

Adaptive Strategies and Teacher Effectiveness in Inclusive Private Preschools: A Klang Valley Study of Untrained Educators

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ABSTRACT

Inclusive enrolment in Malaysian private preschools has expanded faster than the specialized preparation of the general educators who manage these classrooms. Guided by the Malaysia Education Blueprint 2013-2025, children with dyslexia, speech delays, and mild autism are increasingly placed in mainstream preschool classrooms in the Klang Valley, yet most of their teachers hold general early childhood qualifications without certified special education training. This study examined the relationship between three low-cost adaptive strategies, namely environmental modifications, visual support, peer-mediated support, and self-reported teacher effectiveness in behavioral management, student safety, and syllabus delivery. Anchored in Vygotsky's scaffolding theory, the strategies were conceptualized as compensatory scaffolds that allow untrained teachers to sustain the role of the More Knowledgeable Other. A quantitative correlational design was employed, with data collected through a structured online questionnaire adapted from validated inclusive practices and teacher efficacy scales and administered to 100 purposively sampled educators in Klang Valley private preschools, 78 percent of whom held no specialized certification in special education. All scales demonstrated excellent internal consistency (Cronbach's alpha = .932 to .980). Pearson correlation analysis showed that visual supports ($r = .876$), environmental strategies ($r = .659$), and peer-mediated strategies ($r = .572$) were each significantly and positively related to teacher effectiveness ($p < .001$). Multiple linear regression indicated that the three strategies jointly explained 77.5 percent of the variance in teacher effectiveness, $F(3, 96) = 110.07$, $p < .001$, with visual supports emerging as the only significant unique predictor ($\beta = .899$, $p < .001$). The findings suggest that visual structure is the highest-yield compensatory scaffold available to untrained teachers, and that strategy-specific professional development, rather than specialist credentialing alone, is a scalable response to the teacher preparation gap in high-ratio private preschools. Implications for preschool operators, professional development, and Malaysian inclusive education policy are discussed.

Keywords: adaptive strategies, inclusive education, teacher effectiveness, private preschools, peer-mediated support

INTRODUCTION

Early childhood is widely recognized as the developmental window in which cognitive, social, and emotional capacities are most responsive to environmental quality, and international evidence consistently links the quality of early interactions to later learning and life outcomes (OECD, 2021). Within this period, global policy has moved decisively toward inclusion, the principle that children with disabilities and specific learning needs should learn alongside typically developing peers in mainstream settings rather than in segregated programmes (UNESCO, 2020; UNICEF, 2021). Inclusion is defended on grounds of equity and rights, but also on empirical grounds: reviews indicate that inclusive placement can benefit both children with special educational needs and their typically developing classmates, who gain opportunities to develop empathy, social awareness, and prosocial behaviors (Kart & Kart, 2021).

Malaysia has formalised this commitment through the Malaysia Education Blueprint 2013-2025, which mandates the progressive integration of students with special needs into mainstream classrooms to ensure equitable access to quality education (Ministry of Education Malaysia, 2013). The trajectory of Malaysian special education has shifted correspondingly from a historically segregated provision toward integration and, increasingly, inclusion (Lee & Low, 2014). In practice, however, the implementation of inclusive placement has often outpaced the institutional and professional support available to the teachers responsible for it. A general degree in early childhood education provides broad grounding in child development and pedagogy, but it rarely offers sufficient depth on neurodivergent behaviour, augmentative communication, or the management of complex learning profiles (Crispel & Kasperski, 2021). When a child with communication difficulties or sensory processing differences is placed in a conventional classroom, the untrained teacher typically relies on intuition and trial and error rather than evidence-based strategies (Al Jaffal, 2022).

This gap is felt with intensity in the private preschool sector of the Klang Valley, the densely urbanised conurbation surrounding Kuala Lumpur. The sector is highly competitive and market driven centres differentiate themselves through multilingual curricula and promises of school readiness, and parents who pay premium fees hold high expectations for measurable academic outcomes, expectations that are frequently extended to children with developmental delays. Many private preschools enrol children with special needs to meet enrolment targets or to signal inclusiveness, yet they seldom have the financial capacity to employ trained shadow aides or on-site therapists. Class sizes of ten to fifteen children per teacher mean that a single educator must simultaneously deliver an accelerated academic programme and provide individualised support to a child with mild autism, dyslexia, or a speech delay.

The consequences of this arrangement are well documented in the broader literature. Communication barriers are a first and central difficulty: children who cannot verbalise hunger, pain, or frustration often express those states through behaviour, and meta-analytic evidence confirms a robust association between language difficulties and problem behaviour in young children (Chow & Wehby, 2018). Second, untrained teachers report anxiety about self-regulation and safety when confronted with biting, hitting, or screaming, behaviours that endanger classmates and disrupt learning; general educators without inclusive training consistently report lower self-efficacy and higher professional stress in such situations (Woodcock, Sharma, Subban, & Hitches, 2022; Wray, Sharma, & Subban, 2022). Third, private sector parents frequently insist that their children with special needs keep pace with the standard academic syllabus, creating what may be called a paradox of academic inclusiveness in which the teacher must teach demanding content to a child who lacks foundational social-emotional and communicative competencies.

Despite a growing international literature on inclusive education, comparatively little research examines the practical, low-cost survival strategies that untrained general educators actually deploy in for-profit early childhood settings, and Malaysian scholarship on inclusion has concentrated largely on government schools and clinical programmes rather than on the private preschool market (Hosshan, Stancliffe, Villeneuve, & Bonati, 2021; Hosshan, 2022). The present study addresses this gap by testing whether three families of adaptive strategies, namely environmental modifications, visual supports, and peer-mediated support, are associated with the self-reported effectiveness of untrained teachers in inclusive private preschools in the Klang Valley.

Accordingly, the study pursued three objectives: (1) to identify and categorise the primary communication and behavioural challenges encountered by untrained educators in inclusive private preschool classrooms in the Klang Valley; (2) to analyse the perceptions of untrained educators regarding the utility and implementation of environmental, visual, and peer-mediated adaptive strategies for managing inclusive classrooms; and (3) to determine the relationship between the reported use of adaptive strategies and measures of teacher effectiveness, specifically in syllabus delivery, behavioural management, and classroom safety.

The corresponding research questions asked which communication and behavioural challenges are most frequent, how untrained educators perceive the role of the three strategy families, and to what extent strategy use correlates with self-reported effectiveness in maintaining the standard academic syllabus and ensuring

the safety and participation of all students. This article reports the theoretical framework, instrument development, and full-sample findings of the project, and it discusses their implications for research and practice.

LITERATURE REVIEW

Theoretical framework: Vygotsky's scaffolding theory

This study is grounded in social constructivism, specifically in Vygotsky's account of learning as a socially mediated process. Vygotsky (1978) defined the Zone of Proximal Development (ZPD) as the cognitive space between what a learner can accomplish independently and what the learner can accomplish with targeted assistance. Wood, Bruner, and Ross (1976) later described the assistance offered within this zone as scaffolding, that is, temporary and adjustable support provided by a More Knowledgeable Other (MKO) that is gradually withdrawn as competence develops. In inclusive private preschools in the Klang Valley, many neurodiverse children operate below the entry point of the standard curriculum because communication barriers prevent them from engaging with instruction. In Vygotskian terms, they cannot enter their ZPD unaided, and the resulting frustration frequently surfaces as disruptive behaviour. Figure 1 illustrates the model: movement from the inner circle of current understanding into the ZPD is possible only through appropriately calibrated scaffolds.

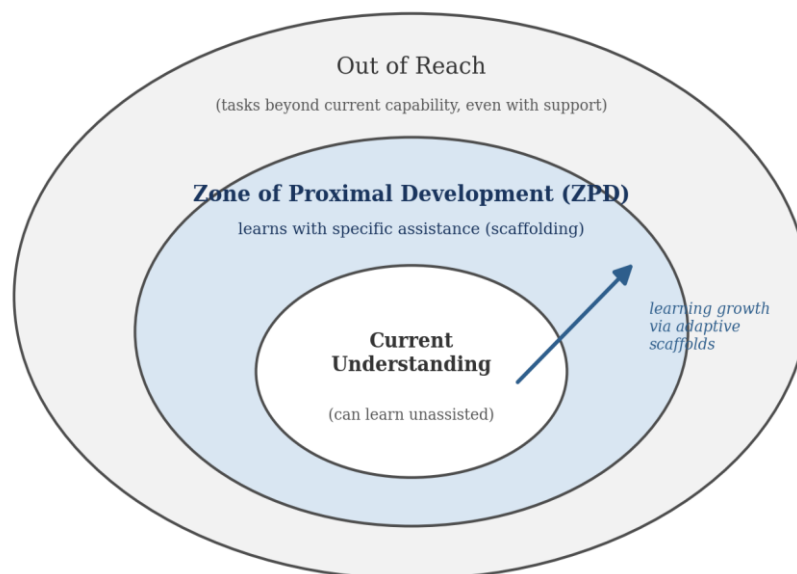


Figure 1. Vygotsky's Zone of Proximal Development (ZPD) and scaffolding model

A complication arises with the role of the MKO. Classically, the MKO is the teacher or a more skilled peer. As the problem statement makes clear, however, many general educators in the private sector are untrained in special education and are therefore constrained in their capacity to act as an effective MKO for neurodiverse learners (Crispel & Kasperski, 2021). This produces a secondary gap: the teacher wishes to help but lacks the specialised repertoire to do so. The theoretical contribution of the present study is the concept of compensatory scaffolding. Unlike classical scaffolding, which presumes specialised expertise in the MKO, compensatory scaffolding acknowledges the teacher's limited preparation and locates the scaffolding function in structured, low-cost tools and arrangements, namely environmental modifications, visual supports, and peer-mediated support. By becoming a facilitator of these external scaffolds rather than the sole source of expert mediation, the untrained teacher can preserve the MKO function, guide the child through the ZPD, and simultaneously sustain the accelerated pace of instruction demanded in high-pressure urban preschools. On this account, the effectiveness of an inclusive classroom depends less on the teacher's formal special education credentials than on the quality of the scaffolds made available to the child.

Environmental Modifications

Environmental modification refers to deliberate adjustment of the physical layout and sensory conditions of the classroom to reduce triggers for neurodivergent students. The physical environment functions as a silent teacher: lighting, acoustics, spatial zoning, and visual clutter measurably shape the engagement and self-regulation of young children with autism spectrum conditions (Martin, 2016). In the high-density preschools of the Klang Valley, noise and crowding readily produce sensory overload. Defined cool-down zones and sensory corners allow a child to self-regulate without leaving the room, which reduces the frequency of behavioural outbursts that interrupt lessons and permits the teacher to maintain a stable instructional climate.

Visual Supports

Visual supports are tools that use images, icons, and written words to help students navigate the school day, including picture timetables, first-then boards, and visual countdown timers. For children with speech delays or mild autism, transient verbal instruction is often overwhelming, whereas static visual information remains available for repeated reference (Meadan, Ostrosky, Triplett, Michna, & Fetting, 2011). Visual supports are recognised as an evidence-based practice for children with autism in the most recent comprehensive review of intervention research (Hume et al., 2021). By providing a predictable structure, visual tools lower anxiety, allow the child to understand transitions and expectations independently, and act as a cognitive scaffold that reduces the teacher's burden of constant verbal repetition, freeing instructional time for syllabus delivery. Malaysian teachers have likewise demonstrated considerable resourcefulness in adopting accessible visual and digital tools when circumstances demanded rapid pedagogical adaptation, which suggests that the capacity for tool-mediated adaptation already exists within the workforce.

Peer-Mediated Support

Peer-mediated support, often implemented as buddy systems, involves guiding typically developing children to provide social and academic scaffolding to their neurodivergent classmates. Systematic reviews show that peer-mediated interventions reliably improve social interaction and participation for children with autism in inclusive settings (Watkins et al., 2015), and a review of school-based interventions concludes that social participation does not arise automatically from physical placement but requires active facilitation, with structured peer involvement among the most effective mechanisms (Garrote, Sermier Dessemontet, & Moser Opitz, 2017). Evidence from Malaysian inclusive programmes points in the same direction: purposefully arranged peer-seating groups increased the social participation of students with learning disabilities in mainstream classrooms (Hosshan et al., 2021). In a preschool with a one-to-fifteen ratio, peers constitute the most abundant human resource in the room. When peers act as social scaffolds, the teacher can distribute the support load, keep the child with special needs included in group activities, and attend to the remainder of the class.

Teacher Effectiveness and Self-Efficacy In Inclusive Settings

In this study, teacher effectiveness denotes the educator's capacity to manage classroom behaviour, ensure the physical safety of all children, and deliver the standard academic syllabus despite the presence of developmental challenges. The construct is closely intertwined with self-efficacy, the belief in one's capability to organise and execute the actions required to produce desired outcomes (Bandura, 1997). A meta-analysis across 41 studies confirms a moderate positive relationship between teacher self-efficacy and attitudes toward inclusion (Yada, Leskinen, Savolainen, & Schwab, 2022), and longitudinal evidence indicates that efficacy beliefs predict subsequent attitudes rather than the reverse (Savolainen, Malinen, & Schwab, 2022). Intentions to enact inclusive practice are likewise anchored in efficacy: in a multi-national validation study, teaching efficacy scores were directly linked to the reported use of inclusive practices (Sharma, Sokal, Wang, & Loreman, 2021), a pattern replicated among Chilean teachers (San Martin, Ramirez, Calvo, Munoz-Martinez, & Sharma, 2021), Ghanaian teachers (Opoku, Cuskelly, Pedersen, & Rayner, 2021), and Australian secondary teachers (Subban, Round, & Sharma, 2021). Conversely, teachers who feel unprepared report anxiety and demoralisation, and perceived preparation is among the strongest correlates of efficacy for inclusion (Wray et al., 2022; Werner, Gumpel, Koller, Wiesenthal, & Weintraub,

2021). Knowledge also matters in a domain-specific way: reviews of teacher knowledge of autism find persistent gaps that constrain classroom practice (Gomez-Mari, Sanz-Cervera, & Tarraga-Minguez, 2021), and school leadership support conditions whether teachers can translate positive attitudes into practice (Khaleel, Alhosani, & Duyar, 2021).

At the preschool level specifically, early childhood educators generally endorse inclusion in principle while reporting substantial implementation barriers, including insufficient training, time, and support (D'Agostino & Douglas, 2021; Ginner Hau, Selenius, & Bjorck Akesson, 2022). Reviews of inclusive practice emphasise that what teachers actually do in classrooms, such as adapting instruction, structuring environments, and orchestrating peer interaction, is the proximal driver of inclusive outcomes (Finkelstein, Sharma, & Furlonger, 2021), while conceptual work cautions that research must connect theories of inclusion to concrete classroom mechanisms if it is to change practice (Nilholm, 2021; Love & Horn, 2021). Teacher attitudes, though generally positive, remain sensitive to perceived resources and support (Lindner, Schwab, Emara, & Avramidis, 2023), and strategies that support autistic students in mainstream settings consistently depend on structured, predictable environments and trained social support rather than on specialist credentials alone (Petersson-Bloom & Holmqvist, 2022; Al Jaffal, 2022).

The Malaysian and Klang Valley Context

Malaysian inclusive education has expanded steadily since the Education Blueprint, yet studies repeatedly identify a preparation gap among general educators (Lee & Low, 2014; Hosshan, 2022). Research based in Malaysian school's further documents that student support needs have intensified in the post-pandemic period, reinforcing the case for systematic, school-level support structures. Within urban early childhood settings, observe that Klang Valley preschools operate in a technology-rich, achievement-oriented market in which parents scrutinise pedagogy closely, a context that simultaneously raises expectations of teachers and creates openings for structured, tool-based adaptation. The present study responds to this context by testing whether low-cost adaptive strategies can function as the compensatory scaffolds that theory predicts.

Research Framework and Hypotheses

Figure 2 presents the conceptual framework. The three adaptive strategy families are positioned as independent variables whose use is expected to relate positively to teacher effectiveness, operationalised as behavioural management, safety assurance, and syllabus delivery.

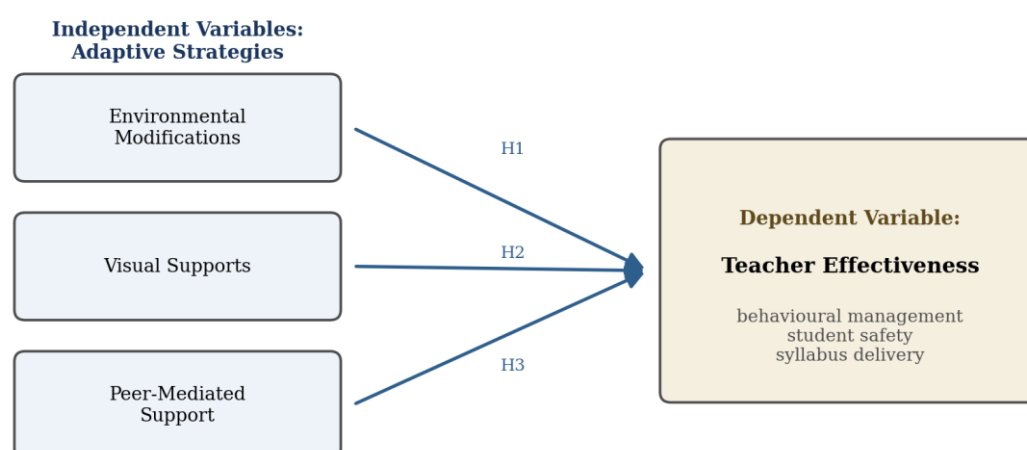


Figure 2. Conceptual research framework of adaptive strategies and teacher effectiveness

Three hypotheses were formulated. H1: There is a significant positive relationship between the reported use of environmental modifications and teacher effectiveness in managing behavioural challenges. H2: There is a significant positive relationship between the reported use of visual supports and teacher effectiveness in

maintaining lesson flow and reducing communication-based disruptions. H3: There is a significant positive relationship between the reported use of peer-mediated support and teacher effectiveness in delivering the standard syllabus while ensuring inclusive participation.

METHODOLOGY

Research Design

A quantitative, correlational, cross-sectional survey design was adopted. A quantitative approach permits the collection of numerical data amenable to statistical analysis across a comparatively large group of educators, and a correlational design is appropriate when the objective is to establish the strength and direction of relationships between naturally occurring variables rather than to manipulate them experimentally (Creswell & Creswell, 2023). The design tests whether greater reported use of adaptive strategies is associated with better classroom management and a reduced instructional burden while preserving the ecological integrity of the preschool environment.

Population and Sampling

The target population comprises early childhood educators currently employed in private preschools in the Klang Valley region of Malaysia, an urban demographic characterised by high parental expectations and diverse learner profiles, including children with developmental difficulties. Purposive sampling, a non-probability technique that selects respondents against criteria central to the research problem, was employed.

Respondents were required to be untrained educators, defined here as holders of a recognised certificate or degree in early childhood education without certified specialist training in special education, who currently manage inclusive classrooms without shadow-teacher support. The study targeted a sample of 80 to 100 teachers to provide a statistically stable picture of adaptive strategy use in the private sector, and a final sample of 100 educators was achieved. An initial pilot phase, in which 15 educators completed the instrument, was conducted for the purpose of reliability testing prior to full-scale data collection.

Instrument and Data Collection

The primary instrument is a structured online questionnaire in three sections. Section A collects demographic information, including teaching experience, educational qualifications, and the developmental needs represented in the respondent's current classroom, such as speech delays or mild autism. Section B measures the frequency of use of the three adaptive strategy families with 15 items adapted from the inclusive practices measurement developed and validated in the multi-national study by Sharma et al. (2021); items cover environmental modifications such as sensory corners and layout changes, visual supports such as pictorial schedules and visual countdown timers, and peer-mediated arrangements such as buddy systems and social modelling.

Section C measures self-assessed teacher effectiveness with five items addressing classroom management, student safety, and syllabus delivery, informed by the self-efficacy and resilience constructs synthesised by Yada et al. (2022). Sections B and C use a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Data collection follows a five-step procedure. First, formal approval is obtained from the principals or proprietors of the selected private preschools. Second, given the time pressures of urban private schools, the questionnaire is distributed digitally through Google Forms via professional educator networks and school communication channels, including WhatsApp and email.

Third, the first page of the survey presents an informed consent statement describing the purpose of the study; participants must click Agree to proceed. Fourth, respondents are assured of confidentiality and of their right to withdraw at any time without consequence, and no individual or institution is identified in any

output. Fifth, the questionnaire remains open for three weeks, with weekly reminders sent through school administrators.

Validity and Reliability

Content validity was addressed by adapting items from internationally validated scales and by expert review within the supervising faculty. Reliability was first evaluated through the pilot study of 15 participants using IBM SPSS Statistics Version 26. Cronbach's alpha was .895 for Section B (Adaptive Strategies, 15 items) and .936 for Section C (Teacher Effectiveness, 5 items), values conventionally interpreted as good and excellent respectively (Taber, 2018). Table 1 summarises the pilot results; reliability coefficients for the full sample of 100 respondents, computed separately for each of the four research variables, are reported in the Results section and confirmed the excellent internal consistency of the instrument.

Table 1. Cronbach's alpha coefficients for the pilot study (N = 15)

Variable	No. of items	Cronbach's alpha	Interpretation
Adaptive Strategies (Section B)	15	0.895	Good
Teacher Effectiveness (Section C)	5	0.936	Excellent

Data analysis

Data were analysed in SPSS in three stages (Pallant, 2020). First, descriptive statistics, namely frequency, percentage, and mean, profiled the demographic characteristics of respondents and the relative prevalence of each strategy family. Second, Pearson product-moment correlations tested the bivariate relationships between each independent variable and teacher effectiveness, with $p < .05$ adopted as the criterion of statistical significance. Third, multiple linear regression estimated the joint and unique contributions of environmental strategies, visual supports, and peer-mediated strategies to teacher effectiveness, permitting a direct test of which strategies carry independent predictive weight.

RESULTS

Demographic Profile of Respondents

Table 2 presents the demographic profile of the 100 respondents. The workforce is young in service terms: half of the sample (50 percent) reported 1 to 3 years of teaching experience, 22 percent reported less than 1 year, 23 percent reported 4 to 6 years, and only 5 percent reported 7 years or more. Formal tertiary education is nonetheless high, with 77 percent holding a bachelor's degree in early childhood education or education and a further 15 percent holding a diploma in early childhood education; only 4 percent reported SPM or STPM as their highest qualification and 4 percent held a master's degree or doctorate. Critically for the research problem, 78 percent of respondents did not possess any specialised certification or degree in special education, and only 22 percent reported formal special education qualifications. The sample therefore embodies the preparation gap at the centre of this study: a generally well-educated workforce that overwhelmingly lacks specialist training for the inclusive classrooms it manages.

Table 2. Demographic profile of respondents (N = 100)

Characteristic	Category	n	%
Teaching experience	Less than 1 year	22	22.0
	1 to 3 years	50	50.0
	4 to 6 years	23	23.0
	7 years and above	5	5.0
Highest qualification	Bachelor's degree in ECE / Education	77	77.0

	Diploma in Early Childhood Education	15	15.0
	SPM / STPM	4	4.0
	Master's degree / PhD	4	4.0
SPED certification	Yes	22	22.0
	No	78	78.0

Reliability of the Full-Sample Data

Internal consistency was re-examined for the full sample with Cronbach's alpha computed separately for each of the four research variables, each measured with five items. As shown in Table 3, all scales achieved excellent reliability: visual support strategies (alpha = .932), environmental strategies (alpha = .934), peer-mediated strategies (alpha = .968), and teacher effectiveness (alpha = .980). Values above .90 indicate excellent internal consistency, although coefficients at this level can also signal a degree of item redundancy within short scales (Taber, 2018). These results confirm that the survey items were well understood by respondents and that the data are suitable for the descriptive and inferential analyses that follow.

Table 3. Summary of reliability analysis for research variables (N = 100)

Variable	No. of items	Cronbach's alpha	Interpretation
Visual support strategies (IV)	5	.932	Excellent
Environmental strategies (IV)	5	.934	Excellent
Peer-mediated strategies (IV)	5	.968	Excellent
Teacher effectiveness (DV)	5	.980	Excellent

Descriptive Statistics

Table 4 reports the descriptive statistics for the research variables on the five-point scale. Reported strategy use was moderate: peer-mediated strategies recorded the highest mean (M = 3.24), followed closely by environmental strategies (M = 3.22), while visual support strategies recorded the lowest mean use (M = 2.86). Self-reported teacher effectiveness averaged M = 2.72, below the scale midpoint, indicating that despite active use of adaptive strategies, these untrained educators rated their own effectiveness in behavioural management, safety, and syllabus delivery as only moderate. The juxtaposition of the least-used strategy family (visual supports) with the modest effectiveness ratings becomes analytically important in the inferential results below.

Table 4. Descriptive statistics for research variables (N = 100)

Variable	Min	Max	Mean (M)
Visual support strategies	2.00	5.00	2.86
Environmental strategies	2.00	5.00	3.22
Peer-mediated strategies	2.00	5.00	3.24
Teacher effectiveness	2.00	5.00	2.72

Pearson Correlation Analysis

Pearson product-moment correlations were computed to determine the direction and strength of the relationships between the three adaptive strategy variables and teacher effectiveness, with coefficients of .10 to .29 interpreted as small, .30 to .49 as medium, and .50 and above as large. As shown in Table 5, all three adaptive strategies were significantly and positively related to teacher effectiveness at $p < .001$, and every coefficient exceeded the threshold for a large effect. Visual support strategies showed the strongest

relationship with effectiveness ($r = .876$), followed by environmental strategies ($r = .659$) and peer-mediated strategies ($r = .572$). Hypotheses H1, H2, and H3 were therefore all supported at the bivariate level.

The independent variables were also strongly intercorrelated, most notably environmental and peer-mediated strategies ($r = .894$), followed by visual and environmental strategies ($r = .748$) and visual and peer-mediated strategies ($r = .605$). This pattern indicates that teachers tend to adopt the three strategy families as a bundle rather than in isolation, and it signals substantial shared variance among predictors that must be borne in mind when interpreting the regression model.

Table 5. Pearson correlation matrix of research variables (N = 100)

Variable	1	2	3	4
1. Visual support strategies	1			
2. Environmental strategies	.748**	1		
3. Peer-mediated strategies	.605**	.894**	1	
4. Teacher effectiveness	.876**	.659**	.572**	1

Note. ** Correlation is significant at the 0.01 level (2-tailed).

Multiple Linear Regression

Multiple linear regression was conducted to determine how well the three adaptive strategies jointly predict teacher effectiveness and which strategies carry unique predictive weight. The model was statistically significant, $F(3, 96) = 110.07$, $p < .001$, with $R = .880$ and $R\text{-squared} = .775$ (adjusted $R\text{-squared} = .768$, standard error of the estimate = .44565), indicating that the three strategies together accounted for 77.5 percent of the variance in self-reported teacher effectiveness.

As shown in Table 6 and Figure 3, visual support strategies emerged as the only significant unique predictor of teacher effectiveness ($\beta = .899$, $t = 12.023$, $p < .001$). Peer-mediated strategies produced a positive coefficient that approached but did not reach conventional significance ($\beta = .201$, $t = 1.814$, $p = .073$), while environmental strategies produced a non-significant negative coefficient ($\beta = -.194$, $t = -1.456$, $p = .149$).

Hypothesis H4, that the adaptive strategies jointly and significantly predict teacher effectiveness, was supported. Although environmental and peer-mediated strategies were each strongly correlated with effectiveness at the bivariate level, they did not contribute significant unique variance once visual support was present in the model, a pattern examined in detail in the Discussion.

Table 6. Multiple regression results for adaptive strategies predicting teacher effectiveness (N = 100)

Variable	Beta	t-value	Sig. (p)
(Constant)	-	-0.553	.582
Visual support strategies	.899	12.023	< .001
Environmental strategies	-.194	-1.456	.149
Peer-mediated strategies	.201	1.814	.073

Note. $R = .880$; $R\text{-squared} = .775$; adjusted $R\text{-squared} = .768$; $F(3, 96) = 110.07$, $p < .001$.

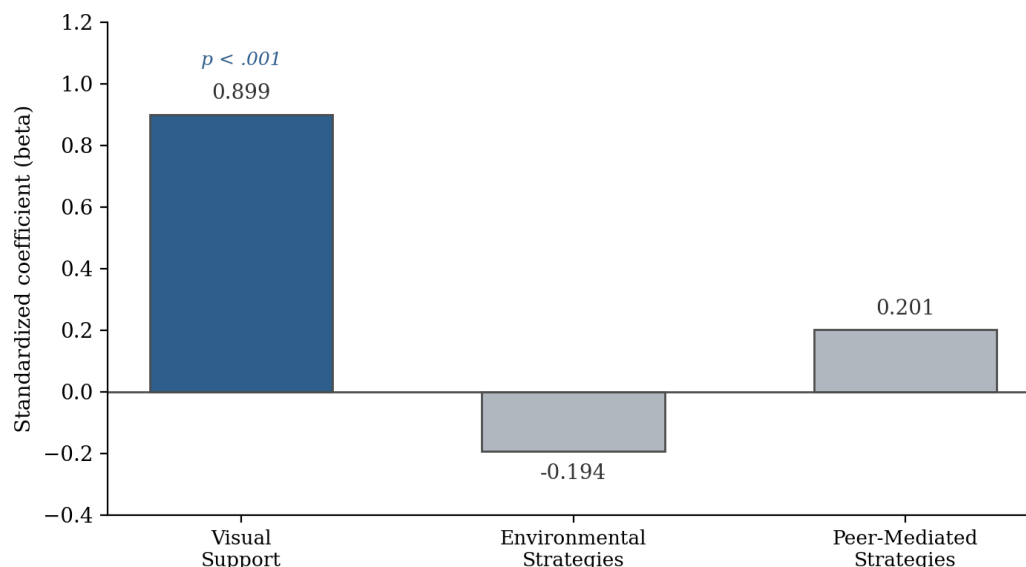


Figure 3. Standardized regression coefficients for the three adaptive strategies (N = 100)

Summary of hypothesis testing

Table 7 summarises the outcome of hypothesis testing. All three bivariate hypotheses were supported by the correlation analysis, and the joint prediction hypothesis was supported by the regression model. At the multivariate level, visual support strategies carried the model.

Table 7. Summary of hypothesis testing

Hypothesis	Statement	Result
H1	There is a significant relationship between visual support strategies and teacher effectiveness	Supported
H2	There is a significant relationship between environmental strategies and teacher effectiveness	Supported
H3	There is a significant relationship between peer-mediated strategies and teacher effectiveness	Supported
H4	Adaptive strategies significantly predict teacher effectiveness	Supported

DISCUSSION

Overview of Principal Findings

This study set out to determine whether three low-cost adaptive strategies are associated with the self-reported effectiveness of untrained teachers managing inclusive classrooms in Klang Valley private preschools. Four findings stand out. First, the instrument proved highly reliable, with all four scales achieving excellent internal consistency in the full sample, confirming that adaptive strategy use and teacher effectiveness can be measured dependably in this population. Second, every adaptive strategy was significantly and positively correlated with teacher effectiveness, with all coefficients in the large-effect range, so that the bivariate hypotheses H1 through H3 were uniformly supported. Third, the three strategies jointly explained 77.5 percent of the variance in teacher effectiveness, a very substantial proportion that is consistent with the central theoretical claim of this study that scaffolding quality, rather than teacher credentials alone, drives effective inclusion. Fourth, and most strikingly, visual support strategies emerged as the sole significant unique predictor within the multivariate model (beta = .899), despite recording the lowest mean usage of the three strategy families. Each of these findings merits detailed interpretation.

Visual Supports as the Dominant Compensatory Scaffold

The dominance of visual supports is theoretically coherent. In Vygotskian terms, learning is mediated not only by people but by cultural tools and signs, and a picture schedule, a first-then board, or a visual countdown timer is precisely such a tool: it externalises the structure of the school day into a form the child can consult independently, allowing the untrained teacher to preserve the function of the More Knowledgeable Other through the artefact rather than through continuous verbal direction (Vygotsky, 1978; Wood et al., 1976). For children with speech delays or mild autism, transient verbal instruction is often overwhelming, whereas static visual information remains available for repeated reference (Meadan et al., 2011). By providing a predictable structure, visual tools lower anxiety, allow the child to understand transitions and expectations independently, and act as a cognitive scaffold that reduces the teacher's burden of constant verbal repetition, freeing instructional time for syllabus delivery. This interpretation converges with the international evidence base: visual supports are classified as an evidence-based practice for children with autism in the most recent comprehensive review of intervention research (Hume et al., 2021), and communication-based challenging behaviour, which the problem statement identified as the defining daily stressor for these teachers, is exactly the class of behaviour that predictable visual structure pre-empts (Chow & Wehby, 2018). The Malaysian evidence is also supportive: local teachers have demonstrated considerable resourcefulness in adopting accessible visual and digital tools when circumstances demanded rapid pedagogical adaptation, and emerging work on technology in Malaysian early childhood settings suggests that the capacity for tool-mediated teaching is already present in the urban workforce.

A further feature of the data sharpens this conclusion. Visual supports recorded the lowest mean usage of the three strategy families ($M = 2.86$) yet the strongest bivariate correlation with effectiveness ($r = .876$) and the only significant regression coefficient. In other words, the highest-yield strategy is currently the least used. Teachers who do use visual supports consistently report markedly higher effectiveness, but many respondents appear to rely more heavily on environmental arrangements and peer assistance, which are more intuitive extensions of general classroom management. This gap between yield and uptake is arguably the single most actionable finding of the study, because it identifies a specific, inexpensive practice whose expansion is most likely to move effectiveness for the typical untrained teacher.

Interpreting the Non-Significant Unique Contributions of Environmental and Peer-Mediated Strategies

The non-significant regression coefficients for environmental strategies ($\beta = -.194$, $p = .149$) and peer-mediated strategies ($\beta = .201$, $p = .073$) must be interpreted with methodological care, and three considerations argue strongly against reading them as evidence that these strategies are ineffective. First, both strategies were strongly and positively correlated with effectiveness at the bivariate level ($r = .659$ and $r = .572$ respectively, both $p < .001$), so the question raised by the regression is not whether these strategies matter but whether they add predictive information beyond visual supports. Second, the predictors were heavily intercorrelated, most notably environmental and peer-mediated strategies at $r = .894$, a level at which multicollinearity renders unique coefficient estimates unstable and can produce suppression effects; the nominally negative sign for environmental strategies is best understood as a statistical artefact of partialling highly overlapping predictors rather than as a substantive negative effect. Teachers who use one adaptive strategy tend to use the others, and when three overlapping predictors compete for shared variance, the strongest predictor absorbs the common variance and forces its collinear companions toward zero. Third, peer-mediated strategies approached conventional significance ($p = .073$) with a positive coefficient, suggesting a genuine secondary contribution that a larger or more differentiated sample might resolve.

Beyond statistics, the strategies plausibly operate through different causal routes and over different time horizons. Environmental modifications act primarily on the child in a preventive and diffuse manner: a cool-down corner that averts a meltdown produces an absence of disruption, which is less salient to a self-reporting teacher than the visible daily assistance of a picture schedule that the teacher actively consults with the child (Martin, 2016). Peer-mediated arrangements distribute the support load across classmates and are well supported internationally (Watkins et al., 2015; Garrote et al., 2017) and locally, where purposefully arranged peer-seating groups increased the social participation of students with learning disabilities in

Malaysian mainstream classrooms (Hosshan et al., 2021). Their benefits, however, accrue substantially to the child's social participation, whereas self-reported teacher effectiveness is likely to be most sensitive to the workload relief that visual structure provides. Rather than abandoning environmental and peer strategies, the practical implication is that they should be positioned as complements to a visually anchored classroom, with their implementation quality improved through explicit procedural coaching (Gomez-Mari et al., 2021; Al Jaffal, 2022).

The Compensatory Scaffolding Framework and the Preparation Gap

At the theoretical level, the results are consistent with the compensatory scaffolding account developed in this study. The demographic profile makes the preparation gap concrete: 78 percent of respondents lack any specialist certification, and 72 percent have three years of experience or fewer, yet the joint contribution of the three strategies to teacher effectiveness was very large. This supports the claim that what untrained teachers lack in specialist preparation can be substantially offset by the quality of the external scaffolds they deploy, reframing the preparation gap documented across contexts (Crispel & Kasperski, 2021; D'Agostino & Douglas, 2021; Ginner Hau et al., 2022) from an intractable credentialing problem into a tractable tooling problem. It also aligns with the practice-focused turn in inclusion research, which argues that inclusive outcomes are proximally produced by concrete classroom actions rather than by attitudes or policies alone (Finkelstein et al., 2021; Nilholm, 2021). The finding that a tool-based strategy, rather than a person-based one, carried the model strengthens this reading: the scaffold most robustly associated with effectiveness is the one least dependent on the teacher's specialist interactional skill.

Moderate Effectiveness Despite Active Strategy Use

A sobering pattern in the descriptive data deserves its own interpretation: although respondents reported moderate use of all three strategies, mean self-reported effectiveness was only 2.72 on the five-point scale, below the midpoint. The strategies are therefore associated with effectiveness but have not, at current levels of use and implementation quality, lifted the average teacher into confident territory. Three readings are plausible and mutually compatible. First, implementation fidelity may be low: visual supports achieve their documented effects when they are individualised, consistently used, and systematically faded (Hume et al., 2021), and untrained teachers may implement the visible form of these tools without the procedural knowledge that makes them work, consistent with evidence that domain-specific knowledge gaps constrain classroom practice (Gomez-Mari et al., 2021). Second, the affective burden of the preparation gap persists: unpreparedness, anxiety, and demoralisation are among the strongest negative correlates of efficacy for inclusion (Wray et al., 2022; Werner et al., 2021), and within social cognitive theory, efficacy beliefs are built principally through mastery experiences (Bandura, 1997). Teachers averaging below the midpoint on effectiveness are unlikely to be accumulating such experiences at a sustaining rate. Third, structural constraints, including one-to-fifteen ratios, parental pressure for full syllabus coverage, and the absence of shadow aides, cap the effectiveness that any strategy bundle can deliver. Because efficacy and inclusive practice are mutually reinforcing over time (Yada et al., 2022; Savolainen et al., 2022; Woodcock et al., 2022), raising implementation quality is likely to initiate a virtuous cycle: better-implemented visual structure stabilises the classroom, stability generates mastery experiences, and restored confidence sustains further inclusive practice (Sharma et al., 2021).

Contextual Significance for the Klang Valley Private Preschool Sector

The Klang Valley context sharpens the practical meaning of these results. Private preschools operate in a competitive market in which parents expect children with special needs to follow the standard academic syllabus, teacher-to-student ratios of approximately one to fifteen are common, and budgets rarely stretch to shadow aides or on-site therapists. In such settings, the question is not which gold-standard clinical service to procure but which feasible arrangement best protects instruction and safety. The full-sample evidence gives a clear answer: visual structure delivers the largest measurable return for the untrained teacher, while environmental and peer-mediated arrangements should be retained as preventive and participatory infrastructure whose benefits accrue to the child even when they are less visible in teacher self-reports. This conclusion resonates with wider Malaysian evidence that school-level support structures, rather than

individual heroics, determine how well diverse learner needs are met, and it fills a documented gap in Malaysian scholarship, which has concentrated on government schools and secondary settings (Lee & Low, 2014; Hosshan, 2022; Hosshan et al., 2021) rather than on the for-profit preschool sector where inclusive enrolment is expanding fastest.

Implications for Practice and Policy

Four implications follow. For teachers, the findings validate a realistic and prioritised repertoire: converting spoken instruction into visual form should be the first and most consistent adaptation, through picture timetables, first-then boards, visual countdown timers, and clear written or pictorial checklists, complemented by a defined cool-down zone and a structured buddy system. For preschool owners and administrators, the findings make the business case for short, internal professional development that goes beyond awareness of learner differences to the concrete craft of creating and using high-quality visual aids, including simple digital tools for building interactive schedules; leadership support is a known condition for translating inclusive intentions into practice (Khaleel et al., 2021), budgets should include the modest physical and digital materials an adaptive classroom requires, and a stable, low-disruption classroom is itself a marketable indicator of quality. For parents, the results offer a realistic and optimistic account of inclusion: their children's developmental needs can be met safely within a mainstream academic programme through deliberate, evidence-aligned adaptations, and typically developing children benefit socially from participating in inclusive classrooms (Kart & Kart, 2021). For policymakers, the study suggests that the inclusion mandate of the Malaysia Education Blueprint (Ministry of Education Malaysia, 2013) should be accompanied, in the private early childhood sector, by lightweight regulatory expectations such as minimum adaptive provisions and micro-credential training in visual and peer-mediated strategies, rather than by reliance on scarce specialist personnel alone (UNESCO, 2020; OECD, 2021).

Implementing Visual Supports With Fidelity

Because the regression identifies visual support as the highest-yield strategy, its implementation quality deserves explicit discussion. Reviews of evidence-based practice caution that visual supports do not work as wall decoration; they work as interaction routines. Effective use requires that the visual is individualised to the child's comprehension level, physically referenced at every transition, paired initially with brief verbal and gestural prompts, and systematically faded as the child internalises the routine (Hume et al., 2021; Meadan et al., 2011). In a Malaysian private preschool this can be operationalised at near-zero cost: a laminated photograph strip for the daily schedule, a two-frame first-then card for demanding tasks, and a sand timer or visual countdown for transitions, with the teacher touching the relevant image while naming the step. Because challenging behaviour in children with speech difficulties frequently functions as communication (Chow & Wehby, 2018), visual tools should also run in the receptive-to-expressive direction, giving the child a means to indicate need, for example a help card or a break card, before frustration escalates into biting or screaming. Structured peer support then multiplies these routines: trained buddies can direct a classmate's attention to the schedule and model its use during arrival, transitions, and group work (Watkins et al., 2015; Garrote et al., 2017; Hosshan et al., 2021), integrating the second-ranked strategy into the service of the first.

LIMITATIONS

Several limitations bound these conclusions. All measures are self-reported, so shared method variance may inflate associations, and self-assessed effectiveness is not equivalent to observed child outcomes; the exceptionally high reliability coefficients, while reassuring, may also reflect item redundancy that amplifies such inflation (Taber, 2018). Purposive sampling from one urban region restricts external validity to comparable private preschool markets, and 22 percent of respondents held some special education certification, so the sample approximates rather than purely isolates the untrained population of interest. The cross-sectional correlational design cannot establish causal direction: teachers who feel effective may simply be more likely to adopt and report structured strategies. The very high intercorrelation between environmental and peer-mediated strategies ($r = .894$) limits the interpretability of their unique coefficients, and the descriptive analysis was restricted to means without standard deviations, constraining finer

characterisation of dispersion. Finally, the study measures the frequency of strategy use rather than the fidelity of implementation, which the discussion identifies as a likely moderator of the observed effects.

Directions for Future Research

Future work should proceed along four lines. First, observational studies should verify whether self-reported effectiveness corresponds to child-level indicators of participation and regulation, and whether reported visual support use corresponds to fidelity of use in situ. Second, longitudinal designs should track teachers and children across a school year to test the direction of the strategy-effectiveness relationship and the durability of gains, following cohorts from preschool entry onwards. Third, given the collinearity among strategies, larger studies should model the strategy bundle with techniques suited to overlapping predictors, and should test whether visual support mediates the association between the other strategies and effectiveness. Fourth, a qualitative follow-up is warranted: the moderate effectiveness means suggest professional and systemic constraints that statistics alone cannot explain, and in-depth interviews or focus groups with untrained teachers would surface the resource limits, parental pressures, and training needs that policymakers must address to improve working conditions in the private preschool sector.

CONCLUSION

This study examined whether low-cost adaptive strategies can compensate for the special education preparation gap among general educators in inclusive private preschools in the Klang Valley. Grounded in Vygotsky's scaffolding theory and operationalised through a validated survey instrument administered to 100 educators, the study produced highly reliable measures, uniformly large positive correlations between all three strategy families and teacher effectiveness, and a regression model in which environmental, visual, and peer-mediated strategies jointly explained 77.5 percent of the variance in self-reported teacher effectiveness, with visual support as the sole significant unique predictor. The findings advance a compensatory scaffolding account of inclusion in which the quality of classroom scaffolds, and especially deliberate visual structure, substitutes substantially for the specialist credentials that 78 percent of this workforce does not possess. At the same time, the moderate average effectiveness ratings caution that tools alone are not sufficient: their yield depends on implementation quality, institutional support, and realistic working conditions. Practically, the study equips untrained teachers, preschool operators, and policymakers with a prioritised, affordable repertoire for making inclusion workable under real market constraints, with visual supports as the anchor and environmental and peer-mediated arrangements as complements. Subsequent observational, longitudinal, and qualitative research should connect teacher-reported effectiveness to child outcomes and to the systemic constraints that statistics alone cannot reveal. If the present pattern holds, the most valuable inclusion resource in a crowded Klang Valley preschool may be disarmingly simple: a well-made picture schedule, consistently used by a teacher who knows how to scaffold.

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REFERENCES

1. Al Jaffal, M. (2022). Barriers general education teachers face regarding the inclusion of students with autism. *Frontiers in Psychology*, 13, 873248. <https://doi.org/10.3389/fpsyg.2022.873248>
2. Alnahdi, G. H., & Schwab, S. (2021). Special education major or attitudes to predict teachers' self-efficacy for teaching in inclusive education. *Frontiers in Psychology*, 12, 680909. <https://doi.org/10.3389/fpsyg.2021.680909>
3. Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.
4. Chow, J. C., & Wehby, J. H. (2018). Associations between language and problem behavior: A systematic review and correlational meta-analysis. *Educational Psychology Review*, 30(1), 61-82. <https://doi.org/10.1007/s10648-016-9385-z>

5. Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.
6. Crispel, O., & Kasperski, R. (2021). The impact of teacher training in special education on the implementation of inclusion in mainstream classrooms. *International Journal of Inclusive Education*, 25(9), 1079-1090. <https://doi.org/10.1080/13603116.2019.1600590>
7. D'Agostino, S. R., & Douglas, S. N. (2021). Early childhood educators' perceptions of inclusion for children with autism spectrum disorder. *Early Childhood Education Journal*, 49(4), 725-737. <https://doi.org/10.1007/s10643-020-01108-7>
8. Finkelstein, S., Sharma, U., & Furlonger, B. (2021). The inclusive practices of classroom teachers: A scoping review and thematic analysis. *International Journal of Inclusive Education*, 25(6), 735-762. <https://doi.org/10.1080/13603116.2019.1572232>
9. Garrote, A., Sermier Dessemontet, R., & Moser Opitz, E. (2017). Facilitating the social participation of pupils with special educational needs in mainstream schools: A review of school-based interventions. *Educational Research Review*, 20, 12-23. <https://doi.org/10.1016/j.edurev.2016.11.001>
10. Ginner Hau, H., Selenius, H., & Bjorck Akesson, E. (2022). A preschool for all children? Swedish preschool teachers' perspective on inclusion. *International Journal of Inclusive Education*, 26(10), 973-991. <https://doi.org/10.1080/13603116.2020.1758805>
11. Gomez-Mari, I., Sanz-Cervera, P., & Tarraga-Minguez, R. (2021). Teachers' knowledge regarding autism spectrum disorder (ASD): A systematic review. *Sustainability*, 13(9), 5097. <https://doi.org/10.3390/su13095097>
12. Hosshan, H. (2022). Perspectives of teachers on supporting the participation of students with learning disabilities in inclusive secondary schools: A qualitative study. *Asia Pacific Journal of Educators and Education*, 37(1), 45-60.
13. Hosshan, H., Stancliffe, R. J., Bonati, M. L., & Villeneuve, M. (2021). Peer-seating groups and social participation by students with learning disabilities in full-inclusion in Malaysian secondary schools. *International Journal of Inclusive Education*. Advance online publication. <https://doi.org/10.1080/13603116.2021.1973125>
14. Hume, K., Steinbrenner, J. R., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., Szendrey, S., McIntyre, N. S., Yucesoy-Ozkan, S., & Savage, M. N. (2021). Evidence-based practices for children, youth, and young adults with autism: Third generation review. *Journal of Autism and Developmental Disorders*, 51(11), 4013-4032. <https://doi.org/10.1007/s10803-020-04844-2>
15. Jailani, M. A., Yusoooff, F., Wong, H. S., & Wan Abas, W. M. U. (2025). A comparative analysis of counselling needs among urban and rural secondary school students in the post-COVID-19 period (July 2022 - June 2024): Implications for school counselling services. *Asian Journal of Social Science Research*, 7(1), 40-53. <https://doi.org/10.5281/zenodo.15803339>
16. Kart, A., & Kart, M. (2021). Academic and social effects of inclusion on students without disabilities: A review of the literature. *Education Sciences*, 11(1), 16. <https://doi.org/10.3390/educsci11010016>
17. Khaleel, N., Alhosani, M., & Duyar, I. (2021). The role of school principals in promoting inclusive schools: A teachers' perspective. *Frontiers in Education*, 6, 603241. <https://doi.org/10.3389/educ.2021.603241>
18. Lee, L. W., & Low, H. M. (2014). The evolution of special education in Malaysia. *British Journal of Special Education*, 41(1), 42-58. <https://doi.org/10.1111/1467-8578.12048>
19. Lindner, K.-T., Schwab, S., Emara, M., & Avramidis, E. (2023). Do teachers favor the inclusion of all students? A systematic review of primary schoolteachers' attitudes towards inclusive education. *European Journal of Special Needs Education*, 38(6), 766-787. <https://doi.org/10.1080/08856257.2023.2172894>
20. Love, H. R., & Horn, E. (2021). Definition, context, quality: Current issues in research examining high-quality inclusive education. *Topics in Early Childhood Special Education*, 40(4), 204-216.
21. Martin, C. S. (2016). Exploring the impact of the design of the physical classroom environment on young children with autism spectrum disorder (ASD). *Journal of Research in Special Educational Needs*, 16(4), 280-298. <https://doi.org/10.1111/1471-3802.12092>

22. Meadan, H., Ostrosky, M. M., Triplett, B., Michna, A., & Fetting, A. (2011). Using visual supports with young children with autism spectrum disorder. *TEACHING Exceptional Children*, 43(6), 28-35. <https://doi.org/10.1177/004005991104300603>
23. Ministry of Education Malaysia. (2013). *Malaysia Education Blueprint 2013-2025 (Preschool to post-secondary education)*. Ministry of Education Malaysia.
24. Nilholm, C. (2021). Research about inclusive education in 2020: How can we improve our theories in order to change practice? *European Journal of Special Needs Education*, 36(3), 358-370. <https://doi.org/10.1080/08856257.2020.1754547>
25. OECD. (2021). *Starting strong VI: Supporting meaningful interactions in early childhood education and care*. OECD Publishing. <https://doi.org/10.1787/f47a06ae-en>
26. Opoku, M. P., Cuskelly, M., Pedersen, S. J., & Rayner, C. S. (2021). Attitudes and self-efficacy as significant predictors of intention of secondary school teachers towards the implementation of inclusive education in Ghana. *European Journal of Psychology of Education*, 36(3), 673-691. <https://doi.org/10.1007/s10212-020-00490-5>
27. Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS (7th ed.)*. Routledge.
28. Petersson-Bloom, L., & Holmqvist, M. (2022). Strategies in supporting inclusive education for autistic students: A systematic review of qualitative research results. *Autism & Developmental Language Impairments*, 7, 1-21.
29. San Martin, C., Ramirez, C., Calvo, R., Munoz-Martinez, Y., & Sharma, U. (2021). Chilean teachers' attitudes towards inclusive education, intention, and self-efficacy to implement inclusive practices. *Sustainability*, 13(4), 2300. <https://doi.org/10.3390/su13042300>
30. Savolainen, H., Malinen, O.-P., & Schwab, S. (2022). Teacher efficacy predicts teachers' attitudes towards inclusion: A longitudinal cross-lagged analysis. *International Journal of Inclusive Education*, 26(9), 958-972. <https://doi.org/10.1080/13603116.2020.1752826>
31. Sharim, M. A., Nik Roseli, N. E., Md. Yasin, S. F., Hue, J. C. K., & Jamal Abdul Nasir, F. U. (2024). Exploring the role of artificial intelligence (AI) in early childhood education: A case study in urban areas in Malaysia. *Asian Journal of Research in Education and Social Sciences*, 6(4), 167-173. <https://myjms.mohe.gov.my/index.php/ajress/article/view/28517>
32. Sharma, U., Sokal, L., Wang, M., & Loreman, T. (2021). Measuring the use of inclusive practices among pre-service educators: A multi-national study. *Teaching and Teacher Education*, 107, 103506. <https://doi.org/10.1016/j.tate.2021.103506>
33. Subban, P., Round, P., & Sharma, U. (2021). 'I can because I think I can': An investigation into Victorian secondary school teachers' self-efficacy beliefs regarding the inclusion of students with disabilities. *International Journal of Inclusive Education*, 25(3), 348-361. <https://doi.org/10.1080/13603116.2018.1550115>
34. Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273-1296. <https://doi.org/10.1007/s11165-016-9602-2>
35. UNESCO. (2020). *Global education monitoring report 2020: Inclusion and education: All means all*. UNESCO Publishing.
36. UNICEF. (2021). *Seen, counted, included: Using data to shed light on the well-being of children with disabilities*. United Nations Children's Fund.
37. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
38. Watkins, L., O'Reilly, M., Kuhn, M., Gevarter, C., Lancioni, G. E., Sigafoos, J., & Lang, R. (2015). A review of peer-mediated social interaction interventions for students with autism in inclusive settings. *Journal of Autism and Developmental Disorders*, 45(4), 1070-1083. <https://doi.org/10.1007/s10803-014-2264-x>
39. Werner, S., Gumpel, T. P., Koller, J., Wiesenthal, V., & Weintraub, N. (2021). Can self-efficacy mediate between knowledge of policy, school support and teacher attitudes toward inclusive education? *PLOS ONE*, 16(9), e0257657. <https://doi.org/10.1371/journal.pone.0257657>
40. Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry*, 17(2), 89-100. <https://doi.org/10.1111/j.1469-7610.1976.tb00381.x>

41. Woodcock, S., Sharma, U., Subban, P., & Hitches, E. (2022). Teacher self-efficacy and inclusive education practices: Rethinking teachers' engagement with inclusive practices. *Teaching and Teacher Education*, 117, 103802. <https://doi.org/10.1016/j.tate.2022.103802>
42. Wray, E., Sharma, U., & Subban, P. (2022). Factors influencing teacher self-efficacy for inclusive education: A systematic literature review. *Teaching and Teacher Education*, 117, 103800. <https://doi.org/10.1016/j.tate.2022.103800>
43. Yada, A., Leskinen, M., Savolainen, H., & Schwab, S. (2022). Meta-analysis of the relationship between teachers' self-efficacy and attitudes toward inclusive education. *Teaching and Teacher Education*, 109, 103521. <https://doi.org/10.1016/j.tate.2021.103521>