

Inclusive Pedagogical Strategies in Special Education and Their Relationship with Academic, Social, and Emotional Outcomes among Students with Special Education Needs: A Scoping Review

(Strategi Pedagogi Inklusif dalam Pendidikan Khas dan Hubungannya dengan Kemenjadian Akademik, Sosial dan Emosi Murid Berkeperluan Pendidikan Khas)

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ABSTRACT

Special and inclusive education requires pedagogical strategies that address the diverse academic, social, and emotional needs of students with special educational needs (SEN). This scoping review aims to identify and synthesise pedagogical strategies implemented in special and inclusive classrooms and examine their relationships with students' holistic development. According to the PRISMA-ScR reporting framework, empirical studies published between 2022 and 2026 were identified through Scopus. Fifteen studies were analysed descriptively and thematically. The findings identified differentiated instruction, Universal Design for Learning (UDL), technology-assisted instruction, structured academic interventions, social stories, modelling, collaborative learning, and storytelling as key pedagogical strategies. Targeted interventions generally reported improvements in academic skills and social interaction, whereas broader inclusive practices demonstrated more variable outcomes. Evidence concerning emotional development was comparatively limited, although some studies reported improvements in emotional regulation and empathy. These findings highlight the importance of equipping teachers with the knowledge and practical skills to select and adapt pedagogical strategies according to students' needs. This review provides evidence-informed insights to strengthen pre-service teacher preparation and in-service professional development in supporting the holistic development of students with SEN.

Keywords: Academic Outcomes; Inclusive Education; Pedagogical Strategies; Social-Emotional Development; Special Education

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ABSTRAK

Pendidikan khas dan pendidikan inklusif memerlukan strategi pedagogi yang dapat memenuhi kepelbagaian keperluan akademik, sosial dan emosi Murid Berkeperluan Pendidikan Khas (MBPK). Tinjauan skop ini bertujuan mengenal pasti dan mensintesis strategi pedagogi yang dilaksanakan dalam bilik darjah pendidikan khas dan inklusif serta meneliti hubungannya dengan kemenjadian murid secara holistik. Berpandukan kerangka pelaporan PRISMA-ScR, kajian empirikal yang diterbitkan antara tahun 2022 hingga 2026 dikenal pasti melalui pangkalan data Scopus. Sebanyak 15 kajian dianalisis secara deskriptif dan tematik. Dapatan mengenal pasti pengajaran terbeza, Reka Bentuk Sejagat untuk Pembelajaran (UDL), pengajaran berbantukan teknologi, intervensi akademik berstruktur, cerita sosial, pemodelan, pembelajaran kolaboratif dan penceritaan sebagai strategi pedagogi utama. Intervensi berfokus secara umumnya melaporkan peningkatan kemahiran akademik dan interaksi sosial, manakala amalan inklusif yang lebih menyeluruh menunjukkan dapatan yang lebih pelbagai. Bukti berkaitan perkembangan emosi masih terhad, walaupun beberapa kajian melaporkan peningkatan regulasi emosi dan empati. Dapatan ini menekankan kepentingan melengkapkan guru dengan pengetahuan dan kemahiran praktikal untuk memilih serta menyesuaikan strategi pedagogi mengikut keperluan murid. Tinjauan ini memberikan panduan berasaskan bukti bagi memperkukuh persediaan bakal guru dan pembangunan profesional guru dalam menyokong kemenjadian MBPK secara holistik.

Kata kunci: Kemenjadian Akademik; Pendidikan Khas; Pendidikan Inklusif; Perkembangan Sosioemosi; Strategi Pedagogi

INTRODUCTION

In the 21st century, the field of education has become increasingly challenging. It is not only emphasizes academic achievement, but also aims to ensure students' holistic development, in order they can adapt the changes in the world. Accordingly, the Ministry of Education Malaysia (MOE) launched 21st-Century Learning (PAK-21) with the goal of raising the standard of the country's educational system to align with the other developed countries. The MOE's main objective is to ensure high-quality education across various aspects, creating a generation of knowledgeable and competent who are ready for the twenty-first century. All teachers, including special education teachers, must equip themselves with the knowledge and skills necessary for PAK-21 to support the holistic development of students with special educational needs (SEN).

Students with special educational needs refers to individuals who have been diagnosed by relevant specialists as having full or partial impairments in vision, hearing, speech, physical abilities, or learning (MOE, 1996). According to a study by Hassan and Mat (2020), children with special education needs often encounter negative stereotypes that portray them as having limited skills and being incapable of engaging in academic activities. Students with SEN face social obstacles in addition to academic ones, such as diminished confidence when engaging with peers (Ismail & Aziz, 2019). From an emotional perspective, extended social and academic difficulties may cause them to feel stressed, anxious, and mentally worn out (Zetty et al., 2025).

In Malaysia, teachers must have necessary pedagogical knowledge, instructional flexibility, and collaborative competences in order to conduct inclusive education. According to Khairuddin et al. (2016), although special education teachers generally maintained positive relationships with mainstream teachers, collaboration in planning for the inclusion of students with disabilities remained limited. Teacher readiness, pedagogy strategies, collaboration and

communication, patience, and decision-making were identified by Nurulshima and Khairul (2023) as crucial components of teaching instruction for students with SEN in the Inclusive Education Program. Similarly, Abduh et al. (2026) investigated the connection between effective teaching techniques among special education teachers and environmental and personal characteristics. These studies provide insights on how crucial it is to improve teacher competences and provide professional assistance in order to support inclusive education.

In education, the ability of pupils to attain balanced growth in academic accomplishment, social skills, and emotional well-being is referred to in education as holistic student development. Students' ability to acquire basic skills, analyse critically, and apply their knowledge in practical settings are all included in academic development. Student growth in the social domain encompasses the capacity to collaborate with others, exhibit leadership, interact effectively, and communicate appropriately. In the meantime, emotional development in SEN students includes resilience, emotional stability, and the growth of intrinsic drive. These three domains are interrelated which cause challenges in one area may have a negative impact on development in the others. Hence, in addition to improving academic achievement, instructional interventions intended to benefit students with SEN should also encourage social engagement and emotional well-being. Therefore, this study conducts a scoping review of fifteen recent studies indexed in Scopus in order to identify pedagogical and intervention strategies that have shown positive outcomes in the holistic development of adolescents with SEN.

RESEARCH QUESTION

This scoping review is guided by two research questions:

1. To identify the pedagogical strategies implemented in special and inclusive education to support students with special educational needs (SEN).
2. To investigate the relationships between the pedagogical strategies and students' academic, social and emotional outcomes.

LITERATURE REVIEW

This section reviews pedagogical approaches applied in special education and inclusive classrooms to promote the intellectual, social, and emotional growth of students with special educational needs (SEN). Differentiated instruction, Universal Design for Learning (UDL), technology-assisted instruction, structured academic interventions, and social-emotional learning strategies are the approaches that are highlighted in the literature. Although these approaches address student's diverse learning need, they differ in their instructional characteristics, implementation processes and intended outcomes. As a result, this section examines different instructional strategies as well as how they could support students' overall growth.

DIFFERENTIATED INSTRUCTION AND INCLUSIVE PEDAGOGY

Differentiated instruction is a pedagogical strategy that modifies teaching materials, learning exercises, instructional procedures, and assessment techniques in accordance with students' aptitudes, preparedness, and learning requirements. Differentiated instruction is especially important in special education since kids with SEN may need varying degrees of instructional support in order to access the curriculum and engage fully in class activities.

Although Vakolia et al. (2025) and Vasileiadis et al. (2026) focuses on various developmental areas, their research emphasizes the potential of differentiated education to benefit kids with SEN. Vasileiadis et al. (2026) found improvement in social interaction and

peer acceptability through flexible grouping, cooperative activities, and modified instructional arrangements, whereas Vakolia et al. (2025) observed improvements in academic achievement following differentiated teaching. These results imply that, depending on how educational activities are planned and carried out, diversified instruction may support both academic learning and social engagement. Similarly, Gaitas et al. (2024) and Filippatou et al. (2025) emphasized the value of inclusive teaching methods, diversified learning assignments, and adaptable classroom layouts. Both research emphasized how instructional modifications could help SEN students participate in regular classroom settings. However, rather than directly measuring academic advances, their findings mostly focused on classroom procedures and observable involvement.

Zurbriggen et al. (2026), on the other hand, found weak and inconsistent long-term correlations between academic achievement and differentiated instruction. This result implies that consistent increases across many educational environments are not always the result of differentiated instruction. Variations in intervention intensity, educational attainment, student characteristics, and research design could all contribute to the disparity in results. These studies show that varied instruction is a crucial part of inclusive pedagogy; nevertheless, its impact on student growth may vary depending on how well it is implemented and the particular goals being pursued.

Teacher readiness is a crucial factor when implementing inclusive pedagogical techniques. The methods used by special education preschool instructors to get pupils with SEN ready for the Year 1 Inclusive Education Program were explored by Shariff and Khairuddin (2024). Their results emphasised the significance of teacher preparedness, early detection of kids' developmental requirements and assessment practices. Similarly, Mohd Shukri et al. (2026) investigated how Malaysian teachers used accommodations and adjustments for pupils who are deaf or hard of hearing. When taken as a whole, these studies offer a Malaysian viewpoint on the practical skills needed to assist students with a range of communication and learning challenges. Additionally, they recommend that teacher education should prioritise evaluation, instructional adaptability, and suitable classroom assistance as important elements of inclusive pedagogy.

UNIVERSAL DESIGN FOR LEARNING (UDL)

Universal Design for Learning is an inclusive educational framework which aims to lower learning obstacles by offering a variety of ways to participate, be represented, act, and express oneself. UDL promotes teachers to create accessible learning settings from the start so that students with a range of abilities can engage meaningfully, in contrast to instructional techniques that solely concentrate on individual adaptations. UDL-based strategies in inclusive educational environments were studied by Anwar et al. (2026) and Bastidas Martinez et al. (2025). Positive results regarding academic learning or classroom involvement were recorded in both studies. Anwar et al. (2026) found that integrating UDL with assistive technology based on artificial intelligence improved student involvement and academic results. In a similar vein, Bastidas Martinez et al. (2025) found favourable connections between academic achievement, classroom engagement, and UDL deployment.

These studies differ in their research environments and populations, but they all emphasize accessible and adaptable education. While Bastidas Martinez et al. (2025) included both kids with and without SEN while Anwar et al. (2026) only concentrated on pupils with disabilities. Therefore, it is not possible to interpret the overall results of Bastidas Martinez et al. (2025) as showing comparable outcomes, particularly among kids with SEN. Differentiated instruction and UDL have several traits, including the use of adaptable

instructional resources and diverse ways for students to participate. The two methods, however, are conceptually different. UDL emphasizes anticipating learner variability during instructional preparation, while differentiated instruction typically entails modifying training in response to documented learner differences. According to the literature, differentiated teaching may offer extra assistance for addressing certain learning needs, while Universal Design for Learning (UDL) may offer a helpful framework for creating accessible learning environments. However, further investigation is required to determine how much UDL improves academic, social, and emotional results, particularly for adolescents with SEN.

TECHNOLOGY-ASSISTED INSTRUCTION AND GAMIFICATION

In order to support students' access to instructional content, technology-assisted instruction incorporates interactive learning systems, assistive technologies, and digital resources into instruction. Technology can offer opportunity for repeated practice, instant feedback, visual instruction, and alternate representations in special education. Positive academic results were linked to technology-supported teaching techniques, according to Chang and Lin (2024) and Anwar et al. (2026). Chang and Lin (2024) investigated a mobile learning system that uses visual cues to enhance students with learning difficulties' comprehension of algebra. In contrast, Anwar et al. (2026) looked into how UDL and AI-based assistive technology could be combined to enhance academic learning and engagement. According to both research, digital technologies may improve learning accessibility and offer instructional support. However, Anwar et al. (2026) looked at a more comprehensive approach to accessible training, while Chang and Lin (2024) concentrated on a particular mathematical talent.

Social development may also benefit from technology-assisted instruction. Cored-Bandrés et al. (2025) looked into SocialTICTEA, a technology-based program meant to help autistic students improve their social skills. Improvements in the development of social skills and their generalization in various contexts were noted in the study. These results show that a variety of pedagogical goals, such as academic learning and the development of social skills, can be achieved through technology-supported education. The use of game-design components, such as points, prizes, challenges, and progress indicators, in non-gaming learning activities is known as gamification, which is a comparable but different teaching strategy. These components can be used to maintain learning interest and promote involvement. However, as not all digital learning interventions use game-design components, gamification should not be equated with technology-assisted education. Overall, research shows that when technology's features are in line with students' learning requirements and educational goals, it can facilitate inclusive teaching. Instead of relying just on the use of digital tools, its instructional value depends on pedagogical design.

METHODOLOGY

This study adopts scoping review approach guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) standards, developed by Tricco et al. (2018). It provides a systematic and open approach to identifying, mapping, and synthesizing the existing studies on pedagogical practices used in special education. This method suits in examining a wide range of instructional strategies and treatments, together with their documented connections to the academic, social, and emotional outcomes of students with special educational needs (SEN).

The PRISMA-ScR guidelines provide a structure reporting framework that improves the transparency, consistency, and reproducibility of the review process. Research objectives, eligibility cri, literature search tactics, study selection processes, data graphing, and synthesis

of findings are all guided by them (Tricco et al., 2018). By following these guidelines, the current review aims to give a comprehensive summary of the empirical data that is currently available while highlighting common educational strategies, discrepancies in reported results, and gaps that need more research. This review also aims to map the existing data and investigate how various pedagogical approaches are linked to the holistic development of students with SEN, rather than evaluating the relative efficacy of specific interventions.

LITERATURE SEARCH STRATEGY

A systematic literature search was carried out using Scopus, a major academic database that contains peer-reviewed scholarly articles from a variety of areas. The goal of the search strategy is to find empirical research on educational interventions and pedagogical approaches used in inclusive and special education classrooms, with a focus on how these approaches relate to the academic, social, and emotional outcomes of students with special educational needs. The search incorporated relevant keywords and phrases, including "Special education," "students with disabilities," "pedagogical strategies," "educational interventions," "academic outcomes," "social-emotional development," and "inclusive classroom". These terms were selected in order to collect literature that addressed various aspects of student development and instructional strategies.

The search was restricted to English-language journal papers released between 2022 and 2026 were included in the search. Studies had to fulfill the qualifying requirements in order to be considered relevant to the research objectives. First, original empirical research using mixed-methods, quantitative, or qualitative approaches required to be reported in the publications. Second, the research had to include SEN students in official educational environments, such as inclusive mainstream classrooms and special education schools. Then, the research has to look at educational interventions or pedagogical approaches used in teaching and learning environments. Studies that did not meet these criteria were excluded from the review. The purpose of this systematic approach was to ensure that the chosen literature was relevant to the research question and provide an appropriate foundation of evidence for investigating the connections between pedagogical approaches and the overall development of students with special education needs.

STUDY SELECTION PROCESS

Figure 1 illustrates the PRISMA framework adopted in this study to guide the systematic selection of relevant literature. The study selection process comprises four main phases: identification, screening, eligibility, and inclusion. This framework enables researchers to systematically identify, evaluate, and select relevant articles according to predetermined eligibility criteria (Ng & Siti, 2022). Furthermore, the PRISMA framework promotes transparency and consistency in reporting the study selection process, allowing readers to critically assess the methodological rigour and reliability of the review findings (Page et al., 2021).

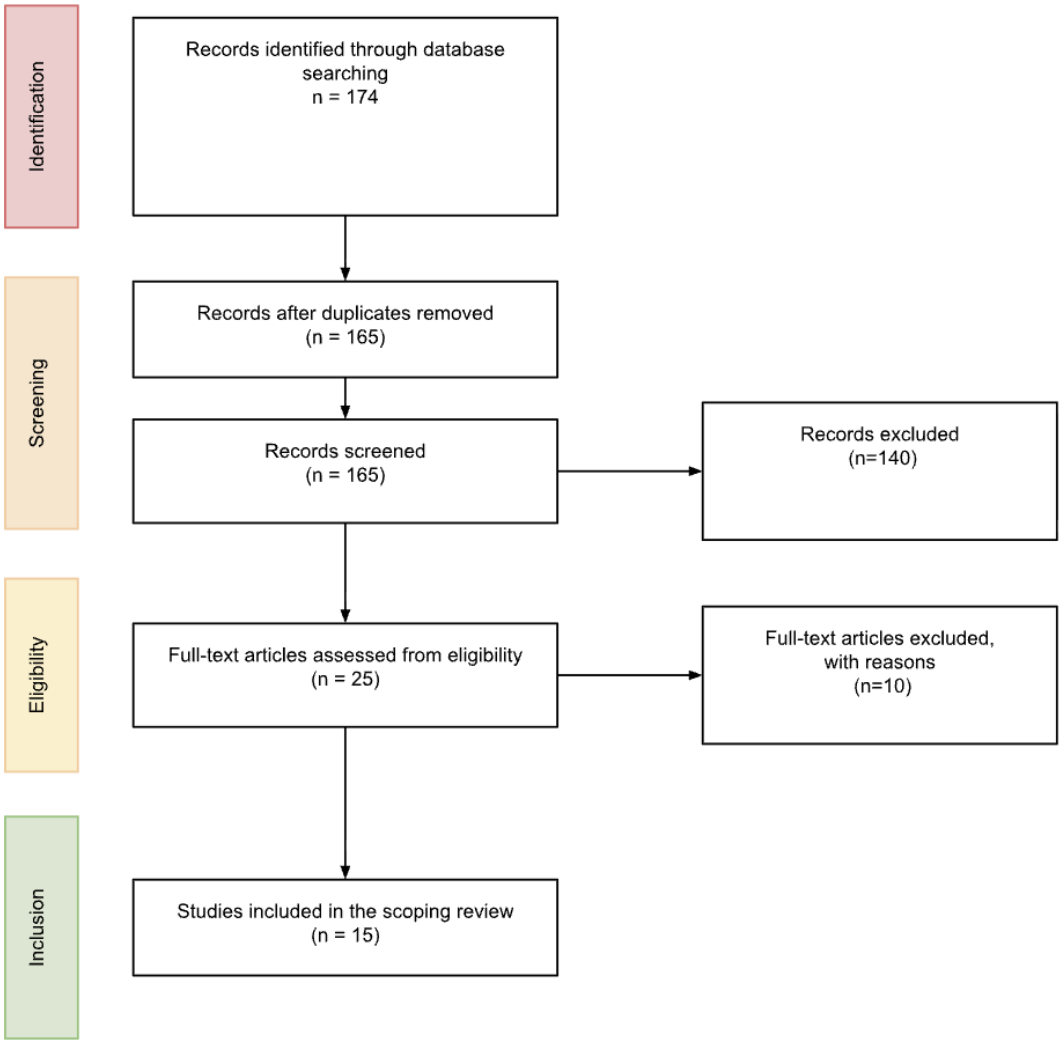


FIGURE 1. PRISMA 2020 Flow Diagram of the Article Selection Process

DATA EXTRACTION

A structured data extraction table was created to systematically extract, arrange, and map pertinent data from the chosen research. The authors, year of publication, country of study, research design, educational context, pedagogical practices used, and important results about the academic, social, and emotional outcomes of children with special educational needs (SEN) were all included in the collected data. The retrieved data were analysed descriptively and synthesised thematically to identify recurrent patterns, similarities, differences, and emerging themes among the included research. The types of pedagogical approaches used, their implementation in inclusive and special education classrooms, and their reported contributions for student development were all given specific consideration.

This procedure made it easier to compare research data systematically and provide a foundation for comprehending the connections between pedagogical strategies and the holistic development of students with SEN. The findings were subsequently organised into three categories: academic outcomes, social outcomes, and emotional development.

TABLE 1. Data Extraction Table

Article	Author (Year)	Country	Research Design	Teaching Strategy	Contexts	Main Findings
A1	Zurbriggen et al. (2026)	Germany	Longitudinal observational study	Differentiated instruction	Inclusive secondary classroom	Small relationships with achievement and well-being.
A2	Alkinj et al. (2022)	Jordan	Mixed-methods intervention study	Social stories and video modelling	School for autistic students	Improvements in social and participation.
A3	Grenier et al. (2022)	United States	Qualitative case study	Adapted activities and peer engagement	Elementary physical education	Supported involvement and peer interaction.
A4	Anwar et al. (2026)	Indonesia	Quasi-experimental study	UDL and AI-assisted technology	Inclusive elementary school	Higher academic outcomes and learning engagement proved.
A5	Chang and Lin (2024)	Taiwan	Quasi-experimental study	Mobile learning with visual prompts	Students with learning disabilities	Improved academic understanding and performance.
A6	Bastidas Martinez et al. (2025)	Ecuador	Mixed-methods correlational study	Universal Design for Learning	Primary and secondary schools	Positive relationship with participation and academic performance in overall sample.
A7	Cored-Bandrés et al. (2025)	Spain	Longitudinal case series	Technology-supported social skills instruction	Autistic students in special and mainstream classrooms	Social-skills improvements and generalisation across settings.
A8	Filippatou et al. (2025)	Greece	Qualitative implementation study	Differentiated and inclusive classroom practices	Mainstream classrooms with SEN students	Improvements in engagement, participation and collaboration.
A9	Karimova et al. (2026)	Uzbekistan	Mixed-methods study	Cultural storytelling	Special education school	Improvements in emotional regulation, empathy and social interaction.
A10	Alamri (2026)	Saudi Arabia	Quasi-experimental study	Structure remedial instruction	Primary students with learning disabilities	Improved academic performance.
A11	Vasileiadis et al. (2026)	Greece	Mixed-methods intervention study	Flexible grouping and collaborative tasks	Inclusive primary classrooms	Improved peer interaction and social acceptance.
A12	Nagpal et al. (2025)	India	Implementation study	Classroom pivotal response teaching	Special school for autistic students	Students are benefitted.
A13	Zurbriggen et al. (2023)	Austria	Cross-sectional quantitative study	Personalised instruction	Inclusive primary and secondary classrooms	Positive classroom climate was associated with social participation.

Article	Author (Year)	Country	Research Design	Teaching Strategy	Contexts	Main Findings
A14	Gaitas et al. (2024)	Portugal	Qualitative case study	Peer pairing, seating adaptation and differentiated tasks	Mainstream primary classrooms	Supported academic access and peer cooperation.
A15	Vakolia (2025)	Ukraine	Quantitative intervention study	Differentiated instruction	Primary students with SEN	Improvements in academic performances, motivation and autonomy.

FINDINGS

The findings from the 15 included studies were synthesised into three themes: academic outcomes, social outcomes, and emotional outcomes among adolescents with special educational needs (SEN). Similarities in the pedagogical approaches used and the reported results were found across these themes. However, variations were found in the quality of the evidence, the particular skills analysed, and the consistency of stated gains. These variations emphasize how crucial it is to take into account both the teaching strategy and the environment in which it was used.

ACADEMIC OUTCOMES

Vakolia et al. (2025) and Filippatou et al. (2025) stated positive results for differentiated instruction in aiding kids with SEN. Filippatou et al. (2025) reported higher academic participation and engagement through the BATTIE program, while Vakolia et al. (2025) showed increases in academic performance after implementing differentiated teaching tactics. According to both studies, greater meaningful participation in classroom learning may be facilitated by tailoring instructional activities to students' learning needs. Besides that, Gaitas et al. (2024) found that strategies that enabled children with SEN to engage in regular classroom activities included differentiated assignments, peer support, and adaptable instructional arrangements. These results are consistent with Filippatou et al. (2025), since both studies emphasized the value of accessible learning activities and well-organized classrooms. However, the results differed in their studies. Filippatou et al. (2025) and Gaitas et al. (2024) mostly used qualitative evidence to document academic participation, while Vakolia et al. (2025) reported gains in academic achievement. Therefore, increases in classroom engagement should not be interpreted with increases in academic achievement, even while the results support the advantages of instructional adaptation.

Zurbriggen et al. (2026) found weak and inconsistent longitudinal correlations between differentiated instruction and academic achievement, in contrast to the positive results reported by Vakolia et al. (2025). Zurbriggen et al. (2026) discovered that differentiated instruction was not consistently linked to significant academic improvements over time, despite Vakolia et al. (2025) reporting improved academic performance after an intervention. Limited learning differences between pupils with and without SEN were also found in their longitudinal examination. This disparity could be linked to variations in the educational setting and study methodology. While Zurbriggen et al. (2026) looked at more general classroom practices throughout multiple years of lower-secondary education, Vakolia et al. (2025) studied differentiated instruction inside a particular primary school intervention. The results imply that favourable results shown after a planned intervention would not always be repeated in more varied educational environments. Additionally, the conflicting findings suggest that the type, intensity, and consistency of implementation may have an impact on the association between academic achievement and differentiated teaching.

Positive academic results were associated to technology-supported teaching techniques (Chang and Lin, 2024; Anwar et al., 2026). Chang and Lin (2024) discovered that students with learning difficulties had better mathematical understanding while using visual-prompt mobile learning. Similarly, Anwar et al. (2026) found that combining Universal Design for learner (UDL) with assistive technology based on artificial intelligence improved learner engagement and academic outcomes. According to both research, technology could help students with SEN easily accessible teaching materials and different ways for them to interact with academic material. The educational focus of the two experiments, however, was

different. While Anwar et al. (2026) looked into a more comprehensive teaching strategy that included UDL with assistive technology, Chang and Lin (2024) studied a subject-specific intervention aimed at mathematical comprehension. As a result, while the results support technology-assisted instruction, they do not prove that all types of educational technology yield the same academic advantages.

Anwar et al. (2026) and Bastidas Martinez et al. (2025) reported similar findings regarding UDL-based instruction. Flexible and accessible teaching methods were linked in both studies with positive involvement or academic results. While Bastidas Martinez et al. (2025) looked at UDL implementation among kids with and without SEN across three Ecuadorian educational institutions, Anwar et al. (2026) studied students with disabilities in an inclusive elementary school. Despite the fact that both investigations produced encouraging results, the specificity of their data varied. While Bastidas Martinez et al. (2025) provided results for a mixed student group, Anwar et al. (2026) concentrated specifically on students with disabilities. Therefore, it is not appropriate to interpret the results of Bastidas Martinez et al. (2025) as showing comparable improvements, particularly among kids with SEN.

Chang and Lin (2024) and Alamri (2026) both looked into interventions aimed at particular academic skills. Chang and Lin (2024) observed increases in algebraic comprehension, while Alamri (2026) reported improvements in spelling performance. These results contrast with Zurbriggen et al.'s (2026) longitudinal study, which found very weak and inconsistent relationships between academic achievement and differentiated teaching. Interventions that target specific academic challenges might result in more easily quantifiable gains than more general classroom techniques. However, as the studies did not directly compare targeted interventions with differentiated instruction, this remains an interpretation rather than a proven explanation. Although the strength of the evidence differs depending on the instructional strategy, research design, and outcome measures, overall academic studies suggest that pedagogical strategies may support academic progress. Inclusive approaches yielded more variable results, whereas targeted interventions indicated gains in particular skills.

SOCIAL OUTCOMES

According to Alkinj et al. (2022) and Cored-Bandrés et al. (2025), structured pedagogical interventions helped autistic pupils enhance their social abilities. Alkinj et al. (2022) studied social storytelling and modelling, while Cored-Bandrés et al. (2025) looked into SocialTICTEA, a technology-based social skills program. Positive social outcomes were found in both research, indicating that systematic education can help students practice and build interpersonal skills. The findings are similar in that they place more emphasis on explicit instruction that social skills will naturally emerge from involvement in class activities. Cored-Bandrés et al. (2025) used technology-based activities, whereas Alkinj et al. (2022) used modelling and social narratives. Additionally, Cored-Bandrés et al. (2025) investigated the generalization of social skills in various contexts, emphasizing the significance of using acquired behaviours outside of the intervention setting. Despite the fact that both trials showed encouraging results, the results' generalizability is limited by their small sample sizes.

Vasileiadis et al. (2026), Gaitas et al. (2024), and Grenier et al. (2022) identified the significance of inclusive educational settings in promoting social involvement. Peer interaction and social acceptance improved after a systematic differentiated-instruction program (Vasileiadis et al.,2026). Similarly, Gaitas et al. (2024) described how differentiated

tasks, flexible classroom arrangements and peer pairing encouraged children to participate in mainstream classroom. Similar results in inclusive physical education were reported by Grenier et al. (2022), children with severe disabilities were able to engage alongside their peers with the instructional support and modified activities. All of these research point to the possibility that how teachers organize classroom activities and interactions can have an impact on students' social participation. However, the methodological approaches used in the investigations varied. Gaitas et al. (2024) and Grenier et al. (2022) mainly offered qualitative evidence of inclusive teaching techniques, whereas Vasileiadis et al. (2026) used an intervention-comparison approach and examined changes in social interaction and acceptance. As a result, the studies support a comparable educational premise, but they do not provide the same level of improvements in social outcomes.

The findings of Vasileiadis et al. (2026) and Gaitas et al. (2024) differed from Alkinj et al. (2022) and Cored-Bandrés et al. (2025). Individual social skills development through structured teaching was the main emphasis of Alkinj et al. (2022) and Cored-Bandrés et al. (2025). Vasileiadis et al. (2026) and Gaitas et al. (2024), on the other hand, concentrated on changing educational structures to provide more inclusive chances for social engagement. Rather than being in conflict, these results are complementary. Students may need both direct instruction and encouraging classroom settings where they can practice those abilities in order to develop communication and interpersonal skills. This comparison implies that both individual-level therapies and classroom-level pedagogical modifications can promote social development.

EMOTIONAL OUTCOMES

Despite Karimova et al. (2026) and Vakolia et al. (2025) examined different aspects of development, they revealed positive results linked to pedagogical interventions. Karimova et al. (2026) found that a cultural storytelling intervention improved self-awareness, empathy, and emotional regulation. In contrast, Vakolia et al. (2025) found that learning motivation and autonomy improved after receiving differentiated teaching. According to both research, learning experiences that are well-designed may promote aspects of students' growth that go beyond academic success. These results, however, should not be taken as proof that the same emotional construct has improved. Vakolia et al. (2025) concentrated on motivation and learning autonomy, which are more directly linked to students' involvement and self-directed learning, while Karimova et al. (2026) studied social-emotional competences. Therefore, rather than having the same emotional impacts, the similarities pertain to the wider potential of instructional practices to assist non-academic results.

Regarding the reported emotional outcomes, the results of Karimova et al. (2026) differ from Zurbriggen et al. (2026). After a structured storytelling intervention, research found improvements in empathy and emotional regulation (Karimova et al., 2026). Zurbriggen et al. (2026), on the other hand, discovered that correlations between subjective well-being and differentiated training were typically weak and inconsistent over time. These differences can be the result of different teaching strategies and emotional concepts. Zurbriggen et al. (2026) looked into differentiated instruction as a more general classroom approach, while Karimova et al. (2026) studied a focused social-emotional learning intervention. Additionally, many methodologies and measurements were used in the studies. As a result, the contrast does not prove that differentiated instruction is superior to storytelling; rather, it emphasizes how challenging it is to compare emotional effects across diverse studies.

DISCUSSION

One of the pedagogical strategies that has been studied the most is differentiated instruction. Positive results regarding instructional adaptability, classroom engagement, or student development were reported by Vakolia et al. (2025), Filippatou et al. (2025), Gaitas et al. (2024), and Vasileiadis et al. (2026). Despite these similarities, the results that the investigations looked into were different. Vasileiadis et al. (2026) showed relationship in social interaction and peer acceptance, while Vakolia et al. (2025) concentrated on academic performance. In the meantime, the use of inclusive teaching methods and classroom involvement were highlighted by Filippatou et al. (2025) and Gaitas et al. (2024). These results imply that differentiated education may support several aspects of students' growth. However, it should not be expected that improvements in one domain will lead to equal in another. Zurbriggen et al. (2026), on the other hand, found weak and inconsistent long-term correlations between academic achievement and differentiated instruction. This result assumpts that learning outcomes are always significantly improved by differentiated instruction.

Florian and Black-Hawkins' (2011) proposed an inclusive pedagogical framework which promotes providing meaningful learning opportunities to all students rather than just depending on separate provision for learners with additional needs. They argues that individualised instruction should be evaluated within a broader approach to inclusive classroom participation. Although instructional adjustments may address individual learning issues, their contribution to inclusion also depends on whether students can access shared learning activities and participate alongside their peers. Therefore, the contradictory outcomes across the analysed studies underscore the necessity for instructors to balance individualised support with inclusive classroom practices.

Alkinj et al. (2022), Cored-Bandrés et al. (2025), Chang and Lin (2024), and Alamri (2026) all looked at interventions intended to improve specific social or academic skills. In general, these studies showed positive results in the competencies that their interventions aimed to improve. In comparison, Gaitas et al. (2024), Grenier et al. (2022), and Filippatou et al. (2025) looked at broader classroom practices meant to increase access, participation, and inclusion. The results of these research support each other even though they focused on various educational objectives. Inclusive classroom practices offer opportunity to apply those skills in meaningful learning and social contexts, while targeted interventions may aid students in developing certain talents. Cooperative learning and peer-supported activities may offer opportunity to practice those reactions with peers, while social stories and modelling may support students in learning proper interpersonal responses. Therefore, rather than depending exclusively on either strategy, the results support a combination of inclusive classroom pedagogy and individualized assistance.

Positive results for technology-assisted instruction were reported by Chang and Lin (2024), Anwar et al. (2026), and Cored-Bandrés et al. (2025). However, the goals of their studies varied significantly. Cored-Bandrés et al. (2025) looked into the development of social skills, Anwar et al. (2026) studied academic engagement and outcomes through UDL and assistive technology, while Chang and Lin (2024) concentrated on algebraic knowledge. The similarities suggested that technology can be modified to meet various educational requirements. However, the results do not indicate that advancements in instructional design are only attributable to technology. Technology was used in all three studies as part of a pedagogical strategy meant to meet particular learning or developmental goals. This suggest that technology's educational value is found in the ways it facilitates opportunities for involvement, structured learning, and accessible instruction.

CAST (2024) developed the Universal Design for Learning Guidelines which highlight various forms of interaction, representation, action, and expression to lower learning obstacles, further support the significance of pedagogical design. Assistive technology should be incorporated into lesson plans rather than being viewed as a stand-alone remedy for students' learning challenges. Teachers must consider whether digital tools enhance accessibility, encourage meaningful engagement, and offer suitable chances for pupils to show what they have learned. As a result, teachers must not only have access to digital resources but also be able to assess and modify them in accordance with the academic, social, and emotional needs of their pupils for technology-assisted instruction to be implemented successfully.

The synthesis also shows variations in the type and strength of evidence in each of the three outcome domains. Achievement tests or subject-specific evaluations were often used to examine academic outcomes (Alamri., 2026; Chang and Lin., 2024; Vakolia et al., 2025). A combination of participant reports, classroom observations, and intervention measures were used to analyse social outcomes. Gaitas et al. (2024) and Grenier et al. (2022) presented qualitative insights into inclusive involvement, while Vasileiadis et al. (2026) offered quantifiable proof of enhanced social interaction and acceptance. On the other hand, a smaller number of research and distinct frameworks were used to analyse emotional consequences. Zurbriggen et al. (2026) looked at subjective well-being, whereas Karimova et al. (2026) studied emotional regulation and empathy. These differences show that the evidence now available does not fairly represent the three aspects of student growth. Thus, the results emphasize the significance of taking a comprehensive approach while preserving distinct boundaries between academic success, social engagement, and emotional growth.

Within Malaysian context, these results emphasise the significance of enhancing teachers' professional competences in order to facilitate the execution of the Program Pendidikan Inklusif (PPI). Nurulshima and Khairul (2023) highlighted teacher preparedness, communication, and collaboration in inclusive teaching, while Khairuddin et al. (2016) identified problems in collaborative planning between mainstream and special education instructors. Furthermore, Mohd Shukri et al. (2026) found that the implementation of instructional accommodations for students with hearing challenges, whereas Shariff and Khairuddin (2024) emphasised the significance of teacher preparation and evaluation methods. These Malaysian studies indicate that practical instructional adaptability, collaborative planning, and evaluation of students' holistic development should be prioritised in teacher education and ongoing professional development.

IMPLICATIONS FOR TEACHER EDUCATION AND PROFESSIONAL DEVELOPMENT

The results of this scoping review have significant implications for improving professional development programs and teacher education programs in special and inclusive education. Teachers require more than just theoretical understanding of inclusive teaching approaches, according to differences in the reported results of differentiated instruction and other pedagogical tactics. They also require practical competencies in order to choose, modify, implement, and assess instructional strategies in accordance with the various academic, social, and emotional needs of children with special educational needs (SEN). Hence, teacher education programs should include evidence-based pedagogical techniques that equip pre-service and in-service teachers to successfully respond to learners.

First, teacher preparation programmes should focus practical training in differentiated instruction and inclusive lesson planning. Research by Vakolia et al. (2025), Vasileiadis et al.

(2026), and Gaitas et al. (2024) highlighted how instructional modifications can promote social connection, academic learning, and classroom engagement. However, Zurbriggen et al. (2026) showed longitudinal findings, indicating that positive outcomes cannot be anticipated in all educational environments on the other hand. Therefore, through microteaching, classroom simulations, and supervised teaching placements, pre-service teachers should be given the chance to create accessible teaching materials, differentiated lesson plans, and instructional adjustments. These encounters might improve their capacity to convert inclusive education concepts into effective teaching strategies.

Second, Universal Design for Learning (UDL) and assistive technology competencies should be strengthened in teacher education. The results of Anwar et al. (2026), Chang and Lin (2024), and Cored-Bandrés et al. (2025) show how technology-supported training can be used to address various learning and developmental goals. Therefore, basic digital literacy should be extended by including pedagogical selection and evaluation of assistive technologies, accessible learning resources, and technology-supported instructional activities should be included in teacher training. Instead of introducing technology tools only for their features, special attention should be given to ensure that they are selected based on students' individual needs.

Third, social and emotional growth should be included in teacher preparation programs alongside academic success. The findings of Alkinj et al. (2022), Vasileiadis et al. (2026), and Karimova et al. (2026) mentioned the significance of social-emotional development, peer interaction, and social-skills education. Therefore, training in fostering positive peer connections, assisting with emotional regulation, and establishing inclusive classroom environments should be provided to pre-service and in-service teachers. When evaluating students' progress, such training should also improve teachers' capacity to distinguish between academic engagement, social participation, emotional well-being, and other developmental outcomes.

CONCLUSION

This scoping review examined the relationship between pedagogical strategies implemented in special and inclusive education and the academic, social, and emotional outcomes of students with special educational needs (SEN). Based on 15 empirical studies published between 2022 and 2026, the review identified several important strategies, including differentiated instruction, Universal Design for Learning (UDL), technology-assisted instruction, structured academic interventions, social stories, modelling, collaborative learning, and storytelling. Although the reported results of these techniques vary depending on instructional objectives, educational contexts, and research methodologies, the data show that these strategies target several aspects of student development.

The findings have significant implications for strengthening teacher education and professional development programmes in Malaysia, particularly in supporting the implementation of the Program Pendidikan Inklusif (PPI). Pre-service teachers should receive practical training in differentiated instruction, inclusive lesson planning, Universal Design for Learning (UDL), assistive technology, and social-emotional learning from teacher preparation programs. Microteaching, classroom-based experiences, and supervised teaching practice can all help to enhance these pedagogy strategies. Continuous professional development for practicing educators should carry out peer observation, cooperative lesson preparation, mentoring, and collaboration between mainstream and special education educators. Teachers also should be trained to evaluate academic performance, social engagement, and emotional health as separate but related aspects of holistic development.

However, the differences in study designs, sample sizes, educational environments, and outcome measures limit the generalizability of the findings. Further research is needed to examine teachers' professional development, preparation, and continuous instructional support on the adoption of inclusive pedagogy and student results, especially in Malaysian schools. In conclusion, this scoping review's main contribution is to offer evidence-based suggestions for improving teacher preparation programs and empowering pre-service and in-service educators. Teacher education institutions can better equip teachers to assist the holistic academic, social, and emotional development of students with SEN by combining inclusive pedagogical knowledge with practical teaching competencies.

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