



Redefining the 'Special' in Special Educational Needs: Evidence Synthesis

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Abstract:

This best-evidence synthesis examines the effectiveness of naturally delivered special education services (SES) for students with educational disabilities (SWED) across international K–12 contexts. Drawing on the methodological framework of prior evidence-based syntheses, the study analyzes 48 empirical investigations to determine whether participation in special education services is associated with improved academic performance, behavioral outcomes, and long-term educational attainment. The review differentiates findings based on methodological rigor, comparing results from regression-based observational studies and quasi-experimental designs (QEDs). Findings reveal that descriptive and less rigorous studies frequently report negative or inconclusive associations between service participation and student outcomes. In contrast, studies employing more robust quasi-experimental approaches—particularly those comparing SWED who received services with similar SWED who did not—provide more consistent evidence of positive effects. These results underscore the importance of appropriate comparison groups and rigorous research designs in evaluating special education outcomes. Overall, the synthesis supports the view that the “special” in special education reflects targeted, evidence-based interventions that contribute to educational equity when assessed through scientifically grounded methodologies. The study highlights implications for policy development, program evaluation, and future international research on inclusive and effective educational provision.

Keywords: best-evidence synthesis, special education services, students with educational disabilities

Introduction:

The global investment in special education has expanded significantly as nations seek to address the needs of learners with diverse educational disabilities and promote equitable access to quality education. Special education services are designed to remediate academic, social, and behavioral challenges that students with educational disabilities (SWED) encounter within general education curricula, while also supporting their long-term developmental outcomes.

Despite increased funding and policy attention, a persistent international concern remains regarding the achievement gap between SWED and their peers without disabilities (SWOD). This gap raises critical questions about the effectiveness of existing service delivery models and the extent to which special education fulfills its intended purpose of fostering meaningful educational progress and inclusion.

The effectiveness of special education has long been a subject of polarized debate within educational research and policy discourse. Critics contend that the label of “special education” may inadvertently reinforce stigmatization, contribute to lowered academic expectations, and foster learned helplessness among students.

In contrast, legal and policy frameworks such as the principle of Free and Appropriate Public Education (FAPE) in the United States and parallel mandates in the United Kingdom, Canada, and Australia emphasize the provision of individualized support and the right of students with disabilities to achieve appropriately ambitious educational outcomes. These contrasting perspectives highlight the need for rigorous empirical evaluation of special education services, particularly within international contexts where implementation practices and policy frameworks vary widely.

A growing body of literature underscores the importance of evidence-based practices in special and inclusive education. Research has emphasized instructional strategies that support diverse learners through systematic intervention, differentiated instruction, and targeted skill development (Mitchell & Sutherland, 2020; Davis et al.,



2004). Similarly, studies on Response to Intervention frameworks and specialized instruction in reading and mathematics demonstrate the potential of structured, data-driven approaches to improve outcomes for students with learning difficulties (Gersten & Dimino, 2006; Gersten & Chard, 1999). These findings reflect a broader movement toward scientifically grounded practices in special education, emphasizing the need for rigorous methodological standards and reliable evidence to inform policy and practice (Odom et al., 2005).

Beyond instructional approaches, the effectiveness of special education is also influenced by systemic factors such as teacher preparation, professional competence, and the use of evidence-informed decision-making frameworks. Research highlights the critical role of teacher quality and specialized training in improving outcomes for students with disabilities (Brownell et al., 2010), as well as the importance of synthesizing local and international evidence to inform educational reforms and professional development initiatives (Low et al., 2022).

Emerging methodological approaches, such as pragmatic evidence synthesis frameworks, further emphasize the need for comprehensive and context-sensitive analyses of educational interventions to guide policy and practice (Knight, 2025). Collectively, these perspectives underscore the complex interplay between instructional, institutional, and methodological factors in shaping the impact of special education services.

Given these ongoing debates and methodological challenges, this study seeks to address a critical gap in the international literature by synthesizing the best available empirical evidence on the effectiveness of naturally delivered special education services. By examining outcomes across diverse educational contexts and prioritizing rigorous research designs, this synthesis aims to clarify whether special education services provide measurable benefits to students with disabilities. In doing so, the study contributes to the broader discourse on educational equity, evidence-based practice, and the redefinition of what constitutes the “special” in special educational needs within contemporary global education systems.

Literature Review

The development of special and inclusive education has increasingly been shaped by the growing emphasis on evidence-based practice, which seeks to ensure that instructional approaches for students with educational disabilities are grounded in rigorous empirical research. Early work in special education research highlighted the importance of scientific methods in establishing effective interventions, emphasizing systematic instruction, measurable outcomes, and replicable practices (Odom et al., 2005). Similarly, Odom and Wolery (2003) proposed a unified theory of practice in early intervention and early childhood special education, underscoring the importance of linking research evidence with practical implementation.

Contemporary scholarship further reinforces this perspective, demonstrating that evidence-based teaching strategies, including explicit instruction, differentiated learning, and structured interventions, significantly enhance learning outcomes for students with special educational needs (Mitchell & Sutherland, 2020). These developments reflect a broader shift from deficit-oriented models toward data-driven and outcome-focused educational practices.

A substantial body of research has examined specific instructional strategies designed to address the academic needs of students with disabilities, particularly in literacy and numeracy. Response to Intervention (RTI) models have emerged as a prominent framework for identifying and supporting students with reading difficulties through tiered interventions and continuous progress monitoring (Gersten & Dimino, 2006). Similarly, research on mathematical learning disabilities emphasizes the importance of developing number sense and targeted arithmetic instruction to support students experiencing persistent difficulties in mathematics (Gersten & Chard, 1999). Complementing these findings, Davis et al. (2004) conducted a comprehensive scoping study of teaching strategies for students with special educational needs, highlighting the effectiveness of adaptive teaching, collaborative learning, and individualized instruction. Together, these studies demonstrate that specialized pedagogical approaches can improve academic outcomes when implemented systematically and supported by appropriate resources.

Beyond instructional practices, the effectiveness of special education is also influenced by broader systemic and institutional factors. Teacher quality and professional preparation play a central role in determining the success of



special education programs, with research emphasizing the need for specialized training, pedagogical competence, and ongoing professional development (Brownell et al., 2010).

Evidence synthesis initiatives further support the importance of contextually relevant research in informing educational reform and professional learning systems (Low et al., 2022; Kwek et al., 2022). Emerging methodological frameworks, such as Pragmatic Evidence Synthesis Matrices, advocate for integrating diverse forms of evidence to support decision-making in educational practice (Knight, 2025). These perspectives highlight the significance of aligning policy, teacher preparation, and research evidence to enhance the effectiveness of special education services.

Policy and sociocultural perspectives also shape the implementation and evaluation of special education across international contexts. Research on educational policy development demonstrates the importance of systematic reform and context-sensitive approaches in improving educational outcomes for diverse learners (Alamin et al., 2022). Indigenous and culturally responsive frameworks, such as the Va'atele framework for Pasifika education, further emphasize the need to redefine educational practices to reflect learners' cultural identities and social contexts (Si'ilata et al., 2018).

Additionally, debates surrounding equity and representation in special education highlight concerns about racial disproportionality and the potential misuse of disability classification, which may either protect students through access to services or contribute to systemic marginalization (Sullivan & Proctor, 2016). These studies underscore the importance of examining special education not only as an instructional practice but also as a socially constructed and policy-driven system.

The literature also recognizes the complex social and developmental dimensions of special education, including student well-being, behavioral outcomes, and diagnostic practices. Research indicates that students receiving special education services may experience increased vulnerability to bullying and victimization, highlighting the need for supportive school environments and inclusive practices (Rose et al., 2011).

Furthermore, evolving diagnostic frameworks for learning disabilities and attention-related disorders, such as changes in criteria for ADHD and learning disabilities, continue to shape identification processes and service delivery models (Tannock, 2013). Technological innovations have likewise contributed to the development of assistive tools and instructional supports that enhance accessibility and engagement for students with disabilities (Edyburn, 2004). These findings illustrate the multidimensional nature of special education, encompassing academic, behavioral, and psychosocial considerations.

Despite the extensive literature on instructional strategies, policy frameworks, and student outcomes, significant gaps remain in understanding the overall effectiveness of naturally delivered special education services across diverse contexts. Much of the existing research focuses on specific interventions or localized educational settings, limiting the generalizability of findings.

Moreover, methodological differences across studies, particularly in research design and comparison groups, contribute to inconsistent conclusions regarding the impact of special education services. These limitations highlight the need for systematic evidence synthesis that prioritizes rigorous research designs and examines outcomes across multiple domains. The present study responds to this need by synthesizing international evidence on the effectiveness of special education services, contributing to ongoing efforts to clarify their role in promoting educational equity and improving outcomes for students with disabilities.

Methodology:

This study employed a Best-Evidence Synthesis approach, which prioritizes the inclusion of the most methodologically rigorous empirical studies to ensure high levels of internal and external validity. This approach emphasizes the systematic identification, evaluation, and integration of research findings based on the strength of their design and analytical procedures, thereby producing reliable conclusions regarding the effectiveness of special education services.



A multi-round systematic literature search was conducted across major academic databases, including Google Scholar, PsycINFO, ERIC, and Web of Science. The search strategy utilized four sets of key terms to capture relevant studies: population-related terms (special education, individualized education program, or disability), service-related terms (service, program, or intervention), methodological terms (effect, quasi-experimental, regression, fixed effects, or propensity score matching), and outcome-related terms (reading, mathematics, achievement, behavior, social, emotional, or graduation). This structured search process ensured comprehensive coverage of studies examining the effects of special education services across multiple educational contexts and outcome domains.

To ensure the relevance and rigor of the included studies, specific inclusion criteria were established. First, studies were required to evaluate business-as-usual or naturally delivered special education services, excluding highly controlled pilot interventions or experimental programs that may not reflect typical educational practice. Second, the sample population had to consist of students from pre-kindergarten through 12th-grade settings in international, non-United States jurisdictions, allowing for a broader comparative understanding of service effectiveness across global contexts. Third, only quantitative studies employing regression-based observational designs or quasi-experimental designs were included, as these methods provide stronger causal inference compared to purely descriptive approaches. Additionally, all selected studies were required to control for at least one relevant covariate, such as socioeconomic status or prior academic achievement, to address the *prima facie* effect, which refers to the inherent pre-existing differences between students with educational disabilities and their peers prior to receiving special education services.

Following study selection, data extraction and coding procedures were conducted to systematically analyze the characteristics and outcomes of the included research. Each study was coded according to key variables, including sample size, longitudinal design, type of disability, and outcome domain. Outcome measures were organized into twelve domains representing three major categories: academic outcomes (reading, mathematics, and general achievement), behavioral outcomes (internalizing behaviors, externalizing behaviors, and social functioning), and long-term outcomes (graduation, postsecondary attainment, absenteeism, and disciplinary indicators). This comprehensive coding framework enabled the synthesis to examine the effectiveness of special education services across multiple dimensions of student development while facilitating meaningful comparisons across studies with varying designs and contexts.

Findings and Discussion:

Study Characteristics

The analysis of the included studies revealed important patterns in research design, sample characteristics, and outcome focus within the international literature on special education services. A notable feature of the dataset was the predominance of longitudinal research designs, with approximately 94% of the studies employing longitudinal methods. This high proportion reflects a strong emphasis on measuring student growth and developmental trajectories over time rather than relying solely on cross-sectional comparisons.

Longitudinal approaches are particularly valuable in special education research because they allow scholars to examine the sustained impact of interventions and services on student learning, behavior, and long-term outcomes (Odom & Wolery, 2003). Such designs also provide greater insight into the effectiveness of educational practices by capturing changes in student performance across different stages of development.

The emphasis on longitudinal research aligns with established quality indicators in special education research that highlight the importance of rigorous methodological designs capable of supporting causal inferences (Gersten et al., 2005). Longitudinal studies enable researchers to account for baseline differences and track progress over time, thereby reducing threats to internal validity. Moreover, the focus on long-term measurement reflects broader efforts within the field to evaluate the sustained effectiveness of high-leverage instructional practices and service delivery models (McLeskey et al., 2017). These findings suggest that contemporary special education research increasingly prioritizes methodological rigor and developmental perspectives when evaluating program effectiveness.

With regard to disability categories, the synthesis found that approximately 65% of the reported estimates did not differentiate outcomes by specific disability type. This trend suggests that many studies adopt broad classifications of students with educational disabilities, potentially reflecting challenges in diagnostic categorization and variability in



international identification practices. The lack of differentiation may also stem from ongoing debates surrounding diagnostic criteria for learning disabilities and attention-related disorders, which continue to evolve across policy and clinical frameworks (Tannock, 2013). Such variability can limit the precision of findings and obscure differences in how specific disability groups respond to specialized interventions.

Among studies that did specify disability categories, learning disabilities accounted for the largest proportion of estimates (22%), followed by speech and language disorders (5%). The prominence of learning disabilities in the literature reflects longstanding concerns regarding literacy and numeracy development, as well as the central role of early identification and intervention in addressing academic difficulties (Hale et al., 2010). The focus on speech and language disorders further underscores the importance of communication skills in academic and social functioning. However, the relatively limited representation of other disability categories suggests a need for more comprehensive research that examines diverse learner profiles and their unique educational needs.

In terms of outcome domains, academic achievement emerged as the most frequently examined area, with approximately 75% of studies focusing on measures such as reading, mathematics, and general academic performance. This emphasis reflects the central role of academic attainment as a primary indicator of educational effectiveness and aligns with broader research priorities focused on improving instructional practices and the instructional core of teaching and learning (Kwek et al., 2022). The focus on academic outcomes also corresponds with policy-driven accountability systems that prioritize measurable academic progress as evidence of program success.

Behavioral outcomes were examined in approximately 25% of the studies, highlighting growing recognition of the social and emotional dimensions of special education. Research has demonstrated that students receiving special education services may experience unique behavioral and psychosocial challenges, including increased vulnerability to bullying and peer victimization (Rose et al., 2011). The inclusion of behavioral indicators such as internalizing and externalizing behaviors reflects a broader understanding of educational success that extends beyond academic achievement to include student well-being, social integration, and emotional development.

Long-term outcomes, including postsecondary attainment, graduation, absenteeism, and disciplinary indicators, were examined in only 12% of the studies. The limited focus on long-term indicators suggests a gap in the literature concerning the sustained impact of special education services on life outcomes. This gap is particularly significant given the increasing emphasis on inclusive education policies and stakeholder involvement in evaluating intervention effectiveness and implementation processes (Arnahoutova et al., 2025). Greater attention to long-term outcomes would provide a more comprehensive understanding of how special education services influence students' transitions to adulthood and participation in society.

The characteristics of the included studies also reflect broader developments in evidence synthesis and research methodology. Advances in educational technology and assistive tools have expanded the range of instructional supports available to students with disabilities, shaping both intervention practices and research priorities (Edyburn, 2004). At the same time, emerging approaches such as automated meta-analysis and artificial intelligence–assisted evidence synthesis have begun to transform how researchers analyze large bodies of educational data (Li et al., 2025; Gkintoni et al., 2025).

Participatory and stakeholder-informed approaches further emphasize the importance of contextualizing research findings within educational practice and policy environments (Dion et al., 2022). Collectively, these trends suggest that the evolving methodological landscape of special education research continues to influence the scope, focus, and interpretation of study characteristics within evidence synthesis.

Effectiveness by Research Design

The findings of the synthesis revealed that the effectiveness of special education services varied significantly depending on the rigor of the research design employed. Differences in methodological approaches, comparison groups, and analytical techniques produced contrasting conclusions regarding the impact of special education services on student outcomes.



This variation underscores the importance of research design in shaping interpretations of program effectiveness and highlights the need for rigorous evaluation frameworks in special education research. Established quality indicators emphasize that stronger experimental and quasi-experimental methods provide more reliable estimates of intervention effects, particularly when evaluating complex educational services (Gersten et al., 2005).

Descriptive studies that compared students with educational disabilities (SWED) to students without disabilities (SWOD) frequently reported negative associations between special education participation and academic outcomes. In these studies, SWED who received services often demonstrated lower academic performance relative to their non-disabled peers, leading to interpretations that special education services may be ineffective or even detrimental. However, such comparisons are inherently limited because they fail to account for pre-existing differences in academic ability, behavioral challenges, and developmental needs that led to the identification of students for special education services in the first place. This methodological limitation introduces selection bias, making it difficult to attribute observed differences to the effects of special education itself.

The negative associations observed in descriptive studies may also reflect broader challenges in disability identification and classification. Diagnostic criteria for learning disabilities and attention-related disorders continue to evolve, influencing how students are categorized and supported within educational systems (Tannock, 2013; Fletcher et al., 2004). Furthermore, issues related to disproportionality and systemic inequities in special education placement may contribute to disparities in outcomes across different student populations (Kramarczuk Voulgarides et al., 2017). These complexities suggest that simple comparisons between SWED and SWOD may obscure the true impact of special education services by conflating service effects with underlying student characteristics and contextual factors.

In contrast, studies employing quasi-experimental designs (QED), such as propensity score matching and student fixed-effects models, produced substantially more positive or neutral findings regarding the effectiveness of special education services. By comparing SWED who received services with similar SWED who did not receive such services, these studies were better able to control for baseline differences and reduce selection bias. The results from QED studies indicated that special education services contributed to measurable improvements across academic and behavioral domains, suggesting that the provision of targeted support can produce meaningful educational benefits when evaluated using appropriate comparison groups.

The positive findings from quasi-experimental research align with broader evidence supporting the effectiveness of structured and evidence-based practices in special education. High-leverage instructional practices, individualized interventions, and systematic progress monitoring have been shown to enhance learning outcomes for students with disabilities when implemented with fidelity (McLeskey et al., 2017).

Early intervention frameworks and evidence-based service delivery models further emphasize the importance of targeted support in promoting developmental and academic progress among students with diverse learning needs (Odom & Wolery, 2003). These findings reinforce the view that specialized educational services can be effective when evaluated through rigorous methodological frameworks.

Beyond academic outcomes, quasi-experimental studies also demonstrated improvements in behavioral and social outcomes among students receiving special education services. These findings are significant given the complex social and emotional challenges often experienced by students with disabilities, including increased vulnerability to bullying, peer victimization, and social exclusion (Rose et al., 2011). The inclusion of behavioral indicators in rigorous evaluations provides a more comprehensive understanding of service effectiveness, highlighting the role of special education in supporting both academic achievement and student well-being.

The methodological differences observed across studies also reflect broader developments in research and evidence synthesis within education. Advances in assistive technologies and educational tools have expanded the range of instructional supports available to students with disabilities, influencing both intervention practices and outcome measurement (Edyburn, 2004).

Emerging approaches, including artificial intelligence–assisted analysis and automated meta-analytic techniques, further enhance the capacity of researchers to synthesize large bodies of evidence and identify patterns in program



effectiveness (Gkintoni et al., 2025; Li et al., 2025). Participatory and stakeholder-informed approaches to evidence synthesis likewise emphasize the importance of contextualizing research findings within real-world educational settings (Dion et al., 2022; Arnahoutova et al., 2025).

The variation in findings across research designs highlights the importance of contextual and systemic factors in shaping the effectiveness of special education services. Educational policies, school leadership practices, teacher professional learning, and family engagement all influence how services are implemented and experienced by students (Timperley & Alton-Lee, 2008; Ho et al., 2019; Daly et al., 2022). Perspectives from students, parents, and educators further demonstrate that the effectiveness of special education depends on the broader educational environment, including the balance between segregation, integration, and inclusive practices (Elton-Chalcraft et al., 2016). Consequently, the synthesis underscores that rigorous research design, contextual sensitivity, and comprehensive evaluation frameworks are essential for accurately assessing the impact of special education services on diverse learners.

The Importance of Comparison Groups

A central challenge in evaluating the effectiveness of special education services (SES) lies in what is commonly described as the *prima facie* effect. Students are identified for special education precisely because they experience academic, behavioral, or developmental difficulties; therefore, comparing students with educational disabilities (SWED) to students without disabilities (SWOD) introduces an inherent bias. Such comparisons often produce negative findings because they fail to account for pre-existing differences in ability, learning needs, and contextual factors that existed prior to the provision of services. This synthesis confirms that when researchers control for these initial differences through rigorous methodological approaches, the effectiveness of special education services becomes more evident.

The importance of appropriate comparison groups is well established in special education research, particularly in discussions of methodological quality and causal inference. Quality indicators for experimental and quasi-experimental research emphasize the need to control for baseline differences, selection bias, and confounding variables to produce valid estimates of intervention effects (Gersten et al., 2005). Without such controls, conclusions about program effectiveness may reflect underlying student characteristics rather than the impact of educational services. Consequently, rigorous research designs that compare similar groups of students provide more accurate insights into the true contribution of special education interventions.

The *prima facie* effect is further complicated by ongoing debates surrounding the identification and classification of learning disabilities. Variations in diagnostic frameworks and assessment practices influence who is identified for special education and how services are delivered (Fletcher et al., 2004; Hale et al., 2010). Differences in identification criteria across educational systems may lead to heterogeneous student populations within special education programs, thereby increasing the complexity of evaluating service effectiveness. These challenges highlight the need for research designs that carefully account for student characteristics and contextual factors when assessing educational outcomes.

Issues of equity and disproportionality also underscore the importance of appropriate comparison groups. Research has demonstrated that systemic inequities, including racial and socioeconomic disparities, can influence special education placement and service provision (Kramarczuk Voulgarides et al., 2017). When such structural factors are not considered in research design, comparisons between SWED and SWOD may reinforce misleading conclusions regarding program effectiveness. Rigorous evaluation methods that account for these contextual influences are therefore essential for ensuring that findings accurately reflect the impact of services rather than broader systemic inequalities.

Quasi-experimental designs (QED), including propensity score matching and fixed-effects models, provide a methodological solution to the *prima facie* problem by comparing SWED who receive services with similar SWED who do not receive such services. These approaches reduce selection bias and allow researchers to isolate the effects of special education interventions more effectively. Findings from this synthesis demonstrate that when such rigorous comparisons are employed, special education services are associated with more positive or neutral outcomes across



academic and behavioral domains. These results challenge deficit-oriented interpretations and instead position special education as a supportive intervention that promotes student development.

The use of appropriate comparison groups also has significant implications for educational practice and policy. Evidence-based decision-making in education increasingly emphasizes the integration of rigorous research findings with stakeholder perspectives and contextual knowledge (Dion et al., 2022). Effective implementation of special education services requires collaboration among educators, families, and policymakers, as well as ongoing professional learning and leadership support to ensure that interventions are delivered with fidelity (Timperley & Alton-Lee, 2008; Ho et al., 2019). Moreover, inclusive instructional models, such as co-teaching and collaborative service delivery, rely on accurate evidence regarding program effectiveness to guide their implementation (Solis et al., 2012; Gut, 2012).

The findings of this synthesis demonstrate that the evaluation of special education services must move beyond simplistic comparisons toward more sophisticated and context-sensitive analytical approaches. Methodological rigor, stakeholder engagement, and attention to systemic factors are essential for producing valid conclusions about program effectiveness. By addressing the *prima facie* effect through appropriate comparison groups, researchers can better capture the true impact of special education services and contribute to sustained improvements in educational practice and outcomes (Coburn, 2003; Brantlinger et al., 2005).

International Implications

At the international level, the movement toward inclusive education has emphasized the importance of integrating students with educational disabilities into general education settings while ensuring access to specialized support services. Educational systems worldwide increasingly promote inclusion as a means of fostering equity, participation, and social integration. However, the findings of this synthesis suggest that inclusion alone may not be sufficient without the complementary provision of targeted special education services. Evidence from quasi-experimental designs (QEDs) indicates that special education services provide measurable educational benefits that exceed what students with educational disabilities (SWED) would achieve in standard general education environments without specialized support.

The positive findings associated with rigorous research designs reinforce the importance of balancing inclusive policies with evidence-based intervention strategies. Collaborative models of instruction, such as co-teaching and integrated service delivery, have been shown to enhance learning outcomes when specialized support is effectively embedded within general education classrooms (Solis et al., 2012). Similarly, research on successful inclusion highlights the need for individualized supports, differentiated instruction, and structured interventions to ensure meaningful participation for students with diverse learning needs (Gut, 2012). These perspectives suggest that inclusive education should not be conceptualized as the absence of specialized services but rather as the strategic integration of targeted support within mainstream educational environments.

At the same time, the prevalence of negative associations in descriptive studies raises important concerns regarding the interpretation of raw achievement data in international policy contexts. Policymakers who rely solely on aggregate performance comparisons between SWED and students without disabilities may draw misleading conclusions about the effectiveness of special education programs. Such interpretations risk undermining support for essential services and may lead to policy decisions that prioritize structural inclusion without addressing the individualized needs of learners. This highlights the importance of evidence synthesis and methodological rigor in informing policy development and educational reform (Corrin et al., 2025).

The international implications of these findings also extend to issues of educational leadership and systemic implementation. Effective school leadership plays a crucial role in shaping inclusive practices, supporting teacher professional development, and ensuring the fidelity of intervention implementation (Ho et al., 2019). Sustainable educational change requires more than numerical indicators of student performance; it demands deep and lasting transformations in instructional practice, institutional culture, and support systems (Coburn, 2003). These systemic considerations are essential for translating evidence-based findings into meaningful improvements in educational outcomes for students with disabilities.



Furthermore, evolving conceptions of learning and participation in contemporary educational contexts highlight the importance of expanding the scope of special education services. Increasing attention has been given to digital literacy and technological competencies as essential components of educational access for students with disabilities (Alsalem, 2016). Advances in assistive technologies and digital learning environments have created new opportunities for individualized support and differentiated instruction, particularly in inclusive settings. These developments underscore the need for international education systems to adapt service delivery models to address emerging educational demands and diverse learner profiles.

The implementation of special education services also requires attention to the well-being and professional capacity of educators. Research has shown that perceived institutional support and collaborative working environments can reduce teacher burnout and enhance the effectiveness of special education service delivery (Langher et al., 2017). Qualitative research in special education further emphasizes the importance of contextual and experiential perspectives in understanding how policies and practices are enacted in diverse educational settings (Brantlinger et al., 2005). Such insights highlight the need for comprehensive support systems that address both student outcomes and teacher capacity within inclusive educational frameworks.

The international discourse on special education reflects broader debates regarding eligibility, identification, and the conceptual boundaries of educational need. Legal and policy frameworks often struggle to define the criteria for special education eligibility, resulting in variations in service provision across jurisdictions (Zirkel, 2020). These complexities suggest that the future of inclusive education requires a nuanced approach that integrates rigorous evidence, contextual understanding, and equitable policy development. By balancing inclusive ideals with the provision of specialized support services, education systems can better promote equitable learning opportunities and ensure that students with disabilities receive meaningful and effective educational interventions.

Conclusion:

The findings of this best-evidence synthesis demonstrate that the “special” in special education represents more than a categorical label or administrative designation; rather, it reflects a structured system of targeted services designed to support the academic, behavioral, and developmental needs of students with educational disabilities. When evaluated using rigorous methodological approaches, these services show measurable benefits that contribute to improved student outcomes. The results highlight the importance of interpreting special education effectiveness through scientifically sound frameworks that account for the complex characteristics and learning needs of the students served.

A central contribution of this study is its emphasis on methodological rigor, particularly the use of quasi-experimental designs that address the *prima facie* effect inherent in special education research. Traditional comparisons between students with disabilities and their non-disabled peers often produce misleading conclusions because they fail to account for pre-existing differences in ability and performance. By employing more sophisticated analytical approaches that compare similar groups of students, this synthesis demonstrates that special education services provide meaningful educational benefits across academic and behavioral domains. These findings challenge deficit-oriented perspectives and reinforce the value of specialized support as a mechanism for promoting student growth.

The study also underscores the broader implications of evidence-based evaluation for international education policy and practice. As education systems worldwide continue to advance inclusive education initiatives, it is essential that inclusion be accompanied by effective and individualized support services. Special education should be understood as a complementary component of inclusive education rather than an alternative to it. Policymakers and practitioners must therefore rely on rigorous evidence when designing, implementing, and evaluating programs to ensure that students with disabilities receive appropriate and effective interventions.

This synthesis affirms that special education remains a vital tool for advancing educational equity on an international scale. By grounding policy and practice in robust evidence and context-sensitive evaluation, education systems can better support diverse learners and foster more inclusive and equitable educational environments.

References:



Aiello, A., Esplen, M. J., Boon, H., Zwingerman, R., Toner, B., & Maunder, R. G. (2025). A qualitative evidence synthesis of women's experience of infertility and fertility treatment from an existential perspective. *SAGE Open*, 15(3), 21582440251372769.

Alamin, A., Muthanna, A., & Alduais, A. (2022). A qualitative evidence synthesis of the K-12 education policy making in Sudan and the need for reforms. *SAGE Open*, 12(1), 21582440211071081.

Alsalem, M. A. (2016). Redefining literacy: The realities of digital literacy for students with disabilities in K-12. *Journal of Education and Practice*, 7(32), 205-215.

Arnahoutova, K., De Geest, S., Mielke, J., Boaz, A., Schoemans, H., & Valenta, S. (2025). Exploring stakeholder involvement in intervention implementation studies: systematic evidence synthesis with an evidence gap map approach. *Evaluation & the Health Professions*, 01632787251352837.

Brantlinger, E., Jimenez, R., Klingner, J., Pugach, M., & Richardson, V. (2005). Qualitative studies in special education. *Exceptional children*, 71(2), 195-207.

Brownell, M. T., Sindelar, P. T., Kiely, M. T., & Danielson, L. C. (2010). Special education teacher quality and preparation: Exposing foundations, constructing a new model. *Exceptional children*, 76(3), 357-377.

Coburn, C. E. (2003). Rethinking scale: Moving beyond numbers to deep and lasting change. *Educational researcher*, 32(6), 3-12.

Corrin, T., Cairney, P., & Kennedy, E. B. (2025). The production and utility of evidence synthesis during the COVID-19 pandemic in Canada: perspectives of evidence synthesis producers. *Evidence & Policy*, 21(1), 108-128.

Daly, G., Jackson, J., & Lynch, H. (2022). Family life and autistic children with sensory processing differences: A qualitative evidence synthesis of occupational participation. *Frontiers in Psychology*, 13, 940478.

Davis, P., Florian, L., Ainscow, M., Dyson, A., Farrell, P., & Hick, P. (2004). *Teaching strategies and approaches for pupils with special educational needs: A scoping study*. Nottingham: Department for Education and Skills.

Dion, A., Carini-Gutierrez, A., Jimenez, V., Ben Ameer, A., Robert, E., Joseph, L., & Andersson, N. (2022). Weight of evidence: Participatory methods and bayesian updating to contextualize evidence synthesis in stakeholders' knowledge. *Journal of Mixed Methods Research*, 16(3), 281-306.

Edyburn, D. L. (2004). 2003 in review: A synthesis of the special education technology literature. *Journal of Special Education Technology*, 19(4), 57-80.

Elton-Chalcraft, S., Cammack, P., & Harrison, L. (2016). Segregation, integration, inclusion and effective provision: a case study of perspectives from special educational needs children, parents and teachers in Bangalore, India. *International Journal of Special Education*, 31(1), 2-9.

Fletcher, J. M., Coulter, W. A., Reschly, D. J., & Vaughn, S. (2004). Alternative approaches to the definition and identification of learning disabilities: Some questions and answers. *Annals of dyslexia*, 54(2), 304-331.

Gersten, R., & Chard, D. (1999). Number sense: Rethinking arithmetic instruction for students with mathematical disabilities. *The Journal of special education*, 33(1), 18-28.

Gersten, R., & Dimino, J. A. (2006). RTI (Response to Intervention): Rethinking special education for students with reading difficulties (yet again). *Reading Research Quarterly*, 41(1), 99-108.



Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional children*, 71(2), 149-164.

Gkintoni, E., Antonopoulou, H., Sortwell, A., & Halkiopoulos, C. (2025). Challenging cognitive load theory: The role of educational neuroscience and artificial intelligence in redefining learning efficacy. *Brain sciences*, 15(2), 203.

Gut, D. (2012). Critical components of successful inclusion of students with severe disabilities: Literature review. *International journal of special education*.

Hale, J., Alfonso, V., Berninger, V., Bracken, B., Christo, C., Clark, E., ... & Yalof, J. (2010). Critical issues in response-to-intervention, comprehensive evaluation, and specific learning disabilities identification and intervention: An expert white paper consensus. *Learning disability quarterly*, 33(3), 223-236.

Ho, J. M. P. Y., Salleh, H., & Chua, P. H. (2019). Local evidence synthesis on school leadership.

Knight, S. (2025). Identifying and designing evidence-informed practice, in practice: The case for Pragmatic Evidence Synthesis Matrices (PESM). *International Journal of Qualitative Methods*, 24, 16094069251318590.

Kramarczuk Voulgarides, C., Fergus, E., & King Thorius, K. A. (2017). Pursuing equity: Disproportionality in special education and the reframing of technical solutions to address systemic inequities. *Review of Research in Education*, 41(1), 61-87.

Kwek, D. B. K., Wong, H. M., Bhardwaj, D., & Goh, S. E. (2022). Local evidence synthesis on instructional core.

Langher, V., Caputo, A., & Ricci, M. E. (2017). The potential role of perceived support for reduction of special education teachers' burnout. *International journal of educational psychology*, 6(2), 120-147.

Li, L., Mathrani, A., & Susnjak, T. (2025). Transforming evidence synthesis: a systematic review of the evolution of automated meta-analysis in the age of AI. *arXiv preprint arXiv:2504.20113*.

Low, E. L., Liu, W. C., Chye, S. Y. L., Costes-Onishi, P. G., Tan, J. S. Y., & Kumar, V. (2022). Local evidence synthesis on baseline research to inform SkillsFuture for educators.

McLeskey, J., Council for Exceptional Children, & Collaboration for Effective Educator Development, Accountability and Reform. (2017). *High-leverage practices in special education*. Arlington, VA: Council for Exceptional Children.

Mitchell, D., & Sutherland, D. (2020). *What really works in special and inclusive education: Using evidence-based teaching strategies*. Routledge.

Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. H., Thompson, B., & Harris, K. R. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional children*, 71(2), 137-148.

Odom, S. L., & Wolery, M. (2003). A unified theory of practice in early intervention/early childhood special education: Evidence-based practices. *The journal of special education*, 37(3), 164-173.

Rose, C. A., Monda-Amaya, L. E., & Espelage, D. L. (2011). Bullying perpetration and victimization in special education: A review of the literature. *Remedial and special education*, 32(2), 114-130.

Si'ilata, R., Samu, T. W., & Siteine, A. (2018). The Va'atele framework: Redefining and transforming Pasifika education. *Handbook of indigenous education*, 907-936.



Solis, M., Vaughn, S., Swanson, E., & Mcculley, L. (2012). Collaborative models of instruction: The empirical foundations of inclusion and co-teaching. *Psychology in the Schools*, 49(5), 498-510.

Subotnik, R. F., Olszewski-Kubilius, P., & Worrell, F. C. (2011). Rethinking giftedness and gifted education: A proposed direction forward based on psychological science. *Psychological science in the public interest*, 12(1), 3-54.

Sullivan, A. L., & Proctor, S. L. (2016, September). The shield or the sword? Revisiting the debate on racial disproportionality in special education and implications for school psychologists. In *School Psychology Forum* (Vol. 10, No. 3).

Suškevičs, M., Obi, C. C., Storie, J. T., Kilvits, C., Shkaruba, A., & Alkhateeb, G. (2025). Citizen science contributions to environmental risks assessment and management: A systematic map and qualitative evidence synthesis. *Ambio*, 1-21.

Tannock, R. (2013). Rethinking ADHD and LD in DSM-5: Proposed changes in diagnostic criteria. *Journal of learning disabilities*, 46(1), 5-25.

Timperley, H., & Alton-Lee, A. (2008). Reframing teacher professional learning: An alternative policy approach to strengthening valued outcomes for diverse learners. *Review of research in education*, 32(1), 328-369.

Zirkel, P. A. (2020). Through a glass darkly: Eligibility under the idea-the blurry boundary of the special education need prong. *JL & Educ.*, 49, 149.