learning, 2023).

Collaboration among general educators, special education specialists, educational psychologists, and families is also important in developing coherent and individualized support systems (Hinnant et al., 2023). Effective communication and multidisciplinary planning can help ensure that accommodations remain responsive to students' changing developmental and educational needs (Epstein et al., 2022). Involving families as active stakeholders can further strengthen the consistency of coping strategies and strengths-based approaches across home and school environments (Blue-Banning et al., 2021).

Although previous studies have examined individual inclusive strategies, there remains a need to synthesize these approaches within a broader neurodiversity-affirming framework that connects instructional design, sensory support, executive function scaffolding, and behavioral interventions. Therefore, this paper aims to synthesize contemporary literature on inclusive teaching strategies for students with ADHD and ASD and to identify practical approaches that can support accessible, supportive, and academically enriching classroom environments.

2. METHOD

This study adopts a qualitative literature review methodology to examine contemporary pedagogical frameworks, empirical research, and evidence-based interventions related to neurodiversity in inclusive classrooms. The methodological design focuses on literature published between 2021 and 2026 and aims to identify and synthesize inclusive teaching strategies for students with Attention-Deficit/Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD) in mainstream K–12 educational settings.

A literature search was conducted across several academic databases, including ERIC (Education Resources Information Center), Google Scholar, PsycINFO, and Taylor & Francis Online. The search strategy employed Boolean operators and combinations of keywords related to neurodiversity, inclusive pedagogy, and developmental conditions. The primary search strings included ("neurodiversity" OR "neurodivergent students") AND ("inclusive teaching strategies" OR "differentiated instruction" OR "Universal Design for Learning") AND

("ADHD" OR "Autism Spectrum Disorder" OR "ASD") AND ("classroom accommodations" OR "executive function support").

The selection of literature was guided by explicit inclusion and exclusion criteria. The inclusion criteria required sources to: (1) be peer-reviewed empirical studies, systematic reviews, or authoritative educational guidelines published between January 2021 and June 2026; (2) focus on mainstream or inclusive K–12 educational settings rather than exclusively segregated special education environments; (3) examine practical teaching methodologies, sensory accommodations, curriculum design such as UDL, or behavioral interventions; and (4) be written in English. Non-peer-reviewed opinion pieces, articles lacking methodological transparency, and studies focused exclusively on medical or pharmacological interventions without educational implications were excluded.

The identified literature was screened through several stages, including title screening, abstract evaluation, and full-text eligibility assessment. Duplicate records and studies that did not meet the established inclusion criteria were excluded before the final qualitative synthesis. The remaining literature was selected based on its relevance to the research objectives and its contribution to understanding inclusive teaching practices for students with ADHD and ASD.

Data extraction and synthesis were conducted using thematic analysis based on the approach outlined by Braun and Clarke. Relevant information from the selected literature was coded and categorized to identify recurring themes, pedagogical challenges, and reported outcomes related to student engagement, emotional self-regulation, and academic achievement. The main thematic categories included Universal Design for Learning (UDL), sensory-friendly classroom adaptations, structured executive function support, and Positive Behavior Interventions and Supports (PBIS). The thematic synthesis was then used to examine how these neurodiversity-affirming approaches can be translated into practical and sustainable classroom practices.

3. RESULTS AND DISCUSSION

The synthesis of contemporary literature reveals a paradigm shift in how inclusive education addresses the needs of neurodivergent learners, moving away from remediation toward environmental and pedagogical accommodation. A primary finding across multiple studies is the profound efficacy of implementing the Universal Design for Learning (UDL) framework in mainstream classrooms (CAST, 2024; Guo & Wang, 2025). By proactively offering multiple means of engagement, representation, and action-expression, UDL significantly mitigates cognitive overload and minimizes instructional barriers. For instance, research indicates that integrating digital accessibility tools alongside traditional text empowers ADHD students to choose modalities that sustain their attention, while simultaneously providing autistic learners with predictable, multimodal pathways to process complex information without triggering anxiety (AlRawi & AlKahtani, 2021).

Expanding upon curricular design, the integration of sensory-friendly classroom management emerged as a critical determinant of academic and emotional success. Both ADHD and ASD populations frequently experience sensory processing differences, ranging from hyper-reactivity to bright lights and ambient noise to hypo-reactivity requiring tactile input (NextGen Teachers, 2024). The reviewed literature highlights that modifying physical environments such as incorporating flexible seating options (e.g., wobble stools, stability balls, and standing desks), designated quiet withdrawal corners, and quiet fidget tools yields measurable improvements in self-regulation (Adams et al., 2025). These accommodations allow students to manage somatic restlessness or sensory fatigue independently, thereby reducing behavioral disruptions and enhancing continuous time-on-task.

Furthermore, empirical data underscores the necessity of structured executive function support to address core cognitive challenges associated with working memory, task initiation, and temporal regulation. Traditional instructional pacing often assumes independent executive control, which disproportionately penalizes neurodivergent students who struggle with unstructured multi-step directions or abstract deadlines (Barkley, 2023). Interventions that explicitly scaffold executive functions such as breaking large assignments into distinct micro-tasks, utilizing visual timers, and providing graphic organizers demonstrate substantial positive impacts on task completion rates and academic self-efficacy (Middletown Autism, 2024). These structural supports act as external cognitive prosthetics, bridging the gap between student capability and academic expectation.

In tandem with cognitive and sensory strategies, behavioral support models have experienced a vital evolution away from punitive discipline toward proactive frameworks like Positive Behavior Interventions and Supports (PBIS) (Sugai & Horner, 2020). The literature consistently indicates that punitive measures (e.g., detention, isolation, or public reprimands) exacerbate anxiety-induced meltdowns and trigger oppositional cycles in ADHD and autistic students, further alienating them from the school community (McIntosh et al., 2021). Conversely, proactive strategies focusing on antecedent modifications, environmental predictability, and direct instruction in emotional literacy foster psychological safety and promote collaborative classroom dynamics (Kaltman, 2024).

Despite the robust empirical backing for these inclusive methodologies, the thematic analysis identified persistent systemic barriers hindering widespread, equitable implementation. A dominant theme across global educational studies is the critical lack of targeted professional development and pre-service teacher training focused on neurodiversity-affirming practices (Eredics, 2023; Van Der Neut et al., 2023). Many general educators report feeling underprepared to differentiate instruction for complex dual-diagnosed or high-support-needs profiles, often relying on intuition rather than evidence-based frameworks due to a scarcity of institutional guidance (Specht et al., 2022).

Compounding the lack of training are structural limitations, including excessively large class sizes, rigid curriculum pacing guides, and high-stakes standardized testing mandates. These systemic pressures often compel teachers to prioritize uniform pace over individualized accommodation, inadvertently forcing neurodivergent learners into rigid educational boxes that trigger academic frustration and emotional burnout (DeLuca et al., 2022). The literature suggests that overcoming these structural roadblocks requires a top-down administrative commitment, where school leadership actively reallocates resources to support inclusive co-teaching models and specialized staffing (Hinnant et al., 2023).

Moreover, the synthesis reveals that true inclusion extends far beyond physical accommodations and instructional design, necessitating a cultural transformation across the broader school ecosystem. Cultivating neurodiversity acceptance among neurotypical peers is vital for dismantling social stigmas, mitigating peer bullying, and fostering genuine inclusion (Singleton et al., 2022). Interventions that educate students on cognitive variability as a normal aspect of human diversity consistently report improvements in classroom empathy, peer collaboration, and social integration for both ADHD and autistic children (Structural Learning, 2023).

Collaborative partnerships among general educators, special education specialists, educational psychologists, and families emerged as another indispensable pillar for sustainable inclusion. Establishing regular, transparent communication channels ensures that student accommodation plans remain dynamic and responsive to developmental changes across different academic years (Epstein et al., 2022). Furthermore, honoring families as core co-educators bridges the gap between home and school, ensuring consistent reinforcement of

coping mechanisms and strengths-based approaches that validate the child's identity (Blue-Banning et al., 2021).

Analyzing these findings collectively demonstrates that moving from a deficit-based model to an asset-based neurodiversity framework is not merely an idealistic goal, but a practical necessity for modern education. When classrooms are intentionally designed around the principles of UDL, sensory accessibility, executive scaffolding, and positive behavioral support, academic performance improves alongside emotional well-being (Guo & Wang, 2025; OECD, 2024). Neurodivergent students display increased engagement, lower absenteeism, and a stronger sense of belonging when their unique cognitive profiles are affirmed rather than pathologized.

In conclusion, the results of this literature review confirm that inclusive teaching strategies offer a transformative blueprint for contemporary schooling. While institutional hurdles such as resource constraints and training gaps remain challenging, the empirical evidence overwhelmingly favors proactive, accommodation-based pedagogy. Future educational frameworks must systematically address these implementation gaps, empowering educators to cultivate equitable, neurodiversity-affirming environments where every student, regardless of neurological profile, is equipped to succeed.

4. CONCLUSION

In conclusion, this paper highlights that transitioning toward neurodiversity-affirming classrooms is both an ethical imperative and a practical necessity in modern education. By moving away from rigid, deficit-based models and embracing inclusive pedagogical frameworks such as Universal Design for Learning (UDL), sensory-friendly classroom management, structured executive function supports, and positive behavior interventions—educators can effectively dismantle traditional barriers that hinder ADHD and autistic students. The synthesis of contemporary literature confirms that proactive, accommodation-based strategies not only enhance academic engagement, emotional self-regulation, and task completion for neurodivergent learners, but also foster empathy, collaboration, and social equity among all peers. However, realizing the full potential of inclusive education requires overcoming significant systemic hurdles, including resource constraints, standardized testing pressures, and a critical lack of targeted professional development. Future educational policies and institutional practices must prioritize comprehensive teacher training and collaborative multi-stakeholder partnerships. By embedding these foundational supports into daily instruction, schools can cultivate genuinely accessible learning environments where every neurodivergent student is empowered to thrive.

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