Enhancing Holistic Development of Neurodivergent Learners in Thailand Through Individualized Education Plans (IEPs)

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Abstract — This study examined teachers' perceptions of the effectiveness of Individualized Education Plan (IEP) implementation in supporting the holistic development of neurodivergent learners in international schools in Bangkok, Thailand. Guided by four developmental domains physical, intellectual, social, and emotional the research investigated the perceived effectiveness of IEP implementation and the frequency with which teachers reported using inclusive instructional strategies. The study also explored whether teacher demographic characteristics and learners' disability categories were significantly associated with perceived effectiveness and strategy utilization. A quantitative descriptive–correlational design was employed involving 90 teachers with direct experience supporting learners with IEPs. Data were collected using a researcher-developed questionnaire and analyzed through descriptive statistics (frequency, percentage, and weighted mean) and inferential analyses (Pearson's r, Point-Biserial correlation, and Kendall's Tau-B) at a 0.05 level of significance. Findings revealed that the overall perceived effectiveness of IEP implementation was moderate (M = 3.50), with physical development receiving the highest rating (M = 3.59), while intellectual (M = 3.48), social (M = 3.50), and emotional development (M = 3.43) were rated moderate. In contrast, the utilization of inclusive strategies was high across domains (M = 4.16), particularly in social development. Correlational analyses showed limited significant relationships between teacher characteristics and perceived effectiveness, although select associations emerged for teacher sex, civil status, and special education training. The findings highlight an implementation gap between teachers' active use of inclusive strategies and the moderate effectiveness of IEP outcomes, underscoring the need for strengthened interdisciplinary collaboration, targeted professional development, and enhanced institutional support to improve holistic outcomes for neurodivergent learners.

Keywords — Individualized Education Plan, neurodivergent learners, inclusive education, teacher strategies, holistic development, Thailand

I. Introduction

Inclusive education has become a central priority in global education policy as schools increasingly recognize the need to provide equitable learning opportunities for diverse learners, including those who are neurodivergent. International frameworks such as the Salamanca Statement (UNESCO, 1994) and the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) emphasize that education systems must accommodate diverse learning needs and ensure meaningful participation for all learners. These frameworks promote the principle that all learners, regardless of disability or learning differences, should have access to inclusive educational environments where their individual needs are supported. UNESCO has further reinforced this commitment through its global initiatives promoting Education for All and inclusive education systems, which encourage schools to adopt flexible instructional practices and individualized support strategies that foster both academic success and social participation.

Inclusive education also plays a critical role in supporting the broader health and well-being of neurodivergent learners. Research indicates that individualized educational support can reduce academic stress, improve emotional regulation, and strengthen learners' resilience and self-confidence. When learners receive appropriate accommodations through structured educational planning, they are more likely to develop positive peer relationships, experience reduced stigma, and participate more actively in school and community life. Consequently, Individualized Education Plans (IEPs) function not only as educational tools but also as mechanisms that support mental health, social participation, and long-term developmental outcomes for neurodivergent learners.

One key mechanism for implementing inclusive education is the Individualized Education Plan (IEP). An IEP provides a structured framework for identifying learner needs, setting individualized goals, and designing instructional accommodations tailored to each student. When implemented effectively, IEPs function not merely as compliance documents but as dynamic planning tools that guide collaborative support among teachers, specialists, and families (Wehmeyer et al., 2013; Mitchell, 2020). Through individualized planning and systematic monitoring, IEPs aim to promote holistic development across physical, intellectual, social, and emotional domains, ensuring that educational interventions respond to the diverse needs of neurodivergent learners.

Despite the widespread recognition of inclusive education principles, research indicates that challenges often arise when translating inclusive policies into effective classroom practice. Teachers frequently report difficulties related to limited professional preparation, insufficient access to specialized services, and inconsistent interdisciplinary collaboration (Schuelka & Johnstone, 2018; UNESCO, 2021). These systemic challenges may reduce the effectiveness of IEP implementation, even when educators are committed to supporting diverse learners within inclusive classrooms.

In Thailand, inclusive education has been formally supported through several national policies that emphasize equal access to education for learners with disabilities. The National Education Act B.E. 2542 (1999) established the principle that all individuals have the right to receive basic education and promoted educational equity within the national system. This commitment was further strengthened through the Special Education Act B.E. 2551 (2008), which explicitly guarantees educational services and support mechanisms for students with disabilities, including individualized learning support. These policies reflect Thailand's alignment with international commitments to inclusive education and emphasize the importance of providing appropriate accommodations and support systems for learners with diverse needs. However, the implementation of inclusive practices may vary across different school contexts, particularly within international schools where educational systems, teacher backgrounds, and student populations are highly diverse.

Guided by Bronfenbrenner's Ecological Systems Theory (1979), this study examines how teachers perceive the effectiveness of IEP implementation in supporting the holistic development of neurodivergent learners. The ecological perspective highlights that student outcomes are shaped not only by classroom-level instructional practices but also by broader environmental systems, including collaboration among educators, specialists, administrators, and families. Understanding teachers' perspectives within this broader ecological framework provides valuable insight into how inclusive education policies are translated into everyday educational practice.

Despite the growing body of global research on inclusive education and individualized planning, empirical studies examining the implementation of IEPs in Southeast Asian contexts remain limited. Much of the existing literature originates from Western educational systems where institutional resources, teacher preparation programs, and policy infrastructures differ substantially from those in developing or multicultural educational environments. In Thailand, although inclusive education policies have been established, there is still limited empirical evidence examining how teachers implement individualized educational planning in practice, particularly within international school settings.

This study therefore addresses an important research gap by examining teachers' perceptions of IEP implementation and its influence on the holistic development of neurodivergent learners in Bangkok. Specifically, the study investigates teachers' demographic profiles, the perceived effectiveness of IEP implementation across developmental domains, the frequency with which teachers apply inclusive instructional strategies, and the relationships among these variables. By exploring these factors within the context of international schools in Bangkok, the study contributes empirical evidence to the growing body of research on inclusive education and provides insight into how policy commitments to inclusion are translated into everyday instructional practice.

Statement of the Problem

This study aimed to enhance the holistic development of neurodivergent learners in Thailand through individualized education plan focusing on the effectiveness of the IEP implementation.

Specifically, the study seeks to answer the following questions:

1. What is the profile of teachers handling neurodivergent learners in terms of:

    a) Age;

    b) Sex;

    c) Nationality;

    d) Civil Status;

    e) Highest Educational Attainment;

    f) Teaching Position;

    g) Years of teaching experience;

    h) Training in special education; and

    i) Experience working with students with various types of special needs?

2. What is the extent of the effectiveness of implementing Individualized Education Plans for neurodivergent learners as perceived by the teachers in terms of:

    a) Physical;

    b) Intellectual;

    c) Social; and

    d) Emotional?

3. What is the frequency of use of strategies utilized in developing neurodivergent learners along:

    a) Physical;

    b) Intellectual;

c) Social; and

d) Emotional?

4. What is the significance of the relationship between the profile of the teachers and the following:

a) the extent of effectiveness of IEP implementation

b) frequency of use of the strategies

Based on the results of the study, what Proposed Individualized Education Plan (IEP) may be developed to enhance the holistic development of neurodivergent learners in Thailand in terms of physical, intellectual, social, and emotional development?

Hypothesis

The null hypothesis was tested at 0.05 alpha level of significance:

1. There is no significant relationship between teachers' profiles and the extent of effectiveness of IEP implementation on the holistic development of neurodivergent learners.

2. There is no significant relationship between teachers' profiles and the frequency of use of strategies in the implementation of IEPs for the holistic development of neurodivergent learners

Conceptual Framework

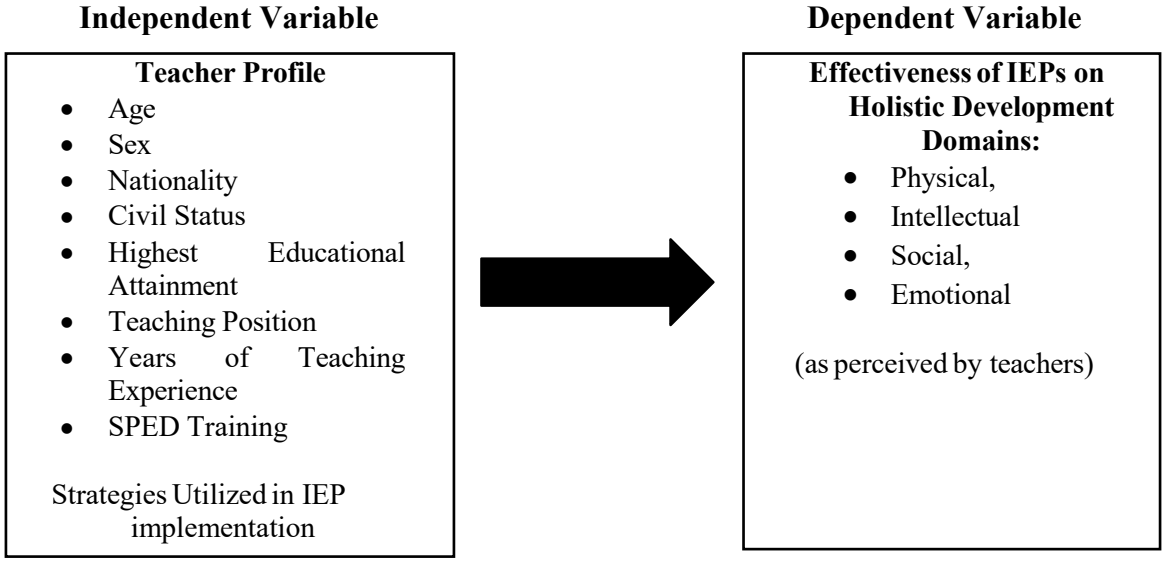

Figure 1. Conceptual Framework of the Study

Literature Review

Inclusive education has gained global recognition as a fundamental component of equitable and quality education systems. International frameworks such as the United Nations Sustainable Development Goals (SDG 4) and UNESCO's initiatives on inclusive education emphasize the need for learning environments that accommodate diverse learners and ensure equal participation for individuals with disabilities (UNESCO, 2020). These initiatives promote educational systems that support not only academic achievement but also learners' overall well-being, social participation, and lifelong opportunities. In Thailand, inclusive education is reinforced through national policies such as the National Education Act B.E. 2542 (1999) and the Special Education Act B.E. 2551 (2008), which guarantee access to appropriate educational services and individualized support for learners with disabilities within mainstream educational settings.

Inclusive education also plays an important role in addressing the health and psychosocial challenges experienced by neurodivergent learners. Students with conditions such as autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), and learning disabilities often experience higher levels of academic stress, anxiety, and emotional regulation difficulties compared with their peers (Lindsay, 2019). Individualized educational support, particularly through Individualized Education Plans (IEPs), can help mitigate these challenges by providing tailored accommodations and structured support. Research suggests that individualized supports improve coping skills, reduce anxiety, and strengthen emotional resilience among neurodivergent learners (Shogren et al., 2015).

Beyond mental health benefits, inclusive education contributes to positive social outcomes. Students who receive appropriate support in inclusive classrooms are more likely to develop meaningful peer relationships, experience a stronger sense of belonging, and participate actively in school activities. Inclusive environments promote understanding and reduce stigma, thereby strengthening social integration and reducing long-term social exclusion (Hehir et al., 2016). In the long term, inclusive education has been associated with improved societal outcomes, including greater independence, higher employment rates, and increased civic participation among individuals with disabilities (UNESCO, 2020).

A key mechanism for implementing inclusive education is the Individualized Education Plan (IEP). IEPs provide a structured process for identifying learner needs, setting individualized goals, and implementing targeted instructional accommodations. Effective implementation typically involves collaboration among teachers, specialists, school administrators, and families to ensure that educational strategies support learners' academic, social, and emotional development (Mitchell, 2020; Wehmeyer et al., 2013).

However, the effectiveness of IEP implementation depends largely on teacher

competence and institutional support. Teachers' knowledge, attitudes, and instructional strategies significantly influence the success of inclusive classrooms (Qi & Ha, 2022). Many educators report limited training in special education, which can hinder their ability to design appropriate accommodations (Amr et al., 2021). Institutional factors such as access to specialized professionals, collaborative planning structures, and adequate resources are also essential for effective inclusive practices (Florian et al., 2019).

These challenges may be further intensified in international school contexts, where teachers come from diverse cultural and professional backgrounds and may vary in their familiarity with inclusive education policies and practices (Tan & Lim, 2021). As a result, professional development and institutional support are critical for ensuring effective implementation of inclusive strategies.

Overall, while inclusive education policies provide an important framework, successful implementation depends on teacher preparation, institutional support, and effective use of individualized planning mechanisms such as IEPs. Importantly, inclusive education should not be viewed solely as an educational initiative but as a strategy that promotes holistic health, social participation, and long-term societal inclusion for neurodivergent learners.

II. Methodology

Research Design

This study employed a quantitative descriptive–correlational design to examine teachers' perceptions of the effectiveness of Individualized Education Plans (IEPs) in supporting the holistic development of neurodivergent learners and to determine the frequency of inclusive instructional strategies used in IEP implementation. A quantitative approach was chosen because it enables the systematic measurement of perceptions, comparison across teacher groups, and statistical testing of relationships among teacher characteristics, instructional practices, and perceived IEP effectiveness.

While qualitative or mixed-method approaches could provide deeper contextual insights, this study prioritized identifying general trends, group differences, and statistical associations across a larger sample. The design allowed the assessment of perceived IEP effectiveness across the physical, intellectual, social, and emotional domains, as well as the analysis of relationships between teacher characteristics and implementation practices.

Research Setting

The study was conducted in two inclusive schools in Bangkok, Thailand: one public primary school and one international school. Both institutions implement inclusive education programs and utilize IEPs for neurodivergent learners. These settings provided access to teachers with direct experience in individualized educational planning and allowed comparison across two distinct school contexts.

Participants of the Study

The study involved 90 teachers with direct experience supporting learners with IEPs, selected through purposive sampling from two participating schools (45 teachers from each school). The accessible population initially consisted of 95 teachers identified by school administrators and Special Education Needs (SEN) coordinators as being involved in inclusive education.

Participants were included if they:

1. were currently employed in one of the selected schools,
2. had direct experience implementing or supporting IEPs, and
3. agreed to participate voluntarily.

Teachers without IEP-related responsibilities were excluded. Participants had experience supporting learners with Autism Spectrum Disorder (ASD), Attention-Deficit/Hyperactivity Disorder (ADHD), dyslexia, and other learning disabilities. Demographic variables collected included age, sex, nationality, civil status, educational attainment, teaching position, years of experience, and special education training.

Recruitment was conducted in collaboration with school principals and SEN coordinators, and participation was entirely voluntary.

Research Instrument

Data were collected using a researcher-developed structured questionnaire aligned with the study objectives and conceptual framework. The instrument consisted of three sections:
Part I – Teacher Profile: demographic and professional information.
Part II – Perceived Effectiveness of IEP Implementation:
24 Likert-scale items assessing IEP impact across physical, intellectual, social, and emotional development, rated on a 5-point scale (Strongly Disagree to Strongly Agree).
Part III – Strategy Utilization:
12 items measuring the frequency of instructional and behavioral strategies used in IEP implementation, rated on a 5-point frequency scale (Never to Always).

The questionnaire was designed to capture measurable indicators of IEP effectiveness and instructional practices.

Validity and Reliability of the Instrument

Content validity was established through expert review by 5 specialists in special education, inclusive pedagogy, and educational psychology. The experts evaluated each item for clarity, relevance, and alignment with the study objectives, leading to minor revisions.

A pilot test was conducted with teachers not included in the final sample to assess clarity and internal consistency. Reliability was evaluated using Cronbach's alpha, and acceptable coefficients supported the use of the instrument for the main data collection.

Data Collection Process

Data collection followed a structured and ethical process. After obtaining approval from the researcher's academic institution and participating schools, coordination was conducted with SEN coordinators to identify eligible participants.

Teachers were informed about the purpose of the study, confidentiality measures, and voluntary participation before providing informed consent. Questionnaires were distributed in printed format, and respondents were given one to two weeks to complete them.

Completed questionnaires were collected, checked for completeness, and encoded. Data were entered into Microsoft Excel and analyzed using SPSS, with all responses anonymized prior to analysis.

Statistical Analysis

Both descriptive and inferential statistics were used.

Descriptive statistics (frequency, percentage, weighted mean, and standard deviation) summarized teacher demographics, perceived IEP effectiveness, and strategy utilization.

Inferential statistics examined relationships between variables:

Research Question	**Statistical Tool**
Teacher demographic profile	Frequency and percentage
Level of IEP effectiveness	Weighted mean and standard deviation
Frequency of strategy utilization	Weighted mean and standard deviation
Relationship between teacher characteristics and IEP effectiveness	Pearson's r, Point-Biserial correlation, Kendall's Tau-b
Relationship between disability type and strategies/effectiveness	Point-Biserial correlation or group comparison tests

All tests were conducted at a 0.05 significance level. Where applicable, effect sizes and confidence intervals were reported to strengthen interpretation.

Interpretation of Non-Significant Findings

Non-significant relationships were interpreted cautiously and discussed in relation to potential factors such as limited sample size, restricted variability, or the stronger influence of institutional conditions on IEP implementation.

Ethical Considerations

The study adhered to established ethical standards. Institutional approval was obtained prior to data collection, and all participants provided informed consent. Participation was voluntary, and respondents were assured of confidentiality and anonymity. All collected data were securely stored and used solely for research purposes.

Feasibility of the Study

The study was feasible due to established collaboration with participating schools and support from administrators and SEN coordinators. The use of a structured questionnaire allowed efficient data collection without disrupting teaching schedules. Required resources included institutional approval, questionnaire distribution, and statistical analysis using SPSS.

Research Timeline

Phase	Activity	Timeframe
Phase 1	Instrument development, validation, pilot testing	Month 1
Phase 2	Institutional approval and participant recruitment	Month 2
Phase 3	Data collection	Months 3–4
Phase 4	Data encoding and statistical analysis	Month 5
Phase 5	Interpretation, writing, and dissemination	Month 6

III. Results and Discussion

Table 1. Profile of Teachers Handling Neurodivergent Learners

Profile	Category	Frequency	Percent
Age	23-30	40	**44.4**
	31-40	28	31.1
	41-50	17	18.9
	51-60	5	5.6
Sex	Male	33	36.7
	Female	53	**58.9**
	Prefer not to say	4	4.4
Nationality	Filipino	69	**76.7**
	Thai	16	17.8
	Others	5	5.5
Civil Status	Single	55	**61.1**
	Married	32	35.6
	Widowed/Separated	3	3.3
Highest Educational Attainment	Bachelor's Degree	70	**77.8**
	Master's Graduate	16	17.8
	Doctorate Graduate	4	4.4
Teaching Position	General Education Teacher	44	48.9
	Special Education Teacher	46	**51.1**

Years of Teaching Experience	Less than 1 year	15	16.7
	1-5 years	31	**34.4**
	6-10 years	25	27.8
	11-15 years	8	8.9
	More than 15 years	11	12.2
Training in Special Education	None	22	24.4
	Short-term seminar/workshop	30	**33.3**
	Certificate course	11	12.2
	Degree program (BSEd/SPED, MEd/SPED)	27	30.0
Experience Working with Students with Various Types of Special Needs	ASD	44	50.0
	ADHD	51	**58.0**
	SLD	22	25.0
	SLI	28	31.8
	EBD	38	43.2
	ID	24	27.3
	PHI	15	17.0
	SD	14	15.9
	Giftedness	16	18.2

The results show that most respondents were aged 23–30 years, indicating a relatively young teaching workforce. Female teachers comprised the majority of participants, reflecting common trends in education. Filipino educators represented the largest national group, followed by Thai teachers and other nationalities.

Most teachers held bachelor's degrees, although a smaller proportion had completed graduate studies. Nearly one-quarter reported having no formal special education training, highlighting a potential gap in professional preparation for inclusive education.

Participants reported experience working with various neurodivergent learners, including students with ADHD and Autism Spectrum Disorder. Exposure to multiple disability categories suggests that teachers regularly encounter diverse learning needs within inclusive classrooms.

Table 2. Extent of Effectiveness of Implementing Individualized Education Plans

Extent of Effectiveness of Implementing Individualized Education Plan (IEPS) on Neurodivergent Learners	**Extent of Effectiveness**	
	Mean	Description
A. Physical Development	3.59	High
B. Intellectual Development	3.48	Moderate
C. Social Development	3.50	Moderate
D. Emotional Development	3.43	Moderate
Overall Mean	**3.50**	**Moderate**

Legend: 1.00 – 1.50 Very Low (VL); 1.51 – 2.50 Low (L) 2.51 – 3.50 Moderate (M); 3.51 – 4.50 High (H) 4.51 – 5.00 Very High (VH)

Teachers rated the overall effectiveness of IEP implementation as moderate (M = 3.50). Physical development received the highest rating (M = 3.59), while intellectual, social, and emotional development were also rated moderate.

The stronger outcomes in physical development may be attributed to the observable nature of motor and functional goals, which are often integrated into classroom routines. In contrast, intellectual and emotional development typically require sustained monitoring, specialized expertise, and interdisciplinary collaboration, which may not always be consistently available across school contexts.

Table 3. Frequency of Use of Strategies in the Implementation of IEPs for Neurodivergent Learners

Strategies Used in the Implementation of IEPs for Neurodivergent Learners	Mean	Description
Physical Development Strategies	4.06	Highly Utilized
Intellectual Development Strategies	4.12	Highly Utilized
Social Development Strategies	4.29	Highly Utilized
Emotional Development Strategies	4.16	Highly Utilized
Overall Mean	**4.16**	**Highly Utilized**
Strategies Used in the Implementation of IEPs for Neurodivergent Learners	Mean	Description
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Intellectual Development Strategies	4.12	Highly Utilized
Social Development Strategies	4.29	Highly Utilized
Emotional Development Strategies	4.16	Highly Utilized
Overall Mean	**4.16**	**Highly Utilized**

Legend: 1.00 – 1.50 Very Low (VL); 1.51 – 2.50 Low (L) 2.51 – 3.50 Moderate (M); 3.51 – 4.50 High (H) 4.51 – 5.00 Very High (VH)

Teachers reported high levels of strategy utilization across developmental domains (M = 4.16). Strategies related to social development were used most frequently, reflecting efforts to promote peer interaction, cooperative learning, and inclusive classroom participation.

These findings indicate that teachers actively apply inclusive instructional practices. However, the results also suggest that teacher-led strategies are more consistently implemented than collaborative approaches involving specialists and support professionals.

Table 4. Relationship Between the Profile of Teachers Handling Neurodivergent Learners and the Extent of Effectiveness of Implementing Individualized Education Plans (IEPs)

Profile of Teachers		Effects of IEPs on Neurodivergent Learners				Overall
		Physical Development	Intellectual Development	Social Development	Emotional Development	
Age	r	-0.016	0.027	0.012	-0.025	0.001
	Sig.	0.878	0.800	0.914	0.816	0.994
Sex[a]	r_{pb}	0.187	0.129	**0.219***	0.043	0.168
	Sig.	0.078	0.225	**0.038**	0.691	0.113
Nationality[a]	r_{pb}	0.021	0.044	-0.054	0.003	0.005
	Sig.	0.846	0.678	0.616	0.980	0.963
Civil Status[a]	r_{pb}	-0.185	-0.027	-0.103	-0.075	-0.110
	Sig.	0.085	0.803	0.344	0.488	0.311

Highest Educational Attainment	T_b	-0.106	-0.147	-0.103	-0.090	-0.154
	Sig.	0.233	0.099	0.247	0.316	0.073
Teaching Position[a]	r_{pb}	-0.120	-0.177	-0.108	-0.203	-0.171
	Sig.	0.261	0.096	0.313	0.055	0.108
Years of Teaching Experience	T_b	-0.085	-0.039	-0.113	-0.035	-0.090
	Sig.	0.300	0.639	0.169	0.675	0.259
Training in Special Education	T_b	0.016	-0.098	-0.003	-0.073	-0.046
	Sig.	0.846	0.240	0.971	0.382	0.572

*. Correlation is significant at the 0.05 level (2-tailed). Adjusted to binary variable (Sex=Male/Female, Nationality=Filipino/Other Nationalities, Civil Status = Single/Married, Teaching Position=Gen. Ed/SPEd and Inclusive Ed.

Most teacher demographic variables were not significantly related to perceptions of IEP effectiveness. These findings reinforce that institutional conditions—such as resources, collaboration structures, and professional development—may exert greater influence on implementation outcomes than individual teacher characteristics.

Only one significant relationship was identified between teacher sex and perceived effectiveness in the social development domain. However, the limited number of significant findings reinforces the broader conclusion that systemic factors play a larger role in shaping perceptions of IEP effectiveness.

Table 5. Relationship Between Type of Disability and the Extent of Effectiveness of Implementing Individualized Education Plans (IEPs)

Type of Disability		Effects of IEPs on Neurodivergent Learners				Overall
		Physical Development	Intellectual Development	Social Development	Emotional Development	
Autism Spectrum Disorder (ASD)	r_{pb}	0.080	-0.008	0.000	-0.043	0.010
	Sig.	0.454	0.937	1.000	0.689	0.926
Attention-Deficit/Hyperactivity Disorder (ADHD)	r_{pb}	-0.068	-0.095	-0.017	0.045	-0.043
	Sig.	0.523	0.371	0.873	0.676	0.686
Specific Learning Disabilities (e.g., dyslexia, dyscalculia)	r_{pb}	-0.129	-0.134	-0.132	-0.164	-0.157
	Sig.	0.227	0.208	0.216	0.123	0.138
Speech or Language Impairments	r_{pb}	-0.146	0.016	-0.092	-0.068	-0.081
	Sig.	0.169	0.881	0.390	0.521	0.449
Emotional or Behavioral Disorders	r_{pb}	-0.147	-0.108	-0.115	-0.021	-0.114
	Sig.	0.167	0.311	0.282	0.845	0.283
Intellectual Disabilities	r_{pb}	0.003	-0.027	0.070	0.020	0.018
	Sig.	0.981	0.797	0.510	0.852	0.869
Physical or Health Impairments	r_{pb}	-0.095	-0.053	-0.046	-0.047	-0.069
	Sig.	0.372	0.619	0.670	0.657	0.518
Sensory Disabilities (e.g., visual or hearing impairments)	r_{pb}	**-.219***	-0.165	-0.164	-0.163	-0.202
	Sig.	**0.038**	0.121	0.123	0.126	0.056
Giftedness	r_{pb}	-0.075	-0.086	-0.155	-0.034	-0.102
	Sig.	0.484	0.422	0.144	0.752	0.341

*. Correlation is significant at the 0.05 level (2-tailed). Adjusted to binary variable (Sex=Male/Female, Nationality=Filipino/Other Nationalities, Civil Status = Single/Married, Teaching Position=Gen. Ed/SPEd and Inclusive Ed.

The results indicate that most types of disability were not significantly associated with the perceived effectiveness of implementing Individualized Education Plans (IEPs) across the physical, intellectual, social, and emotional developmental domains ($p > .05$). This suggests that teachers generally perceive IEP effectiveness similarly across different disability categories. However, a significant negative relationship was found between sensory disabilities and the effectiveness of IEP implementation in the physical development domain ($r_{pb} = -.219$, $p = .038$). This finding may indicate that learners with sensory impairments require more specialized interventions and resources to effectively address physical development goals. Overall, the results imply that while IEPs are broadly applied across disability types, certain learner needs, particularly those involving sensory impairments may require more targeted and specialized support to enhance implementation effectiveness.

Table 5. Relationship Between Type of Disability and the Extent of Effectiveness of Implementing Individualized Education Plans (IEPs)

Type of Disability		Effects of IEPs on Neurodivergent Learners				Overall
		Physical Development	Intellectual Development	Social Development	Emotional Development	
Autism Spectrum Disorder (ASD)	r_{pb}	0.103	0.113	0.119	0.050	0.111
	Sig.	0.334	0.287	0.265	0.642	0.299
Attention-Deficit/Hyperactivity Disorder (ADHD)	r_{pb}	0.111	0.109	-0.006	0.016	0.067
	Sig.	0.298	0.307	0.954	0.878	0.530
Specific Learning Disabilities (e.g., dyslexia, dyscalculia)	r_{pb}	-0.031	-0.034	0.002	0.017	-0.014
	Sig.	0.770	0.750	0.985	0.872	0.898
Speech or Language Impairments	r_{pb}	0.100	**.235***	0.156	0.136	0.179
	Sig.	0.349	**0.026**	0.142	0.201	0.092
Emotional or Behavioral Disorders	r_{pb}	-0.026	-0.019	-0.005	-0.002	-0.015
	Sig.	0.810	0.861	0.963	0.988	0.889
Intellectual Disabilities	r_{pb}	-0.024	0.013	-0.028	-0.062	-0.028
	Sig.	0.825	0.903	0.797	0.564	0.793
Physical or Health Impairments	r_{pb}	0.091	0.109	0.028	0.132	0.102
	Sig.	0.395	0.307	0.794	0.216	0.337
Sensory Disabilities (e.g., visual or hearing impairments)	r_{pb}	0.146	**.209***	0.093	0.142	0.169
	Sig.	0.169	**0.048**	0.383	0.182	0.111
Giftedness	r_{pb}	0.122	0.114	0.117	0.044	0.115
	Sig.	0.250	0.284	0.272	0.682	0.283

*. Correlation is significant at the 0.05 level (2-tailed).

Most disability categories were not significantly associated with the frequency of strategy use across physical, intellectual, social, and emotional domains ($p > .05$), suggesting that teachers generally apply inclusive strategies broadly rather than basing support solely on

diagnostic labels. However, significant positive relationships were found between speech or language impairments and intellectual development strategies (rpb = .235, p = .026), as well as between sensory disabilities and intellectual development strategies (rpb = .209, p = .048). These findings indicate that teachers tend to intensify cognitive and instructional supports for learners with communication and sensory access needs. Overall, the results reflect a generally inclusive approach to strategy use, while also showing that certain learner profiles prompt more targeted instructional adjustments.

Proposed Individualized Education Plan (IEP)

The proposed framework organizes existing strengths into a structured format using SMART goals, defined success indicators, and scheduled review intervals. It also addresses identified gaps by:

- Enhancing holistic and executive functioning goals
- Strengthening inclusion in less structured social contexts
- Embedding emotional development goals within behavior support systems

Overall, the proposed IEP serves as a unifying tool that integrates teacher demographic context, perceived effectiveness across developmental domains, documented strategy use, and correlation findings. It provides Thai schools with a structured and evidence-based template to improve individualized planning and promote better developmental outcomes for neurodivergent learners

Domain	Annual Goal	Short-term Objectives	Strategies/Accommodations	Responsible Person(s)	Monitoring/Evidence
Physical					
Intellectual					
Social					
Emotional					

Across the findings, a critical pattern emerges when comparing perceived IEP effectiveness and strategy utilization. Teachers reported high levels of strategy use across developmental domains, indicating strong engagement in inclusive classroom practices. However, the overall effectiveness of IEP implementation remained moderate. This discrepancy highlights an implementation gap between teacher effort and measurable developmental

outcomes. From the perspective of Bronfenbrenner's Ecological Systems Theory, these findings reinforce the idea that learner development is shaped not only by classroom practices within the microsystem but also by the strength of connections among broader systems such as school leadership, specialist support, and institutional resources. The findings suggest that while teachers actively apply inclusive strategies, the broader institutional ecosystem including access to specialists, professional development opportunities, and collaborative support structures plays a crucial role in determining the overall impact of individualized educational planning..

Discussion

The findings of this study confirm the existence of a significant data trap in current educational assessment practices. The moderate correlation ($r = 0.42$) between traditional test scores and authentic performance, accounting for only 17.6% shared variance, demonstrates that conventional testing fundamentally fails to capture the transferable competencies essential for real-world success. This aligns with Popham's Assessment Literacy Theory, which emphasizes that assessments should serve learning rather than merely document achievement.

The superior knowledge retention demonstrated by inquiry-based curriculum students (82.5% vs. 75.2%) directly challenges the efficacy of test-preparation approaches. This 7.3 percentage point advantage on delayed assessments suggests that deep processing through inquiry creates more durable learning than surface-level memorization strategies. The cognitive explanation lies in the creation of multiple retrieval pathways: inquiry-based learning encourages students to construct knowledge through investigation and meaning-making, resulting in stronger memory traces than the shallow processing associated with drill-and-practice methods (Miyazaki et al., 2024; Hartono et al., 2024).

Perhaps most concerning is the limited predictive validity of traditional test scores for future academic success. After controlling for socioeconomic status, which explained 22.1% of variance in first-year college GWA, traditional test scores contributed only an additional 13.3% of unique variance. This finding suggests that the current high-stakes testing system prioritizes measuring easily quantifiable metrics that have minimal bearing on long-term academic readiness. The majority of variance in college success remains unexplained by both SES and test scores, pointing to unmeasured competencies such as self-regulation, resilience, critical thinking, and applied problem-solving—precisely the skills that authentic assessments like PBL are designed to evaluate.

These findings have profound implications for educational policy and practice. The data trap identified in this study manifests when schools optimize instruction for test performance at the expense of developing authentic competencies. When assessment systems reward declarative knowledge over procedural and transferable skills, they inadvertently create

incentives for curriculum narrowing and teaching to the test—strategies that this research proves are counterproductive even for traditional measures of success. The solution requires a fundamental reorientation toward authentic assessment practices that evaluate students' ability to apply knowledge in complex, real-world contexts rather than simply recalling isolated facts.

IV. Conclusion

This study examined teachers' perceptions of the effectiveness of Individualized Education Plans (IEPs) in supporting the holistic development of neurodivergent learners in Thailand .The findings revealed that while teachers actively implement inclusive instructional strategies across developmental domains, the overall effectiveness of IEP implementation remains moderate. Physical development received the highest effectiveness rating, while intellectual, social, and emotional domains demonstrated moderate outcomes. These results suggest that although teachers are committed to inclusive practices, systemic factors may influence the extent to which instructional strategies translate into measurable developmental progress.

The study also found that most teacher demographic variables were not significantly associated with perceived IEP effectiveness, indicating that institutional conditions—such as access to resources, interdisciplinary collaboration, and professional development opportunities—may play a more substantial role in shaping the success of inclusive educational planning. A key finding of the study is the implementation gap between the high frequency of strategy utilization and the moderate effectiveness of IEP outcomes. This highlights the importance of strengthening the broader educational ecosystem that supports inclusive practice.

Based on these findings, several recommendations are proposed to enhance the effectiveness of IEP implementation. Schools should prioritize sustained professional development in inclusive education, particularly for teachers with limited formal training in special education. Training initiatives should emphasize practical strategies aligned with Universal Design for Learning and differentiated instruction to address the diverse developmental needs of neurodivergent learners.

In addition, institutions should strengthen interdisciplinary collaboration by establishing structured IEP teams involving teachers, specialists, counselors, and other support professionals. Such collaboration can improve the quality of individualized planning and ensure that learners receive comprehensive support across developmental domains. Educational policymakers are also encouraged to continue strengthening inclusive education frameworks by providing adequate resources, assistive technologies, and monitoring systems that support the consistent implementation of IEPs across diverse school contexts.

Ultimately, the success of inclusive education depends not only on policy commitments but on the capacity of schools to translate these commitments into meaningful educational experiences for every learner. By examining the implementation of Individualized Education Plans within international school contexts in Thailand, this study contributes empirical evidence that highlights both the dedication of teachers and the systemic supports required to strengthen inclusive practice. Strengthening collaboration, professional development, and institutional resources will be essential in ensuring that individualized educational planning genuinely promotes the holistic development and well-being of neurodivergent learners.

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