



PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON SPECIAL EDUCATION IN SOUTHEAST ASIA REGION

ICSAR 2025

VOLUME 3

Special Education Orientation in Improving the Quality of
Inclusive Teaching and Learning in the Era of SDGs

PART 1

Inclusive Education Policy, Teacher Development and Educational Leadership

Chief Editor

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SOUTHEAST ASIA REGION (ICSAR 2025) Volume 3

Part 1: Inclusive Education Policy, Teacher Development and Educational Leadership

Editor in Chief:

Suhaila Ngadiron



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PREFACE

The 15th International Conference on Special Education in the Southeast Asian Region

It is with great pleasure that we present the Proceedings of the 15th International Conference on Special Education in the Southeast Asian Region (ICSAR 2025), held on 29 July 2025 at INTI International University, Malaysia, in hybrid mode.

The conference theme, "Special Education Orientation in Improving the Quality of Inclusive Teaching and Learning in the Era of Sustainable Development Goals," reflects the growing commitment of educators, researchers, policymakers, practitioners, and stakeholders to advancing inclusive, equitable, and high-quality education for individuals with diverse learning needs. The theme is particularly relevant to the aspirations of the United Nations Sustainable Development Goals, especially SDG 4: Quality Education, SDG 16: Peace, Justice and Strong Institutions, and SDG 17: Partnerships for the Goals.

ICSAR 2025 provided an international platform for scholars and professionals to exchange knowledge, present research findings, discuss emerging challenges, and share innovative practices in special and inclusive education. The conference addressed curriculum and learning strategies, teaching and learning innovation, assistive technology, artificial intelligence in special education, vocational education and training, guidance and counselling, teacher preparation, educational assessment, support services, disability legislation, transition planning, and employment opportunities for persons with disabilities.

The papers included in these proceedings demonstrate the diversity and interdisciplinary nature of contemporary research in special education. They offer theoretical insights, empirical evidence, practical interventions, and policy recommendations that may contribute to improving educational access, participation, learning outcomes, and quality of life for learners with special educational needs. We hope this collection will serve as a useful academic reference and inspire further research, professional collaboration, and evidence-based educational practice across Southeast Asia and beyond.

The successful organisation of ICSAR 2025 would not have been possible without the dedication and support of many individuals and institutions. We extend our sincere appreciation to the keynote and plenary speakers for sharing their expertise and perspectives. We are equally grateful to the authors, presenters, reviewers, session chairs, participants, organising committee members, collaborating universities, and supporting institutions for their invaluable contributions.

Special appreciation is extended to INTI International University and all collaborating institutions for their commitment to strengthening international academic partnerships and promoting sustainable, inclusive education. Their collective efforts enabled ICSAR 2025 to become a productive forum for scholarly dialogue and professional networking.

We trust that these proceedings will extend the intellectual contribution of the conference and encourage continued cooperation in developing responsive, innovative, and inclusive educational systems. May the knowledge shared through ICSAR 2025 contribute to a future in which every learner is respected, supported, and empowered to achieve their fullest potential.

Professor Dr. Mohd Hanafi Mohd Yasin

Conference Chair

ICSAR 2025

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DEMOGRAPHY STUDY: TEACHER ATTITUDE TOWARD INCLUSIVE EDUCATION

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ABSTRACT

Inclusive education is not new and has been implemented worldwide for several years. Inclusive education has begun to be practiced as an educational application for people with disabilities. Teachers are one of the main stakeholders in education, so their attitude greatly influences the success of implementing an inclusive system. There are three aspects of attitude tested in this study, namely, cognitive aspects, affective aspects, and behavior. Therefore, this study aims to examine teachers' attitudes towards implementing inclusive education based on demographics in the form of gender, age, teacher classification, school classification, school level, last education, teaching experience, and participation in inclusive education training programs. In achieving these objectives, descriptive quantitative research was used by distributing questionnaires as data collection, consisting of 80 teachers. After that, data will be tested using the One-Tailed ANOVA test in the SPSS program. Through the different test, this study shows general results where there are significant differences in attitudes at the school level in cognitive aspects in Malaysia ($F = 4.878$) ($P < 0.05$) and school level in behavioral aspects in Indonesia ($F = 4.734$) ($P < 0.05$), In Malaysia, teacher classification in cognitive aspects ($F = 7.835$) ($P < 0.05$) and affective aspects ($F = 10.407$) ($P < 0.05$), and In Indonesia, participating in inclusive education training programs in cognitive aspects ($F = 4.940$) ($P < 0.05$) and behavior ($F = 9.609$) ($P < 0.05$). From these results, it can be concluded that several demographics have differences with these significant results, teachers have negative attitudes based on cognitive aspects in teacher classification, school level, and teachers have attended training, negative attitudes based on affective aspects in teacher classification, and negative attitudes based on behavior at school level and teachers have attended inclusive education training.

Keywords: demography; teacher attitude; inclusive education

INTRODUCTION

Inclusive education has become an increasingly important topic, especially concerning the various educational conflicts involving students with special needs, particularly regarding education for children with intellectual disabilities. Since the Salamanca Conference in 1994, inclusive education has emerged as a global movement aimed at ensuring that children with special needs receive equal educational opportunities in mainstream schools. A key point of the conference was the acknowledgment that quality education must be available to all children, without exception, which includes those with diverse special needs. In Indonesia, inclusive education was officially recognized on August 11, 2004, through the Bandung Declaration, reinforcing the commitment that mainstream schools must provide education for all students, including those with special needs. Similarly, in Malaysia, inclusive education has been integrated since 1996 through the Malaysian Education Act, which enables students with special needs to attend regular classes with proper support.

Over time, various innovations, challenges, and strategies have surfaced in the implementation of inclusive education worldwide. However, the success of inclusive education relies on several

interrelated factors. Elements such as administrative support, teacher attitudes, family involvement, team collaboration, and classroom practices significantly affect the effectiveness of an inclusive program (Bricker, 2000). Among these factors, teacher attitudes play a vital role in determining the success of an inclusive education program. Educators involved in inclusive education must maintain a positive attitude and possess the necessary skills to support students with special needs throughout their learning journey. Teachers' attitudes towards inclusive education include not only knowledge of teaching methods but also supportive, fair, and tolerant approaches to diversity in the classroom.

Although inclusive education has been present in Indonesia for a significant period, teachers' perceptions of its implementation remain debated. Their attitudes toward inclusive education in Indonesia are still relatively lukewarm (Lin et al., 2021). This poses a considerable concern, as teachers' attitudes greatly influence the success of such programs. In contrast, teachers in Malaysia seem to be more committed to implementing the Individual Education Program (IEP), even though they encounter similar challenges in executing inclusive education. Therefore, it is crucial to understand how teachers' attitudes in these two countries affect the implementation of inclusive education and how their understanding can improve the quality of education for students with special needs.

This study explores how teachers' attitudes toward inclusive education in Indonesia and Malaysia can affect the success of educational programs for students with special needs. Moreover, the author discusses how family support, teamwork, and classroom practices contribute to effective inclusive education, as well as the influence of teachers' perceptions and attitudes on the implementation and success of these programs.

METHODOLOGY

This study aims to identify educators' attitudes toward adopting inclusive education in Malaysia and Indonesia. It employs a quantitative approach using descriptive statistical techniques to achieve these objectives. The research outlines teachers' attitudes regarding inclusive education based on the collected data. These attitudes are rooted in the theory proposed by Fishbein & Ajzen (1975), which asserts that attitudes consist of three main components: cognitive, affective, and behavioral. This study will emphasize three elements: the cognitive aspect, which includes (1) views on students with special needs, (2) knowledge of the characteristics of these students, (3) familiarity with appropriate materials, and (4) understanding the fundamental concepts of inclusive education (definition, foundation, and function). The affective aspect entails (1) tolerance for students with special needs, (2) willingness to encourage the learning of these students, and (3) teachers' feelings toward students with special needs. Meanwhile, the behavioral aspect concerns (1) establishing effective communication with students with special needs and (2) serving as a role model for them.

Researchers used descriptive statistics to analyze data on teacher attitudes toward inclusive education for students with special needs. The data were presented in a frequency distribution table, with standard deviations and percentages calculated for further analysis. Both descriptive and inferential analyses were conducted to evaluate the survey data. Means and standard deviations were obtained to understand frequency. Additionally, the impact of various teacher demographic factors (i.e., age, gender, teacher classification, school classification, school level, prior education, teaching experience, and participation in an inclusive education program) was assessed using analysis of variance (ANOVA). ANOVA provides a statistical method that incorporates multiple continuous dependent and categorical independent variables. A 95% confidence interval was calculated and interpreted to prevent overemphasizing significance testing, as noted by Field (2017).

Subject

The participants in this study included teachers from East Java, Indonesia, and the Central Zone of Malaysia. These educators taught at the elementary, junior high, and senior high school levels in Indonesia, as well as at the national elementary and national high school levels in Malaysia. They represented regular, inclusive, and special schools. This study involved SDN 1 Sumbersari, SDN 3 Sumbersari, SMP Negeri 25 Malang, Sekolah Inklusif Galuh Handayani, SD Muhammadiyah Boyolali, SLB Batu, Sekolah Menengah Kebangsaan Jalan Reko, Sekolah Kebangsaan Jalan Enam, and Sekolah Syah Alam.

Location

The data source in this study is the teachers' attitudes toward inclusive education. These attitudes encompass beliefs rooted in traditional concepts, including cognitive, affective, and behavioral components. According to this source, the primary data collected for the study came from teachers in Indonesia and Malaysia at the elementary, junior high, and high school levels, as well as from national schools and national high schools in Malaysia.

Instrument

The researcher serves as a human instrument in the development of this research tool. This role involves selecting informants to gather data sources, determining the research focus, assessing the quality of the data, and collecting, analyzing, interpreting, and assigning meaning to the data in order to draw conclusions. To achieve this, the researcher administers questionnaires to respondents in person. Afterward, the respondents complete the questionnaire, and SPSS software is used to process the data.

The Likert approach is a technique for scaling attitude statements that determines the scale value based on the distribution of responses (Joshi et al., 2015). The Likert scale consists of a collection of statements reflecting opinions about attitudes. While some of these statements express favorable views, others convey unfavorable ones. Because the five-point scale includes a middle value, it is used for this investigation. Using odd-numbered scales reduces the incidence of incorrect answers to reversed items (Weijters et al., 2010). Odd-numbered scales enhance the validity and reliability of an instrument (Lietz, 2010).

Variables	Attitude Component Aspects	Indicator	Item Number	
			F	UF
Attitude	Cognitive	Perspectives on students with special needs	7, 8, 39	9, 31, 32
		Knowledge of the characteristics of special needs students	1, 2	3, 4, 5, 6
		Knowledge of material that is suitable for students with special needs	11, 38	10, 34, 35
		Understand the basic concepts of inclusive education (understanding, pedagogy and objectives)	12, 13, 14, 15, 17	16

	Affective	Have tolerance towards students with special needs	18, 19, 20, 21	22, 23
		Willingness to be a motivator in learning for students with special needs	24	40
		The teacher's feelings towards students with special needs	25, 37	26, 36
	Behavior	Establish good communication with students with special needs	27	28, 33
		Be a role model for students with special needs	29	30

Table 1: Instrument Grid

Validation Test

The development of the quantitative instrument process includes a data validity test that encompasses both validity and reliability assessments. In the validity test, the instrument's validity is evaluated through content validity, which involves examining the test or scale's contents using rational analysis or expert judgment (Sugiarta et al., 2023). This study conducted content validity through item analysis, with calculations carried out using SPSS statistical software. Descriptive statistics, such as average frequency analysis and standard deviation, are calculated for the total score and individual component scores. The validity test calculations employ SPSS version 25.0 for this study. The total number of data points tested (N) in this analysis is 80, which produces an R-value calculated using the formula $R_{table} = df(80-2, 0.5) = 0.2199$.

Reliability Test

The researcher utilized Cronbach's Alpha test to evaluate the internal consistency of each component. The Case Processing Summary for Valid Cases indicates that there are 80 respondents, representing 100%; this confirms that all 80 are valid and none are marked as Excluded. To determine whether the data calculation results are reliable and consistent, refer to the Reliability Statistics table, as displayed in Table 2 below.

Reliability Statistic	
Cronbach's Alpha	N of Items
0.909	38

Table 2: Reliability Test

The results of the reliability test calculation using Cronbach's Alpha (r count) are shown in the Cronbach's Alpha column, which reports a value of 0.909. The item count indicates that 38 statements were entered into the variable view. Thus, the Cronbach's Alpha result for the 40 data points, based on these 38 statements, remains at 0.909.

To determine if the data is reliable, we check whether the calculated r exceeds the table value at the 5% significance level. The computed r is from the results of the Reliability Statistics calculation performed using SPSS version 25.0, and the r table value at 5% is also established.

The sample size, N, is 80. According to the 5% table, the r table value for the data is 0.220. Since the calculated r exceeds the r table value—specifically, $0.909 > 0.220$ —we can conclude that the data is reliable and trustworthy.

Research Procedures

The quantitative research method utilized by the researcher enables the effective processing of data from the questionnaire responses collected from teachers with regular or primary stream qualifications (subjects), classroom teachers, special education teachers (SLB), special guidance teachers (GPK), and guidance and counseling teachers. The research stages include: (1) preparing the instrument, (2) obtaining research permits from the school, (3) distributing questionnaires via Google Forms to teachers, (4) managing the questionnaire data results, (5) analyzing the processed data results, and (6) writing the final report. This data is crucial for understanding teachers' attitudes toward inclusive education for students with special needs.

Data analysis

In its implementation, researchers utilized descriptive statistics to analyze data on teachers' attitudes toward inclusive education for students with special needs. This study used a frequency distribution table and performed data analysis through percentage calculations and standard deviations for presenting the data.

This study employed both descriptive and inferential analysis to examine the survey data. Means and standard deviations were calculated to capture the frequency of responses. Additionally, an analysis of variance (ANOVA) was conducted to evaluate the influence of various components of teacher demographic information, including age, gender, teacher classification, school classification, school level, highest education attained, teaching experience, and participation in an inclusive education implementation program. ANOVA served as the statistical method that incorporated multiple continuous dependent and categorical independent variables. Confidence intervals at 95% were calculated and interpreted to avoid overemphasizing significance testing (Field, 2017). A teacher's attitude toward inclusive education for students with special needs significantly affects the ideal level of attitude that a teacher should strive to achieve.

RESULTS AND DISCUSSION

This study was conducted in Indonesia and Malaysia, primarily focusing on East Java, Indonesia. A total of eighty teachers from both countries participated in evaluating their attitudes toward the implementation of inclusive education. Of these participants, forty-two were from Indonesia and thirty-eight were from Malaysia. The study examined various demographics, including gender, age, teacher classification, school level, highest education, teaching experience, and whether they had received training in inclusive education. The following table provides the demographic breakdown for Indonesia and Malaysia.

Demographic Information	N	%	M	SD
Indonesia	42			
Gender				
a. Male	9	21.4	153.55	18.795
b. Female	33	78.6	150.363	16.259
Age				
a. < 31 Years Old	15	35.7	149.26	13.951
b. 31 – 40 Years Old	10	23.8	157.80	14.558
c. 41 – 50 Years Old	13	31	146.84	19.312
d. > 50 years old	4	9.5	154.50	22.128

Demographic Information	N	%	M	SD
Teacher Classification				
a. Regular Teacher	35	83.3	152.17	16.277
b. Non-Regular Teacher	7	16.7	145.42	18.635
School Classification				
a. Inclusive School	40	95.2	151.02	17.064
b. Special School	2	4.8	151.50	0.707
School Level				
a. Elementary School	28	66.7	154.35	16.150
b. Junior High School & Senior High School	14	33.3	144.42	16.161
Last Education				
a. Bachelor's Degree	39	92.9	150.64	16.969
b. Master's Degree	3	7.1	156.33	12.741
Teaching Experience				
a. < 11 Years Old	21	50	150.52	14.479
b. 11 – 20 Years Old	13	31	148.46	19.159
c. 21 – 30 Years Old	8	19	156.62	18.585
d. > 30 Years Old	0	0	0	0
Participate in Inclusive Education Programs				
a. Ever	24	57.1	155.91	12.534
b. Never	18	42.9	144.55	19.427

Table 3: Demographic Data In Indonesia Note: *N* = sample size, *M* = mean, *SD* = standard deviation

According to data from the Ministry of Education and Culture, Indonesia has 3.31 million teachers, with 2.36 million of them being women. Therefore, the majority of teachers in Indonesia are women, making up 78.6% of the total.

The largest group of teachers participating in this study was under 30 years old, accounting for 35.7%. The Ministry of Education and Culture reports that most school teachers are millennials, making up 29.29% of the 3.31 million teachers.

In this study, regular teachers included subject teachers and classroom teachers from traditional schools, while non-regular teachers consisted of guidance counselors, special education teachers, and instructors from specialized institutions. A total of 83.3% of the participants were regular teachers. Of the 42 teachers, 95.2% were from inclusive schools, while the remainder were from special schools. Regarding school level, the largest percentage of participants were elementary school teachers, comprising 66.7%. According to the Ministry of Education and Culture, there are more elementary school teachers in Indonesia than in other educational levels, totaling 1.45 million teachers instructing at the elementary level.

The results indicated that 92.9% of the teachers held a bachelor's degree, indicating that those with a bachelor's degree comprised the majority of participants in this study. Concerning teaching experience, 50% of the teachers had less than 10 years of work experience. Data from the Ministry of Education and Culture show that most school teachers are millennials who have recently graduated and entered the workforce.

Demographic Information	N	%	M	SD
Malaysia	38			
Gender				
a. Male	9	23.7	150.33	11.640
b. Female	29	76.3	140.55	17.927
Age				

Demographic Information	N	%	M	SD
a. < 31 Years Old	3	7.9	155.00	9.643
b. 31 – 40 Years Old	11	28.9	138.18	19.067
c. 41 – 50 Years Old	14	36.8	147.71	16.368
d. > 50 years old	10	26.3	137.60	15.414
Teacher Classification				
a. Regular Teacher	24	63.2	136.87	17.073
b. Non-Regular Teacher	14	36.8	153.14	11.421
School Classification				
a. Inclusive School	30	79	140.33	17.837
b. Special School	8	21	152.37	9.241
School Level				
a. Elementary School	13	34.2	135.00	14.922
b. Junior High School & Senior High School	25	65.8	146.96	16.888
Last Education				
a. Bachelor's Degree	29	76.3	139.96	17.702
b. Master's Degree	9	23.7	152.22	10.802
Teaching Experience				
a. < 11 Years Old	8	18.4	143.37	20.028
b. 11 – 20 Years Old	15	42.1	143.40	17.691
c. 21 – 30 Years Old	13	34.2	142.84	16.298
d. > 30 Years Old	2	5.3	137.00	16.970
Participate in Inclusive Education Programs				
a. Ever	13	34.2	146.46	14.086
b. Never	25	65.8	141.00	18.375

Table 4: Demographic Data In Malaysia Note: N = sample size, M = mean, SD = standard deviation

In Malaysia, this study focused on the Central Zone region, where most participating teachers were female, constituting 76.3%. Data from the Malaysian Ministry of Education in the 2018 Malaysian Teachers' Information Book indicates that the number of female teachers surpasses that of male teachers. The total number of teachers in Malaysia is 421,259, with females accounting for the majority at 295,425. In this study, 36.8% of the participants were teachers aged 41-50 years, followed by 28.9% aged 31-40 years, 26.3% who were over 51 years, and 7.9% who were under 30 years.

The subject and class teachers in this study were regular educators. Non-regular educators included guidance counselors, special education teachers, and social workers. In this research, 63.2% of the educators were regular, while 36.8% were non-regular. Out of the 38 teachers, 30 taught in inclusive schools, while the remaining 8 were from special schools. Since this study focused on teachers in inclusive settings, the schools selected for research were primarily inclusive.

Regarding the school level, most of the participating teachers were from national high schools, making up 65.8%. The schools involved in this study included two national high schools and one national school. A majority of the teachers in this study held a Bachelor's degree, accounting for 76.3%. In terms of teaching experience, 42.1% of the teachers had 11 to 20 years of experience.

This study examined teachers' attitudes towards inclusive education in Indonesia and Malaysia. As is well-known, inclusive education has been implemented for quite some time. Since its introduction, inclusive education has been established for a significant duration. Given this

timeframe, researchers are interested in investigating the attitudes of teachers in Indonesia and Malaysia toward inclusive education, focusing on cognitive, affective, and behavioral aspects. Eighty teachers participated in this study: 42 from Indonesia and 38 from Malaysia. The results are based on evaluations of teacher attitudes toward implementing inclusive education. The mean results indicate that teacher attitudes towards implementing inclusive education in Indonesia ($m = 157.50$) are more positive than those in Malaysia ($m = 148.32$). From this, we can conclude that the means for teachers in Indonesia are higher than those for teachers in Malaysia. The means for cognitive, affective, and behavioral aspects reveal that teachers in Indonesia exhibit more favorable attitudes in these areas compared to their counterparts in Malaysia.

	N	M	SD	Min	Max	F	P
Indonesia	42	151.04	16.643	110	177		
Cognitive Aspect		87.23	10.176	65	105	22.630	0.000
Affective Aspect		43.52	5.343	32	55	11.499	0.001
Behavior		20.28	2.671	13	25	8.442	0.002
Malaysia	38	142.86	17.037	106	173		
Cognitive Aspect		82.18	9.339	60	98	17.363	0.000
Affective Aspect		40.94	5.689	32	52	6.493	0.003
Behavior		19.73	3.309	13	25	2.896	0.049
Total	80	147.16	17.222	106	177		

Table 5: Description of the Results of Teachers' Attitudes Towards Inclusive Implementation in Indonesia and Malaysia

Note: N = sample size, M = mean, SD = standard deviation, f = f-statistic, p = p-value

This study explores teachers' attitudes toward inclusive education by examining cognitive, affective, and behavioral factors, as well as demographic data such as gender, age, teacher classification, school type, school level, highest degree earned, teaching experience, and participation in inclusive education training programs, utilizing the ANOVA method. The findings reveal differences in teachers' attitudes toward inclusive education among various demographic groups, specifically:

Teacher Classification

Based on the classification of teachers in Indonesia regarding the cognitive aspect, the mean score for regular teachers' attitudes was 87.85 ($SD = 10.140$), while the mean score for non-regular teachers was 84.14 ($SD = 10.558$). Research analysis in Indonesia on this cognitive aspect showed no significant difference ($F = 0.773$, $P > 0.05$). In Malaysia, concerning the cognitive aspect, regular teachers achieved a mean score of 79.20 ($SD = 9.527$), whereas non-regular teachers had a mean score of 87.28 ($SD = 6.580$). Analysis of this cognitive aspect revealed a significant difference ($F = 7.835$, $P < 0.05$). Furthermore, in Malaysia, non-regular teachers' attitudes indicated a more positive outlook towards implementing inclusive education for students with special needs related to the cognitive aspect.

In the affective aspect, study results in Indonesia indicated a mean score of 43.91 ($SD = 5.392$) for regular teachers, whereas non-regular teachers had a mean score of 41.57 ($SD = 4.995$). The analysis showed no significant difference in teacher classification within the affective aspect ($F = 1.125$, $P > 0.05$). In Malaysia, regular teachers achieved a mean score of 38.91 ($SD = 5.315$), while non-regular teachers obtained a mean score of 44.42 ($SD = 4.636$). The results indicated a significant difference ($F = 10.407$, $P < 0.05$). In Malaysia, non-regular teachers

displayed a more positive attitude towards implementing inclusive education for students with special needs in the affective aspect.

Regarding behavioral factors, research conducted in Indonesia revealed a mean score of 20.40 for regular teachers ($SD = 2.463$) and a mean score of 19.71 ($SD = 3.728$) for non-regular teachers. The analysis of this behavioral aspect showed no significant difference between teacher classifications in Indonesia ($F = 0.378$, $P > 0.05$). In Malaysia, regular teachers obtained a mean score of 18.75 ($SD = 3.456$), while non-regular teachers scored an average of 21.42 ($SD = 2.277$). The analysis of behavioral factors in Malaysia indicated a significant difference ($F = 6.679$, $P < 0.05$). In Malaysia, the attitudes of non-regular teachers demonstrated a more positive approach to implementing inclusive education for students with special needs in relation to behavioral factors.

Considering the classification of teachers in cognitive, affective, and behavioral aspects, research in Malaysia indicated that non-regular teachers showed a more positive attitude towards implementing special education for students with special needs. In Indonesia, the attitudes of teachers were similar.

Factor	Regular Teacher		Non-Regular Teacher		F	P
	M	SD	M	SD		
a. Indoensia						
Cognitive Aspect	87.85	10.140	84.14	10.558	0.773	0.385
Affective Aspect	43.91	5.392	41.57	4.995	1.125	0.295
Behavior	20.40	2.463	19.71	3.728	0.379	0.542
b. Malaysia						
Cognitive Aspect	79.20	9.527	87.28	6.580	7.835	0.008
Affective Aspect	38.91	5.315	44.63	4.636	10.407	0.003
Behavior	18.75	3.454	21.42	2.277	6.679	0.014

Table 6: Description of Differences in Teacher Classification in Teacher Attitudes Towards the Implementation of Inclusive Education in Indonesia and Malaysia Note: N = sample size, M = mean, SD = standard deviation, f = f -statistic, p = p -value

According to the classification of teachers in Indonesia, attitudes toward implementing inclusive education for students with special needs are consistent. Most studies in Indonesia indicate that teachers have a positive attitude toward implementing inclusive education. Teachers display a positive attitude toward inclusive education (Ediyanto & Kawai, 2023; Psikologi et al., 2013).

In Malaysia, teacher classification revealed significant differences in attitudes. Non-regular teachers exhibited more positive attitudes than regular teachers in the cognitive components focused on “views toward students with special needs,” “knowledge of the characteristics of students with special needs,” “awareness of appropriate materials for students with special needs,” and “understanding the basic concepts of inclusive education.” The affective component emphasizes “tolerance toward students with special needs,” “the willingness to motivate students with special needs in their learning,” and “teachers’ feelings toward these students,” as well as in the behavioral component, which focuses on “establishing good communication with students with special needs” and “being a role model for students with special needs.”

Understandably, non-regular teachers, known as resort teachers, possess knowledge, qualifications, and experience in special education (Cahyani & Subagya, 2024). Mainstream teachers (regular teachers) who instruct in inclusive classrooms must gain experience and

knowledge about special education and the regulations concerning the management of students with special needs (Amin & Hanafi, 2016). Most teachers involved in PPI require a deeper understanding because they have not received training related to special education (Siti et al. Omar, 2018). Mainstream teachers (regular teachers) often view students with special needs negatively, which poses a barrier to implementing inclusive education (Tahar & Najib, 2019). Teacher knowledge is related to attitudes toward inclusion, implying that teachers who are well-informed about inclusion will maintain a positive attitude toward it (Uthaman & Thomas, 2020).

School Level

From the perspective of school teachers in Indonesia, the average score for elementary school teachers in the cognitive aspect is 88.96 (SD = 10.177), while the average score for teachers in junior high and senior high schools is 83.78 (SD = 9.601). The analysis indicated no significant difference ($F = 2.506$, $P > 0.05$). In Malaysia, the average score for teachers in national schools is 77.76 (SD = 9.047), whereas teachers in national high schools achieved an average score of 84.48 (SD = 8.803). The analysis revealed a significant difference ($F = 4.878$, $P < 0.05$). Additionally, teachers in national high schools in Malaysia show a more positive attitude toward implementing inclusive education for students with special needs in the cognitive aspect.

In the affective aspect of the study conducted in Indonesia, the mean score for elementary school teachers was 44.50 (SD = 5.412), while the mean score for junior high school and senior high school teachers was 41.57 (SD = 4.799). The analysis revealed no significant difference ($F = 2.936$, $P > 0.05$). In Malaysia, the mean score for teachers in national schools was 38.46 (SD = 4.351), whereas the mean score for national high school teachers was 42.24 (SD = 5.946). The analysis of the affective aspect in Malaysia also indicated no significant difference ($F = 4.086$, $P > 0.05$).

In research on behavioral factors in Indonesia, elementary school teachers have a mean score of 20.89 (SD = 2.346), while junior high and high school teachers have a mean score of 19.07 (SD = 2.947). The analysis results for the behavioral factor show a significant difference ($F = 4.734$, $P < 0.05$). In Malaysia, national school teachers have a mean score of 18.76 (SD = 3.059), whereas national high school teachers have a mean score of 20.24 (SD = 3.382). The analysis of the behavioral factor in Malaysia reveals no significant difference ($F = 1.722$, $P > 0.05$). In Indonesia, the attitudes of elementary school teachers indicate they are more favorable towards implementing inclusive education for students with special needs regarding behavioral factors.

Research from Indonesia indicates that elementary school teachers exhibited a more positive attitude toward implementing inclusive education for students with special needs based on behavioral factors. However, in terms of cognitive and affective aspects, teacher attitudes did not show significant differences. In Malaysia, teachers at national high schools demonstrated a more positive attitude toward inclusive education for students with special needs in the cognitive aspect. However, in the affective and behavioral elements, teacher attitudes did not reveal significant differences.

Table 7: Description of Differences in Teacher Levels in Teacher Attitudes Towards the Implementation of Inclusive Education in Indonesia and Malaysia

Factor	Elementary School		Junior High School & Senior High School		F	P
	M	SD	M	SD		
a. Indoensia						
Cognitive Aspect	88.96	10.177	83.78	9.601	2.506	0.121
Affective Aspect	44.50	5.412	41.57	4.799	2.936	0.094
Behavior	20.89	2.346	19.07	2.947	4.734	0.036
b. Malaysia						
Cognitive Aspect	77.76	9.047	84.48	8.803	4.878	0.034
Affective Aspect	38.46	4.351	42.24	5.946	4.086	0.051
Behavior	18.76	3.059	20.24	3.382	1.722	0.198

Note: N = sample size, M = mean, SD = standard deviation, f = f-statistic, p = p-value

Research in Indonesia indicates that elementary school teachers hold a positive attitude toward implementing inclusive education for students with special needs. Their attitudes significantly differ from those of junior high and high school teachers. Moreover, elementary school teachers show a positive stance in the behavioral component, emphasizing "establishing good communication with students with special needs" and "being role models for students with special needs." Generally, they exhibit a positive attitude toward inclusive education (Putri & Hamdan, 2020; Uthaman & Thomas, 2020). Additionally, another study found that elementary school teachers possess a more favorable attitude toward inclusive education compared to secondary school teachers (Todorovic et al., 2011).

In Malaysia, teachers who maintain a positive attitude towards implementing inclusive education for students with special needs work in national high schools. The positive attitude of national high school teachers significantly differs from that of educators in national schools. Teachers in national high schools are generally more optimistic about cognitive components focusing on "views of students with special needs," "knowledge of the characteristics of students with special needs," "knowledge of suitable materials for students with special needs," and "understanding the fundamental concepts of inclusive education." Teachers in senior high schools exhibit a more favorable attitude towards inclusive education (Galović et al., 2014).

The results indicate that teachers' attitudes toward implementing inclusive education for students with special needs at the school level may vary by region and are influenced by numerous factors.

Participate in Inclusive Education Programs

Regarding teachers' experiences participating in inclusive programs in Indonesia, the study results indicated that the mean score of teachers who participated in these programs was 90.12 (SD = 7.485), while the mean score of those who had never attended such programs was 83.38 (SD = 12.103). The analysis revealed a significant difference in the cognitive aspect ($F = 4.940$, $P < 0.05$). In Malaysia, the mean score for teachers taking part in inclusive education training programs was 84.53 (SD = 7.698). In contrast, teachers who had never attended inclusive programs achieved a mean score of 80.96 (SD = 10.014). The analysis found no significant difference in the cognitive aspect in Malaysia ($F = 1.264$, $P > 0.05$). Based on the results, it can be concluded from the study in Indonesia that teachers who showed a more positive attitude towards implementing inclusive education for students with special needs were those who had participated in inclusive education training programs.

In the affective aspect, a study conducted in Indonesia revealed that the average score of teachers who participated in inclusive education training programs was 44.50 (SD = 4.452), while the average score of teachers who had never participated in an inclusive program was 42.22 (SD = 6.236). The analysis showed no significant difference ($F = 1.911$, $P > 0.05$). Meanwhile, in Malaysia, teachers who participated in an inclusive program achieved an average score of 42.00 (SD = 4.949), while teachers who had never taken part in inclusive education training obtained an average score of 40.40 (SD = 6.062). The analysis results indicated that there was no significant difference ($F = 0.670$, $P > 0.05$).

In the behavioral aspect of the research results from Indonesia, the mean score of teachers who participated in the inclusion program is 21.29 (SD = 2.196), while the mean score of teachers who did not participate in the inclusion program is 18.94 (SD = 2.711). Analysis of the behavioral factor reveals a significant difference in this category ($F = 9.609$, $P < 0.05$). In Malaysia, the mean score of teachers who participated in the inclusion program is 19.92 (SD = 3.377), and the mean score of teachers who did not participate in the inclusion program is 19.64 (SD = 3.340). The analysis results indicate no significant difference in this category ($F = 0.061$, $P > 0.05$). Based on the study's findings in Indonesian research regarding behavioral factors, teachers who participated in the inclusion program demonstrate a more positive attitude toward implementing inclusive education for students with special needs.

Based on cognitive and behavioral aspects, teachers who have participated in an inclusive program demonstrate a more positive attitude toward implementing inclusive education for students with special needs. With respect to the affective element in Indonesia, the attitudes of teachers who have undergone inclusive education training show no significant differences compared to those who have not participated. Likewise, the cognitive, affective, and behavioral research findings are consistent in Malaysia.

Factor	Ever		Never		F	P
	M	SD	M	SD		
a. Indoensia						
Cognitive Aspect	90.12	7.485	83.38	12.103	4.940	0.032
Affective Aspect	44.50	4.452	42.22	6.236	1.911	0.175
Behavior	21,29	2.196	18.94	2.711	9.609	0.004
b. Malaysia						
Cognitive Aspect	84.53	7.698	80.96	10.014	1.264	0.268
Affective Aspect	42.00	4.949	40.40	6.062	0.670	0.418
Behavior	19.92	3.377	19.64	3.340	0.061	0.806

Table 8. Description of Differences in Having Never Followed an Inclusive Education Training Program in Teachers' Attitudes Towards the Implementation of Inclusive Education in Indonesia and Malaysia Note: N = sample size, M = mean, SD = standard deviation, f = f -statistic, p = p -value

Based on this study, teachers in Indonesia who have participated in inclusive education training programs exhibit a more positive attitude than those who have not attended such programs. This positive attitude reflects cognitive aspects that focus on "Views on students with special needs," "Knowledge regarding the characteristics of students with special needs," "Knowledge about appropriate materials for students with special needs," and "Understanding the fundamental concepts of inclusive education (definition, pedagogy, and objectives)." The same findings reveal that teachers participating in inclusive education training demonstrate a more positive attitude compared to their counterparts who have not attended these programs

(Ediyanto & Kawai, 2023). Furthermore, teachers involved in inclusive training programs are more willing to accept and consider inclusion, enabling them to better assist students with special needs; they also feel they have a deeper understanding of these students (Putri & Hamdan, 2020). Conversely, a lack of knowledge may lead teachers to develop a negative attitude due to insufficient guidelines concerning inclusion and inadequate methods for educating students with special needs (Lin et al., 2021). The Malaysian Ministry of Education provides training and courses on implementing inclusive education, which will help teachers understand and adopt a positive attitude toward inclusion and students with special needs.

Meanwhile, the study's results in Malaysia revealed no significant differences in the attitudes of teachers who attended inclusive education training programs compared to those who did not. These findings align with previous research that indicated no significant differences in the availability of special education training programs or workshops (Dapudong, 2014).

CONCLUSION

Teachers' attitudes toward implementing inclusive education based on demographics highlight the differences in perceptions across schools in Indonesia, where experiences in inclusive education training programs also show significant variations. Elementary school teachers display a more positive attitude toward implementing inclusive education. Additionally, teachers who have participated in inclusive education training demonstrate a more favorable attitude when working with students with special needs. In Malaysia, the classification of teachers and school levels shows notable differences. Among educators, non-regular teachers, such as guidance and counseling professionals, special education instructors, and social educators, exhibit a more positive attitude toward inclusive education. Furthermore, at the school level, teachers in national high schools convey a more positive attitude toward inclusive education than those in national schools.

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DEVELOPMENT AND VALIDATION OF SSE197 TEACHING INTERNSHIP INSTRUCTIONAL MODULE IN THE SOCIAL STUDIES PROGRAM

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ABSTRACT

This study endeavored to develop and validate Teaching Internship (SSE197) Instructional module in the Social Studies program in Mindanao State University – Main Campus, College of Education. This study employed explanatory sequential mixed- method design and involves 2 sets of participants, The 6 validators from College of Education for the feedback and recommendations and the Context Validity Index of each facet of the lessons and the Fourteen (14) social studies pre-service teachers for the usefulness of the developed module. Feedback and suggestions from the first draft of the module by validators such as revising learning objectives, refining formats by incorporating more engaging element were considered. The validation process confirmed that the module meets content validity standards, with experts highlighting its well-structured learning objectives, relevant content, and practical learning activities. Moreover, students found it effective in enhancing their knowledge and teaching skills, particularly in lesson planning, classroom management, and instructional strategies. The findings pave the way for future research in instructional material development, particularly in exploring technology integration and interactive learning approaches.

Keywords: development; Usefulness; social studies; module; teaching internship; validation, instructional module

INTRODUCTION

In the field of education, the teaching internship serves as a cornerstone for pre- service teacher preparation, particularly in Social Studies education. This critical phase provides hands-on experience, bridging the gap between theoretical knowledge and practical teaching skills. Internships foster professional growth and ensure high-quality instruction that promotes critical thinking, civic participation, and cultural understanding. However, pre-service teachers often encounter significant challenges due to the lack of targeted resources, such as instructional modules, references, and textbooks tailored to the Social Studies teaching internship.

McTighe and Wiggins (2012) noted that well-designed modules align instruction with learning objectives and offer a coherent framework for lesson planning and assessment. Modules can also include step- by-step instructions, formative assessments, and case studies tailored to Social Studies. For instance, a module could incorporate strategies for facilitating critical discussions on civic engagement or tools for integrating historical analysis into lesson plans.

The objective of this study was to develop an instructional module tailored to the SSE197 Teaching Internship in Social Studies program. To validate the module's content, usability, and effectiveness through feedback from experts and stakeholders. To assess how the module enhances the teaching competencies and instructional practices of Social Studies student-teachers.

METHODS

Research Design

This study employs an explanatory sequential mixed-method design, a methodological approach that combines quantitative and qualitative data collection and analysis in a structured sequence (Creswell & Creswell, 2018). This design is deemed the most appropriate for the study as it allows for a comprehensive evaluation of the instructional module. Quantitative data provides measurable outcomes, while qualitative data offers a deeper exploration of these findings. By integrating both methods, the study bridges statistical trends with in- depth participant perceptions, aligning with its objective to assess and validate the effectiveness of the developed module for Social Studies teaching internships.

Ethical Considerations

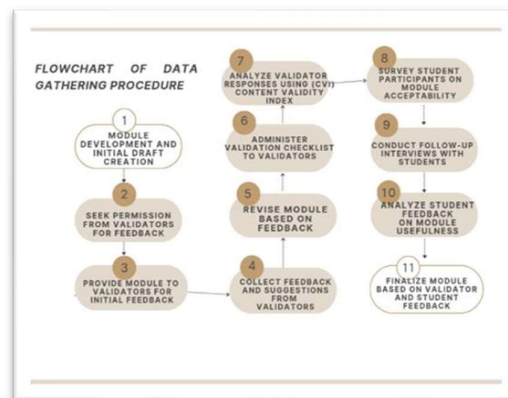
Ethical considerations be upheld throughout the research process. The research adheres to ethical guidelines and regulations regarding data protection and participant rights. Furthermore, in conducting the study the researchers diligently adhere to the following principles. First, Participants had to fully understand the research before agreeing to take part. Researchers were obligated to provide clear and complete information about the study. Second, Participants had the absolute right to withdraw from the study at any time without facing any negative consequences. Researchers fully respected this choice.

Third, the confidentiality measures in place. Participants be assured that their responses were kept confidential and used solely for the purposes of the research. Their identities are anonymized in the final study report, and all data be stored securely to protect their privacy.

Data Gathering Procedure

The data gathering procedure for this study follows a clear and systematic process, involving the development, validation, and assessment of the instructional module for Social Studies Teaching Interns. This procedure is divided into several steps, each designed to ensure the module's validity and usefulness for student-teachers. A flowchart- style description of the steps is provided below for clarity.

Figure 1: Data Gathering Procedure



Data Analysis Procedure

This study employed both qualitative and quantitative data analysis methods to ensure comprehensive insights into the effectiveness of the instructional module. After collecting the data through checklists and interviews, the responses were systematically categorized and analyzed based on the research questions outlined in the study. For qualitative data, the feedback and suggestions from the validators were analyzed using data commentary. This involves organizing and categorizing the responses in a table format, followed by an

interpretation of the feedback to identify themes and insights. This method is employed to refine the instructional module based on expert suggestions.

Participants

The participants of this study consist of 2 sets and were selected using purposive sample to ensure that the participants are knowledgeable and relevant to the research objectives. The first set of participants consists of six validators, selected from various departments within the College of Education at Mindanao State University, Main Campus, Marawi City. These validators were specifically chosen based on their expertise in curriculum development, familiarity with the Experiential Learning Course 197 (Teaching Internship) course, and their experience with teacher education programs. The second set of participants consists of fourteen (14) student-teachers who are currently enrolled in the Bachelor of Secondary Education, majoring in Social Studies program at the College of Education, Mindanao State University, during the Academic Year 2024-2025. These student- teachers are enrolled in the SSE197 (Teaching Internship) course and are in their final stages of teacher preparation. The participants are purposively selected based on their enrollment in the teaching internship course.

RESULTS

Feedback and Suggestions of the validators

The development of instructional materials requires a rigorous validation process to ensure their effectiveness, relevance, and alignment with educational standards. Expert validation serves as a crucial step in refining these materials, providing insights that enhance both content quality and pedagogical soundness (Gagné, Wager, Golas, & Keller, 2005). In this study, the instructional module was subjected to expert evaluation, wherein validators assessed its learning outcomes, content, format, design, learning activities, and lesson presentation. Their feedback guided necessary revisions, ensuring that the module effectively supports student learning.

Learning Objectives

Validators	Learning Objectives		
	Feedback	Suggestions	Page Number in the Module
V1, V3, V5, and V6	Divide items on listed Learning Objectives.	Improve the construction of the sentence. Improve the Intended Learning Objectives in every module. Give/Enumerate samples on discussions, provide assessment at the end.	<i>p. 1,18,27,28,37,47,58,58,75,84,92,99,107</i>
V2	Include approaches applicable for social studies.	No suggestions.	<i>All pages</i>
V4	Not covered on assessment. Not aligned with assessment, not part/emphasized on assessment (post-test).	Add hint / Definition to guide learner to the correct response. You may change (letter d) aligning to number 2 post-test about analyzing strength & weaknesses. Use scoring rubric for objective assessment.	<i>p. 15,16,24,25,34,35,44,45,55,56,72,73,80-82,89,90,96,97,103-105,109-112</i>

Table 1: Validators' Feedback and Suggestion on the Learning Objectives

Table 1 presents the feedback and suggestions of the six validators on the learning objectives of the module. They emphasized correcting grammatical errors and improving sentence

construction in the Intended Learning Objectives and suggested dividing the learning objectives into smaller, more organized sections. As emphasized by Gronlund (2000), aligning learning objectives with assessments is essential for instructional design, enabling students to effectively demonstrate their understanding.

Lesson Content

Validators	Content		
	Feedback	Suggestions	Page Number in the module
V1, V2, V5, and V6	Make sure that the information you get is reliable. Enrich your manual by contextualizing with your field of specialization. Make sure to cite and acknowledge ELC Book. You may enrich this by contextualizing with your field of specialization. Aligned with what is your Practice in the college department.	Include in your manual the highlight part of your field of your specialization. Include strategies on approaches applicable for social studies. Check our syllabus and curriculum for alignment. Do not rely too much to internet sources, try finding some books for a more reliable information.	<i>All pages</i>
V3	No feedback.	Use appropriate punctuation mark.	<i>All pages</i>
V4	No feedback.	Emphasize necessary titles. Put all the references below the images.	<i>p. 2,19,20,38-41, 48,49,59,60,69, 76,85,88,89,93 - 95,108</i>

Table 2: Validators' Feedback and Suggestion on the Content

Table 2 shows the valuable feedback, suggestions on the content of the module. The validators' insights focused on enriching the content, ensuring its alignment with institutional standards, and enhancing its relevance to the field of specialization. They stressed the importance of using reliable sources and enriching the module content with contextualized material specific to the field of specialization. However, they emphasized including strategies applicable to social studies, ensuring the content highlights the field of specialization and contextualizes the ELC Book and advised emphasizing necessary titles and placing references directly below the images rather than at the end of the document.

Format and Design

Validators	Format and Design		
	Feedback	Suggestions	Page Number in the Module
V1	Be consistent with the use of font size, font style, spacing and indentation.	The module is good and make sure to enrich this by contextualizing with your field of specialization.	<i>p. 1-115</i>
V4	Be consistent with your styles.	Improve the infographics part and always put the references below the images.	<i>p. 1-115</i>

V5	The module is good just change the lesson, instead of lesson change it to by week(s).	Avoid grammatically error.	p. 1,18,27,28,37, 47,58,58,75,84, 92,99,107
V6	Consistency and appropriateness on the design and icons used.	Improve your cover page design. Centered to Internship looks.	p. 1-115

Table 3: Validators' Feedback and Suggestion on the Format and Design

Table 3 shows the feedback and suggestions of the validators in the Format and design. The feedback focused on enhancing consistency, improving clarity, and ensuring the module's overall professional appearance. They recommended consistency in the use of font size, font style, spacing, and indentation throughout the module. As well as style, specifically related to infographics, and emphasized placing references below the images, and suggested improving the infographics section for greater clarity and appeal. This feedback and suggestion are supported by Carton (2021) who found that many book's cover designs do not deliver the proper message. She further stated that books with imaginative visuals, striking font choices, and appealing covers sell better.

Learning Activities

Validators	Learning Activities		
	Feedback	Suggestions	Page Number in the Module
V2, V3, V4, V5, and V6	Some activities are not applicable task because the content has something to do with action research. Write a specific direction/instruction in every assessment. Add more activities that are engaging to the students.	Improve your assessment. Use the objective types. Use a separate page for post-test.	p. 1,18,27,28,37,47,58,58,75,84 ,92,99,107, 15,16,24,25,34,35,44,45,55,5 6,72,73,80- 82,89,90,96,97,103-105,109- 112

Table 4: Validators' Feedback and Suggestion on the Learning Activities

Table 4 shows the valuable feedback and suggestions on the learning activities of the module. The validators emphasized the need to improve assessments, enhance student engagement, and ensure that the activities align with both the module's objectives and the students' needs and improving assessments by using objective- type questions and placing the post-test on a separate page.

Lesson Presentation

Validators	Lesson Presentation		
	Feedback	Suggestions	Page Number in the Module
V2 & V3	Include in the appendices the detailed copy of the existing law that are applicable for the profession.	Suggested to put all the references at the last part of the manual.	

	No professional reflection.	Consistency and appropriateness on the design and icons used.	<i>All pages</i>
V4, V5 & V6	Visually appealing and engaging module design. Provide answer key on post-tests per unit. Follow and revised phases in ELC guidelines.	Suggested to enrich the manual by contextualizing with the field of specialization. Suggested to add more activities that are engaging to the students.	<i>P.3-11,12-14, 15,16,24,25, 34,35,44,45,55, 56,72,73,80-82,89,90,96,97, 103-105,109-112</i>

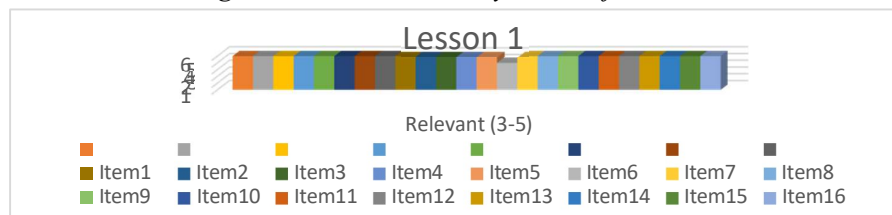
Table 5: Validators' Feedback and Suggestion on the Lesson Presentation

Table 5 shows the feedback and suggestions on the lesson presentation of the module. The Validators emphasized the importance of consistency and appropriateness in design elements, such as icons, to ensure that the visual presentation aligns with the content and suggested enriching the manual by contextualizing it with the field of specialization and recommended following the revised phases in the ELC (Experiential Learning Courses) guidelines to ensure the module aligns with institutional and curriculum standards. Meanwhile, they suggested including an answer key for the post-tests at the end of each unit to support student learning and provide clear evaluation criteria. They also emphasized the need for more engaging activities to maintain student interest.

Context Validity Index

This Validity analysis was performed to determine the validity of the content through the Content Validation Index (CVI) method. This method outlines simple and easy to understand calculations, focuses on relevant consensus and words agreement and provides both item and scale information (Polit et al., 2007) and it was strengthened by its wide use providing proof of content validity for instruments (Davis, 1992; Grant & Davis, 1997).

Figure 2: Context Validity Index of Lesson 1



As seen in the Figure 2, Overall, the Content Validity Index (CVI) for lesson I is 0.95, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This is considered relevant and appropriate by the validators. The results indicate that this lesson is ready for implementation with a little modification to learning activities.

Figure 3: Content Validity Index of Lesson II



Figure 3 represents the Overall, the Content Validity Index (CVI) for lesson II is 1.00, which indicates perfect agreement among the validators regarding the relevance of the facets and

items in the instructional module. This is considered relevant and appropriate by the validators. This indicates the lesson implementation without further modification.

Figure 4: Content Validity Index of Lesson III

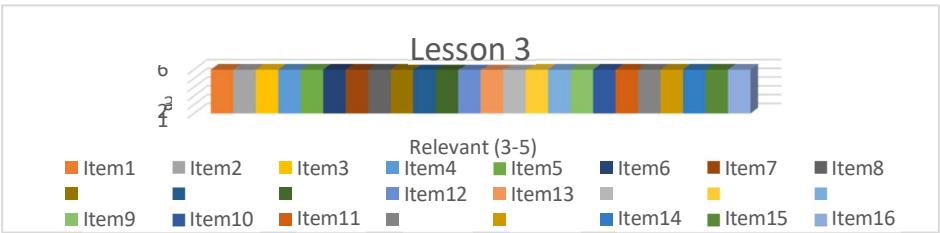


Figure 4 shows the Overall, the Content Validity Index (CVI) for Lesson III is 1.00, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This is considered relevant and appropriate by the validators. The results indicate unanimous agreement, and that Lesson III is ready for implementation without further modification.

Figure 5: Content Validity Index of Lesson IV



Figure 5 shows the Overall, the Content Validity Index (CVI) for lesson IV is 0.83., which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This is considered relevant and appropriate by the validators with some minor agreement on certain items. This indicates that lesson IV is ready for implementation with a little bit of modification on objectives, activities and presentation.

Figure 6: Content Validity Index of Lesson V



Figure 6 shows the Overall, the Content Validity Index (CVI) for lesson V is 0.91, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This is considered relevant and appropriate by the validators with some minor disagreement on certain item. The results indicate that lesson V is ready for implementation with a little modification on content and presentation.

Figure 7: Content Validity Index of Lesson VI



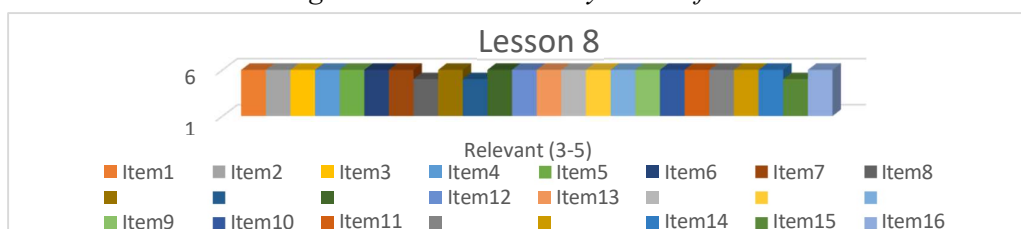
Figure 7 shows the Overall, the Content Validity Index (CVI) for lesson VI is 0.91, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This is considered relevant and appropriate by the validators with some disagreement with certain item. The result indicates that lesson VI is ready for implementation with a little modification on its content.

Figure 8: Content Validity Index of Lesson VII



Overall, the Content Validity Index (CVI) for lesson VII is 0.87, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This is considered relevant and appropriate by the validators with some disagreement with certain items. The results indicate that lesson VII is ready for implementation with a little modification on content and activities.

Figure 9: Content Validity Index of VIII



Overall, the Content Validity Index (CVI) for lesson VIII is 0.87, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This is considered relevant and appropriate by the validators with some minor disagreement on certain items. The results indicate that Lesson VIII is ready for implementation with a little modification to content and presentation.

Figure 10: Content Validity Index of IX

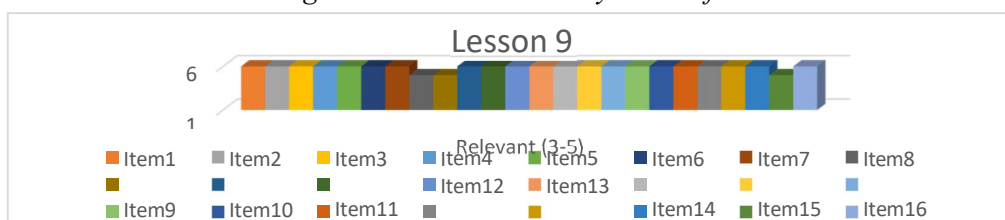


Figure 10 shows the Overall, the Content Validity Index (CVI) for lesson IX is 0.83, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This is considered relevant and appropriate by the validators with some minor disagreement on certain items. The results indicate that Lesson IX is ready for implementation with little modification to content and presentation.

Figure 11: Content Validity Index of Lesson X

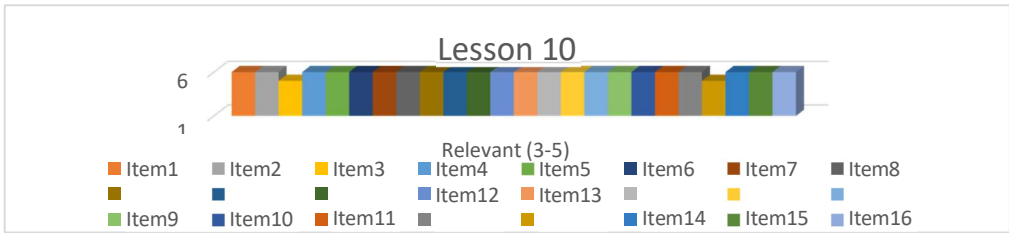


Figure 11 shows the Overall, the Content Validity Index (CVI) for lesson X is 0.91, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This is considered relevant and appropriate by the validators. The results indicate that this lesson is ready for implementation with a little modification on objective and presentation.

Figure 12: Content Validity Index of Lesson XI

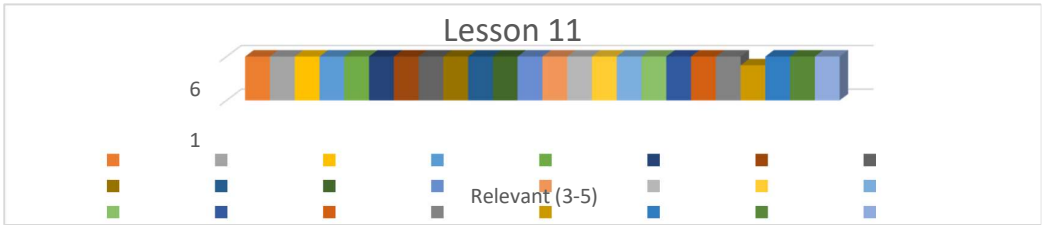
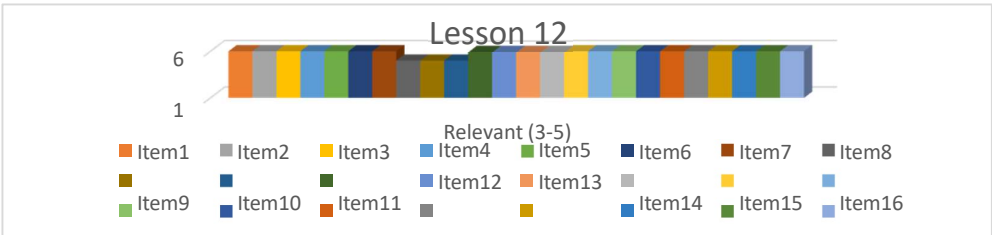


Figure 12 shows the Overall, the Content Validity Index (CVI) for lesson XI is 0.95, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This high level of agreement suggests that the lesson objectives, content, learning activities, format and language, and presentation of lesson XI in the instructional module are considered relevant and appropriate by the validators with some disagreement on certain items. The result indicates that Lesson XI is ready for implementation with a little modification to the lesson presentation.

Figure 13: Content Validity Index of Lesson XII



Overall, the Content Validity Index (CVI) for lesson XII is 1.00, which indicates perfect agreement among the validators regarding the relevance of the facets and items in the instructional module. This high level of agreement suggests that the lesson objectives, content, learning activities, format and language, and presentation of lesson XII in the

instructional module are considered relevant and appropriate by the validators with some disagreement on certain items. The result indicates that Lesson XII is ready for implementation with a little modification to lesson content.

Students' Response on the Usefulness of the SSE197 Module

Interview 1: How effective is the construction of the learning outcomes in the developed module?

Main ideas	Themes
<i>...learning outcomes is align to the content of the module, possible na ito ay effective (P1, DU2)</i> <i>The learning outcomes in the developed module are clearly defined and aligned with the course objective... (P2, DU22)</i> <i>...construction of learning outcome is effective since it is aligned with the content... (P3, DU42)</i> <i>...learning outcomes of this module is effective, since it is aligned with the contents of the module. (P4, DU62)</i>	The learning outcomes is effective aligned to the content.
<i>...I can say that the learning outcomes effective is well effective for it gives emphasis to the goals of each lesson. (P5, DU82)</i> <i>It can effective because of construction of the learning outcomes are the cornerstones of course design and assessment... (P6, DU102)</i> <i>...And I can say that it is effective because the learning outcomes is aligned to the Content if the module. (P10, DU182)</i>	

Table 6: Question 1 summary of themes

As shown, the learners emphasized that the construction of learning outcomes is a vital aspect of the module. According to Adam (2004). Learning outcomes is described as “basic educational building block”. In addition, “when there is alignment between what we want, how we teach and how we assess, teaching is more likely to be achieve” said by Biggs (2003).

Interview 2: How well does the developed module demonstrate accuracy?

Main ideas	Themes
<i>Kung ang module ay mayroong effect or naintindihan ng mga gumagamit, the module must have the accuracy. (P1, DU4)</i> <i>The module demonstrates a high level of accuracy in presenting concepts and information, ensuring that the content remains relevant and aligned with current standards... (P2, DU24)</i> <i>Yes, it is effective. i can say that it has a wide and accurate content that can understand easily by the students... (P3, DU44)</i> <i>I think the module is giving accuracy... (P4, DU64)</i> <i>This developed module really has accuracy on its content and it really demonstrate the accuracy based on its construction. (P5, DU84)</i> <i>...the module is the in-text citation. Madaming sources na binigay ang authors at hindi lang nag focus sa iilang sources. (P8, DU144)</i> <i>Yes, it does well develop the module in demonstrate accuracy... (P6, DU104)</i> <i>Yes, after reviewing the module, I believe it can be an effective tool for student learning activities. (P7, DU124)</i> <i>Yes, as I have checked, all of the topics are related Teaching internship. (P12, DU224)</i> <i>I think the module demonstrates accuracy because it is rich in text... (P13, DU244)</i> <i>It provides needed information regarding teaching internship (P14, DU264)</i>	The module demonstrate accuracy

Table 7: Question 2 summary of themes

According to the learners, it demonstrates accuracy as it also has many sources. This is supported by California State University (2023) where reliable sources provide trustworthy and verifiable information, this enhances the quality and integrity of the module's content.

In terms of accuracy and credibility, for example peer-reviewed journals, authoritative textbooks, reputable websites, and expert opinions, are known for their accuracy and credibility. In this study, it shows accuracy as there are also many sources.

Interview 3: Is it detailed enough for a student to progress through the lesson without Instruction?

Main ideas	Themes
The module is detailed enough for students to follow and understand the lessons without requiring direct instruction... (P2, DU26) Yes, since they are the college students so it is enough for them to understand and progress (P3, DU46) I can say that yes, it is detailed enough for students to progress through the lesson without an instruction of the teacher. (P5, DU86)	The module is detailed enough
Yes, the activities are well-planned, taking into account the students' ability to understand and complete them... (P7, DU126) The content itself is understandable. It uses simple words na madali lang maintindihan ng mga bata. (P8, DU146) yes, it is detailed enough. (P10, DU186) Yes, because the content was all organized and importantly, the references are cited which is good for me to check them on my own without constant inquiry to my teacher. (P12, DU226) I think. Yes. As I've said mas rich ung words dito at college student na ang gagamit nito and at the same time... (P13, DU246) Yes (P14, DU266)	

Table 8: Question 3 summary of themes

They found the module easy to learn and understand, even without additional instructions. This is supported by Pierce (2022), a module should be self-understandable as the learner learns at their pace and allows them to explore and spend more time in their area of interests. In addition, Weimer (2015) said that learning occurs without a teacher, in which the learners do not need teachers as much as the teacher needs the learn.

Interview 4: How can you describe the assessment within the developed module to strengthen understanding of the content?

Main ideas	Themes
The assessments are designed to strengthen understanding by directly testing the key concepts covered in the module... (P2, DU28) Assessments are suited to every content. It definitely strengthens the understanding as well broaden their ideas about that certain module topic. (P3, DU48) Yes, the activities in this module are well-organized to help students understand the content... (P7, DU128) Well somehow some assessments are connected to your content, and some are kinda challenging yet it's effective somehow. (P9, DU168) The assessment in the developed module strengthens the understanding of the content because it was aligned to the LO's. (P10, DU188)	The assessment is connected to the content and Learning outcomes.
Since the module provide a post assessments to measure the prior knowledge of learner's this means that the module is effective. (P4, DU68) I also love the assessment part. It gives an opportunity to students to really assess their cognitive areas using the LOTS and HOTS in assessment. (P8, DU148) Well somehow some assessments are connected to your content, and some are kinda challenging yet it's effective somehow. (P9, DU168) To able to understand the concept, lesson, content, an assessment must be employed... (P1, DU8) If you will scan the assessments itself, it portrays that this really strengthen understanding of the content. (P5, DU88) Understanding of the content and analyzing students' performance through formative assessment and sharing the results with them, instructors help students to understand their strengths and weakness (P6, DU108)	assessments are effective and asses' cognitive areas

Table 9: Question 4 summary of themes

The learners stated that the assessment is closely linked to the content and learning outcomes, as it encourages deeper engagement by challenging them to apply what they have learned. They also noted that this alignment reinforces their understanding of the material.

Interview 5: Is it highly effective for individuals to acquire a significant amount of knowledge within a brief time frame?

Main ideas	Themes
Yes (P5, DU90) Yes, learning efficiently in a short period of time is important because it allows individuals to move on to the next learning process quickly... (P7, DU130) For me, its a yes. The content is understandable. and at the same time it is engaging. (P8, DU150) So far, yes it is effective enough to understand and can learn in short period of time. (P10, DU190) For me yes but just improve the LO as well as the information.... (P11, DU210)	It is understandable
Acquiring knowledge takes a lot of time. For me, hindi kaya na in a short.... (P1 DU10) No, i think short time isn't enough for them. long time would enough or maybe it is depending on students capacity to grasp the learning module. (P3, DU50) I think learning should consider the time since learners has different e types of learning levels. (P4, DU70) nope, some students are having hard time to study it. (P9, DU170) It depends on a type of learner, if he/she is a fast, average, or slow learner... (P12, DU230) I think it depends if the student is fast learner, then it is possible but if the student is not fast learner like moderate lang, I think hid sya magsusucceed (P13, DU250) Depends on the student (P14, DU270)	No, it depends on the student

Table 10: Question 5 summary of themes

According to the learners, it is important to learn in a short period of time as it allows the earners to move quickly to the next learning process. This statement is supported by Johnston's (2009) claim that if the students were taught at times matching their learning style preferences, scores tend to be significantly higher on achievement tests. If time is viewed as a resource and is influenced to support high quality instruction, preferred time-of-day is much more likely to result in improved learning

Interview 6: What did you like LEAST about the module?

Main ideas	Themes
Wala naman akong nakitang hindi ko gusto sa module. (P1, DU12) None (P4, DU72, P5, DU92) Nothing needs to be changed; everything is well-planned, and all activities align with what the learners need to know. (P7, DU132) wala nmn, ok nmn. (P9, DU172) Nothing. I like it. (P14, DU272) Nothing. I am satisfied naman on its overall content. (P12, DU232) None (P14, DU272)	None/Nothing
...Incorporating more interactive elements or visual aids could enhance its appeal. (P2, DU32) Maybe more information should be added to the module. (P3, DU52) The cover pages. It does not align with the book title itself. (P8, DU152) Maybe the layout you bave to improve that ung formatt rin and meju kulang ng pictures. (P11, DU212) I think it would be good if ma enhance ung layout or design ng module kasi don sya gagamda masyado... (P13, DU252)	Format/ Layout

Table 11: Question 6 summary of themes

Most of the learners expressed no dissatisfaction with the module. In fact, they found it satisfactory, as the activities were well-aligned with the knowledge they needed to acquire.

Interview 7: What did you like MOST about the module?

Main ideas	Themes
<i>Well, the content itself as well as the cover because it is engaging and informative content that student could be follow. (P3, DU54)</i> <i>Mostly. (P4, DU74)</i> <i>...In addition, the content of the module is complete for about the information of the module that you give some knowledge about it. (P6, DU144)</i> <i>It is accurate and covers all the essential material that learners need to master. (P7, DU134)</i> <i>the contents for me because it is detailed. (P9, DU174)</i> <i>About the content of course, it very accurate as well as easy to understand. (P10, DU194)</i> <i>The content itself. (P5 DU94)</i> <i>The module content and the assessments used. It was all good na accurate ang information relating to the course.. (P12, DU234)</i> <i>I think it is the lengthy text for me because for me because para sa akin bilang isang reader na tao, mas maggrow ako sa ganitong type of readings kasi mahilig akong magbasa... (P13, DU254)</i> <i>How the developed module were informative (P14, DU274)</i>	The content itself
<i>What I like the most of mayrong assessment in every lesson. (P1, DU14)</i> <i>To be honest, the assessment part. (P8, DU154)</i> <i>I love the font choice and some of your activities is actually good. (P11, DU214)</i>	Assessment

Table 12: Question 7 summary of themes

The learners expressed that they appreciated the content the most, as it is detailed, accurate, comprehensive, and easy to understand. They emphasized that the module's content plays a crucial role in achieving learning outcomes, structuring the course effectively, engaging students, and measuring their progress. Additionally, one learner highlighted the assessment as a positive aspect due to its variety.

This is supported by the statements from Teaching and Learning in higher education (2020) Assessment should integrate grading, learning, and motivation for your students. well-designed assessment methods provide valuable information about student learning. They tell us what students learned, how well they learned, how well they learned it, and where they struggled.

Interview 8: What changes would you recommend in making this module more effective?

Main ideas	Themes
<i>To enhance more the assessments. (P4, DU76)</i> <i>A little concern lang, I observed na repetitive yong type of assessment na ginagamit in every pre-test... (P12, DU236)</i> <i>I noticed that the learning objectives in the first page para sa whole module is only 2. It is a book. It should be added more objectives. (P8, DU156)</i> <i>I would suggest the construction of LOs, we have to think of a very good assessment na kailangan maging align ang ILO at assessment (P13, DU256)</i> <i>Alignment of LO and Assessment (P14, DU276)</i>	To enhance the learning outcomes and assessment

Table 13: Question 8 summary of themes

One emerging theme is the need to enhance the assessment. While some learners appreciated the assessment in the module, others suggested improvements, noting that it may be repetitive, particularly the pre-test, and focused more on lower order thinking skills.

Interview 9: Would you use this module as a learning tool?

Main ideas	Themes
<i>Kapag na-publish or na-approve na sa lahat ng validators ay maganda talagang magamit itong module. Lalo na sa mga SSED Students. (P1, DU18)</i> <i>Yes, the module is well-suited as a self-directed learning tool, offering both comprehensive content and assessments that facilitate independent study... (P2, DU38)</i> <i>yes, of course, it is very useful and helpful for me as my references to the discussion, so definitely use it as an effective tool. (P3, DU58)</i> <i>Yes. (P4, DU78) Yes. (P5, DU98)</i> <i>Yes I can used it right now this module as my learning tool because I'm currently taking the ECL197 so its very helpful to me and guiding me to do the right thing... (P6, DU118)</i> <i>It's a strong yes. The module is reliable, as the creators carefully selected the sources... (P7, DU138)</i> <i>... this book is actually good for Social Studies major. It just need some improvements. And more reliable content. (P8, DU158)</i> <i>Yes. (P9, DU178) So far, yes I would use this module as a Learning tools since it has an accurate and clear content. (P10, DU200)</i> <i>I think it would benefit and i think maganda siya as learning tool and i'l sused as a guides and additional learning tool. (P11, DU218)</i> <i>Yes, since complete na ang information content nito. (P12, DU238)</i> <i>If I am a teacher, why not? It is already here and instructional sya and for us teachers, very helpful sya (P13, DU258) Yes (P14, DU278)</i>	Yes, would use this as learning tool

Table 15: Question 9 summary of themes

Most of the learners answered yes, they used it as a learning tool. The learners acknowledged that providing information relevant to ELC197 is essential. They found the module reliable and useful as a guide for their studies.

Interview 10: Would you recommend this module as an effective teaching tool?

Main ideas	Themes
<i>Yes. I would probably recommend this module if the validators and advisers ay okay na sakanila... (P1, DU20) Yes, this module would be highly recommended as a teaching tool due to its detailed content, well-constructed outcomes, and practical assessments... (P2, DU40)</i> <i>Yes, I recommend this as an effective tool... (P3, DU60) Yes. (P4, DU80) Yes. (P5, DU100)</i> <i>Yes, I can recommend this module as an effective teaching tool because this is probably effective for teaching that having a knowledge, strategies, processes and behaviours which lead to good student outcomes... (P6, DU120)</i> <i>Yes, there is nothing wrong with this module. It is reliable, well-planned by the makers... (P7, DU140) If this book will be revised, then yes. Add more content. (P8, DU160)</i> <i>yes, because the contents are detailed enough. (P9, DU180)</i> <i>Yes of course, I would recommend this module as an effective teaching tool since it is detailed enough to use as a teaching tools. (P10, 200)</i> <i>yes po, i think maganda as a effective tool it just that imorove the activities and as well as the arrangement. (P11, DU220) Yes, I will if naka-finalize na to and improvements (if meron) has been done. (P12, DU240) Of course, yes. Because it is a very good thing, na pagkatapos gawni ito, gingamit na... (P13, DU260) Yes. (P14, DU280)</i>	Yes

Table 15: Question 10 summary of themes

Most learners responded positively, stating that they also use the module as a teaching tool because it provides detailed information. However, they suggested that certain aspects, such as the assessment and activities, could be improved.

SUMMARY

This study aimed to determine the content validity of the developed SSE197 (Teaching Internship) instructional module based on five key elements: (1) Learning Objectives, (2) Module Content, (3) Module Presentation, (4) Format and Language, and (5) Learning Activities. It also sought to answer two key questions (1) What are the feedback and recommendations of the validators on the first draft of the developed module? (2) Based on student participants' interview responses, how effective is the developed module for their SSE197 course? The study involved two main respondent groups: six validators from the College of Education with experience in handling teaching internship courses and students majoring in Social Studies enrolled in ELC197. A mixed-method approach was utilized, combining quantitative and qualitative research. Data was collected, tallied, and analyzed using descriptive quantitative analysis for numerical data and thematic analysis for qualitative responses. Based on the data gathered and analyzed, the following are the findings of the study:

1. **Validators' Feedback and Recommendations:** Validators provided detailed suggestions for improvement. For instance, one validator recommended revising the learning objectives to make them more specific and aligned with student internship expectations. Another suggested refining the format by incorporating more visually engaging elements, such as tables and diagrams, to enhance clarity. Additionally, validators pointed out that certain learning activities lacked real-world application and advised integrating more reflective exercises based on actual classroom experiences.
2. **Content Validity Results:** The module's validity was confirmed through a high content validity index (S-CVI and I-CVI of 1.00). Specifically, the "Lesson Planning Strategies" section received unanimous agreement from validators regarding its clarity and applicability. However, minor revisions were suggested in the "Assessment and Evaluation" unit to provide more concrete rubrics and assessment examples for student teachers.
3. **Students' Perceptions of Effectiveness:** Students found the module highly beneficial, particularly the "Classroom Management Techniques" and "Instructional Strategies" sections, which they described as practical and relevant. One student shared that the case study examples helped them visualize real classroom challenges and prepare effective solutions. Another emphasized that the module's structured lesson plan templates simplified the process of designing engaging classroom activities. Additionally, students appreciated the clear, concise language used in the module, which made complex teaching concepts easier to understand.

CONCLUSION

Based on the findings of this study, the developed SSE197 Teaching Internship instructional module received positive feedback from both validators and student participants. The validation process confirmed that the module meets content validity standards, with experts highlighting its well-structured learning objectives, relevant content, and practical learning activities. Moreover, students found it effective in enhancing their knowledge and teaching skills, particularly in lesson planning, classroom management, and instructional strategies.

The significance of these conclusions lies in the module's potential impact on teacher education. By providing a structured and research-based instructional material, this study contributes to the improvement of teaching internship experiences, ensuring that student teachers are better equipped for real classroom settings. The module not only serves as a guide for student teachers but also provides faculty members with a standardized resource to enhance internship training.

RECOMMENDATIONS

The validated instructional module is highly recommended for official adoption by the College of Education, particularly in the Social Studies department, as a supplementary resource for SSE197 Teaching Internship. Faculty members can integrate the module into the curriculum to provide structured guidance and support for student teachers.

The Social Studies department is encouraged to conduct periodic evaluations of the module's effectiveness based on student feedback and teaching outcomes. Regular updates and revisions are necessary to ensure its continued relevance and applicability to changing educational needs. Future researchers are advised to conduct further validation studies to assess the module's effectiveness in improving specific teaching competencies, such as lesson delivery, classroom management, and student engagement.

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Contributions of Authors

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EVALUATION OF INCLUSIVE EDUCATION CURRICULUM AT THE PRIMARY SCHOOL IN INDONESIA

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ABSTRACT

This study aims to evaluate the implementation of inclusive education curricula at the primary school level in Indonesia. An inclusive curriculum is a crucial element in realizing equitable education for all learners, including those with special needs. This research employed a descriptive quantitative approach by distributing questionnaires to 108 principals of inclusive primary schools across various regions in Indonesia. The instrument used was the Inclusive School Self-Evaluation Tool developed by Yusuf (2023), focusing on aspects of curriculum and instruction. Data were collected online via Google Forms and analyzed using descriptive statistics to obtain average scores and percentage distributions for each aspect. The findings indicate that the majority of schools fall into the "Sufficient" and "Moderate" categories, suggesting that while inclusive curricula have begun to be implemented, their application remains suboptimal. These results highlight the need to strengthen teacher capacity, develop adaptive curricula, and ensure more comprehensive policy support so that inclusive education can be implemented more thoroughly and sustainably at the primary school level.

Keywords: Inclusive Curriculum; Primary School; Inclusive Education; Curriculum Evaluation; Children with Special Needs

INTRODUCTION

Education is a fundamental aspect of life that is inseparable from the effort to create a just and civilized society. Every citizen has the right to receive proper education without discrimination based on ethnicity, race, religion, or disability status (Witasoka, 2016). Education serves as a primary vehicle for developing students' potential to become high-quality human resources capable of competing globally (Karsidi, 2015). Therefore, it is essential to ensure that all children, including those with special needs, have equal rights and access to education (Munifah & Ardiyansyah, 2021).

One of the key strategies in accommodating student diversity is through inclusive education. Inclusive education represents an evolution in the paradigm of educating children with special needs, emphasizing the implementation of regular education that is open and accessible to all learners without exception (Yusuf, Choiri, & Supratiwi, 2017). As part of its commitment to achieving Education for All, the Indonesian government has designated schools in each sub-district as Inclusive Education Provider Schools (Sekolah Penyelenggara Pendidikan Inklusif, or SPPPI) (Suprihatiningrum, 2021). According to the Ministry of Education and Culture's education data, 146,350 children with special needs (57.53%) are enrolled in special schools, while 108,060 children (42.47%) are enrolled in inclusive education units spread across 31,043 schools. These figures indicate that inclusive schools significantly contribute to increasing the educational participation rate of children with special needs. The Indonesian government has promoted the implementation of inclusive education through various policies, including the designation of inclusive schools in each sub-district and the enactment of Law No. 8 of 2016

on Persons with Disabilities. However, studies have shown that the implementation of these policies still faces major challenges, particularly the gap between regulation and actual practice in the field (Suprihatiningrum, 2016).

Inclusive education has emerged as a key focus in the ongoing reform of Indonesia's educational system, particularly following the enactment of Law No. 20 of 2003 concerning the National Education System. This concept strongly emphasizes the importance of acceptance and active participation of all students, regardless of their background, abilities, or specific needs (Mustika et al., 2025). According to data released by the Ministry of Education and Culture in 2021, an estimated 2.6 million children in Indonesia have special needs and are entitled to an education tailored to their individual requirements. However, the implementation of inclusive education in practice still faces numerous challenges, particularly in relation to the curriculum applied at the elementary school level.

In the pursuit of Education for All, an inclusive curriculum serves as a key element in delivering equitable and accessible education. Such a curriculum must be able to accommodate diverse abilities, learning styles, and the individual needs of students. One widely recommended approach in developing inclusive curricula is Universal Design for Learning (UDL), which emphasizes flexible instructional planning responsive to learner diversity (CAST, 2018). Through the application of UDL, teachers can foster equitable learning environments and promote active participation from all students (Florian & Black-Hawkins, 2011). Research conducted by Kurniawan (2020) highlights that students with special needs require more interactive and collaborative approaches to fully engage in classroom learning. Nonetheless, the implementation of inclusive curricula at the primary school level continues to face a variety of challenges. These include limited teacher capacity to design adaptive instruction, inadequate supporting resources, and a lack of optimal understanding and application of inclusive principles at the school level (Mitchell, 2015). A curriculum that is not fully contextualized to the needs of children with special needs may hinder the learning process and reduce the overall effectiveness of inclusive education.

Barriers to implementing an inclusive education curriculum do not stem solely from technical aspects within the classroom, but also from the lack of a systematic monitoring and evaluation framework. Many schools designated as inclusive institutions still lack a comprehensive understanding of the principles, design, and objectives of an inclusive curriculum (Yusuf, 2018). This issue is further exacerbated by the limited provision of continuous training or mentoring for teachers in designing and implementing adaptive curricula. The disconnect between macro-level policies and micro-level practices indicates the urgent need for comprehensive evaluations to identify weaknesses and opportunities for strengthening inclusive curriculum implementation at the primary school level. Furthermore, the effective implementation of inclusive education requires a data-driven and evidence-based approach. Curriculum evaluation tools such as the Inclusive School Self-Evaluation Instrument developed by Yusuf (2023) offer schools an opportunity for internal reflection. These tools enable schools to assess the achievement of inclusive curriculum indicators, which include policy development, instructional practices, and learning environment support. A systematic evaluation process can serve as a foundation for more targeted educational policy-making, as well as a reference for developing teacher professional development programs and improving inclusive learning systems.

Therefore, evaluating the inclusive education curriculum is essential to measure the extent to which its principles have been implemented in classroom practices. Curriculum evaluation should not only examine its content and objectives, but also encompass the implementation process, the effectiveness of teaching strategies, teacher engagement, and the support provided by school policies and management (Florian & Spratt, 2013). In Indonesia, a self-evaluation instrument for inclusive schools has been developed to assist schools in assessing the alignment of their practices with inclusive education principles (Yusuf, 2023). A comprehensive

evaluation can serve as a foundation for designing sustainable and contextually relevant improvement strategies tailored to the needs of primary schools across various regions. In this context, the present article aims to evaluate the implementation of the inclusive education curriculum at the primary school level in Indonesia as part of an effort to strengthen the implementation of equitable and inclusive education policies.

METHODOLOGY

This study employed a quantitative approach using a survey method to evaluate the implementation of inclusive education curricula at the elementary school level in Indonesia. The respondents consisted of principals from 108 inclusive elementary schools located across various regions of the country. The selection of respondents was conducted purposively, considering that these schools had been officially designated by the local education authorities as inclusive education providers and had prior experience in implementing inclusive curriculum.

The research instrument was a questionnaire based on the Inclusive School Self-Evaluation Instrument developed by Yusuf (2023). The questionnaire was structured as a psychological rating scale and was completed directly by school principals as the main stakeholders responsible for the implementation of inclusive policies at their respective institutions. Data were collected online through Google Forms. The collected data were analyzed using descriptive quantitative techniques to obtain mean scores and percentages for each aspect assessed. The results of the analysis were used to map the extent to which inclusive curriculum principles have been implemented in elementary schools and to identify key areas that require further improvement.

RESULTS

To assess the level of implementation of inclusive education curriculum at the primary school level, an analysis was conducted using data collected from 108 inclusive primary schools across various regions in Indonesia. The data were obtained through the administration of a self-evaluation instrument specifically designed for inclusive schools, completed by school principals as the primary respondents. The instrument covered multiple aspects of inclusive education implementation, including institutional management, curriculum and instruction, student affairs, human resources, infrastructure, community involvement, and funding. The results of the evaluation were categorized into six levels of implementation: Very Poor, Poor, Moderate, Sufficient, Good, and Very Good. The detailed distribution of these results is presented in Table 1 below:

Category	Σ	%
Very Poor	9	8
Poor	19	18
Moderate	21	19
Sufficient	34	31
Good	9	8
Very Good	16	15
Total	108	100
Average		52% (Moderate)

Table 1: Distribution of Inclusive Curriculum Evaluation Results in Inclusive Primary Schools in Indonesia.

The analysis of data from 108 inclusive primary schools in Indonesia reveals varying levels of inclusive curriculum implementation. Based on the findings, 9 schools (8%) fall under the Very Poor category, 19 schools (18%) are classified as Poor, and 21 schools (19%) are in the Moderate category. The Sufficient category represents the highest number, with 34 schools (31%), followed by Very Good with 16 schools (15%) and Good with 9 schools (8%). Overall, most schools are situated in the Sufficient and Moderate categories, indicating that while the inclusive curriculum has begun to be implemented, there remain numerous areas requiring

improvement in order to reach the Good or Very Good levels. The average evaluation score across all schools stands at 52%, placing the implementation level within the Moderate category. These findings provide a general overview that, although several schools have met certain indicators of inclusivity, the overall implementation of the inclusive curriculum at the primary school level remains at a moderate stage and has not yet reached full optimization.

DISCUSSION

Inclusive education is a paradigm that emphasizes the importance of equitable access to education for all students, including those with special needs (Setiawan & Apsari, 2019). In this context, inclusion refers to the practice of integrating students with special needs into mainstream learning environments, with the expectation that they can learn and grow alongside their peers (Ghita et al., 2017). This approach not only provides students with special needs the opportunity to participate in the educational process but also fosters awareness and understanding of diversity within the broader school community. Although the principles of inclusion have been widely adopted, their implementation continues to face numerous challenges (Judijanto et al., 2025). One of the main challenges is the lack of adequate teacher training in managing inclusive classrooms (Pujiaty, 2024). Many educators feel unprepared to address the diverse needs of their students, particularly when faced with complex learning difficulties. Without proper knowledge and skills, teachers may struggle to provide the necessary support to students with special needs. Additionally, limited school resources pose a significant constraint. Many educational institutions, especially those in remote areas, lack access to assistive technologies or trained support staff (Akbar et al., 2024). These limitations can result in suboptimal learning experiences for students with disabilities and may even exacerbate the academic achievement gap between them and their peers. Moreover, stereotypes and stigma surrounding students with special needs remain persistent obstacles (Supena et al., 2022). Often, other students even adults harbor misconceptions about the capabilities of learners with disabilities. This can create a hostile or unwelcoming environment that hinders healthy social interaction, which is vital for emotional and social development. Addressing these attitudinal barriers is therefore essential for creating an inclusive, respectful, and supportive school culture.

Becoming an educational institution recognized as inclusive is undoubtedly a challenging endeavor, as it requires the readiness and commitment of various stakeholders particularly teachers who serve as the frontline implementers of classroom instruction. According to Syafi'i and Rosyidah (2022), the primary challenges lie in teachers' competence to understand the individual needs of students with disabilities, as well as the availability of adequate supporting facilities and infrastructure. As reflected in the evaluation data, not all schools have successfully adopted flexible and adaptive curriculum approaches. In most cases, schools continue to use a standardized curriculum without significant modifications to accommodate the diverse characteristics of students. To address these challenges, effective inclusive strategies must be embedded within curriculum design and delivery. In an inclusive education setting, curriculum strategies should be oriented toward the needs of the child to prevent psychological pressure and enhance their learning engagement. Astawa (2021) proposes three models of curriculum implementation: the use of a regular or modified curriculum for students with average or above-average abilities, a functional or vocational curriculum for those with moderate abilities, and a self-help curriculum for students with more profound needs. However, the evaluation results indicate that these differentiated curricular approaches have not yet been widely or effectively implemented. This reflects a limited understanding and application of the Individualized Education Program (IEP), which is a key standard in inclusive curriculum practices adopted in many countries.

The findings of this study, as presented in Table 1, reveal that the majority of inclusive elementary schools in Indonesia fall within the Sufficient (31%) and Moderate (19%)

categories. These results indicate that the implementation of inclusive education curricula has begun in many schools, but remains suboptimal overall. Only 23% of schools achieved the Good and Very Good categories, while the remaining 26% were categorized as Poor and Very Poor. This suggests that the execution of inclusive curricula still faces significant challenges, particularly in aligning the curriculum with the diverse needs of learners, teacher preparedness, and the availability of systemic support within schools.

This condition aligns with the findings of Wahyuno et al. (2014), which indicate that at the elementary school level, inclusive curricula still lack standardized national guidelines. Although many schools have been designated as inclusive, curriculum implementation generally continues to follow the general education curriculum without systematic adaptation. Therefore, there is a pressing need for more specific policies regarding the development of inclusive curricula, including technical guidance for schools and teachers to adapt curricula based on the type and level of students' needs. The study by Hendrawan et al. (2022) further highlights a significant gap between policy and practice in the implementation of inclusive education at the elementary level. Several contemporary studies emphasize that the curricula applied in elementary schools tend to be generic and have yet to fully account for the diverse needs of learners. In practice, teachers often face difficulties in modifying instructional content to accommodate students with special needs, due to limited training opportunities and the lack of specialized guidelines or supporting modules.

Apart from the technical aspects of curriculum design, implementation is also influenced by school management structures. School principals play a pivotal role in ensuring that inclusive education policies and programs are integrated into the school's strategic planning and consistently implemented. Mukhtar (2019) emphasizes the importance of school leaders in developing inclusive academic calendars, monitoring the implementation of learning activities, and making data-driven decisions. The findings of this study suggest that many schools still need to strengthen inclusive leadership to ensure more effective implementation processes. As highlighted by Rusman (2011), effective curriculum management ensures that planning, implementation, and evaluation are carried out optimally with the involvement of all educational components. In the context of inclusive education, this includes the active engagement of teachers, parents, students, and the wider school community to foster a supportive learning environment. Schools categorized as Good and Very Good serve as evidence that with proper management and understanding, inclusive curriculum implementation can be optimized even in the face of limited resources.

Although some schools have demonstrated strong achievements in the implementation of inclusive curriculum, one of the most persistent challenges is the lack of targeted training for teachers in designing instruction that addresses the diverse needs of students. According to Sharma et al. (2018), many elementary school teachers feel inadequately prepared to develop curriculum adjustments or differentiated teaching strategies, often resorting to a one-size-fits-all approach. This results in limited learning effectiveness, particularly for students with specific learning barriers. Therefore, there is an urgent need to strengthen teachers' capacity in planning individualized instruction through ongoing, practice-based professional development.

On the other hand, the evaluation results also reflect that the curriculum and instructional components cannot stand alone without support from other systemic elements such as infrastructure and stakeholder collaboration. A well-designed curriculum is difficult to implement effectively without assistive tools, adaptive learning media, and a supportive physical environment (Alquraini & Gut, 2012). Inclusive elementary schools must be able to create an ecosystem that supports successful curriculum implementation by engaging families, school committees, and relevant external stakeholders. In the Indonesian context, synergy among the curriculum, teacher training, and institutional strengthening is crucial for reinforcing inclusive education practices at the elementary school level (Lastini et al., 2024).

Another key finding is that the national curriculum in Indonesia remains predominantly oriented toward academic achievement and does not adequately accommodate the development of social, emotional, and functional skills that are crucial for students with special needs. This is supported by data from the Directorate of Community Education and Special Education, Ministry of Education, Culture, Research, and Technology (2023), which revealed that only 27% of inclusive elementary schools in Indonesia possess documented adaptive curriculum. This gap underscores the urgent need for curriculum reform, particularly in efforts to build an education system that is genuinely inclusive and equitable.

Furthermore, it is essential to recognize that inclusive curriculum evaluation serves not only as a tool for measuring success, but also as a form of public accountability and a catalyst for continuous school improvement. When schools regularly conduct self-evaluations using standardized instruments, such as the one employed in this study, a collective awareness emerges to initiate systemic change. As emphasized by Loreman (2021), reflective and inclusive evaluation processes can enhance organizational awareness of existing gaps and accelerate the formulation of more equitable education policies. Therefore, such efforts need to be scaled up and supported by the government through incentive-based policies and intensive mentoring initiatives.

Ultimately, this evaluation reaffirms that the success of inclusive education does not solely rely on macro-level policies, but rather on how deeply the school-level curriculum is designed and implemented with attention to the uniqueness and needs of all students. Curriculum evaluation should be regarded as a continuous process that not only measures outcomes but also serves as a foundation for formulating new policies, conducting teacher training, and improving the education system to ensure greater equity and justice for all children in Indonesia.

CONCLUSION

The evaluation of inclusive education curriculum implementation at the primary school level in Indonesia reveals that most schools fall within the *Sufficient* and *Moderate* categories. This indicates that while the principles of inclusion have begun to be integrated into school practices, the implementation is not yet optimal. Inclusive curricula continue to face challenges, particularly in terms of limited teacher capacity, inadequate professional development, and the lack of curriculum adaptation to meet students' individual needs. Moreover, supporting factors such as infrastructure, school policy frameworks, and cross-sector stakeholder collaboration significantly influence the effectiveness of inclusive curriculum implementation. These findings highlight the urgent need for systemic improvements through policy enhancement, targeted teacher training, and the development of adaptive and context-sensitive curricular strategies to advance inclusive education in primary schools across Indonesia.

These findings underscore the importance of a systemic approach in the implementation of inclusive education, in which the curriculum must be designed based on principles of flexibility, responsiveness, and commitment to the rights of all learners. Evaluation using a specialized instrument serves as an initial step to identify implementation gaps and design more contextual and sustainable improvements. To realize truly inclusive primary education, it is essential to strengthen policy frameworks, enhance teacher capacity, and provide supportive school environments so that every child, including those with special needs, can access education that is fair, meaningful, and equitable.

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EXPLORING INCLUSIVE PRIMARY SCHOOL STUDENTS' ATTITUDES TOWARD MNEMONIC STRATEGIES IN IMPROVING THE BASIC MULTIPLICATION FACT RETRIEVAL

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ABSTRACT

Despite the critical role of foundational numeracy in primary education, students with mathematics difficulties often struggle to retrieve basic multiplication facts, which can negatively affect their academic progress and motivation. Traditional instructional approaches may not adequately address the diverse learning needs of these students, particularly in inclusive classrooms. This study aimed to examine the efficacy of Mnemonic strategies, specifically visual imagery and story-linking, in improving students' attitudes toward learning basic multiplication facts, with a focus on students with mathematics difficulties.

The authors employed a quantitative experimental design involving 206 Grade 3 students from eight Inclusive primary schools in Purwakarta City, West Java, Indonesia, including approximately 78 students identified as having difficulties in mathematics. The participants were divided equally into two groups: an experimental group and a control group. Both groups completed pre-test and post-test attitude scales. The experimental group received instruction using Mnemonic strategies, while the control group followed traditional methods. A paired-samples *t*-test was used to analyze the data, including subgroup analysis of students identified as having mathematics difficulties.

The results revealed a significant improvement in students' attitudes in the experimental group after the intervention, with mean scores rising from 34.2 to 49.3 ($t = 18.6$, $df = 102$, $p < 0.001$). In contrast, the control group increased slightly, from 33.4 to 38.5 ($t = 15$, $df = 102$, $p < 0.001$). Moreover, students with mathematics difficulties in the experimental group also demonstrated a substantial attitude gain, with a mean score increasing from 31.2 to 49.6 ($t = 16.4$, $df = 38$, $p < 0.001$). Meanwhile, those in the control group showed only modest improvement from 29.3 to 36.8 ($t = 12.2$, $df = 38$, $p < 0.001$). These findings indicate that the Mnemonic strategies, specifically visual imagery and story-linking, enhanced learning engagement and offered inclusive benefits by supporting learners with specific needs.

The novelty of this study lies in its focus on the affective impact of Mnemonic strategies rather than solely cognitive outcomes, particularly among students with mathematics difficulties in a real classroom setting. This study emphasizes the value of implementing inclusive and engaging instructional approaches aligned with the Universal Design for Learning (UDL) principles. However, these findings contribute to achieving Sustainable Development Goal 4, which aims to ensure quality education for all, including inclusive and equitable learning opportunities for all.

Overall, Mnemonic strategies, particularly visual imagery and story-linking, have proven to be an effective, inclusive, and practical teaching tool that can improve students' attitudes toward learning mathematics, especially for those who often struggle to retrieve basic multiplication facts. The authors recommended that future studies examine the long-term effects of mnemonic-based instruction on students and its applicability in various educational settings.

Keywords: mnemonic strategies; inclusive education; students with mathematics difficulties; learning attitudes; quality education

INTRODUCTION

Background of the Study

Mathematical ability is essential even for manual labor, as approximately 90 percent of occupations require at least upper-secondary level mathematics proficiency (Stein et al., 2006). It enables individuals to interpret and analyze the world, contributing to personal and societal development (Rahman & Ahmar, 2017). Additionally, Kusmaryono (2014) suggested that mathematics is one of the natural sciences that has made significant contributions to advancements in science and technology. Moreover, students aspiring to become technology developers are strongly encouraged to gain proficiency in mathematics (Wulandary, 2020). For those pursuing careers in science and technology, competence in mathematics is fundamental for gaining admission to prestigious colleges and securing technology-based jobs (Mahler, 2011). Consequently, students who struggle with mathematics may find it challenging to secure decent employment (Treacy et al., 2012). Thus, mastering basic operations, including multiplication, is imperative by the end of primary school (Chapin & Johnson, 2006), especially since multiplication is introduced and developed in Grade 3 following curricular standards (National Mathematics Advisory Panel, 2008).

According to Siegler and Lortie-Forgues (2015), basic arithmetic skills such as multiplication are prerequisites for understanding more complex mathematical concepts. Unfortunately, many students rely on inefficient strategies, like counting by ones or using tallies, well beyond the expected age (Dowker, 2019). Students who do not develop automaticity with multiplication facts may struggle with higher-order problem-solving and mathematical fluency (Baroody et al., 2009). These challenges are even greater for students with learning disabilities, particularly those diagnosed with dyscalculia, who often persist in having difficulties mastering fundamental math skills (Devine et al., 2013).

In inclusive classrooms, where students with and without disabilities learn together, teachers are responsible for providing instruction that meets the diverse learning needs of all students (Florian & Black-Hawkins, 2011). Hence, this necessitates the adoption of flexible teaching approaches that ensure equitable access to mathematical concepts (Schleicher, 2020). Although traditional methods, such as rote memorization and repetitive drills, are often used to teach multiplication, they frequently prove inadequate for students with learning disabilities (Abbacan et al., 2025). Rote learning, which focuses on repetition and memorization without meaningful context, can be ineffective and disengaging for students who require additional cognitive support (Torgesen et al., 2007). Furthermore, while repetitive drills may be beneficial for some, they can elevate anxiety and diminish motivation among students struggling with timed tasks (Burns et al., 2019).

In light of these concerns, alternative methods, such as Mnemonic strategies, have emerged as promising tools to aid memory and recall, particularly for students with learning difficulties (Mastropieri et al., 1987). Mnemonic strategies, including Visual Imagery and Story-linking, utilize associations and mental visualization to enhance memory retention (Scruggs et al., 2010). These strategies make meaningful mental connections, making abstract concepts more concrete and memorable (Rakap et al., 2018). In the context of learning multiplication, Mnemonic strategies can simplify the retrieval of number facts by linking them to vivid images or narratives, which is especially beneficial for students facing cognitive processing challenges (Scruggs et al., 2010). While an increasing body of evidence supports their effectiveness in literacy and vocabulary acquisition (Stahl & Fairbanks, 1986), fewer studies have investigated their impact on mathematics instruction within inclusive environments.

Areepattamannil and Freeman (2008) stated that students' attitudes toward instructional strategies significantly influence their engagement, motivation, and learning outcomes. Positive student attitudes toward Mnemonic strategies correlate with higher levels of

participation and enjoyment in learning activities (Uberti et al., 2003). Conversely, if students find a strategy confusing, monotonous, or cumbersome, its effectiveness may diminish regardless of the teacher's efforts. Research suggests that students' beliefs about their capabilities and the usefulness of learning strategies directly affect their academic persistence (Schunk & DiBenedetto, 2020). Therefore, exploring how students perceive strategies can provide critical insights into optimizing instructional design in inclusive classrooms.

In the context of inclusive education policies and the growing recognition of neurodiversity in educational settings, instructional methodologies require evaluation not only for their effectiveness but also for their acceptance and accessibility from the students' perspective (Loreman et al., 2010). Understanding students' attitudes toward Mnemonic strategies is crucial for assessing their potential as sustainable and inclusive instructional tools. Accordingly, this study explored students' attitudes toward Mnemonic strategies in retrieving multiplication facts and examined how these attitudes differ among learners with diverse educational needs. However, the findings reveal essential frameworks for inclusive pedagogical development that support all learners in achieving foundational mathematical competence.

Research Aims and Objectives

The current study aimed to investigate students' attitudes toward strategies (Visual Imagery and Story-linking) compared to Traditional strategies (Rote Learning, Multiplication Quizzes, Daily Multiplication Habit, and Repeated Addition Strategy) in learning basic multiplication facts in inclusive primary school settings. The study aimed to determine whether exposure to Mnemonic strategies influenced students' engagement, interest, and perceived effectiveness of these approaches, particularly among Grade 3 students with and without mathematics difficulties. The specific objectives of this study were:

To investigate students' attitudes toward Mnemonic strategies versus Traditional strategies in retrieving basic multiplication facts in inclusive primary schools.

To compare the attitudes of students with mathematics difficulties in the experimental and control groups toward retrieving basic multiplication facts in inclusive primary schools.

Research Questions

Based on the above study background, the authors examined two research questions. These questions focused on how Mnemonic strategies influenced students' attitudes toward learning basic multiplication facts, particularly in inclusive primary school settings, typically developing students, and those with mathematics difficulties. The research questions are as follows:

What are students' attitudes toward Mnemonic strategies compared to Traditional strategies for retrieving basic multiplication facts in inclusive primary schools?

How do the attitudes of students with mathematics difficulties differ between the experimental and control groups toward retrieving basic multiplication facts in inclusive primary schools?

Hypotheses

This study tested hypotheses to examine whether there were significant differences in students' attitudes toward learning basic multiplication facts after exposure to Mnemonic strategies (experimental group) compared to Traditional strategies (control group). The following hypotheses were proposed for this quasi-experimental design:

H₀ (Null Hypothesis): There is no significant difference in the change in students' attitudes between those taught using Mnemonic strategies and those taught using Traditional strategies.

H₁ (Alternative Hypothesis): There is a significant difference in the change in students' attitudes between those taught using Mnemonic strategies and those taught using Traditional strategies.

A paired-sample *t*-test was used to assess whether the change in attitude scores within each group (before and after intervention) was statistically significant. The *p*-value derived from the analysis determined whether the null hypothesis (*H*₀) should be rejected, providing insight into the effectiveness of Mnemonic strategies in shaping students' attitudes toward learning multiplication facts.

METHODOLOGY

Participants and Sampling

The present study involved 206 Grade 3 students from eight inclusive primary schools under the Ministry of Religious Affairs in Purwakarta City, Indonesia. Using purposive sampling, the authors selected participants based on initial screening and teacher recommendations. Approximately 37.9% (78 students) were identified as having mathematics difficulties, as determined by observed performance and teacher input.

Data Collection Procedures

The current study began in September 2019, following the official approval from the Ministry of Religious Affairs in Purwakarta City, Indonesia. The authors were granted access to 20 Inclusive primary schools to conduct the study. The principals of each school received formal permission letters in person. Upon receiving approval, the authors collaborated with Grade 3 teachers to distribute two key instruments: a pre-survey to assess students' attitudes toward learning basic multiplication facts (covering aspects such as interest, motivation, and enjoyment) before the pre-test, and an introduction to the Mnemonic strategies (Visual Imagery and Story-linking).

After distributing the initial students' survey, the authors administered a students' pre-test to assess students' fluency in basic multiplication facts, which was adapted from the Multiplication Fact Strategies Assessment (Wichita Public Schools, 2014). The instrument consisted of 40 multiplication problems (ranging from 0 to 90), organized into eight boxes containing five questions each. Students were given 40 seconds per box, approximately eight seconds per question. Moreover, the authors utilized a stopwatch to record students' response times while accuracy was closely monitored. The pre-test results, combined with teacher observations and recommendations, were then used to pinpoint students with significant difficulties in mathematics. The screening tool was aligned with the Grade 3 mathematics curriculum in Indonesia.

To examine the effects of instructional approaches on students' attitudes and multiplication performance, the authors employed a Non-Equivalent Control Group Design (NECGD), a quasi-experimental method described by Creswell and Creswell (2018). This design employs intact groups without random assignment, enabling comparisons between groups that receive different treatments. The description of NECGD is presented in Table 1.

Group	Pre-test	Treatment	Post-test
Experiment	O	X	O
Control	O	C	O

Table 1. *The Non-Equivalent Control Group Design for Student Survey*

Note: O = The students' survey. X = retrieving the basic multiplication facts using Mnemonic strategies (Visual Imagery and Story-linking). C = retrieving the basic multiplication facts without Mnemonic strategies or using Traditional strategies.

According to Table 1, students in both the experimental and control groups completed the pre-survey. The experimental group received instruction using Mnemonic strategies, specifically Visual Imagery and Story-linking. Meanwhile, the control group continued to employ traditional strategies, including rote memorization, multiplication drills, repeated addition, and

daily habit reinforcement. After the intervention, a final survey was distributed to both groups to assess changes in students' attitudes toward Mnemonic and Traditional strategies.

The teachers of the students in the experimental group attended a one-day training workshop conducted by the authors, where they received training on teaching Mnemonic strategies. Due to language barriers, the workshop speaker recommended focusing on two specific strategies: Visual Imagery and Story-linking. At the end of the study, the teachers were asked to teach and evaluate which of the two strategies was more effective in helping students accurately retrieve basic multiplication facts.

A mathematics expert, who also served as a university lecturer, led a one-day workshop for professional development. The session focused on training teachers to use Mnemonic strategies to teach basic multiplication facts. It also provided additional guidance on effective mathematics instruction for primary school students, particularly those who struggle with the subject. After completing the training, ten teachers implemented the Mnemonic strategies in their classrooms with students from the experimental group. The authors intended to administer a post-survey to the students three months after the final test to identify any differences between the experimental and control groups. However, the outbreak of the COVID-19 pandemic resulted in nationwide school closures, preventing the scheduled collection of final data from both groups.

In 2022, the authors resumed data collection by distributing the final student surveys and administering the post-tests after the original Grade 3 students had progressed to Grade 5. However, the two-year delay introduced potential confounding factors, as the experimental and control groups had been exposed to various additional interventions during the interim, which may have influenced the results. To clarify the study's phases and disruptions, a summary timeline is provided in Table 2.

Phase	Activities	Timeframe	Notes/Adjustments Related to Pandemic
Phase 1: Initial Preparation	Approval from the Ministry of Religious Affairs, school access, and initial engagement with principals and teachers	Sept 2019	No delays
Phase 2: Pre-tests & Surveys	Distribution of Pre-surveys for students and the student pre-tests (baseline data collection)	Oct 2019	No delays
Phase 3: Workshop & Training	One-day workshop on Mnemonic strategies with 10 teachers	Jan 2020	Conducted as planned
Phase 4: Initial Implementation	Teachers implement strategies in classrooms.	Feb – Mar 2020	Interrupted by school closures
Phase 5: Data Collection Resumption	Distribution of Post-surveys for students and the student post-tests, which were conducted after school reopening (final data collection)	Apr – June 2022	Delayed by two years, students had moved to Grade 5
Phase 6: Final Analysis	Comparative analysis of quantitative and qualitative data	July – Sept 2022	Data interpretation considered the time gap impact

Table 2. *Timeline of Data Collection and Analysis Phases*

Data Analysis Procedures

The current experimental study employed a quantitative research design. This approach systematically collects and analyzes numerical data to examine relationships, test hypotheses, and determine causal effects between variables (Creswell, 2014; Fraenkel, Wallen, & Hyun, 2012). As a quantitative experimental study, it involved manipulating independent variables and measuring their effects on dependent variables under controlled conditions. This design

enabled the authors to assess the effectiveness of specific interventions through statistical analysis, ensuring objectivity and replicability.

Research Instrumentation

The students' survey in this study consists of demographic information and a structured questionnaire. The questionnaire aimed to explore students' experiences and emotional responses related to using Mnemonic versus Traditional strategies to retrieve basic multiplication facts. The authors designed the instrument to assess how students perceive and respond to the learning strategies used during instruction, especially in inclusive primary school settings.

The questionnaire includes 28 items, divided into three main sections, including demographic questions. The demographic section collects essential background information, such as students' age, gender, grade level, daily language, and type of learning support received. The three thematic sections focus on how students like mathematics (7 items), how students like the strategy used to learn multiplication (7 items), and students' emotions when learning multiplication (6 items).

To allow for the nuanced expression of students' attitudes, all items in the thematic sections were rated on a three-point Likert scale, where 1 = Disagree, 2 = Neutral, and 3 = Agree. The educational experts reviewed the questionnaire items to ensure clarity, age-appropriateness, and accessibility, particularly for students with mathematics difficulties. The entire structure of the questionnaire, including the number of items and the scale used for each section, is presented in Table 3 below.

No.	Section	Number of Items	Likert Scale (1-6)
1.	Demographic information of the students	8	-
2.	How students liked mathematics	7	1 = Disagree 2 = Neutral 3 = Agree
3.	Students' attitudes toward the strategy for retrieving basic multiplication facts	7	Same as Section 2
4.	Students' emotions when learning multiplication	6	Same as Section 2

Table 3. Questionnaire Sections and Evaluation Criteria in Students' Survey

Data Analysis: Paired Sample T-test

In this study, the authors analyzed students' questionnaire responses quantitatively to examine changes in their attitudes, preferences, and emotions related to Mnemonic strategies versus Traditional strategies for retrieving basic multiplication facts. The questionnaire was administered before and after the intervention to assess shifts in students' attitudes and experiences resulting from the instructional approach.

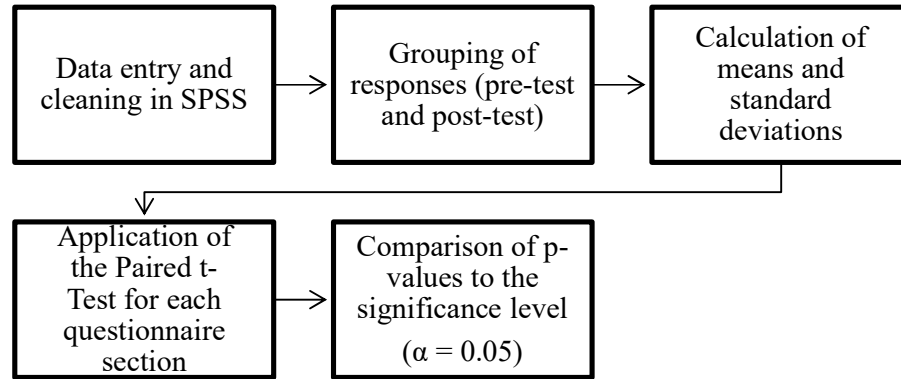
To analyze the quantitative data, the authors used the Paired Sample *t*-test (*t*-test: Paired Two Samples for Means). According to Field (2018), the paired sample *t*-test is valid for comparing two related measurements from the same participants, enabling authors to determine whether a statistically significant difference exists between the two sets of scores. In this case, the method is appropriate for comparing the means of two related groups—specifically, the responses collected from the same students at both the pre-test and post-test stages.

The paired *t*-test was applied separately to the experimental and control groups. In the experimental group, students received multiplication instruction using Mnemonic strategies (e.g., Visual imagery and Story-linking), while the control group was taught using traditional strategies. The analysis aimed to identify whether there were statistically significant changes

in students' enjoyment of mathematics, their preference for the instructional method, and their emotional responses when learning multiplication facts.

Additionally, the authors conducted a comparative analysis between students with mathematics difficulties in the experimental and control groups. This comparison aimed to determine whether mnemonic techniques had a distinct effect on students with specific learning needs. By disaggregating the data, the analysis examined how students with mathematics difficulties in the experimental group responded to the intervention compared to those in the control group who did not receive it. This approach provided insights into the inclusiveness and effectiveness of the instructional methods. The detailed steps of the quantitative data analysis are illustrated in Figure 1 below.

Figure 1: The steps of quantitative data analysis



RESULTS AND DISCUSSION

Results

This chapter presents the study's findings based on the analysis of data collected from students in the experimental and control groups. The results are organized according to the main objectives of the research, focusing on changes in attitudes toward Mnemonic strategies and Traditional strategies in experimental and control groups, respectively. Quantitative data were analyzed using descriptive statistics and paired t-tests to examine the significance of differences before and after the intervention.

Students' Attitudes Toward Mnemonic Strategies Versus Traditional Strategies in Retrieving Basic Multiplication Facts

Table 4 compares students' attitudes in the experimental group before and after the intervention. The mean score increased from 34.2 in the pre-test to 49.3 in the post-test, reflecting a clear improvement in students' attitudes. The results of the paired two-sample t-test ($t = 18.6$, $df = 102$, $p < 0.001$, two-tailed) confirmed a statistically significant difference between the pre-and post-test scores. This finding indicates that implementing Mnemonic strategies positively influenced students' attitudes, suggesting enhanced engagement and receptiveness toward the learning process.

t-Test: Paired Two-Sample for Means	Post-test	Pre-test
Mean	49.3	34.2
Variance	51.9	12.8
Observations	103	103
Pearson Correlation	0.5	

t-Test: Paired Two-Sample for Means	Post-test	Pre-test
Hypothesized Mean Difference	0	
df	102	
t	18.6	
p(T<=t) one-tail	.0	
t Critical one-tail	1.7	
p(T<=t) two-tail	.0	
t Critical two-tail	2	

Table 4: Mean score of students' attitudes in the experimental group

Additionally, Table 5 compares the students' attitudes in the control group before and after the intervention. The mean score increased slightly from 33.4 in the pre-test to 38.5 in the post-test, indicating a modest improvement in students' attitudes. The paired two-sample *t*-test revealed a statistically significant difference between the pre-test and post-test scores ($t = 15$, $df = 102$, $p < 0.001$, two-tailed). Although the improvement was statistically significant, the increase in mean score was relatively small compared to the experimental group. This result suggests that while some positive change occurred, it may not be attributed to the intervention, as the control group did not apply the Mnemonic strategies in retrieving the basic multiplication facts.

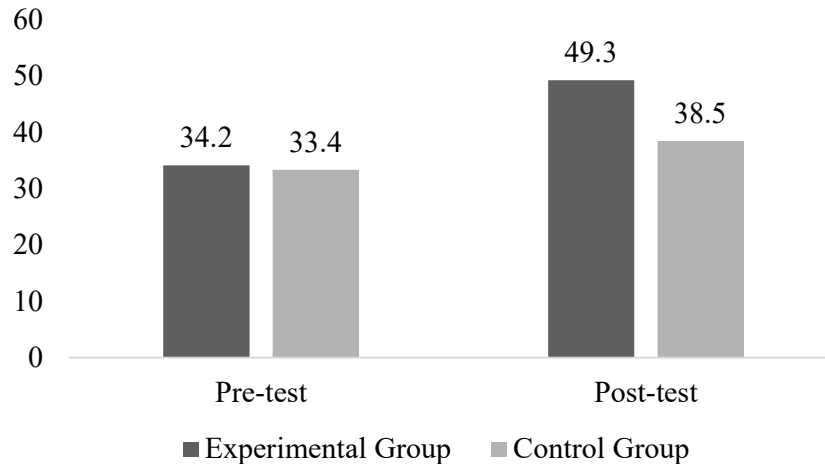
t-Test: Paired Two-Sample for Means	Post-test	Pre-test
Mean	38.5	33.4
Variance	8.1	13.6
Observations	103	103
Pearson Correlation	0.4	
Hypothesized Mean Difference	0	
df	102	
t	15	
p(T<=t) one-tail	.0	
t Critical one-tail	1.7	
p(T<=t) two-tail	.0	
t Critical two-tail	2	

Table 5: Mean score of students' attitudes in the control group

Tables 4 and 5 present the paired samples *t*-test results comparing the mean student attitudes in the experimental and control groups before and after the intervention. Before the intervention, both groups demonstrated relatively similar attitudes toward the learning process.

However, a notable difference emerged following the implementation of the Mnemonic strategies.

Figure 2: Comparison of students' attitudes in the experimental and control groups



The bar graphs in Figure 2 demonstrate the effectiveness of the intervention in the experimental group. Unlike the slight improvement observed in the control group, the substantial increase in post-test scores in the experimental group indicates a significant enhancement in students' attitudes. These results indicate that Mnemonic strategies positively influenced students' engagement and perceptions of learning, thus emphasizing the value of such teaching methods in the classroom.

In summary, the results indicate that mnemonic strategies significantly enhanced students' attitudes in the experimental group. The substantial rise in the post-test average score compared to the pre-test shows that students became more engaged and receptive to learning basic multiplication facts through these methods. Meanwhile, the control group showed only a slight improvement, suggesting that the attitude change was mainly due to the instructional approach rather than external factors. These findings highlight that effective teaching strategies, such as mnemonic tools, can boost students' attitudes toward learning when applied correctly.

Comparison of students with mathematics difficulties in the experimental and control groups in retrieving basic multiplication facts

Table 6 compares students' attitudes toward mathematics difficulties in the experimental group before and after the intervention. The mean score increased notably from 31.2 in the pre-test to 49.6 in the post-test, indicating a substantial improvement in their attitudes toward mathematics. The results of the paired two-sample t-test ($t = 16.4$, $df = 38$, $p < 0.001$, two-tailed) confirmed that this difference was statistically significant. This finding aligns with the results presented in Table 4, where the overall experimental group also showed a notable increase in attitude scores following the Mnemonic strategies intervention. However, it suggests that mnemonic-based instruction enhances students' mathematical understanding and positively influences the attitudes of students with learning difficulties, promoting greater engagement and receptiveness during the learning process.

t-Test: Paired Two-Sample for Means	Post-test	Pre-test
Mean	49.6	31.2
Variance	41.7	9
Observations	39	39
Pearson Correlation	0.4	
Hypothesized Mean Difference	0	
df	38	
t	16.4	
p(T<=t) one-tail	.0	
t Critical one-tail	1.7	
p(T<=t) two-tail	.0	
t Critical two-tail	2	

Table 6: Mean score of students' attitudes with mathematics difficulties in the experimental group

Furthermore, Table 7 compares pre-test and post-test scores for students with mathematics difficulties in the control group. The mean score increased slightly from 29.3 in the pre-test to 36.8 in the post-test, indicating some improvement in students' attitudes toward mathematics despite the absence of Mnemonic intervention. The results of the paired two-sample *t*-test ($t = 12.2$, $df = 38$, $p < 0.001$, two-tailed) confirmed that this difference was statistically significant. However, the lower mean gain and smaller effect size than the experimental group (Table 6) suggest that while regular instruction may contribute to modest attitude improvements, it is not as efficacious as the Mnemonic strategies. These findings suggest that students with mathematics difficulties may benefit more from targeted interventions that enhance engagement and address their specific learning needs.

t-Test: Paired Two-Sample for Means	Post-test	Pre-test
Mean	36.8	29.3
Variance	4.1	8.6
Observations	39	39
Pearson Correlation	0.3	
Hypothesized Mean Difference	0	
df	38	
t	12.2	
p(T<=t) one-tail	.0	
t Critical one-tail	1.7	

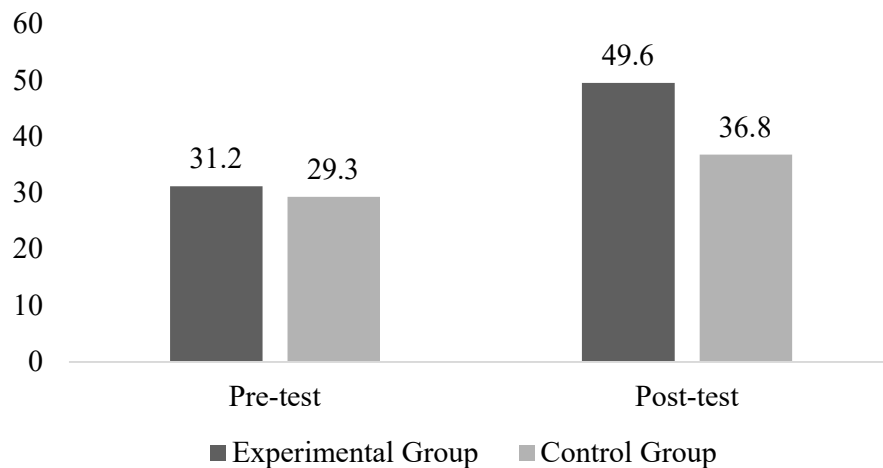
t-Test: Paired Two-Sample for Means	Post-test	Pre-test
p(T<=t) two-tail	.0	
t Critical two-tail	2	

Table 7: Mean score of students' attitudes with mathematics difficulties in the control group

Tables 6 and 7 present the paired samples t-test results comparing the mean attitudes of students with mathematics difficulties in the experimental and control groups before and after the intervention. Before the intervention, both groups demonstrated relatively similar attitudes, with pre-test mean scores of 31.2 and 29.3 in the experimental and control groups, respectively. Hence, it indicates comparable initial conditions. However, a notable difference emerged following the implementation of Mnemonic strategies.

In addition, students with mathematics difficulties in the experimental group showed a substantial increase in their post-test mean score to 49.6 (Table 6), supported by a statistically significant t-value ($t = 16.4$, $df = 38$, $p < 0.001$). Moreover, students with mathematics difficulties in the control group also showed improvement, with a post-test mean of 36.8 (Table 7) and a statistically significant t-value ($t = 12.2$, $df = 38$, $p < 0.001$). Although both groups exhibited progress, students with mathematics difficulties in the experimental group experienced a larger gain, suggesting that Mnemonic strategies had a more meaningful and inclusive impact on students with specific learning needs, enhancing their attitudes and engagement more effectively than conventional instruction alone.

Figure 3: Comparison of students with mathematics difficulties in the experimental and control groups



The bar graphs in Figure 3 compare attitude scores between students with mathematics difficulties in the experimental and control groups before and after the intervention. Although the control group showed a slight increase in post-test scores, the experimental group demonstrated a significantly greater improvement. This notable increase in the experimental group's post-test scores indicates a significant positive effect of the Mnemonic strategies on students' attitudes. These results suggest that Mnemonic strategies effectively boosted engagement and perception of learning mathematics in students with mathematics difficulties. In summary, the data demonstrate that Mnemonic strategies significantly improved the learning attitudes of students with mathematics difficulties in the experimental group, leading to greater receptiveness and motivation to learn basic multiplication facts. Meanwhile, the smaller improvement in the control group implies that the attitude change was mainly driven by the

instructional intervention rather than external factors. These findings highlight the importance of using effective teaching methods, such as Mnemonic strategies, to foster positive attitudes toward learning.

DISCUSSION

The findings of this study provide strong support for the hypothesis that Mnemonic-based strategies, specifically Visual Imagery and Story-linking, can significantly improve students' attitudes toward retrieving basic multiplication facts. It was particularly evident among students with mathematics difficulties in inclusive primary school settings. The experimental group, which received instruction using Mnemonic strategies, exhibited a considerable increase in attitude scores from a pre-test mean of 34.2 to a post-test mean of 49.3. This change was statistically significant, as indicated by a paired sample *t*-test result of $t = 18.6$, $df = 102$, $p < 0.001$. Likewise, students with mathematics difficulties in the experimental group showed an even more pronounced improvement, with mean scores rising from 31.2 to 49.6, supported by a *t*-value of 16.4 and a significance level of $p < 0.001$. These outcomes suggest that Mnemonic strategies supported improved mathematical understanding and contributed to positive attitudes and engagement among learners.

The results also demonstrate that the study successfully achieved its main objectives. The first objective was to investigate students' attitudes toward Mnemonic strategies compared to conventional methods such as rote learning, quizzes, daily multiplication practice, and repeated addition. Moreover, findings revealed that students exposed to Mnemonic strategies developed significantly more positive attitudes than those in the control group, who utilized traditional methods. The second objective was to compare the attitudes of students with mathematics difficulties across both groups. In this regard, the students with learning difficulties in the experimental group outperformed their counterparts in the control group. Although students in the control group also showed a statistically significant improvement in post-test scores, from 29.3 to 36.8 ($t = 12.2$, $df = 38$, $p < 0.001$), the magnitude of the improvement was considerably lower. These results suggest that the observed changes in attitude were primarily driven by the instructional intervention itself, rather than by external factors, emphasizing the efficacy of Mnemonic strategies in inclusive classrooms.

These findings are consistent with previous research that underscores the benefits of Mnemonic instruction in enhancing memory retention and mathematics performance (e.g., Mastropieri & Scruggs, 1991). However, the present study extends the scope of these findings by demonstrating that Mnemonic strategies support cognitive improvements and foster more positive emotional and attitudinal outcomes, particularly for students with learning challenges. Moreover, by situating the study within inclusive educational contexts in Indonesian Inclusive primary schools, this research contributes new insights to the global literature on differentiated instruction and equitable classroom practices. The results reinforce the view that innovative and adaptive pedagogical strategies are essential for meeting the diverse needs of learners in inclusive settings.

Despite these promising results, the authors acknowledged several limitations. First, the study only examined the short-term effects because it measured students' attitudes immediately following the intervention. This study did not evaluate whether the observed enhancements in attitudes were maintained over time. Second, the study was conducted in a specific geographical and cultural context—eight Inclusive primary schools in Purwakarta City, West Java, Indonesia—which may limit the generalizability of the findings to other regions, school systems, or religious settings. Third, the study relied on self-reported data to assess student attitudes, which may be subject to social desirability bias or inaccuracies in self-perception. Despite careful implementation, the quasi-experimental design did not include complete random assignment. Therefore, the results may be influenced to some extent by unmeasured pre-existing differences between the experimental and control groups.

Overall, this study provides compelling evidence that Mnemonic strategies significantly enhance students' attitudes toward learning basic multiplication, particularly for those with mathematics difficulties in inclusive classroom settings. These results underscore the importance of employing effective, research-based instructional strategies that foster academic outcomes and enhance students' motivation, confidence, and engagement. Future research should explore the long-term effects of mnemonic-based instruction and its applicability across various subjects, educational levels, and cultural contexts. Additionally, incorporating these strategies into teacher training and curriculum development may further strengthen inclusive education practices and contribute to more equitable learning environments.

CONCLUSION AND RECOMMENDATIONS

The current study demonstrated that Mnemonic strategies improved students' attitudes toward learning basic multiplication facts, particularly for students with mathematics difficulties. The experimental group showed a significantly greater increase in positive attitudes than the control group, suggesting that Mnemonic strategies fostered higher engagement, motivation, and receptiveness toward mathematics instruction. These results highlight the importance of employing targeted, inclusive teaching strategies to support diverse learners in developing foundational numeracy skills. Significantly, the findings underscore the dual impact of Mnemonic instruction, demonstrating its ability to enhance cognitive performance and improve affective responses to learning. However, it makes Mnemonic strategies valuable for promoting inclusive education practices that benefit all students, especially those with learning difficulties.

Based on the study findings, the authors recommended that teachers integrate Mnemonic strategies into mathematics instruction, particularly when teaching basic multiplication facts. This study has shown that Mnemonic strategies such as visual imagery and story-linking significantly enhance students' engagement and attitudes toward learning, particularly among those who struggle with mathematics. To support effective implementation, teachers should participate in professional development programs to equip themselves with the knowledge and skills necessary to apply Mnemonic techniques in inclusive classroom settings. In addition, schools and educational policymakers are encouraged to adopt inclusive teaching practices that accommodate diverse learning needs and promote positive affective outcomes. Aligning Mnemonic instruction with frameworks such as Universal Design for Learning (UDL) can enhance accessibility and motivation for all students. Finally, the authors recommended that future researchers explore the long-term effects of Mnemonic strategies across different grade levels, subjects, and learner profiles to extend the generalizability and impact of these findings.

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FROM POLICY TO PRACTICE: ADDRESSING GAPS IN LEGAL IMPLEMENTATION FOR SPECIAL EDUCATION IN SAUDI ARABIA

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ABSTRACT

Saudi Arabia has achieved a lot in formulating policies that favor the rights of people with disability especially in the context of special education. This paper critically analyses the policy-practice gap by looking into the contemporary scene of special education in Saudi Arabia with the help of a qualitative document analysis of laws and regulations, scholarly literature, and governmental plans. Using concepts like the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and the Sustainable Development Goals (SDGs), the study follows the development of the legislative and regulatory environment in the Kingdom, evaluates the performance of policy implementation and identifies the success stories and the remaining challenges. The results show that although the policy framework is extensive and complying with international standards in Saudi Arabia, major challenges are still present during the implementation. These comprise imbalance in the distribution of resources, lack of empowerment of teachers, infrastructural shortcomings and long-standing socio-cultural landscapes. There exemplary positive changes made by success stories and innovative pilot programs in cities show potential and this is especially in an environment where investment is focused and where there is willingness in collaboration of the stakeholders. The paper ends with a set of recommendations on closing the policy-practice gap with key recommendations that can enable policymakers, practitioners, and community to close the policy-practice gap through legal reforms, capacity building, engagement with communities on policy changes and monitoring and evaluation systems. The study will yield to the general discussion on inclusive education by offering contextual information and practical channels of ensuring fair access to education to all the students with disabilities in Saudi Arabia.

Keywords: Special education; Saudi Arabia, implementation of policy; inclusive education; rights on disability; UNCRPD; legal framework; education reform; stakeholder involvement; monitoring

INTRODUCTION

The world of special education has experienced a phenomenal change in a few decades, on an international level as well as in single national situations. On a worldwide scale, the paradigm has changed to approach the concept of people with disabilities in a broader scope of charity or medical assistance to the conduct of rights, inclusion, and participation. The implementation of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) In 2006 was a turning point whereby the member of the latter was called upon to ensure that persons with disabilities are accorded fair access to education. The international community further demonstrates its commitment to inclusive and equitable quality education for all, including people with special needs, through the Sustainable Development Goals (SDGs) and specifically SDG 4. Amid efforts made by countries to bring these commitments to life, serious obstacles continue to exist on how to bridge the gap between policy frameworks and their actual implementation (Szmukler, 2019). Saudi Arabia is one of the countries currently undergoing the process of fast-paced social and economic development, and its vision for 2030 is an ambitious project. The Kingdom is committed to inclusive growth, which includes restructuring the education sector to accommodate the needs of students with disabilities. In Saudi Arabia, the history of special education has been infused with religious, cultural, and even institutional traditions that have gently developed special education toward an increasingly structured and rights-oriented form of special care. It was during the mid-twentieth

century that the earliest government-subsidized services to people with disabilities began mainly sprouting in religious and charity-related structures.

A profound disconcerts between the nationally advertised ambitious policy and the practices experienced by the people in the local communities (students, families, and educators). Researchers have also pointed out some inherent challenges such as poor infrastructure, lack of skilled manpower, low community awareness or underprivileged socio-cultural beliefs and perceptions towards inclusive education could be some of the obstacles in realizing inclusive education. According to recent government reports and international assessments, although there is legal framework (s) in place to aid in the education of students with disabilities, there is a wide disparity in access and capability of education in various areas and grades. Such difficulties are not new to the territory of Saudi Arabia, at the moment, they require all-important attention considering the high rate of changes in the country and the multiculturalism of the population. This contrast provides insights into the ways the international norms and conventions are interpreted, adapted or challenged in a particular national environment (Sulaimani & Bagadood, 2023). Secondly, Saudi Arabia is among the most influential states in the Gulf Cooperation Council (GCC), and its tendencies in the sphere of special education policy and practice can become regional precedents. Thirdly, over the past years, there has been an explosion of legal and policy proposals that seek to enhance the rights of disabled person, and this would be the best time to explore the visions and the challenges that define their enactments. The study is important, as it has the possibility to shed light on the complex nature of policy and practice in respect of special education. Although the literature on recording the legal stipulations and official promises that Saudi Arabia has given towards human rights has dramatically increased, it is still inadequately documented how the process of such implementation works and what exactly are the clefs that prevent them from coming to life effectively as human rights (Scalenghe, 2019).

1. To analyze the evolution of special education policies and legal frameworks in Saudi Arabia, with reference to international conventions and best practices.
2. To identify the main barriers and challenges encountered in the implementation of these policies at the school and community level.
3. To explore the roles of key stakeholders including government agencies, educators, families, and advocacy groups in bridging the gap between policy and practice.
4. To propose actionable recommendations for enhancing the effectiveness, equity, and sustainability of special education in Saudi Arabia.

The guiding questions for this study are:

- What are the key policies and legal provisions governing special education in Saudi Arabia, and how do they align with international standards?
- Where are the most significant gaps between policy and practice, and what factors contribute to these disparities?
- How do various stakeholders perceive their roles and responsibilities in the implementation process?
- What strategies or reforms are needed to ensure that all children with disabilities receive the quality education they are entitled to under national and international law?

LITERATURE REVIEW

International Perspectives: Legal Frameworks for Special Education

The global movement towards inclusive education for individuals with disabilities is rooted in decades of advocacy, policy development, and evolving understanding of human rights. Internationally, the right to education for all including those with disabilities has been established as a fundamental human right, recognized in key documents such as the Universal

Declaration of Human Rights (1948) and further reinforced through subsequent treaties and conventions. The most significant international legal instrument guiding special education is the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), adopted in 2006. The UNCRPD article 24 directly provides a right of persons with disabilities to inclusive education at all levels and requires that states should make sure that an inclusive education system at all levels and lifelong learning is initiated. Access to education is also a priority in this framework, and so is the quality of learning, participation, and reward, to the extent that the member states need to make sure that they do not discriminate and that all students with disabilities can be accommodated reasonably (Sewell et al., 2022). The UNCRPD also promotes tailored forms of support as well as teaching educational professionals because the change should occur systematically in order to attain substantive inclusion (United Nations, 2006). The Sustainable Development Goals (SDGs) are another document that complements the UNCRPD and was adopted in 2015 as an international agenda aimed at increasing social, economic, and environmental development by 2030. SDG 4 pledges all member states to take action toward the promise of education of achieving education that is inclusive and equitable as well as quality and lifelong learning opportunities among all. The worldwide dedication to the idea of inclusion can also be seen in the Salamanca Statement adopted by UNESCO in 1994, in which inclusive education is characterized as a process of responding to and catering to the range of requirements among all learners.

As a reaction, quite a number of countries have come up with national laws that are in compliance with such international frameworks. As an example, the Individuals with Disabilities Education Act (IDEA) in the United States provides that children with disabilities are entitled to a free appropriate public education and the United Kingdom Special Educational Needs and Disability (SEND) Code of Practice gives statutory guidance on which students with special needs should receive. Such laws usually entail providing individualized education plans (IEPs), reasonable accommodations, policies against non-discrimination as well as support services and establishing a legal framework to promote inclusion (Sachs et al., 2019). The effectiveness of the even strongest legal frameworks can be destroyed by factors like lack of resources, training of teachers, stigma and political will (WHO & World Bank, 2011).

Figure 1: Key Factors Supporting Inclusive Education, including ethos, environment, skills, attitudes, and opportunities.



(Source: https://www.open.edu/openlearncreate/pluginfile.php/290417/mod_oucontent/oucontent/41792/9269d311/0e5cc247/supportinginclusiveducation.small.jpg)

Saudi Arabia: Policy Evolution in Special Education

Special education in Saudi Arabia has a history that also traces global tendencies. Initial support of people with disability in the Kingdom was small-scale and mainly charitable, where the government was not involved in policy making. By 1958, the initial state-approved special education facility was opened, and the process of gradual change to institutionalized assistance to individuals with impaired disabilities was initiated. By the 1970s and 1980s, Saudi Arabia had also started to include special education in the national developmental plans. Special education was taken under the supervision of the Ministry of Education, which created special sections, initiated teacher training, and developed special curricula. Major milestones are putting into circulation the Disability Welfare Law (2000) that defined the rights of people with disabilities and required people to provide education, rehabilitation, and social services (Veradegita et al., 2021). The most significant policy change in the recent decade has been the inclusion of disability rights in the Kingdom's Vision 2030 as part of a broad-based reform plan designed to change every field in Saudi society. With the commitment to enhancing the quality and access to education among persons with disabilities, perhaps Vis 2030 has explicitly stated its role in ensuring that the national agenda follows good practices at the international level (Mercieca & Mercieca, 2019).

Saudi Arabia is also a signatory to the UNCRPD, which ratified the convention in 2008. Such international obligation finds its way to national law and statements of policy, such as the latest policies of the Ministry of Education regarding inclusive education. Although these are the developments in policies, enforcement is not even. According to national statistics, there is an increasing number of students with disabilities attending mainstream schools. There have been

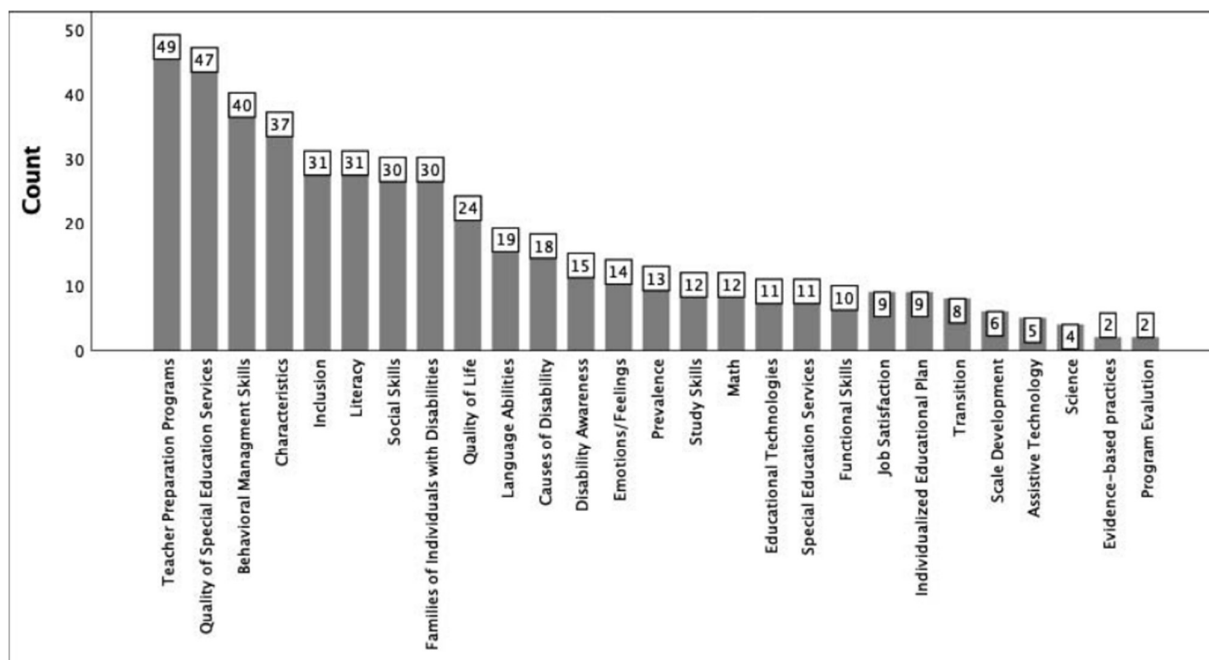
a lot of disparities in access, resource allocation, education outcomes across the regions and disabilities, as revealed by study research and government reports (Alquraini, 2011). In the recent past, there have been attempts to fill such gaps by conducting public awareness, broadening teacher training and investing in accessible infrastructure.

Previous Studies: Achievements and Persistent Challenges

The available literature concerning special education in Saudi Arabia reports both great signs of development and the occurrence of challenges. Some studies have applauded the effort made by the Kingdom to provide the foundation of the legal work, increase service delivery and inclusion of special education in the education sector. As Alnahdi (2014) observes, there has been a significant rise in the quantity and spectrum of special education teachers and the services that students with disabilities engage in in the last two decades. What makes students with disabilities become visible and more socially accepted is the policies of inclusive education that have been offered, especially in urban settings. Several research findings have displayed continual hindrances that make special education policy not very well executed. Poor teacher preparation and teacher professional development is one of the recurring themes. According to a study by Alquraini and Gut (2012), a wide range of teachers have not received specialized training on inclusive education practices, which has some implications on their ability to accommodate or differentiate instructions or offer individualized assistance. The lack of accessibility to assistive technology and available learning resources constrains students with complex needs, too. The other issue identified in the literature is that the quality and access to services in the regions of the Kingdom vary significantly (Khochen-Bagshaw, 2020). Whereas significant buildings have had more investment in the infrastructure of special education in cities like Riyadh and Jeddah, the areas in rural and far regions usually experience the absence of specialized facilities, supportive services, and qualified staff (Almalki, 2020).

Another important factor identified in the research concerns the role of families. Although the role of parents has been acknowledged as crucial to the effectiveness of inclusive education, it has been discovered that most families do not have access to information regarding their rights, services open to them, or means of defending their children (Aldabas, 2015). It has also been shown that some communities still have social stigma and misconceptions towards disability, which set yet another obstacle towards full inclusion. Still, some spheres of success and prospects are characterized in the literature. The pilot studies on the use of professional development of teachers and assistive technology provision showed positive results regarding student engagement and student-learning outcomes (Alzahrani & Brigham, 2020).

Figure 2: Frequency of Research Topics in Special Education Literature, highlighting the most studied and underrepresented areas.



(Source: https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcQz35aXR_UZ41HRo8SQEpG6T-njR9VHb7ZOhtQcS4xICNiSO63G7DZEQyFj5xzsg5M5ig&usqp=CAU)

Identified Research Gap

Despite the existence of a comprehensive legal and policy framework for special education in Saudi Arabia, there is a clear gap in the literature regarding the mechanisms that facilitate or hinder the translation of these policies into effective practice. While policy documents articulate ambitious goals for inclusion and equity, empirical studies suggest that significant challenges remain at the level of implementation. To date, the existing studies include mainly descriptive reviews of policy changes or quantitative surveys of enrolment statistics rather than qualitative reports of how students with disabilities live, behave and perform in school, experience the process of undergoing assessment by their neighbors (e.g. their teachers) and how their families cope in their struggle with the special education system. In addition to that, the majority of the available studies have concentrated on urban towns; therefore, little information is available on the experiences of students and teachers in rural or remote areas (Ge et al., 2019).

Summary of Key Studies on Special Education in Saudi Arabia

Author(s), Year	Focus / Title	Methodology	Key Findings	Main Challenges / Recommendations
Alnahdi (2014)	Special education teachers and service provision	Quantitative	Significant increase in teachers/services for students with disabilities	Insufficient resources, disparities across regions
Alquraini & Gut (2012)	Teacher training for inclusion	Qualitative	Many teachers lack specialized training for inclusion	More professional development required

Almalki (2020)	Access to special education in urban vs rural regions	Mixed methods	Urban areas better resourced, rural regions underserved	Investment in rural infrastructure needed
Aldabas (2015)	Role of families in special education	Qualitative	Parental involvement crucial, but awareness/information lacking	Enhance communication and support for families
Alzahrani & Brigham (2020)	Assistive technology use and learning outcomes	Pilot intervention	Use of assistive technology improved student engagement/outcomes	Broader access to technology recommended
Abu-Alghayth et al. (2022)	Policy history and inclusion of intellectual disabilities	Literature Review	Traces policy evolution, documents improvement and ongoing gaps	Need for qualitative, lived-experience research
Almalky & Alwahbi (2023)	Teachers' experiences with inclusion	Survey/Interviews	Teachers show positive attitudes but cite resource/training gaps	Expand training and practical support
Alqahtani et al. (2021)	Analysis of special education research over 32 years	Review/Meta-analysis	Identifies major trends and persistent barriers in implementation	Calls for more regional and diverse research
Alshalhoub (2019)	Inclusion of special needs in primary education	Stakeholder analysis	Stakeholders support inclusion but identify many barriers	Stronger collaboration and policy follow-through
Sulaimani & Bagadood (2023)	Assistive technology for intellectual disability	Survey	Teachers value assistive technology but face access/training issues	Expand training and provide more resources

Table 1: Summary of Key Studies on Special Education in Saudi Arabia

The table is a synthesis of the key studies that have been conducted to study how special education has evolved in Saudi Arabia, what has been achieved so far and what challenges remain. Taken together, there is an overall message in these efforts to show that significant headway has been made, including the growth in special education teachers and the integration of more students with disabilities into the mainstream schools, but barriers are still present and complex. Various scholars note that the shortage of specific training of teachers is the crucial step to successful and adequate policy implementation (Alquraini & Gut, 2012; Almalky & Alwahbi, 2023), even though their attitude to inclusion can be considered positive, the absence of practical support and further professional development restricts the efficiency of the implementation process. The geographical variation and the distribution of any particular resource are also a significant concern, and they indicate that the rural regions fall behind their urban counterparts in terms of investments and infrastructure benefits (Almalki, 2020), which means that specific policies are needed to address the issue. Another repetitive theme is the role that families play. The literature indicates that the effectiveness of inclusion cannot be achieved without adequate parental involvement; however, many families require more information and attention as a parental engagement tool (Aldabas, 2015). Assistive technology integration is well-known as the effective way to influence a better end-results of the students (Alzahrani & Brigham, 2020; Sulaimani & Bagadood, 2023), yet its access and training lacks

enough everywhere, especially beyond large cities. These results are supported by meta-analyses and literature reviews (Abu-Alghayth et al., 2022; Alqahtani et al., 2021) that demand further research on the topic by diversifying to include regions and focusing more on qualitative data to reflect lived reality instead of quantitative trends. Stakeholder analyses also show the overall support to inclusive policies (Alshalhoub, 2019), but do emphasize the necessity of cooperation and more efficient implementation in policies and schools. According to the literature, although Saudi Arabia has already built a strong policy basis and introduced a range of positive initiatives, lack of training, resources, and community involvement negatively affect the ability to realize the goal of inclusive education. The result obtained in these studies implies that sustainable development requires the further investment in capacity building, infrastructure and more focus on stakeholder cooperation and equity of the regions.

POLICY FRAMEWORK ANALYSIS

Regulatory and policy that regulate special education in Saudi Arabia can be defined as a combination of national legislations, ministerial regulations and strategic plans which all indicate the developing adherence of Kingdom to inclusive education (Francisco et al., 2020). In the last 20 years, Saudi Arabia has undergone the transition process, leaving the segregated charity-based system behind and moving towards the international standards and human rights systems.

Key Legal and Policy Documents

Education Law and Disability Welfare Law

The special education in Saudi Arabia is based on the wider Education Law and more closely the Disability Welfare Law which was issued in 2000. The latter is a landmark in the disability rights movement in the Kingdom, which declares the entitlement of persons with disabilities to education, rehabilitation and, integrated social inclusion. The legislation charges the state with the responsibility of providing access to the right educational opportunities through the government agencies and the Ministry of Education in particular (Florian, 2022). It entails that measures should be taken to adapt the school environments, create a special curriculum, and provide resources that will help the school accommodate the needs of the students individually.

National Vision 2030

The superstructural framework of where social and economic reform is targeted is the Saudi Arabia Vision 2030 introduced in 2016. One of its most important pillars is the promise to, among other things, empower all segments of the society with a direct mention of people with disabilities. Vision 2030 acknowledges the fact that an inclusive education is a requirement towards a productive economy that is knowledge-based. The plan contains measures that will facilitate the inclusion of students with disabilities into the general schooling system, the development of the accessibility of the facilities offered publicly, and the multiplication of the delivery of assistive technologies. Critically, Vision 2030 proposes quantifiable objectives of growing school enrollment, training teachers and community awareness and this will mark a transition to accountability and results.

Ministry of Education Regulations

The Ministry of Education (MoE) has converted the generic provisions of national mandates and Vision 2030 to workable plans and strategies. New ministerial rules mandate every state-run school to admit children with his and her disabilities and make it reasonable to accommodate to the best practices. The MoE has implemented professional development programs to educators, introduced guidelines on the individualized education plans (IEPs), and created special units on special education (Fatima et al., 2020). Policy reports rest on the

importance of accommodating the classroom setting, differentiated delivery, and assuming educational technology to enable classroom-based learners with various needs.

Alignment with International Conventions

When Saudi Arabia ratified the UN convention on the rights of persons of disability or the UNCRPD, it has become instrumental in its policy environment. Article 24 of the UNCRPD devoted to inclusive education is used to measure national laws and regulations. The policies of the Kingdom of Saudi Arabia more and more reflect to the principles comprehended in the convention of non-discrimination, accessibility, individualized support, and of full involvement of students with disabilities to the general education system.

Intended Provisions and Guarantees

Collectively these legal and policy instruments have the effect of ensuring a range of rights and services to students with disabilities:

- **Right to Access:** There should be no discrimination of all children with disabilities when it comes to attending public schools. Schools will have to adjust the infrastructure, curricula and the way they teach to be inclusive of different learners.
- **Individualized Education Plans (IEPs):** All students with special learning requirements will get IEP, which is a plan laid out by teachers, professionals, and parents together. These plans establish a list of learning objectives; they describe the needed accommodations and have frequent progress checks.
- **Specialized Support Services:** The system requires the offering of speech therapy, occupational therapy, counseling among other needs that are specific. Specialist staff and teacher assistants are also offered were essential.
- **Teacher Training and Professional Development:** Teachers are supposed to be trained on inclusive pedagogy, classroom management and the utilization of assistive technology.
- **Community Engagement:** Vision 2030 and Ministry norms adhere to the significance of lifting the population awareness, minimize the stigma, and embrace the social integration of disabled people.

Ongoing Challenges

In spite of the thoroughness of the policy framework, implementation is patchy. Regional inequality between the urban and rural areas still exists and there are still deficits in teacher training, infrastructure and resources. To conclude, the case of Saudi Arabia in terms of policy regarding special education can be characterized as an attempt to harmonize national and international priorities (Elhoweris & Efthymiou, 2020). The task now is to connect the legislative intention with the common practice and provide equal education and quality, inclusive education to each a child with the disability in the Kingdom.

METHODOLOGY

Qualitative Approach Rationale

The qualitative research methodology is used in this research, which is specifically suitable to the study of complicated social phenomenon like the policy implementation of special education. Qualitative research helps to expound on the subtle realities, perceptions, and lived experiences, which quantitative techniques fail to appreciate. The qualitative approach is also preferable when studying special education in Saudi Arabia in that findings may help to better understand the role of legal, institutional, and cultural influences in formulating the educational experience of young people with disabilities. Through a qualitative method, the research is expected to go beyond the states of description of policy to identify the dynamics underlying its successful implementation or failure to implement in an optimal way (DeZelar & Lightfoot,

2020). The research questions asked also help to come to this decision as they aim to learn not only about the existing policies but also about the way in which they are implemented in reality, what obstacles appear, and how different actors involved perceive themselves. These questions need an interpretive and context-sensitive inquiry, not statistical measurement. Qualitative approaches also stand in comparison to standard methods in the way they give the flexibility to combine two or more data sources and views and enhance analysis and make it even more policy and practice relevant.

Data Sources

The analysis draws on a wide range of secondary data sources, reflecting the multi-faceted and policy-driven nature of the research. The primary sources of data include:

- **Policy Documents:** Official laws, regulations, and guidelines issued by the Saudi Ministry of Education, including the Disability Welfare Law, ministerial circulars, and implementation manuals for special education. Key national strategy documents, such as Vision 2030, are also included.
- **Reports:** Government reports, statistical bulletins, and monitoring and evaluation documents published by Saudi authorities, as well as reports from international organizations such as UNESCO, UNICEF, and the United Nations.
- **Academic Literature:** Articles that peer-review, book chapters, and conference proceedings that discuss the formulation, deployment of special education schools in Saudi Arabia and their consequences. The English sources as well as Arabic language sources are taken into consideration to make the research comprehensive.
- **Best Practice Reviews:** Compares and international surveys on inclusive education frameworks, especially the definition as indicated in the UNCRPD, Salamanca Statement, and SDGs.

This triple source is meant to give a complete image of the policy-scape, allow to identify the patterns and inconsistencies, and allows anchoring the analysis in a strong body of evidence.

Analytical Framework: Thematic Analysis

They are the foundation of the analysis which is based on a qualitative method of thematic analysis, which is the process of detecting, summarizing and making sense of the patterns or themes across textual data. This policy research is appropriate to policy research because thematic analysis enables the researcher to analyze large amounts of text systematically and produces common themes with regard to the research questions.

1. **Familiarization:** Attentive reviewing and re-reviewing of all gathered data in order to create a coherent overview of the context of the policy.
2. **Coding:** Coding of the text sections used to identify those that are meant to be related to the research focus, including the mention of policies intent, implementation plans, identified obstacles, and results.
3. **Theme Development:** Organizing codes into larger themes which includes policy-practice gaps, the roles of stakeholders, resource distribution, teacher training, and community involvement.
4. **Interpretation:** Coding the themes to sum up the key findings, give reasons to explain the observed inconsistencies and give recommendations.

There is, further, an element of qualitative content analysis applied so that the analysis can be anchored on the clear articulation of contents of policy documents, but it can also be interpreted in terms of larger social and cultural formations.

Limitations of the Study

This research project has its own limitations as with any other research. First is the fact that secondary material can be limiting to recount latest developments or to represent the opinions of all the stakeholders, at least those at the grassroots level. Although attempts have been made to involve latest accessible documents and consider them with a variety of academic and policy sources, the lack of direct data collection (e.g., surveys, interviews, direct observation, etc.) might be seen as biasing the level of insight on the real-life challenges in implementation. It becomes problematic to generalize the research results in the different regions and learning environments present in Saudi Arabia. The literature also tends to be biased towards urban centers and we do not know much about the condition in rural or remote regions (Demchenko et al., 2021).

FINDINGS & DISCUSSION

Policy vs. Practice: The Implementation Gap

The discrepancy that continues to exist between the promises developed at the national policies level and the actual situation in schools and societies forms one of the leading and recurring themes in the discussion related to special education in Saudi Arabia (Dada et al., 2023). The fact is even though a well-developed legal framework and various policy initiatives to promote the rights of students with disabilities are evident, the question of the actual implementation of these commitments in daily practice is not well fulfilled.

Evidence of Legal Implementation in Practice

Legislative and regulatory framework of special education in the kingdom of Saudi Arabia on paper is elaborate and modern. The Disability Welfare Law, ministerial regulations as well as the national plan Vision 2030 all recognize the right to education of the children with disabilities and provide comprehensive details about how children with disabilities are to be incorporated into the mainstream of educational facilities. Schools are mandated to provide reasonable accommodations, individualized education plans (IEPs), assistive technologies, and support services such as speech and occupational therapy. The Ministry of Education has established specialized departments, invested in professional development for teachers, and launched initiatives to raise public awareness about the rights and needs of students with disabilities (Bagadood & Sulaimani, 2022). There have been touchable achievements as a result of these policies. The enrollment of students with disabilities in public schools has steadily increased, and there are growing numbers of trained special education teachers and support staff. Major urban centers such as Riyadh, Jeddah, and Dammam have seen significant improvements in the accessibility of educational facilities. Pilot programs and collaborative projects often in partnership with international organizations have successfully demonstrated the feasibility and benefits of inclusive education. Legislative and regulatory framework of special education in the kingdom of Saudi Arabia on paper is elaborate and modern. The Disability Welfare Law, ministerial regulations as well as the national plan Vision 2030 all recognize the right to education of the children with disabilities and provide comprehensive details about how children with disabilities are to be incorporated into the mainstream of educational facilities.

Discrepancies Between Policy Intent and Ground Reality

There are various inconsistencies between the real intent of policy and its actual execution. Even after the legal provisions, a good number of students with disabilities and their families are still facing a big challenge in getting quality education. These mismatches apply in a number of levels:

Resource Gaps and Infrastructure: Although the focus on investing in education has been on urban schools, there is a tendency of the opposite concerning rural and remote regions. Vast

numbers of schools do not even have ramps or adapted toilets, defenseless or sensory-friendly classrooms (Chadha et al., 2021). The distribution of such resources like assistive technologies, specific teaching materials and personnel are unequal and huge differences in the quality of education given to students with disabilities can be observed throughout the Kingdom.

Teacher Preparation and Professional Development: Another problem that has stand up periodically is the poor preparation of teachers in inclusive education practices. Even though teachers are required to take part in training programs, they indicate that they are unprepared to modify curricula, work with diverse students in a classroom, or apply assistive technologies to make learning more efficient.

Implementation of Individualized Education Plans (IEPs): Although the policy requires implementation of IEPs, in many instances, their design and implementation are substandard to internationally accepted standards. Research shows that IEPs are occasionally viewed as bureaucratic needs as against active personalized resources. They do not often have meaningful input by parents, specialists or even the students, follow up or monitoring of progress is usually erratic or superficial.

Societal and Cultural Barriers: The attitude toward disability still affects the provision of inclusive education. Even though, awareness is being done by the government, the stigmatization and misconception remains within certain groups, which disincentivizes the family to seek help or be completely involved in school life. Explicit prejudices and the missing knowledge of the social model of disability among teachers and administrators can also exist and further weaken the purpose of policies.

Systemic and Administrative Challenges: Bureaucratic delays, interagency coordination, monitoring and accountability system are also barriers to implementation. Combined with the lack of any adopted standards that help include various practices in assessments of inclusive practices, as well as the lack of stakeholder (particularly students and families) participation in the decision-making process there is a lack of responsiveness and effectiveness of policy interventions.

Bridging the Gap: The evidence indicates that there is an apparent need to focus once again on closing the gap between policy and practice. Although there is considerable progress in the evolution of an enabling legal framework of special education in Saudi Arabia, the current issues associated with the resource allocation, capacity building, and cultural change necessary should be conquered (Bagadood, 2022). Policy effectiveness necessitates more than sound laws and regulations, but adequate and continued investment, professional growth and development, stakeholder participation and well-informed systems of monitoring and accountability.

Barriers to Effective Implementation

Although Saudi Arabia has made a number of progressive policies and legal frameworks to promote special education, there are still a variety of continuous obstacles that prevent the successful establishment and practice of the special education area. All these barriers can be classified in general into institutional challenges, a socio-cultural attitude, and the administrative or coordination challenges. It is important to understand these barriers in order to devise specific interventions and see to it that policy promises endure into a worthy learning experience among students with disabilities.

Institutional Challenges: Training, Funding, and Infrastructure

Among the burning barriers to institutions, there is a problem of the poor preparation of teachers and continuous professional development. Whereas the Ministry of Education has invested in training courses, most teachers complain that they were not adequately prepared to meet with the diverse needs of students with disabilities. Training programs tend to be quick, classroom-theoretical or conducted as a one-time workshop without any practical, classroom experience. What this creates is a workforce, which can know the principles of inclusive

education but cannot implement them efficiently in practice. The lack of specialized staff including speech therapists, occupational therapist and support staff particularly in rural settings and remote locations is evident. These difficulties are also complicated by funding differences (Alshalhoub, 2019).

Socio-Cultural Attitudes and Awareness

Such cultural beliefs and perception in the society on disability still factor heavily on how special education is being executed. Although some improvement has been made in the creation of greater awareness of the population, a strong and deep discriminating attitude and misunderstanding towards the disability continue to exist in certain layers of Saudi society. Families do not come out to admit disability of the child due to fear of being left out by their fellowship and therefore delay in seeking assessment, intervention or support. The children with disabilities are kept at home against sending them to school particularly in a more conservative or rural setting. The cultural attitudes also affect the behavior of teachers and school administrators (Alqahtani et al., 2021). It is possible that there is implicit assumption that the children with disabilities can be served in segregated settings, or that inclusive education might create excessive burden to teachers and fellow students.

Figure 3: Attitudinal Barriers and Facilitators Affecting Inclusive Education, contrasting negative and positive influences on inclusion.



(Source: <https://prepwithharshita.com/wp-content/uploads/2023/04/Circular-Concept-Map-Content-Strategy-Infographic-Graph-1-672x372.png>)

Administrative and Coordination Issues

Administration and poor coordination between stakeholders also contribute to the issue because, to implement special education policies, complexities are bound. Bureaucracy in the education system may lead to delays, inefficiency and absence of defined source of responsibility. Even though schools have to meet the demands of creating and tracking Individualized Education Plans (IEPs), they sometimes end up viewing it as a series of boxes to be checked instead of a dynamic resource tool to aid in the positive development of students. Interaction between various government agencies, including the Ministry of Education, the Ministry of Health, and social services usually has limited coordination's (Alnahdi et al., 2024). This division results in an unevenness in the delivery of services, duplication of services or absent support of either students or families.

Stakeholder Group	Key Barriers Faced	Example/Explanation
Teachers	Lack of training, insufficient resources, high workload	Training mostly theory-based, not enough classroom support
Administrators	Administrative burden, limited autonomy, inter-departmental coordination	Focus on paperwork (IEPs), coordination issues with MoE
Parents	Lack of awareness, stigma, limited involvement in decision-making	Insufficient information on rights/services, cultural barriers
Students with Disabilities	Inadequate support services, accessibility issues, social stigma	Resource rooms lacking, peer integration challenges

Table 2: Barriers to Policy Implementation by Stakeholder Group

This table summarizes the primary barriers to effective policy implementation in Saudi special education, as experienced by different stakeholder groups. Teachers consistently highlight gaps in training and support, while administrators face significant administrative and coordination challenges. Parents struggle with awareness and involvement, often exacerbated by cultural stigma, and students themselves encounter both material and social barriers to inclusion. Addressing these issues requires stakeholder-specific strategies that go beyond one-size-fits-all solutions, emphasizing training, communication, and a supportive policy environment.

Success Stories & Innovations

Despite the fact that the aspects of implementation of the special education policies are very challenging in Saudi Arabia, there are some evident points helping to define the progress and innovations taking place there, which reflect the ability of the Kingdom to change. The success stories provide some useful learnings on the strategies and practices that may be scaled up or generalized in the larger system of education. The successful integration of students with disabilities into general schools in large cities is one of the areas of active development (Almalky & Alwahbi, 2023). In such cities as Riyadh and Jeddah, the strategic investment in infrastructure has led to the area of accessible facilities and resource rooms specializing in many areas as well as the prevalence of assistive technology. Such programs have helped a great number of educationally-disabled students to attend ordinary classrooms fully, being able to enjoy peer interaction and inclusion in the educational process. This has been seen especially in schools which have adopted the collaborative style of teaching, which involve the general and special education teacher to plan and provide instruction to meet the needs of the various learners. The pilot programs launched with the assistance of the Ministry of Education, as well as foreign institutions, have shown encouraging results also. In another example, the instructions of school inclusion proposed in the few areas involve professional growth of the teachers in combination with access to new technologies of assistive devices and continued involvement of parents. Preliminary analyses of these programs have cited increased student participation rates, better performance and a better family satisfaction with them. An increasing role has been played by digital innovation, particularly after the COVID-19 pandemic (Alfawzan & Almulhim, 2024).

Project/Initiative	Location	Description	Outcomes Achieved
Inclusive School Pilot	Riyadh	Full inclusion model with co-teaching	Improved engagement/scores
Assistive Tech Drive	Jeddah	Provision of tablets/tech to students	Higher participation
Parent Support Program	National	Training for parents of disabled children	Increased advocacy

Table 3: Examples of Successful Inclusive Education Initiatives in Saudi Arabia

Above the table shows the most notable initiatives that might have led to promoting inclusion education practice in Saudi Arabia. The Inclusive School Pilot in Riyadh is a huge step toward

complete integration since it uses a co-teaching approach that involves a general and a special education teacher acting together. The clear gauges of the increase in engagement and scholastic performance have been recorded, and this can be viewed as a roadmap that can be applied to a wider scale. The Assistive Tech Drive concentrated on augmenting educational availability of disabled students by issuing tablets and similar technologies in Jeddah. The project resulted in higher student engagement, indicating how beneficial the availability of technology may be in terms of inclusion and performance. Parent Support Program coordinated specific training at the national level on how to deal with parents, with children who have disabilities. This program did not only bring more parental advocacy, but also enhanced closer collaboration between homes and schools, which is the key to success in inclusive education. Collectively, these initiatives provide an overview of how the innovative models, technological support, and involvement of the family can help mitigate the policy-practice gap. The positive results obtained to these projects strengthen the capacity of scalable evidence-based interventions to promote inclusive education in the country.

Stakeholder Perspectives

Stakeholder perspectives play a critical role in understanding both the successes and ongoing challenges of special education implementation in Saudi Arabia. The voices of teachers, administrators, parents, and students captured in national reports and academic literature offer nuanced insights into how policies are experienced and enacted at the ground level. **Teachers** frequently emphasize both the opportunities and challenges of inclusive education. Many express strong commitment to supporting students with disabilities but cite limited preparation and resources as significant obstacles (Aldousari & Dunn, 2022). Teachers value professional development opportunities, especially those that are ongoing and practical, and often call for smaller class sizes and the availability of support staff to enable effective inclusion. **School administrators** generally support national reforms and highlight improvements in infrastructure and policy clarity. They also point to the administrative burden associated with compliance, such as the creation and monitoring of Individualized Education Plans (IEPs). Administrators note that success often depends on proactive school leadership, cross-departmental collaboration, and a supportive school culture. **Parents** are vital advocates for their children's educational rights. Parents, in their turn, share that they are grateful that more and more opportunities are available, and the rights of persons with disabilities become more and more visible. They record continued issues of stigma, inconsistency in the quality of service and lack of communication with schools. Families have prioritized on the issue of improved information, networks of support and increased participation in the decision-making process. The attitudes of students with disabilities provide the closest view of the policy effect (Abu-Alghayth et al., 2022).

DISCUSSION: LESSONS LEARNED & WAY FORWARD

Synthesis of Main Findings

This survey of special education in Saudi Arabia shares some commendable developments and several unresolved issues in the transformation of policy intentions to realities of practice and comprehensive provisions in supporting students with disabilities. The state has developed the full-fledged legislation framework, which is supported by the Disability Welfare Act, the regulations of the Ministry of Education, and the uplifting concept of the Vision 2030. The provided policies are mostly aimed at international conventions, including UNCRPD, stressing inclusion, non-discrimination, and person-based support. There are still a lot of gaps between the intentions expressed in these documents and realities in schools and a community (Blaser & Ladner, 2020).

Comparison with International Best Practices

Long-term investments in teacher professional development, well-developed support systems and high involvement of the community, along with an effective system of accountability and monitoring can also be declared as characterizing the most successful systems of inclusive education in the world. Countries such as Finland, Canada, and New Zealand have demonstrated that policy frameworks must be accompanied by a whole-system approach: one that integrates legal mandates with coordinated implementation, stakeholder engagement, and continual feedback loops. In these contexts, inclusive education is treated not as a separate initiative, but as a core value embedded across all aspects of the educational system. Saudi Arabia's experience mirrors many international trends, particularly in its initial focus on establishing legal rights and policy guidance (Cumberbatch & Negrine, 2022).

Implications for Policy, Practice, and Research

For policymakers, the key implication is the need to move beyond legislative reform toward a model of adaptive, responsive implementation. Policies must be matched with adequate resources, localized solutions, and strategies for continuous improvement (Singh & Meeks, 2023). In practice, schools require greater autonomy and support to adapt inclusive models to their unique contexts, with an emphasis on shared responsibility among teachers, administrators, and families.

Recommendations for Bridging the Policy-Practice Gap

Legal Reform Suggestions

- While the existing legal framework is robust, there is scope for further refinement to close loopholes and clarify enforcement mechanisms. Future legal reforms should:
- Strengthen the rights of parents and students to participate in decision-making processes, including the development and monitoring of Individualized Education Plans (IEPs).
- Mandate regular review and updating of special education laws and regulations to reflect evolving international standards and local realities.
- Expand the definition of reasonable accommodations to include a broader range of supports and services.

Capacity Building

Investment in human resources is essential. Recommendations include:

- Expanding pre-service and in-service teacher training in inclusive education, with a focus on practical strategies, classroom management, and the use of assistive technologies.
- Increasing the number of specialized support staff such as therapists, counselors, and aides particularly in rural and underserved regions.
- Creating professional learning communities to facilitate the exchange of best practices and ongoing peer support.

Community Engagement

- Inclusive education thrives in environments where communities are informed, supportive, and actively engaged. Effective strategies may include:
- Sustained public awareness campaigns to challenge stigma, celebrate diversity, and promote the social model of disability.
- Creating accessible platforms for family engagement and advocacy, ensuring that parents are partners in educational planning and evaluation.

- Encouraging student voice and leadership among learners with disabilities, fostering self-advocacy and inclusion.

Monitoring & Evaluation

- Robust monitoring systems are critical for ensuring accountability and driving improvement. Recommendations include:
- Establishing clear, outcome-focused indicators for evaluating the quality and impact of special education programs.
- Conducting regular, independent audits of school compliance with inclusive education standards.
- Utilizing data from multiple sources including feedback from students, families, and teachers to inform policy revision and resource allocation.

CONCLUSION

This study set out to critically examine the journey from policy to practice in the context of special education in Saudi Arabia. Utilizing a qualitative approach grounded in policy review, thematic analysis, and synthesis of academic literature and reports, the research explored the evolution of legal frameworks, the implementation gap, and the multifaceted challenges and opportunities inherent in realizing inclusive education. The results have shown that, despite the great progress that Saudi Arabia has attained in terms of formulating exhaustive laws and policies that mirror the international ones like the UNCRPD and the Sustainable Development Goals, there nonetheless exist serious gaps between the will of legislations and the reality that is experienced by students, their families, and educators. The major obstacles to the successful implementation still exist at institutional, socio-cultural and administrative levels, appearing in the form of resource discrepancies, unequal preparation of teachers, and vestiges of social attitudes. At the same time, the analysis revealed positive trends in the big cities, pilot projects, more frequent use of assistive technologies, and stakeholders' involvement. Through these success stories, the blueprint to find scalable innovations is given and also the encouraging results of how much and proper investment as well as practice can do. The significance of the policy-practice gap bridging can hardly be overestimated. There is need to come back to capacity building, refining of laws, involvement of communities and close monitoring and evaluation systems that can help provide equitable and inclusive education not only to a select group of students with disabilities but also to all the students with disabilities. Policymakers must ensure that policy promises are put into practice and practitioners adopt the culture of inclusion in all the classrooms.

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INNOVATION AND QUALITY OF TEACHER TRAINING IN THE TRANSFORMATION OF SPECIAL EDUCATION TOWARD INCLUSIVE LEARNING IN THE SDGS ERA

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ABSTRACT

To achieve the Sustainable Development Goals (SDGs), particularly Goal 4 on inclusive and equitable education, the transformation of special education into high-quality inclusive learning is crucial. One key aspect of this transformation is teacher training and the quality of teaching services. Although inclusive education policies have been implemented in many schools, challenges remain regarding teacher preparedness and the contextual relevance of training. This study investigates how teachers and school leaders in special schools (SLB) understand and implement inclusive education transformation within a changing socio-cultural context.

This research uses a qualitative case study approach, involving participant observation, semi-structured interviews, and document analysis in several SLBs in West Sumatra, Indonesia. Informants were selected using purposive and snowball sampling techniques, focusing on teachers and principals actively involved in inclusive practices. Data were analyzed thematically using the Miles and Huberman model, with triangulation and member checking to ensure validity.

The study reveals three main themes: (1) Limited resources and facilities in SLBs, such as hearing aids and accessibility technologies; (2) Low teacher readiness and non-contextual training; and (3) Low community acceptance and participation in inclusive education, where parents still question the effectiveness of the inclusion system.

This research emphasizes that teacher innovation and context-based training are key to successful inclusive education. Systemic changes are needed through affirmative policies, increased community literacy, and professional development based on local needs. The novelty of this research lies in its contextual approach, identifying gaps between national training programs and actual needs, and highlighting teacher experiences as a foundation for inclusive innovation.

Keywords : Inclusive Education; Teacher Training; Teacher Innovation; Special Education Transformation; SDG Goal 4

INTRODUCTION

The world development agenda pays close attention to inclusive education, especially since the 2030 Sustainable Development Goals (SDGs) included education-related goals. One of the goals of the SDGs is to ensure inclusive and quality education and provide lifelong learning opportunities for all. Inclusive policies have been implemented in many countries, but there are still many difficulties in implementing them, especially in developing countries. Inclusive education has been regulated by Law No. 20 of 2003 on the National Education System and Government Regulation No. 13 of 2020, but its practice is still limited. This is especially seen in special education that focuses on children with various special educational needs (ABK), such as children with autism, hearing impairments, and visual impairments. (Sudarma, 2023)

This phenomenon is not only happening in the United States but also reflects the inequality of access and education for children with disabilities around the world. Data from UNESCO (2022) shows that many children with disabilities are neglected in the general education system, despite progress in inclusive education. This is due to inadequate resources, teacher training that focuses on inclusion, and policies that do not support diversity of abilities in the classroom. The development of special education to support inclusive learning still faces many challenges in Indonesia. Some of these include the lack of facilities that are friendly to children with disabilities and a sufficient number of teachers to handle children with disabilities (Yusuf & Sari, 2021).

In addition, similar findings were also found in other developing countries such as Kenya and the Philippines, where major challenges in implementing inclusive education include limited teacher training and inadequate infrastructure (Mutua & Dimitrov, 2020; Santos & Padilla, 2021). This study strengthens the argument that local and contextual approaches are essential in adapting inclusive policies effectively.

Inclusive education is considered not only as a basic right of every child, but also as a strategy to build a just and sustainable society. Quality and inclusive education allows children with special needs to access learning that is in accordance with their abilities. In addition, it increases understanding and acceptance of diversity. In such a situation, the transformation of special education is very important to resolve the gap between inclusive theory and practice in the field. Initial results of interviews with teachers in special schools (SLB) indicate that many of them are not ready to implement inclusive teaching strategies because they have limited knowledge and limited resources..

Previous studies have focused on policy aspects or only viewed inclusivity as an effort to fulfill the rights of children with special needs without considering the transformation that occurs in special education itself. In addition, the existing literature discusses more about the structural and systemic aspects of inclusive education, but not many have studied in depth how the transformation of special education can produce high-quality inclusive learning. Marlina (2023) stated that the success of inclusive education is highly dependent on the success of support systems such as appropriate evaluation, differentiated learning approaches, and the readiness of higher education institutions to provide disability-friendly services. This shows that research has not focused much on the experiences of teachers and students in facing the current difficulties and opportunities to implement inclusive education (Rahmawati, 2022; Marlina, 2023).

The purpose of this study is to observe and study the transformation that occurs in special education towards quality inclusive learning in the SDGs era. The main focus of this study is to understand the processes, experiences, and difficulties faced by teachers and schools in implementing holistic and effective inclusive education. This study is expected to provide theoretical contributions to the theory of inclusive education and practical suggestions to improve the quality of special education in Indonesia. This study will be conducted using a qualitative approach. This study is expected to provide new understanding of this phenomenon to help policy makers, educators, and practitioners in the field optimize inclusive learning based on diversity.

METHODOLOGY

This study uses a qualitative approach with a case study design to understand the subjective experiences of teachers, principals, and parents in the context of inclusive education in Indonesia. The case study approach was chosen because this study focuses on understanding the processes that occur in a particular context, namely the implementation of inclusive education in schools with special education programs in Indonesia. Case studies allow researchers to collect rich and detailed data about the real experiences of teachers, principals, and students in facing challenges and opportunities in inclusive education (Creswell & Poth, 2021). In addition, this design allows researchers to explore various perspectives related to

policies, practices, and perceptions that develop in the special education community.

This study was conducted in several special schools (SLB) in the province of West Sumatra, Indonesia, which have inclusive education programs. The research locations were selected because of the many characteristics of the schools and various special education needs. The study was conducted from January to June 2025, and data collection lasted for four months. The purpose of selecting these locations was to obtain a representative picture of the dynamics that occur in implementing inclusive education in areas that have different challenges with resources and facilities.

This study involved school principals, teachers who teach at SLB, and parents of students whose children attend inclusive schools. The selection of informants was based on their involvement in the transformation of special education in schools and their experience in the management and implementation of inclusive education. To select informants, a purposive sampling method was used, which considered the qualifications and relevance of each informant's experience to the research objectives. In this case, the researcher selected informants who had direct experience in implementing inclusive education and changing special education policies in their educational institutions. Purposive sampling allows researchers to identify informants who can provide in-depth insights into the phenomenon being studied (Flick, 2020). Yusuf (2020) emphasized that the purposive sampling approach is very relevant for inclusive education research because it allows the exploration of the experiences of people who have contextual knowledge about the dynamics of inclusion in general and special education units.

Several methods were used to collect research data, including participant observation, semi-structured interviews, and documentation. Semi-structured interviews were used to determine how well informants understood and felt the changes taking place in special education, as well as the difficulties and solutions they faced. Interview questions were designed in such a way that they allowed informants to speak openly about their experiences. In addition, the questions in this interview. Participant observation was conducted to track interactions and dynamics in inclusive classes and how inclusive education policies were implemented in the field. In addition, documentation was also examined, including school policy records, activity reports, and curricula, to provide further context on how each school implemented inclusive education. To increase the credibility of the data, triangulation combined information from various sources and data collection techniques (Denzin, 2021).

Several verification methods, such as audit trail, source triangulation, and member checking, are used to ensure the validity of the data. Source triangulation is done by comparing data from interviews, observations, and documentation to ensure that the information obtained is consistent and reliable. Member checking is done by returning the initial findings of the informant to ensure that the interpretation of the data made by the researcher is correct and relevant. Audit trails are also used to record a clear research process, including data collection, analysis, and interpretation. This allows other researchers to replicate their work (Lincoln & Guba, 2021).

The thematic analysis model developed by Braun and Clarke (2006) was used to analyze the data. This model involves determining the main themes from the observation and interview data. This method requires the data to be coded and grouped into categories or themes related to the research objectives. To understand the phenomenon being studied, each emerging theme is examined thoroughly. To gain a better understanding of the transformation of special education in Indonesia, the researcher will link the findings of the analysis to existing theories on inclusive education. Thus, this analysis not only provides an in-depth understanding of the problem but also provides theoretical contributions that can enrich the literature on inclusive education.

RESULTS AND DISCUSSION

Research Results

This study produced a number of important findings related to the transformation of special education towards quality inclusive learning in the SDGs era. Based on interview data, observations, and documentation, three main themes were found as follows:

4. Limited Resources and Facilities

Most SLBs still lack assistive devices and supporting infrastructure, such as hearing aids and access technology. The principal stated, "We still lack hearing aids and do not have enough technology devices." This reinforces the findings of Ainscow & Miles (2022) that resources are a major barrier to inclusive education, especially in developing countries.

5. Strengthening Teacher Competence in Inclusive Education

Additional findings relate to improving teacher skills, which are critical to the success of inclusive education. In inclusive classrooms, many teachers are not prepared to deal with the diversity of student abilities. Most teachers feel unprepared to deal with the diversity of students in inclusive classrooms. Despite having received training, many consider the training content to be less contextual and applicable. One teacher admitted, "I have difficulty compiling materials that can be understood by all students, especially children on the autism spectrum." (Interview with Teacher, 2025). Although they have received inclusive training, some teachers believe that it is not in-depth and not always relevant to local situations. This is in line with Yusuf's opinion (2021), who stated that teacher training must integrate aspects of psychology, pedagogy, and social understanding of children with special needs to create a truly inclusive learning environment. In line with Marlina (2020), effective teacher training must include differentiation teaching strategies and alternative communication.

6. Community Acceptance and Participation in Inclusive Education

The challenges faced by the community to support inclusive education are also important elements found. It was found that some parents still doubt the effectiveness of the inclusion system. One parent said, "I am worried that my child will not get optimal learning support in an inclusive class.." (Interview with Parents, 2025). This condition shows the importance of community education programs and increasing inclusive literacy, as stated by Peters (2022).

Illustration of Thematic Codes from Field Data

Theme 1: Limited Resources and Facilities

Code: lack of assistive devices, limited technology

Quote : "We still lack hearing aids and do not have special technology for autistic children." (Principal, SLB 1)

Theme 2: Strengthening Teacher Competence in Inclusive Education

Code: difficulty in compiling materials, non-contextual training

Quote : "I am often confused when creating materials for very diverse students. The training I attended was also more general, not appropriate to the conditions in our school." (Teacher, SLB 2)

Theme 3: Community Acceptance and Participation

Code: parental doubts, lack of inclusion information

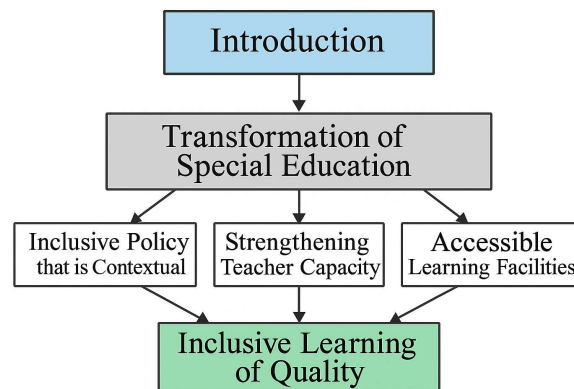
Quote : "I am worried that my child will not get optimal learning support in an inclusive class." (Parent, SLB 3)

Discussion

The results of this study indicate that in order to achieve the SDG goal, namely quality education for all, there are several gaps that need to be addressed immediately. The first focus, Limited Resources and Facilities, is in line with previous research results which show that lack of resources and facilities is still a major barrier to educational inclusion (Ainscow & Miles, 2022). This is very relevant to the problems faced by SLB in Indonesia. Although there are policies that support inclusion, many schools do not have adequate facilities to meet the needs of students with disabilities. Therefore, a larger budget must be allocated to purchase adequate learning aids to follow inclusive education policies..

Previous research shows that the success of inclusive education is highly dependent on teachers' abilities and knowledge in dealing with student diversity. The second theme, Strengthening Teacher Competence, is also in line (Winzer, 2021). The argument that teacher training should be more structured and relevant to needs in the field is reinforced by the results of interviews with teachers who feel less prepared to teach students with different needs. Training that emphasizes more practical and applicable teaching strategies, for example, can help teachers become better prepared to face the challenges of inclusive education.

Figure 1 : Systemic Transformation Model of Special Education Towards Inclusion in the SDGs Era



This diagram illustrates the transformation process from special education to quality inclusive education in the SDGs era. This transformation is not linear, but is influenced by the interaction between resource readiness (input), teacher and institutional adaptation processes (process), and community support (external environment). The expected final output is the creation of an inclusive education system that is equal, adaptive, and sustainable. This model shows that transformation requires a systemic and collaborative approach involving various stakeholders. Community Acceptance and Participation, the third theme, shows that the community is still less supportive of inclusive education, even though the government and educational institutions support it. This is in line with the finding that changing social and cultural attitudes is important for the success of inclusive education (Peters, 2022). Therefore, more intensive socialization and education programs are needed so that the community, especially parents, better understand the importance of inclusive education for all children.

Theoretical and Practical Implications

This study has practical consequences that mean that inclusive education policies in Indonesia should be strengthened by more efficient resource allocation and improving the quality of training for educators. In addition, there is a need to increase support for special education infrastructure and teacher training, as well as expanding outreach programs for the community. In addition, this study provides a theoretical contribution to broaden the understanding of the difficulties and opportunities associated with inclusive education. In addition, this contribution also helps expand the literature related to special education transformation.

Further research should delve deeper into the social and cultural components that influence community acceptance of inclusive education. Long-term research is also needed to see the long-term development of inclusive education implementation in Indonesia, especially in more remote areas or those with more limited resources.

Theme	Key Findings	Example Quote
Resource and Facility Limitations	Lack of assistive tools and accessibility technologies	"We still lack hearing aids."
Teacher Competency Enhancement	Non-contextual training and difficulty in preparing materials	"The training felt too general for our school."
Community Acceptance	Parental concerns about the effectiveness of inclusive education	"I worry my child won't get sufficient support."

Table 1: Summary of Key Findings from Interviews and Observations

Table 1 summarizes three major themes that emerged from the interviews and field observations. Each theme is accompanied by direct quotes from informants to demonstrate the strength of the qualitative data used. These themes represent the main factors that hinder the transformation of special education towards inclusion, namely the lack of supporting facilities, minimal teacher competence in inclusive practices, and the still weak acceptance of the community towards an equal education system for all children.

Figure 2: Distribution of Teacher Readiness in Implementing Inclusion in SLBs

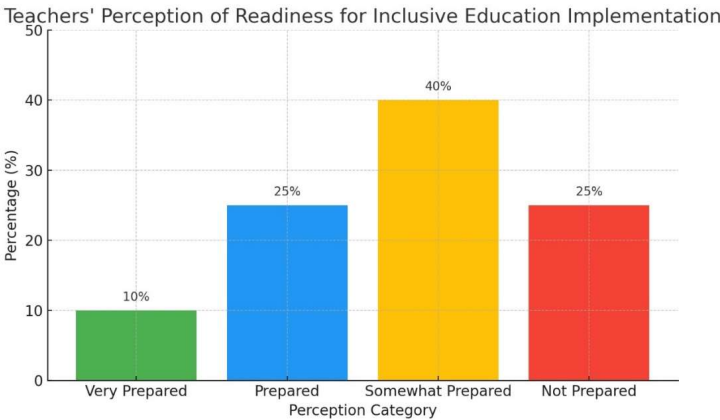


Figure 2 shows that most teachers are in the prepared category with notes, meaning they understand the importance of inclusion but still face limitations in training, experience in managing heterogeneous classes, and access to resources. Only a small number of teachers feel fully prepared, while the rest feel unprepared. This finding emphasizes the importance of ongoing, contextual and needs-based training in schools.

CONCLUSION

In the context of the Sustainable Development Goals (SDGs), this study emphasizes the importance of transforming special education towards inclusive and high-quality learning. In particular, SDG goal 4, which is related to inclusive and equitable education, is the focus of this study. The results show that, although educational institutions have committed to supporting inclusion, implementation in the field still faces major problems, especially related to teacher readiness, curriculum modification, and limited supporting resources. There are differences in teachers' views and understandings of the meaning of inclusion, as well as differences between policies and practices, according to empirical data collected through observation and interviews. In this situation, teacher readiness is the main measure of the success of the transformation.

Theoretically, this study strengthens the constructivist approach in inclusive education, where teaching practices depend on formal policies and individual meanings of their professional experiences. This study provides a systemic mapping of the transformation of special education

in Indonesia and offers practical recommendations and policies based on teachers' experiences in the field.

Practically, the findings of this study emphasize that ongoing training that focuses on field and contextual needs is needed to improve teacher capacity. To achieve inclusive education, there needs to be cross-sector collaboration, participatory planning, and adequate facilities. Policy makers and educational institutions must create a monitoring and evaluation system that takes into account administrative aspects as well as the subjective experiences of implementers in the field.

From a policy perspective, these results suggest that the shift from special education to inclusion requires a revision of policies that emphasize a rights-based and social justice approach. Governments should encourage flexible regulatory frameworks, support differentiation of education services, and ensure that budgets are available for the sustainability of inclusion programs.

Further research is needed to study the experiences of principals, parents, and learners with special needs in the inclusion process. To understand how changes in inclusive perspectives and practices occur in the long term, longitudinal studies are needed. Therefore, the findings of this study not only enrich academic discussions but also provide strategic directions for improving a more equitable and inclusive education system in the future. By prioritizing reflective practices and participatory approaches across stakeholders, educational inclusion becomes not only a policy, but a just reality.

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A REVIEW OF INCLUSIVE OPEN EDUCATIONAL RESOURCES (IOER) AND MAINSTREAM TEACHER ICT COMPETENCIES: BRIDGING THE GAP FOR SPECIAL EDUCATIONAL NEEDS

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ABSTRACT

This review paper examines existing literature on Inclusive Open Educational Resources (iOER) and its nexus with mainstream teachers' Information and Communication Technology (ICT) competencies, particularly within the context of special education. Despite the growing adoption of Open Educational Resources (OER), their integration into inclusive education remains challenging, primarily due to mainstream teachers' struggles in adapting materials and leveraging ICT. This literature review aims to synthesize findings related to mainstream teachers' levels of knowledge, skills, and attitudes towards ICT use and iOER for students with special educational needs (SEN), based on relevant ICT competency frameworks. A thematic analysis of the literature reveals significant gaps in teachers' knowledge and skills, contrasting with generally positive attitudes. This review highlights the critical need for targeted professional development to empower mainstream teachers to effectively utilize iOER, thereby enhancing the quality and equity of inclusive education in Malaysia.

Keywords: Inclusive Open Educational Resources (iOER); Teacher ICT Competency; Inclusive Education; Mainstream Teachers; Literature Review; SDG 4 Quality Education

INTRODUCTION

Education is recognized as a fundamental human right that is crucial for individual and societal development. Global efforts aim to provide equal access to high-quality learning for everyone. Two important movements in this context are Open Educational Resources (OER) and inclusive education. OER includes various teaching, learning, and research materials that are freely available to anyone and can be modified and shared under open licenses. The rise of OER has been greatly influenced by advancements in Information and Communication Technology (ICT), which offer new ways for teaching and sharing educational resources.

While OER has shown effectiveness in higher education and secondary schools, its integration into inclusive education for students with special educational needs (SEN) faces several challenges. Inclusive education is essential for ensuring that SEN students can learn alongside their peers in mainstream classrooms. In Malaysia, the Inclusive Education Program (IEP) aims to provide SEN students the chance to study in an inclusive environment where they can thrive alongside their classmates.

However, implementing inclusive education effectively can be difficult. Many mainstream teachers still rely on traditional teaching methods and may not have access to or knowledge about suitable digital teaching tools. This situation creates a gap, especially regarding Inclusive Open Educational Resources (iOER), which are designed to be accessible to all learners, including those with disabilities. Bridging this gap is crucial to create a fair educational environment that supports the learning and development of every student, regardless of their individual challenges. To achieve success in inclusive education, it is vital to enhance teacher training, improve digital resources, and utilize the potential of iOER, particularly in Malaysia and other similar contexts.

PROBLEM FOCUS

Despite the widespread recognition and increasing adoption of Open Educational Resources (OE R) in general education, their specific integration and effective utilization within inclusive education contexts remain significantly underdeveloped (e.g., Al-Samarrie & Al-Azzawi, 2021). Literature consistently highlights that mainstream teachers in inclusive settings often default to conventional instructional approaches, which may not adequately cater to the diverse learning needs of students with special educational needs (SEN) (e.g., Hasan & Hassan, 2020). There is a notable gap in teachers' exposure to and proficiency in preparing suitable teaching aids and adapting curriculum materials for SEN students within inclusive classrooms.

The effective implementation of inclusive education necessitates the availability of specialized curriculum resources and adaptive learning tools (Al-Samarrie & Al-Azzawi, 2021). Without appropriate and accessible ICT resources, SEN students may struggle to achieve optimal learning outcomes and engagement (Ismail & Ahmad, 2021). While the importance of digital literacy and technological competence for educators in the 21st century is widely acknowledged (UNESCO, 2018), specific insights into mainstream teachers' ICT competencies in relation to developing and using Inclusive Open Educational Resources (iOER) for SEN students are less clear. This gap underscores a critical need to understand the current state of mainstream teachers' knowledge, skills, and attitudes concerning iOER and inclusive ICT practices. Addressing this problem is vital for fostering equitable and effective inclusive education environments.

OBJECTIVES OF THE REVIEW

This literature review aims to achieve the following objectives:

7. To synthesize existing literature on the level of mainstream teachers' knowledge regarding Inclusive Open Educational Resources (iOER) and their application in special education.
8. To synthesize existing literature on the level of mainstream teachers' skills in developing and adapting Inclusive Open Educational Resources (iOER) for students with special educational needs.
9. To synthesize existing literature on the level of mainstream teachers' attitudes towards the use and development of Inclusive Open Educational Resources (iOER) in inclusive classrooms.

SIGNIFICANCE OF THE REVIEW

This review paper holds significant implications for various stakeholders involved in special and inclusive education. Firstly, for mainstream teachers, it offers a comprehensive overview of the current understanding of their ICT competencies regarding iOER. This synthesis can help them recognize common strengths and areas needing development, potentially motivating them to enhance their digital pedagogical skills for inclusive settings. It also underscores the transformative potential of iOER in enriching learning experiences for SEN students.

Secondly, for policymakers at the Ministry of Education, this systematic review provides synthesized evidence on the challenges and opportunities for integrating iOER in inclusive education. This consolidated information is crucial for formulating evidence-based policies, designing targeted professional development programs, and allocating resources effectively to strengthen the Inclusive Education Program (IEP) nationwide.

Thirdly, for curriculum developers and teacher training institutions, the findings of this review can inform the design of relevant pre-service and in-service teacher education curricula. By highlighting specific gaps in knowledge and skills related to iOER and inclusive ICT, these institutions can better prepare future and current educators to meet the diverse learning needs of SEN students.

Finally, for researchers and academics, this review contributes to the existing body of literature by consolidating fragmented findings on iOER and teacher ICT competencies in inclusive contexts. It identifies areas requiring further empirical investigation, such as the effectiveness of specific iOER interventions or the development of comprehensive training models. Ultimately, by empowering teachers with enhanced ICT competencies and access to quality iOER, this review aims to contribute indirectly to improved teaching and learning experiences, leading to better engagement and academic achievement for SEN students in inclusive environments.

THE ICEBERG THEORY OF ICT COMPETENCIES

In today's digital age, possessing ICT skills is essential across all professional and educational domains. However, understanding what it truly means to be digitally competent goes far beyond being able to use common software or write code. To grasp the depth of ICT mastery, we can turn to the Iceberg Theory, originally derived from Spencer and Spencer's (1993) competency models. This theory posits that while certain digital skills are easily visible—like the tip of an iceberg—the most critical components lie beneath the surface. These hidden elements encompass cognitive abilities, soft skills, and a lifelong learning mindset, all of which play a vital role in navigating the complexities of the modern digital world.

The visible portion of ICT skills includes competencies that are easy to observe and quantify. These are the skills often highlighted in resumes or job interviews. For instance, proficiency in using software tools such as Microsoft Office Suite is a common expectation in many workplaces (Smith, 2023). Similarly, coding knowledge in languages like Python or JavaScript, or understanding how to install and maintain computer hardware, also fall into this category. These "how-to" abilities are typically acquired through formal education, certifications, or short-term training. While they are undeniably important as entry points into the ICT field, they represent only a small fraction of what constitutes digital expertise. Relying solely on these surface-level skills may limit one's ability to adapt and grow within an ever-evolving technological environment.

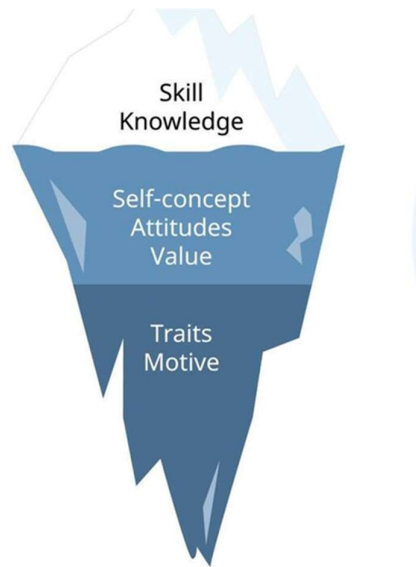
Beneath the surface lies a much larger, foundational set of skills that are often overlooked but are crucial for true digital competence. These include how individuals think, interact with others, and approach learning. One key area is cognitive ability. Computational thinking, for example, is more than just coding; it involves breaking complex problems into smaller components, identifying patterns, and designing step-by-step solutions—an essential mindset for solving intricate digital challenges (Jones, 2022). Alongside this is data literacy, which goes beyond using spreadsheets to include evaluating the credibility of data sources, interpreting data meaningfully, and making informed decisions based on data (Brown, 2024). In our increasingly data-driven world, this skill has become indispensable. Equally important is *cybersecurity awareness*. Many people believe that installing antivirus software is sufficient, but true digital safety comes from understanding potential threats, recognizing vulnerabilities, and proactively safeguarding one's digital identity (Garcia, 2023).

Another crucial set of hidden skills falls under the umbrella of soft skills. These include critical thinking, problem-solving, adaptability, and communication. While not always associated with technology, these interpersonal skills are often what differentiate good ICT practitioners from great ones. For example, someone may have limited technical knowledge but excel in collaboration and communication, enabling them to contribute effectively in team environments or explain complex concepts to non-technical stakeholders (Davis, 2023). In contrast, someone with advanced technical skills but poor interpersonal abilities may struggle in collaborative or leadership roles.

The foundation of the iceberg—and arguably the most critical element—is the mindset of lifelong learning. The digital landscape evolves rapidly, and what is considered cutting-edge

today may be obsolete tomorrow. Therefore, maintaining ICT competence requires a commitment to continuous personal and professional development. This includes staying updated with new technologies, exploring emerging trends, and cultivating curiosity. Those who take initiative in learning—whether through formal education, peer networks, or self-guided study—are better prepared to adapt to future challenges and remain relevant in the digital workforce (Miller, 2025).

Figure 1: Iceberg Model of Competencies (Spencer & Spencer, 1993)



METHODOLOGY: A SYSTEMATIC LITERATURE REVIEW APPROACH

This review paper employed a systematic literature review approach to synthesize existing research on Inclusive Open Educational Resources (iOER) and mainstream teachers' ICT competencies within inclusive education settings. The methodology involved several systematic steps to ensure comprehensiveness, relevance, and rigor in identifying and analyzing scholarly articles.

The literature search was conducted across prominent academic databases relevant to education, special education, and educational technology. These included databases such as Scopus, Web of Science, ERIC (Education Resources Information Center), and Google Scholar. Keywords used in various combinations included: "Inclusive Open Educational Resources," "iOER," "Open Educational Resources," "OER," "ICT competency," "teacher digital skills," "mainstream teachers," "inclusive education," "special educational needs," "SEN," "knowledge," "skills," "attitude," "training," and "professional development." Boolean operators (AND, OR) were utilized to refine search queries.

INCLUSION AND EXCLUSION CRITERIA

To ensure the relevance and quality of the literature reviewed in this study, specific inclusion and exclusion criteria were systematically applied. These criteria helped to maintain the focus on current, high-quality research that aligns with the objectives of the paper, particularly in the domains of Open Educational Resources (OER), inclusive education, and Information and Communication Technology (ICT) competencies among teachers.

The inclusion criteria encompassed peer-reviewed journal articles and conference proceedings, thereby ensuring that only rigorously evaluated and credible sources were considered. To maintain the currency of the research, only articles published between 2019 and June 2025 were included, aligning with the requirement for up-to-date references. Moreover, studies selected for inclusion had to address topics related to OER, inclusive education, the ICT

competencies of teachers, or the intersection of these themes. Research involving mainstream teachers and/or students with special educational needs was particularly prioritized to ensure the findings were applicable to inclusive educational contexts. Additionally, only full-text articles available in either English or Malay were considered to ensure comprehensive accessibility for analysis.

On the other hand, several exclusion criteria were also applied to narrow the focus and maintain academic rigor. Book chapters, dissertations, theses, and reports were generally excluded unless they were highly influential and peer-reviewed. Articles published prior to 2019 were omitted to avoid outdated perspectives that might not reflect recent developments in the field. Furthermore, studies that did not directly relate to education or teacher competencies were excluded, as they fell outside the scope of the review. Lastly, articles that focused solely on OER within the context of higher education without any implications for K–12 or inclusive educational settings were also excluded, as the study emphasized the relevance of OER to more diverse and inclusive learning environments. By applying these criteria, the review ensured a focused and methodologically sound foundation for analyzing trends, challenges, and best practices related to inclusive education and the integration of ICT and OER in teaching.

SCREENING AND SELECTION PROCESS

The initial search yielded a large number of articles. A multi-stage screening process was then implemented:

Title and Abstract Screening: Articles were initially screened based on their titles and abstracts to remove irrelevant studies.

10. Full-Text Review: Relevant articles from the initial screening underwent a full-text review to confirm their suitability based on the inclusion criteria.
11. Snowballing/Citation Chaining: The reference lists of highly relevant articles were manually checked for additional pertinent studies that might have been missed in the initial database searches.

DATA EXTRACTION AND THEMATIC ANALYSIS

A thematic analysis approach was employed to systematically synthesize the data extracted from the selected literature. This method allowed for a detailed and organized examination of the recurring patterns and key ideas related to teachers' competencies in utilizing inclusive Open Educational Resources (iOER) and Information and Communication Technology (ICT) within inclusive education contexts.

The analysis began with a familiarization phase, during which the selected articles were read and re-read to develop a comprehensive understanding of their content. This step was essential in gaining insight into the scope, depth, and nuances of the studies reviewed. Following this, a coding process was undertaken to identify recurring ideas, concepts, and patterns. These codes primarily revolved around teachers' knowledge, skills, and attitudes toward the implementation of iOER and inclusive ICT practices.

Subsequently, the identified codes were organized into broader thematic categories through a process of theme generation. The development of these themes was guided by established teacher competency frameworks, such as the UNESCO ICT Competency Framework for Teachers (ICT CFT) and the ISTE Standards for Educators (formerly NETS-T). These frameworks emphasize the core domains of teacher competency—namely, knowledge, skills, and attitudes—and provided a structured lens through which the themes were interpreted within the context of inclusive education and iOER.

Once initial themes were generated, they were carefully reviewed and refined to ensure they accurately represented the data and aligned with the objectives of the review. This stage

involved redefining the scope and boundaries of each theme to enhance clarity and coherence. Finally, the findings were reported thematically, with each theme presented alongside supporting evidence drawn directly from the reviewed literature. This thematic presentation not only highlighted key insights but also provided a cohesive narrative that addressed the research aims and contributed to a deeper understanding of teacher readiness and practice in adopting iOER and ICT for inclusive education.

Methodology Phase	Detailed Description
1. Search Strategy & Databases	Searches were conducted in prominent academic databases such as Scopus, Web of Science, ERIC, and Google Scholar. Keywords ("Inclusive Open Educational Resources", "iOER", "ICT competency", etc.) were combined using Boolean operators (AND, OR).
2. Inclusion & Exclusion Criteria	Inclusion: Peer-reviewed journal articles, conference proceedings (2019-June 2025), focusing on OER/iOER, inclusive education, teacher ICT competencies, studies involving mainstream teachers/SEN students, full-text available in English/Malay. Exclusion: Book chapters, dissertations, theses, reports (unless highly influential), articles published before 2019, studies not directly related to education/teacher competencies, studies solely focusing on OER in higher education without K-12 or inclusive implications.
3. Screening & Selection Process	Title & Abstract Screening: Initial removal of irrelevant articles. Full-Text Review: Confirmation of suitability for relevant articles. Snowballing/Citation Chaining: Manual checking of reference lists from highly relevant articles for additional pertinent studies.
4. Data Extraction & Thematic Analysis	Data Extraction: Key information such as objectives, methodology, participant characteristics, findings related to teacher knowledge, skills, attitudes towards iOER/ICT, and recommendations were systematically extracted. Thematic Analysis: Data was coded, grouped into broader themes (knowledge, skills, attitude), reviewed, and reported with evidence from the literature.

Table 1. SLR's Methodology Phase

SYNTHESIS OF LITERATURE (FINDINGS)

The systematic review of literature revealed a multifaceted picture of mainstream teachers' ICT competencies concerning Inclusive Open Educational Resources (iOER) and their application in special education. The findings are synthesized across three key domains: knowledge, skills, and attitudes. The literature generally indicates a moderate level of knowledge among mainstream teachers concerning the broader concepts of Open Educational Resources (OER), but a more limited understanding regarding iOER specifically and its application in special education. Many studies (e.g., Sari et al., 2022; Utami & Sulistyo, 2021) suggest that while teachers might be aware of OER as freely available digital resources, their comprehension of the "inclusive" aspect—how to critically evaluate, adapt, and create OER to meet diverse learning needs and accessibility standards for SEN students—is often shallow.

Teachers' knowledge about the "5R framework" (retain, reuse, revise, remix, redistribute) of OER is often theoretical rather than practical. For instance, knowing the definition of OER is more common than understanding how copyright and open licensing (e.g., Creative Commons) facilitate the adaptation of materials for SEN (Amornit, 2023). Furthermore, there is a clear knowledge gap regarding specific iOER platforms, repositories, or tools designed with accessibility features for various disabilities (Pratiwi et al., 2020). This limited specialized knowledge hinders their ability to effectively leverage existing iOER or identify gaps where new resources are needed. The findings align with concerns raised by Abd Aziz and Rubiyani (2019) regarding mainstream teachers' insufficient knowledge in preparing suitable teaching materials for students with special needs, further emphasizing the need for targeted knowledge enhancement programs focusing on the inclusive dimensions of OER.

The reviewed literature consistently highlights that mainstream teachers possess moderate to low levels of practical skills when it comes to actively developing and adapting iOER for

students with special educational needs. While many teachers may possess basic ICT operational skills (e.g., using office software, browsing the internet), the more advanced pedagogical and technical skills required for effective iOER integration are often lacking (Ramli & Omar, 2020; Setiawan & Sumarmi, 2021).

Teachers face several challenges when it comes to using iOER effectively, especially for students with SEN. One major difficulty is identifying and evaluating whether an OER is truly accessible. Many teachers are unsure how to check if a resource is suitable for students with visual or hearing impairments, or for those with learning difficulties. They may not know how to look for key accessibility features such as alt-text for images, captions for videos, or whether a resource supports keyboard navigation. Another common challenge is modifying and adapting OER content to meet the diverse needs of SEN students. This includes tasks such as simplifying language, adding visual aids, breaking down complex concepts, or changing the format of content. These tasks require not only content knowledge but also skills in using editing tools and an understanding of inclusive design approaches, such as Universal Design for Learning (UDL). As highlighted by Ismail and Ahmad (2021), many teachers find this aspect particularly demanding.

Creating new digital learning materials that are accessible from the beginning is also a skill that few teachers have fully developed. Designing iOER that includes features like screen-reader compatibility, adjustable text sizes, or interactive elements requires technical knowledge and experience. Most teachers are not yet confident in building such resources independently. Lastly, another significant barrier is the integration of OER with assistive technologies (AT). Many teachers are not familiar with how to use tools like text-to-speech or speech-to-text software, or how to adapt content to work with specialized input devices used by SEN students. Without these skills, it becomes difficult to fully leverage the potential of iOER to support inclusive education. These skill deficits underscore the observation that many teachers in inclusive settings tend to rely on traditional teaching methods, primarily due to a lack of practical expertise in leveraging digital tools for differentiation and accessibility.

In contrast to the knowledge and skills domains, the literature indicates a predominantly positive and high level of attitude among mainstream teachers towards the potential of iOER and the use of ICT in inclusive education. Teachers generally express a strong belief in the benefits of iOER for enhancing student engagement, participation, and academic achievement among SEN students (Sari et al., 2022; Utami & Sulistyo, 2021). The analysis of the reviewed literature revealed several key positive attitudes among teachers regarding the use of inclusive Open Educational Resources (iOER) and Information and Communication Technology (ICT) in inclusive education settings. These attitudes play a crucial role in shaping teachers' readiness and willingness to embrace innovative pedagogical tools that support students with special educational needs (SEN).

One of the most prominent attitudes observed is the perceived utility of iOER. Many teachers believe that iOER offers flexible, interactive, and customizable learning experiences that are more effective in addressing the diverse needs of SEN students compared to conventional educational resources. This perception underscores the value teachers place on differentiated instruction and the ability of iOER to adapt to various learning styles and challenges, thus enhancing educational equity and engagement in inclusive classrooms. In addition to recognizing the benefits of iOER, teachers also demonstrate a strong willingness to learn. A significant proportion of educators express enthusiasm and openness to acquiring new knowledge and skills related to the development and use of iOER. For instance, Ramli and Omar (2020) highlight that many teachers view the integration of iOER not only as a technical skill but also as a meaningful opportunity to modernize teaching practices and improve the inclusivity of their pedagogy. This positive disposition toward professional growth is essential for successful implementation, as it reflects a proactive attitude towards continuous learning and adaptation in response to evolving educational demands.

Furthermore, there is a widespread belief among teachers in the transformative role of ICT in education. Teachers generally acknowledge that ICT is instrumental in facilitating inclusive practices by making learning more accessible and equitable for all students, regardless of their abilities. This recognition reinforces the notion that technological integration, when applied thoughtfully, can serve as a powerful enabler of inclusive education by removing barriers and creating opportunities for meaningful participation among learners with diverse needs. Collectively, these positive attitudes—perceived utility, willingness to learn, and belief in the role of ICT—highlight the foundational mindset necessary for advancing inclusive education through digital innovation. They suggest that, with adequate support and training, teachers are not only prepared but also motivated to harness the potential of iOER and ICT in creating more inclusive and effective learning environments.

Domain	Overview	Detailed Points & Challenges
Knowledge	Teachers know general OER, but less about <i>inclusive</i> OER (iOER) for special education.	- Don't fully grasp how to make OER inclusive, accessible, or adapted for special needs. - Understand OER definitions but struggle with how open licenses (like Creative Commons) help adapt materials for special needs. - Unaware of specific iOER tools or platforms with accessibility features for different disabilities. - Lack knowledge to create suitable teaching materials for special needs students.
Skills	Teachers have moderate to low practical skills in creating and adapting iOER for special education students.	- Basic computer skills are there, but they lack advanced teaching and technical skills for using iOER effectively. - Key Challenges: - Can't easily tell if an OER is truly accessible (e.g., check for image descriptions, video captions, keyboard navigation). - Struggle to change OER content for diverse special needs (e.g., simplifying language, adding visuals, breaking down ideas) – this requires specific editing skills and understanding inclusive design (like UDL). - Few can create new digital learning materials that are accessible from the start (e.g., screen-reader friendly, adjustable text, interactive elements). - Not familiar with integrating OER with assistive technologies (like text-to-speech) or adapting content for specialized devices. - Often stick to old teaching ways because they don't know how to use digital tools for different learning needs or accessibility.
Attitudes	Teachers generally have a very positive view of iOER and using technology in inclusive education.	

Table 2. Overview ICT Competencies for iOER

DISCUSSION

The synthesis of literature on mainstream teachers' ICT competencies concerning Inclusive Open Educational Resources (iOER) paints a clear picture: a promising landscape of positive teacher attitudes shadowed by significant gaps in their knowledge and practical skills. This disparity is a critical finding, suggesting that while teachers conceptually embrace the potential of iOER for inclusive education, they are often underequipped to translate this enthusiasm into effective pedagogical practice.

The high level of positive attitude among teachers is undoubtedly an encouraging starting point. It indicates a readiness to innovate and adapt, recognizing iOER's capacity to enrich the learning experience for Students with Special Educational Needs (SEN). This intrinsic

motivation aligns with the attitudinal component of educational technology competence, where openness to innovation and commitment to continuous learning are paramount (UNESCO, 2018). Such a positive outlook can be leveraged to drive engagement in professional development initiatives, making teachers more receptive to acquiring new knowledge and skills.

However, the identified knowledge gaps pose a significant barrier. While general awareness of OER might exist, the nuanced understanding of *inclusive* OER—including accessibility features, adaptation techniques, and appropriate platforms—is often lacking. This limited specialized knowledge directly impedes teachers' ability to identify, select, or modify resources that truly meet the diverse and specific needs of SEN students. As highlighted by Abd Aziz and Rubiyani (2019), this deficiency can directly impact the quality of teaching materials and, consequently, student learning outcomes.

The most pronounced challenge lies in the domain of practical skills. The literature reveals that teachers struggle with the actual process of developing and adapting iOER, encompassing tasks from basic editing to creating entirely new accessible digital content. This reinforces the observation that many mainstream teachers resort to traditional methods in inclusive classrooms, not out of unwillingness, but due to a genuine lack of the necessary technical and pedagogical competencies. Without these skills, the aspirational benefits of iOER—such as increased SEN student participation, interest, and improved performance—remain largely unrealized (Ismail & Ahmad, 2021). The implications are clear: effective iOER integration requires more than just awareness; it demands tangible, actionable skills.

CONCLUSION

This review has systematically analyzed the current state of mainstream teachers' ICT competencies concerning Inclusive Open Educational Resources (iOER) in the context of special education. The synthesis of recent literature highlights a crucial dichotomy: while mainstream teachers generally possess positive attitudes and a willingness to embrace iOER and inclusive ICT, there are significant and pressing gaps in their foundational knowledge and practical skills for effectively developing and adapting these resources for students with special educational needs.

This disparity underscores a critical need for strategic and well-designed interventions. To fully leverage the transformative potential of iOER in inclusive classrooms, professional development programs must be implemented to enhance teachers' capabilities in identifying, evaluating, modifying, and creating accessible and relevant digital learning materials. Empowering mainstream teachers with these essential ICT competencies is paramount to providing customized, interactive, and engaging learning experiences for SEN students. Such empowerment is not only a pedagogical necessity but also a crucial step towards realizing the vision of a more equitable and inclusive education system for all learners in Malaysia, in harmony with national education policies and the global thrust towards open education.

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ADAPTIVE AI REFLECTION SYSTEMS TO SUPPORT INCLUSIVE LEARNING: A ROLE-BASED FRAMEWORK FOR SPECIAL EDUCATION

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ABSTRACT

This paper presents a role-based reflective AI framework designed to support inclusive education by enhancing metacognitive growth among neurodiverse learners. Drawing on the concept of “Reflecto”—a dialogic AI agent co-designed with teachers—the system facilitates structured self-reflection, emotional awareness, and learning regulation through tailored feedback loops. Special attention is given to integrating teacher-AI communication channels, allowing educators to receive real-time insights into students’ emotional and behavioral states. Inspired by “Coze-style” agents, the system is developed through participatory programming that embeds teacher knowledge and reflective scaffolds into AI response logic. Key features include context-sensitive prompt generation, multimodal interaction (text, voice, visuals), and ethical safeguards to maintain learner dignity. The paper illustrates how this AI-mediated feedback system supports not only special education needs (SEN) students but also fosters inclusive classroom dynamics by empowering teachers with actionable insight. Finally, we discuss implementation scenarios, design implications, and future research directions to scale the system for hybrid learning environments aligned with SDG 4. This work contributes to the growing intersection of artificial intelligence, special education, and inclusive pedagogical design.

Keywords: Reflective learning; neurodivergent learners; educational AI; affective computing; SDG 4 compliance

INTRODUCTION

Inclusive education, as articulated in Sustainable Development Goal 4, aspires to create equitable and adaptive learning environments where students with diverse learning needs—including neurodivergent learners, those with emotional or behavioral challenges, and students with learning disabilities—can thrive alongside their peers. However, in practice, these goals often encounter deep-seated structural challenges. Many students who require differentiated attention fall through the cracks not because of a lack of intelligence or effort, but due to insufficient metacognitive scaffolding and a lack of sustained, individualized reflection support within the fast-paced rhythm of classroom life (UNESCO, 2020; Florian & Spratt, 2013).

Within this context, we propose a recursive AI-enhanced reflective feedback system designed to support inclusive learning processes. The system is built upon two pedagogical recognitions:

- (1) that structured reflection plays a vital role in improving student learning outcomes and self-awareness (Boud et al., 1985; Schön, 1983), and
- (2) that human teachers—particularly in inclusive classrooms—often face cognitive and emotional overload in simultaneously attending to all learners’ reflection needs in real time (Ainscow & Miles, 2008).

AI, if well-designed, can serve not merely as a tool but as a co-moderator of learning processes, helping both students and teachers co-reflect and adjust dynamically.

In this study, we introduce a role-based recursive model for reflective support, where AI does not merely observe or automate responses, but participates as an adaptable, socially aware entity that mediates between students and teachers. This system can be used to support not only general learners but also students with special educational needs (SEN) by translating their fragmented or unclear signals into structured insights. These insights are then shared with teachers via a co-reflection interface, forming a teacher-AI shared cognition window, which helps educators fine-tune teaching strategies and emotional support in inclusive settings.

METHODOLOGY

To design an AI system that meaningfully supports inclusive education, we adopted a design-based research (DBR) methodology combined with participatory design principles. Teachers, special educators, and AI developers collaboratively iterated the framework over a three-phase cycle:

Phase 1: Needs Mapping & Context Analysis

A qualitative needs assessment was conducted through semi-structured interviews with six SEN teachers across three school types (inclusive primary, vocational secondary, and specialized autism support centers). The goal was to identify key moments where reflection breakdown occurs—both for students and teachers.

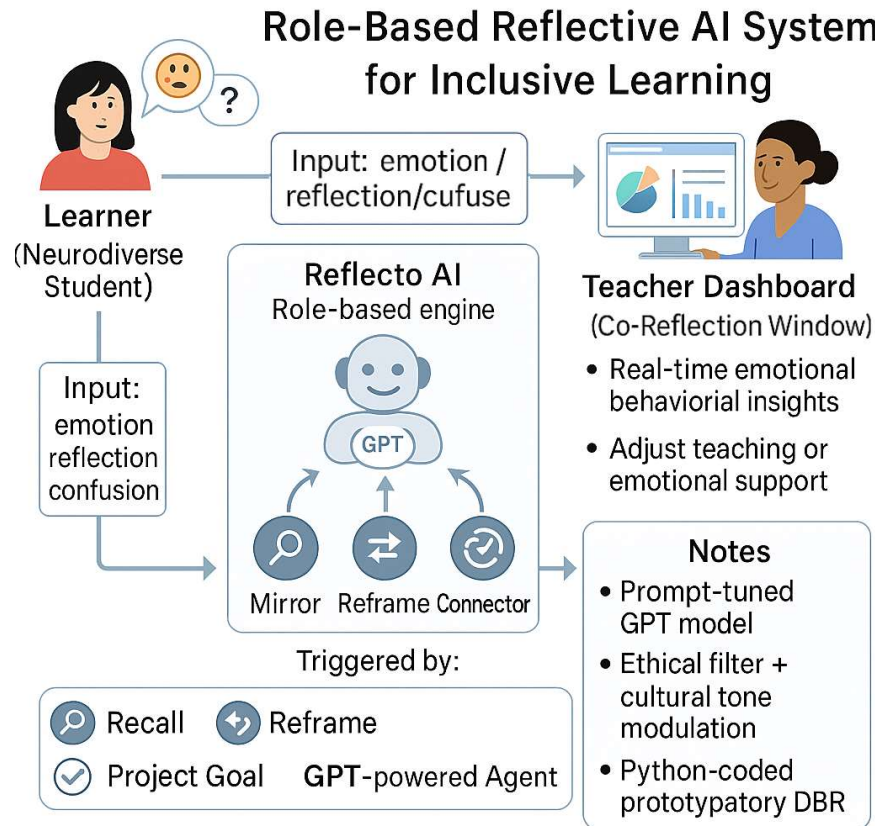
Phase 2: Prototype Design Using Coze-Inspired AI Agents

Informed by the interview data and literature on culturally sensitive AI (Zhou, 2022), we built a lightweight prototype named “Reflecto” using prompt engineering and GPT-based large language models. The agent was designed to simulate a supportive co-reflection partner with three dynamic roles:

- **Mirror** (eliciting personal recall),
- **Reframer** (suggesting alternative perspectives), and
- **Connector** (linking personal insight to future goals).

These roles map onto the structure of many special education reflective practices (e.g., the Zones of Regulation, CASEL framework).

Figure 1: Role-Based Reflective AI System for Inclusive Learning.



The system integrates learner input, AI-mediated reflection role-switching, and a teacher-facing dashboard for adaptive instructional support. This recursive interaction enables AI to function both as an *emotional filter* and *cognitive amplifier*, fostering inclusive, real-time pedagogical adaptation.

Phase 3: Simulation and Teacher Feedback

Simulated classroom scenarios were run with Reflecto in both teacher-facing and student-facing modes. Teachers were asked to evaluate the clarity, emotional tone, and pedagogical value of the AI responses using a 5-point Likert scale and open comments. Feedback was used to revise agent role-switching thresholds, emotional regulation prompts, and content filtering.

The system will be implemented using OpenAI's API, where educators can customize AI behavior through natural language prompts rather than technical coding. This ensures accessibility for non-programmers while maintaining flexibility in reflective design.

RESULTS AND DISCUSSION

Role Effectiveness and Alignment

The simulated interactions revealed a strong preference among teachers for the “Reframer” role, particularly in moments where students showed signs of frustration or self-blame. 83% of participants indicated that this role provided “meaningful scaffolding” for emotional redirection and deeper insight. The “Mirror” role was viewed as beneficial but sometimes overly neutral, while the “Connector” role required more contextual adaptation, particularly with neurodivergent learners who struggled to extrapolate future goals from past incidents.

Emotional Tone and Personalization

Teachers noted that Reflecto's tone was generally perceived as "gentle yet inquisitive," aligning with their expectations for therapeutic presence. However, feedback emphasized the importance of cultural modulation—for instance, avoiding overly abstract language when working with students from rural or lower-literacy backgrounds. The GPT model's ability to dynamically adjust tone based on input length and syntactic patterns was praised, but several participants warned of the danger of "false empathy" if prompts were not rigorously constrained.

Theoretical Implications

This triadic role-switching model may extend current dialogic reflection theories (e.g., Boud et al., 1985) by operationalizing emotional-pedagogical roles into modular agent behavior. Unlike previous reflective systems, our framework uniquely integrates role-switching with affective adaptability, offering a situated AI scaffold responsive to diverse learner states. It also resonates with Vygotsky's Zone of Proximal Development—positioning AI not as a direct teacher, but as a "scaffolded mirror" that adapts to students' current affective-cognitive states. From a systems theory lens, Reflecto can be seen as an emotional co-regulator and meaning-maker within the reflective loop.

Example Usage Scenario. During a real-time reading activity, a neurodivergent student—who often struggles with metaphor comprehension and affective self-expression—misinterprets a figurative passage and exhibits visible frustration. The Reflecto agent detects the emotional cue and initially adopts an *empathetic supporter* role, prompting gentle self-reflection: "*How did this part make you feel?*" Based on the student's response, it dynamically transitions into a *concept clarifier*, offering scaffolded hints tailored to prior learning experiences. Simultaneously, the teacher dashboard displays an emotional-cognitive summary and suggests possible interventions, enabling timely, differentiated support. This scenario illustrates Reflecto's recursive role-switching mechanism in addressing real-time cognitive-affective breakdowns, particularly among students with diverse learning needs.

CONCLUSION

This study proposed and prototyped a role-based AI reflection agent ("Reflecto") tailored to emotionally and cognitively support neurodivergent learners. Through three core roles—Mirror, Reframer, and Connector—Reflecto demonstrates a scalable and ethically-sensitive approach to augmenting reflective learning without overriding teacher presence. Preliminary simulations with educators suggest high acceptability and adaptive potential, though further testing with students is required.

Future work will explore how Reflecto can integrate biometric or behavioral signals to further enhance emotional sensitivity and personalization. Moreover, longitudinal studies are needed to assess its impact on self-regulation, confidence, and academic resilience among diverse learner populations.

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ANALISIS KEBIJAKAN PELAKSANAAN PENDIDIKAN INKLUSIF PADA TINGKAT PAUD DI KABUPATEN BULUNGAN KALIMANTAN UTARA-INDONESIA

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ABSTRACT

This study aims to analyze the policy (regulation) for implementing inclusive education in Bulungan Regency, North Kalimantan. The research method used is qualitative with descriptive analysis through data collection techniques of interviews, observation and documentation. The results of the study show that there are three (3) PAUDs that have implemented inclusive education out of 63 PAUDs in Bulungan Regency. Although regulations for implementing inclusive education are available, such as Peremndikmud number 48 of 2023, and Pergub Kaltara number 21 of 2024. However, findings in the field show that the implementation of inclusive education is not optimal as stated in the regulation. This is based on the findings: 1) Socialization activities regarding regulations for implementing inclusive education, especially at the PAUD level, are still less than optimal, 2) Lack of budget support (financing) from the government for the operational implementation of inclusive education, 3) the competence of educators at the PAUD level needs to be improved, and 4) supporting facilities for learning and playing are not yet accessible to all children. The recommendations proposed in this study are 1) The need for intensive socialization of policies on the implementation of inclusive education, 2) Strengthening the implementation of operational and planned policies and forms of regulation 3) Development of human resources (HR) and budget support are sectors that need attention.

Keywords: analysis; policy; inclusive education; PAUD

INTRODUCTION

Kebijakan pendidikan inklusif diberbagai negara telah menunjukkan respon yang positif (UNESCO, 2020). Hal tersebut dilandasi karena pendidikan inklusif merupakan strategi penting dalam menjamin hak setiap anak untuk memperoleh layanan pendidikan yang bermutu tanpa diskriminasi pada setiap satuan pendidikan. Pada tingkat Pendidikan Anak Usia Dini (PAUD), inklusivitas memegang peranan krusial dalam membentuk fondasi perkembangan kognitif, emosional, sosial, dan moral anak sejak dini. Pemerintah Indonesia menunjukkan komitmen terhadap penyelenggaraan pendidikan yang ramah bagi semua anak, termasuk anak berkebutuhan khusus, melalui kebijakan nasional maupun kebijakan daerah. Permendikbudristek Nomor 48 Tahun 2023 tentang Standar Pelayanan Minimal Pendidikan menjadi salah satu regulasi terkini yang menekankan pentingnya layanan pendidikan inklusif, termasuk pada jenjang PAUD. Dalam peraturan ini, dijelaskan bahwa pemerintah daerah wajib menyediakan akses pendidikan yang setara bagi seluruh anak, termasuk mereka yang memiliki hambatan fisik, intelektual, emosional, atau sosial. Hal ini diperkuat oleh regulasi di tingkat daerah seperti Peraturan Gubernur Kalimantan Utara Nomor 21 Tahun 2024 tentang Penyelenggaraan Pendidikan Inklusif, yang secara lebih kontekstual mengatur mekanisme pelaksanaan dan tanggung jawab institusi pendidikan di wilayah tersebut. Namun demikian, implementasi kebijakan pendidikan inklusif pada tingkat PAUD masih menghadapi berbagai tantangan, seperti keterbatasan sumber daya manusia yang terlatih, kurangnya sarana prasarana yang mendukung, serta minimnya sinergi antar pemangku kepentingan. Di sisi lain, keberadaan kebijakan di tingkat nasional dan daerah memberikan peluang untuk memperkuat sistem

pendukung pendidikan inklusif secara lebih sistematis dan kontekstual. Artikel ini bertujuan untuk menganalisis bagaimana kebijakan pendidikan inklusif pada tingkat PAUD diterjemahkan dalam praktik, dengan mengkaji secara kritis isi dan pelaksanaan Permendikbudristek Nomor 48 Tahun 2023 dan Pergub Kalimantan Utara Nomor 21 Tahun 2024. Analisis ini penting untuk mengidentifikasi sejauhmana kebijakan tersebut dapat mendorong terciptanya lingkungan belajar yang ramah, adaptif, dan adil bagi seluruh anak.

Pendidikan inklusif bukan hanya tentang mengakomodasi anak berkebutuhan khusus dalam sistem pendidikan reguler, tetapi juga tentang menciptakan budaya sekolah yang ramah, adil, dan memperhatikan kebutuhan setiap anak. Menurut Ainscow (2020), pendidikan inklusif harus menekankan pada pemberdayaan semua individu di lingkungan pendidikan, baik itu anak, pendidik, maupun masyarakat. Hal ini mengarah pada pengembangan sistem yang tidak hanya menyaring anak-anak dengan kebutuhan khusus, tetapi juga memberikan mereka dukungan penuh untuk berkembang dengan cara yang paling sesuai dengan mereka. Dukungan terhadap implementasi pendidikan inklusif dinegara-negara maju seperti benua Eropa memiliki perlindungan kuat secara legalitas. Uni Eropa, melalui berbagai perjanjian dan kebijakan, menegaskan bahwa pendidikan adalah hak semua warga negara tanpa diskriminasi, termasuk mereka yang memiliki kebutuhan pendidikan khusus (*European Agency for Special Needs and Inclusive Education, 2022*). Salah satu tonggak utama adalah ***Convention on the Rights of Persons with Disabilities (CRPD)*** yang diratifikasi oleh Uni Eropa pada tahun 2010, di mana Pasal 24 menyatakan bahwa negara harus menjamin sistem pendidikan inklusif di semua jenjang pendidikan. Selain itu, ***European Pillar of Social Rights*** juga menegaskan bahwa "*everyone has the right to quality and inclusive education, training and life-long learning*" (*European Commission, 2017, Principle 1*). Di tingkat nasional, sebagian besar negara Eropa telah mengadopsi kebijakan pendidikan inklusif ke dalam peraturan perundang-undangan setiap negara.

Negara Indonesia, kebijakan pendidikan inklusif dimulai dengan UU No. 20 Tahun 2003 tentang Sistem Pendidikan Nasional, yang mengamanatkan bahwa setiap anak memiliki hak yang sama untuk memperoleh pendidikan. Kebijakan ini kemudian dilanjutkan dengan Permendikbudristek No. 48 Tahun 2023 yang memperkenalkan standar pelayanan minimal pendidikan, termasuk layanan bagi anak berkebutuhan khusus pada tingkat PAUD. Pada tingkat daerah, Provinsi Kalimantan Utara telah mengesahkan Pergub Kaltara No. 21 Tahun 2024 memberikan penguatan lebih lanjut dengan membahas implementasi pendidikan inklusif yang disesuaikan dengan konteks daerah Kalimantan Utara. Menurut Smit (2021), penerapan kebijakan inklusif harus memperhatikan empat dimensi penting: 1) Komitmen politik dan kebijakan yang jelas, 2) Pengembangan kapasitas sumber daya manusia (SDM), 3) Penyediaan sarana dan prasarana yang ramah inklusi, dan 4) Pendekatan berbasis masyarakat. Keempat elemen ini menjadi dasar dalam merumuskan kebijakan dan praktik pendidikan inklusif yang efektif.

Hasil penelitian evaluasi pelaksanaan pendidikan inklusif di Indonesia oleh Sunardi dkk (2011) menunjukkan data: 1) Implementasi inklusi di Indonesia masih bersifat administratif dan simbolik di banyak sekolah. 2) Diperlukan penguatan kapasitas guru, perubahan sikap sosial, serta peningkatan fasilitas untuk memastikan inklusivitas yang sesungguhnya. 3) Keberhasilan pendidikan inklusif sangat tergantung pada sinergi antara kebijakan, pelatihan, dan dukungan komunitas sekolah. Temuan Soemantri (2014) tentang evaluasi pelaksanaan pendidikan inklusif di Sekolah Dasar Kota Bandung menunjukkan bawa guru, fasilitas, dan kebijakan sekolah masih belum memenuhi standar inklusif yang ideal. Marlina (2016) evaluasi pendidikan inklusif di Kabupaten Sleman menemukan bahwa rendahnya kolaborasi antara guru, orangtua, dan tenaga medis, selain itu diperlukan perbaikan dari sisi perencanaan pembelajaran, supervisi, dan dukungan dari pemerintah. Berdasarkan hal tersebut, maka dalam penelitian ini akan mengevaluasi kebijakan pelaksanaan pendidikan inklusif pada tingkat satuan PAUD di Kalimantan Utara untuk mendeskripsikan tentang: 1) substansi kebijakan, 2) pelaksanaan kebijakan, 3) konteks implementasi, dan 4) hambatan dan peluang.

METHODOLOGY

Penelitian ini menggunakan pendekatan kualitatif deskriptif. Teknik pengumpulan data yang digunakan adalah wawancara, observasi dan dokumentasi. Data wawancara mendalam dengan berbagai pihak terkait seperti pengelola PAUD, kepala sekolah dan guru. Sementara observasi dilakukan dengan mengamati langsung gambaran praktis mengenai pelaksanaan pendidikan inklusif di PAUD Kabupaten Bulungan. Selain itu, dokumentasi kebijakan, seperti Permendikbudristek No. 48 Tahun 2023 dan Pergub Kaltara No. 21 Tahun 2024, dianalisis untuk mengevaluasi konsistensi antara kebijakan yang ada dan praktik di lapangan. Data akan dianalisis dengan menggunakan analisis Huberman & Milas (1984) dengan 4 langkah, yaitu pengumpulan data, reduksi data, penyejiaan data, dan penarikan kesimpulan.

RESULTS AND DISCUSSION

Pelaksanaan pendidikan inklusif pada tingkat Pendidikan Anak Usia Dini (PAUD) menjadi semakin relevan seiring dengan penguatan kebijakan nasional dan daerah yang menekankan akses setara bagi semua anak. Permendikbudristek Nomor 48 Tahun 2023 tentang Standar Pelayanan Minimal (SPM) Pendidikan dan Pergub Kalimantan Utara Nomor 21 Tahun 2024 tentang Penyelenggaraan Pendidikan Inklusif merupakan dua regulasi kunci yang menjadi pijakan dalam implementasi kebijakan ini, khususnya di wilayah Kalimantan Utara. Pembahasan ini menguraikan aspek kebijakan berdasarkan empat dimensi analisis: substansi kebijakan, pelaksana kebijakan, konteks implementasi, dan hambatan serta peluang pelaksanaan.

Substansi Kebijakan. Permendikbudristek Nomor 48 Tahun 2023 secara eksplisit menempatkan pendidikan inklusif sebagai bagian dari layanan dasar yang wajib disediakan oleh pemerintah daerah. Dalam konteks PAUD, regulasi ini mewajibkan pemerintah daerah untuk menjamin tersedianya layanan pendidikan untuk anak berkebutuhan khusus yang disesuaikan dengan kondisi dan kapasitas daerah. Sementara itu, Pergub Kaltara Nomor 21 Tahun 2024 memberikan penguatan implementatif terhadap kebijakan nasional dengan mengatur standar pelaksanaan, peran satuan pendidikan, pembiayaan, serta mekanisme koordinasi lintas sektor. Secara substansial, kedua kebijakan ini telah mengakomodasi prinsip inklusivitas, keberagaman, dan nondiskriminasi. Pergub Kaltara juga menambahkan penguatan lokalitas dengan menekankan pentingnya pemetaan kebutuhan anak berkebutuhan khusus di wilayah Kalimantan Utara, yang memiliki tantangan geografis dan sosial tersendiri. Secara substansi implementasi pendidikan inklusif di Kalimantan Utara telah sesuai dengan kebijakan secara Nasional yang diatur dalam UUD 1945 pasal 31 dan Permendikbudristek Nomor 48 Tahun 2023. Menurut Sunardi et al., (2011) "Kebijakan pendidikan inklusif di Indonesia memiliki *legacy* yang signifikan meskipun tantangan besar masih ada dalam implementasinya, terutama dalam hal pelatihan guru dan penyediaan fasilitas yang ramah bagi anak berkebutuhan khusus. Sementara itu Booth & Ainscow (2002) bahwa kebijakan inklusif yang diterapkan secara konsisten dapat menciptakan budaya di mana keberagaman dihargai, dan semua siswa memiliki kesempatan yang sama untuk belajar bersama dalam lingkungan yang mendukung. *Legacy* ini bukan hanya terbatas pada kebijakan, tetapi juga pada perubahan pola pikir dan praktik di tingkat sekolah.

Pelaksana Kebijakan. Pelaksanaan kebijakan pendidikan inklusif melibatkan berbagai aktor, mulai dari dinas pendidikan, pengelola PAUD, guru, hingga orang tua. Salah satu tantangan utama dalam pelaksanaan adalah belum meratanya pemahaman dan kapasitas pelaksana di tingkat satuan pendidikan. Berdasarkan hasil wawancara dan telaah dokumen pelaksanaan di beberapa lembaga PAUD di Kalimantan Utara, ditemukan bahwa sebagian besar pendidik belum memperoleh pelatihan khusus tentang pendidikan inklusif. Di sisi lain, keberadaan regulasi daerah (Pergub) menjadi faktor penguat dalam mendorong peran aktif pemerintah daerah dalam memberikan dukungan pelatihan, pengawasan, dan penyediaan guru pendamping

khusus. Namun demikian, pelaksana di lapangan masih membutuhkan pedoman teknis yang lebih terperinci untuk menafsirkan dan mengimplementasikan regulasi dengan tepat.

Satuan pendidikan dalam hal ini PAUD mengalami hambatan karena belum ada pedoman teknis yang mengacu pada kebutuhan di lapangan. Meski secara umum sudah ada Pedoman Pelaksanaan Pendidikan Inklusif (Kemenrian Pendidikan dan Kebudayaan RI, 2022) namun belum sesuai dengan kondisi sekolah. Menurut UNESCO (2020) pedoman pelaksanaan pendidikan inklusif harus disesuaikan dengan kultur sekolah. Aspek-aspek dalam buku pedoman terus diperbaharui dengan mengikuti kebijakan secara regional dan nasional. Secara keseluruhan kebijakan Pergub Kaltara harus diikuti dengan kajian-kajian lapangan sehingga buku pedoman pelaksanaan pendidikan inklusif sesuai dengan kondisi pelaksana kebijakan.

Konteks Implementasi. Kalimantan Utara sebagai provinsi yang relatif baru dan memiliki sebaran geografis yang luas menghadapi tantangan dalam penyediaan layanan pendidikan yang merata. Konteks geografis dan keterbatasan infrastruktur berdampak pada akses anak berkebutuhan khusus terhadap layanan PAUD inklusif. Selain itu, masih rendahnya kesadaran masyarakat terhadap pentingnya pendidikan inklusif menjadi hambatan kultural dalam pelaksanaan kebijakan ini. Meskipun demikian, terdapat inisiatif lokal di beberapa kabupaten/kota yang menunjukkan praktik baik, seperti kolaborasi antara satuan PAUD dan Puskesmas dalam mendeteksi dini kebutuhan khusus anak, serta pelibatan orang tua dalam penyusunan rencana pembelajaran individual (RPI). Hal ini sejalan dengan temuan Kefallinou, A., Symeonidou, S., & Meijer, C. J. (2020) bahwa minimnya kesadaran masyarakat secara tidak langsung implementasi pendidikan inklusif yang tidak optimal. Provinsi Kalimantan Utara secara geografis dan sosial merupakan bagian dari tantangan dalam implementasi pendidikan inklusif. Misalnya terdapat sekolah yang lokasinya terpencil, keterbatasan infrastruktur, sekolah belum membuka pendaftaran untuk siswa baru yang berkebutuhan khusus serta minimnya kompetensi guru dalam melaksanakan pembelajaran yang adaptif. Maka diperlukan sinergi antara pemerintahan pusat dan daerah dalam memperkuat kapasitas sekolah dalam melaksanakan kebijakan pendidikan inklusif. Sehingga reformasi pendidikan tidak hanya bersifat administratif, tetapi juga mencakup transformasi nilai dan praktik di sekolah, termasuk pelatihan guru, desain pembelajaran, dan relasi sosial yang membangun rasa memiliki bagi semua siswa (Slee, R., 2018). Kebijakan pendidikan inklusif butuh keseriusan dari semua pihak yang terlibat agar lebih optimal. Serta dapat meminimalisir pemikiran bahwa implementasi pendidikan inklusif cenderung bersifat formalitas dari pada substansial (Sunardi, 2011).

Hambatan dan Peluang. Implementasi kebijakan pendidikan inklusif pada tingkat PAUD menghadapi hambatan dalam tiga aspek utama: (1) keterbatasan SDM yang kompeten, (2) minimnya sarana dan prasarana yang inklusif, dan (3) lemahnya koordinasi antar lembaga pelaksana. Namun, adanya regulasi daerah seperti Pergub Kaltara Nomor 21 Tahun 2024 membuka peluang untuk memperkuat komitmen lokal dan mendorong program afirmatif yang sesuai dengan karakteristik wilayah. Peluang lain adalah pemanfaatan teknologi digital untuk mendukung pelatihan guru dan asesmen anak, serta pengembangan kemitraan dengan LSM atau organisasi profesi yang bergerak di bidang disabilitas dan anak usia dini. Hambatan utama implementasi pendidikan inklusif pada jenjang PAUD di Kabupaten Bulungan adalah keterbatasan sumber daya manusia, infrastruktur, dan penganggaran biaya. Disatu sisi, peluang pelaksanaan pendidikan inklusif cukup positif karena telah dilindungi oleh kekuatan hukum melalui PERGUB. Temuan penelitian ini sejalan dari UNESCO (2017) hambatan utama dalam implementasi pendidikan inklusif di berbagai negara, termasuk kurangnya pelatihan bagi guru, keterbatasan sumber daya, dan sikap negatif terhadap siswa dengan disabilitas. Di sisi lain, peluang untuk pendidikan inklusif melibatkan perubahan dalam praktik pengajaran dan kebijakan pendidikan yang lebih mendukung keberagaman. Begitu juga temuan Sunardi et al., (2011) meskipun kebijakan pendidikan inklusif sudah ada, penerapannya di Indonesia masih terbatas oleh beberapa faktor, seperti keterbatasan pelatihan guru, sarana dan prasarana yang tidak memadai, serta kurangnya dukungan dari masyarakat. Peluang untuk memperbaiki ini

termasuk pemberian pelatihan intensif kepada guru dan penguatan peran pemerintah daerah dalam menyediakan fasilitas yang lebih inklusif.

Data hasil penelitian selanjutnya akan dianalisis melalui analisis SWAT yang akan ditampilkan pada tabel 1 berikut:

Aspek	Uraian
Strengths (Kekuatan)	1. Adanya payung hukum nasional (Permendikbudristek No. 48 Tahun 2023) dan lokal (Pegub Kaltara No. 21 Tahun 2024) yang jelas dan mendukung inklusivitas.
	2. Komitmen pemerintah daerah dalam mengatur teknis penyelenggaraan pendidikan inklusif.
	3. Praktik baik di beberapa daerah yang sudah memulai kolaborasi lintas sektor seperti PAUD dan SLB.
Weaknesses (Kelemahan)	1. Rendahnya kompetensi pendidik dalam menerapkan pembelajaran inklusif.
	2. Minimnya pelatihan dan belum adanya pedoman teknis pelaksanaan yang aplikatif.
	3. Sarana dan prasarana PAUD belum ramah anak berkebutuhan khusus secara merata.
	4. Belum optimalnya peran guru pendamping khusus (GPK) di satuan PAUD.
Opportunities (Peluang)	1. Potensi sinergi antar sektor (pendidikan, kesehatan, sosial) di tingkat daerah.
	2. Pemanfaatan teknologi digital untuk pelatihan guru dan asesmen anak.
	3. Dukungan organisasi masyarakat dan LSM dalam peningkatan kapasitas satuan PAUD.
	4. Peningkatan kesadaran publik melalui kampanye inklusi dan advokasi berbasis komunitas.
Threats (Ancaman)	1. Tantangan geografis Kalimantan Utara yang menyulitkan distribusi layanan dan SDM.
	2. Stigma sosial dan resistensi kultural terhadap pendidikan inklusif.
	3. Keterbatasan anggaran daerah untuk mendukung sarana inklusif secara menyeluruh.
	4. Lemahnya koordinasi lintas lembaga dan tumpang tindih kewenangan di lapangan.

Tabel 1 : Analisis SWAT Analisis Kebijakan Analisis Kebijakan Pelaksanaan Pendidikan Inklusif Pada Tingkat PAUD di Kabupaten Bulungan Kalimantan Utara-Indonesia

Berdasarkan temuan hasil penelitian Pelaksanaan pendidikan inklusif pada tingkat PAUD di Indonesia, khususnya di Provinsi Kalimantan Utara, menunjukkan adanya komitmen regulatif yang kuat baik di tingkat nasional melalui Permendikbudristek Nomor 48 Tahun 2023 maupun di tingkat daerah melalui Pergub Kaltara Nomor 21 Tahun 2024. Kedua regulasi tersebut telah memberikan dasar hukum dan arah strategis bagi penyelenggaraan layanan pendidikan inklusif yang adil dan adaptif terhadap kebutuhan anak berkebutuhan khusus sejak usia dini. Namun demikian, implementasi di lapangan masih menghadapi berbagai tantangan, terutama dalam aspek kompetensi pendidik, keterbatasan sarana prasarana, serta lemahnya koordinasi lintas sektor. Selain itu, konteks geografis dan sosial budaya Kalimantan Utara turut memengaruhi efektivitas pelaksanaan kebijakan. Meskipun demikian, terdapat pula peluang strategis yang dapat dimaksimalkan, seperti sinergi antar lembaga, pemanfaatan teknologi, dan dukungan komunitas lokal. Oleh karena itu, diperlukan langkah-langkah sistematis dan kolaboratif dalam memperkuat kapasitas lembaga PAUD, meningkatkan kompetensi pendidik, serta memperluas kesadaran masyarakat terhadap pentingnya pendidikan inklusif. Kebijakan yang sudah ada perlu diikuti dengan pedoman teknis dan dukungan anggaran yang memadai agar pelaksanaan pendidikan inklusif pada tingkat PAUD benar-benar dapat diwujudkan secara merata dan berkelanjutan

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ANALYZING THE INFLUENCE OF UNIVERSAL DESIGN FOR LEARNING IN IMPROVING INCLUSIVE LEARNING

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ABSTRACT

Implementing inclusive schools requires the involvement of various educational components, as well as support from various parties to meet the complex needs of students with special needs. Special learning planning and design is needed so that each student can learn according to their needs. Universal Design for Learning (UDL) is a pedagogical framework developed by the Center for Applied Special Technology in the US in the 1990s to create inclusive learning experiences. This research analyzes articles published between 2019 and 2023 in journals in the field of inclusive schools in the Google Scholar database. The research results show that UDL allows teachers to create learning materials that are accessible to all students, including those with special needs, and gives students the freedom to choose a way of learning that suits their style and abilities. Application of UDL in learning, both offline and online, has a positive impact, especially in increasing student motivation and engagement. This article suggests that future research focus on comparative quantitative research on the implementation of face-to-face and online UDL in inclusive schools.

Keywords : Universal Design Learning; Inclusive Learning; Slow Learner, Improve Learning; Learning

INTRODUCTION

Approximately 150 million children under the age of 18 worldwide live with disabilities (Adugna et al., 2020), with about 90% of children with disabilities under five—totaling 52.9 million—residing in low- and middle-income countries. However, population-based data on children with disabilities remains limited, leading to a lack of comprehensive global understanding (Kamiya, 2021). Among those requiring special education services are children with mild intellectual disabilities, often referred to as slow learners, characterized by a significant gap between mental and chronological age, and an IQ of around 60. While these children can attend inclusive or special schools, they need tailored instructional approaches due to their slower cognitive development. Thus, education for children with mild intellectual disabilities demands targeted strategies to help them learn effectively and reach their potential (Anan, 2023 in Bayuningrum & Budi, 2024).

Inclusive education is a system that ensures equal access to quality education for students with special needs by integrating them into regular classrooms, eliminating the divide between special and general education—a concept known as mainstreaming (Rosyidi, 2023). It promotes the right of all students, regardless of condition, to learn together without discrimination. Effective implementation requires collaboration among all educational stakeholders and careful instructional planning to meet the diverse and complex needs of students with disabilities (Iswari et al., 2023).

Universal Design for Learning (UDL) is a pedagogical framework developed by the Center for Applied Special Technology (CAST) in the 1990s to promote inclusive learning. It is based on three main principles: multiple means of engagement (varied ways to involve students), multiple means of representation (varied ways to present information), and multiple means of action and expression (varied ways for students to express themselves). Each principle includes guidelines and 31 checkpoints that help educators design accessible curricula for all students (Dempsey, A. M., 2024). UDL also integrates elements from the Theory of Change, aiming to improve teacher knowledge, skills, and dispositions to drive significant educational change.

This approach is effective in creating adaptive, responsive learning environments that address the diverse needs, learning styles, abilities, and special needs of students (Roski, M., 2024).

The three main principles of Universal Design for Learning (UDL) can be applied to group work to enhance student engagement and learning. First, the principle of multiple means of engagement fosters motivation through well-designed group assignments that promote self-regulation, autonomy, persistence, and interest. Group interaction, influenced by Vygotsky's scaffolded learning, provides a different form of engagement compared to individual or whole-class approaches. Second, the principle of multiple means of action and expression supports strategic learning by offering various assessment and feedback options in group assignments, including self-assessment, peer assessment, and group projects. Third, the principle of multiple means of representation enriches understanding by providing diverse ways to present and access learning material. Group work allows students to engage with material in ways that align with their learning preferences, enhancing how information is presented and understood (Qu, X., & Cross, B., 2024). A core goal of UDL is flexibility, promoting personalized, student-centered learning experiences with multiple learning paths. It also focuses on accessibility, aiming to remove barriers by making educational materials and activities accessible to students with diverse learning needs, including those with disabilities (Fauzy, S. I. F. M., 2024).

METHODOLOGY

This research examines a selection of articles published between 2019 and 2023, sourced from Google Scholar a database known for its high impact factor and rigorous peer-review standards. The articles were chosen based on their relevance to the research topic. The initial phase involved identifying documents containing the keyword "UDL" (Universal Design for Learning) or "Universal Design Learning" in their titles and keywords through a comprehensive search. A large number of documents were collected and then refined by removing duplicates and irrelevant sources. During this screening, articles such as reviews, book chapters, opinion papers, and conference papers that did not meet the inclusion criteria were excluded. Only empirical studies published in reputable academic journals focused on inclusive education were selected for in-depth analysis.

The search was further narrowed to include only articles published between 2019 and 2023 to ensure the findings reflect current trends in the implementation of UDL. A systematic screening of titles and abstracts was conducted to assess the relevance and methodological quality of each study. Articles unrelated to the practical application of UDL within the context of inclusive education were excluded. As a result, 10 high-quality and relevant articles were selected for the systematic review. This careful selection process ensures that the included studies provide a strong foundation for analyzing how UDL is being applied in inclusive education today.

RESULTS AND DISCUSSION

This research produced a shortlist of 10 articles published between 2019 and 2023, focusing on empirical studies conducted in inclusive school settings. The aim is to explore the various findings and opinions related to the research methodologies used in examining the application of Universal Design for Learning (UDL) in inclusive education. UDL is a learning design approach that seeks to create accessible learning experiences for all students, regardless of their individual needs or barriers. A thorough understanding of how UDL is applied in inclusive education is crucial for developing more effective teaching strategies and policies.

To achieve this, the research compiles and analyzes articles that address key aspects of UDL implementation. This includes the educational environments where UDL is applied, the research designs used to evaluate its effectiveness, and the tools employed to collect data on its impact on student learning in inclusive schools. Table 1 summarizes this information, offering a comprehensive overview of the research methods used to study UDL in inclusive education.

No	Years	Study	Participants	Method	Result
1	2023	Rosmi, Y. F., & Jauhari, M. N.	34 teacher	Analysis descriptive	The findings indicate that Universal Design for Learning (UDL) positively impacts both teachers and students by enhancing student performance, interaction, and engagement, with teachers expressing strong support and intent to continue its use.
2	2023	Mackey, M., Drew, S. V., et al	14 teacher, 1,947 to 20,983 students	Quantitative	The findings reveal that UDL helps prospective teachers address student needs in inclusive classrooms, though challenges remain in applying it consistently during training. The study also highlights its use in specific subjects and underscores the importance of collaboration between general and special education teacher candidates.
3	2023	Espada-Chavarria, R., González-Montesino, R. H., et al	108 students	Quantitative	Assessment results show that inclusion students are highly satisfied and view the UDL model as effective in boosting motivation, comprehension, and relevant skill development.
4	2023	Lurvink, A. F., & Pitchford, N. J.	57 participants	mixed methods	The findings show that EdTech in Sierra Leone improved children's basic skills through teacher training, English language use, special needs tech access, and community participation, while also advancing UDL by enabling inclusive and varied learning approaches.
5	2023	Garrad, T. A., & Nolan, H.	107 participants	Quantitative	This research provides initial evidence that implementing UDL principles results in higher levels of student engagement and lower dropout rates.
6	2023	Mansur, H., Utama, A. H., et al	5 inclusive schools	Analysis descriptive	The implementation of UDL in inclusive learning during the Society 5.0 Era has improved accessibility and participation for students with special needs by offering varied materials, active engagement, and flexible assessments tailored to individual needs.
7	2022	Niemininen, J. H., & Pesonen, H. V.	10 students	Analysis descriptive	This research finds that feelings of exclusion can drive progress for inclusion students, as traditional learning environments often reflect ableist norms. It recommends viewing inclusive education as a socio-political effort aimed at challenging ableism to foster true belonging in higher education.
8	2021	Oyarzun, B., Bottoms, B. L., et al	34 participants	Analysis descriptive	The study shows that schools can promote UDL adoption in online learning design, positively impacting the learning process.

No	Years	Study	Participants	Method	Result
9	2020	Bartz, J.	45 students	Quantitative	The study stresses the importance of further training in inclusive methods like UDL to enhance learning accessibility.
10	2019	Nugroho, I. A., & Prasetyo, Z. K.	20 student, include 1 slow learner	Quantitative	The research results include effective lesson plans and learning materials for students with slow learning needs, designed using UDL and validated by special education experts.

Table 1: Summarizes Information,

Teachers have noted that Universal Design for Learning (UDL) encourages more reflective lesson planning, allowing them to proactively address potential learning barriers. By using a UDL-based template, teachers can design inclusive lessons that offer multiple ways for students to access course materials, which is especially beneficial for students with special needs or different learning styles. Many educators believe UDL creates a more inclusive environment, offering various methods for conveying material and allowing students to choose how they learn and demonstrate their understanding. This flexibility is believed to help improve students' academic performance, as it better aligns with their individual needs and learning styles (Mackey, M., et al., 2023; Rosmi, Y. F., et al., 2023).

Despite its benefits, teachers face challenges in implementing UDL, including limited training, time constraints, and the need for better collaboration among colleagues (Mackey, M., et al., 2023). While UDL is highly favored for its flexibility in designing accessible learning for all students, some teachers express concerns about the resources required to fully implement the approach across classrooms. Nonetheless, UDL remains a valuable tool for creating a more inclusive and responsive learning environment, particularly in diverse educational settings.

Inclusion students show high satisfaction levels with the Universal Design for Learning (UDL) model, recognizing its impact on motivation, understanding, and competency development. UDL offers various ways for students to engage with material based on their interests and preferences, boosting their confidence and active participation in learning (Espada-Chavarria, R., et al., 2023). Research also suggests that UDL increases student engagement and reduces school dropout rates by providing multiple ways for students to access, interact with, and express their learning. This inclusive approach allows diverse students, including those with special needs, to be more engaged and successful (Garra, T. A., & Nolan, H., 2023).

The application of UDL principles in online learning has a positive impact, creating an inclusive experience by offering students various options to access information, interact with content, and express their understanding. This flexibility is particularly beneficial in online learning, which often requires adjustments for students with special needs (Oyarzun, B. et al., 2021). UDL also promotes student motivation and engagement by offering multiple methods of learning in both offline and online settings, such as visual, audio, and kinesthetic aids, as well as collaborative activities. In online environments, UDL supports accessibility and student involvement by integrating instructional videos, downloadable materials, and interactive tools that enhance learning for all students, regardless of their needs (Rao, K., 2021).

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ARTIFICIAL INTELLIGENCE IN INCLUSIVE AND SPECIAL EDUCATION: INSIGHTS FROM INDONESIAN TEACHERS

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ABSTRACT

The rapid development of artificial intelligence (AI) in education offers significant opportunities for supporting inclusive and special education. While many of the existing literature has focused on general education in Western contexts, limited research has addressed the perspectives of teachers working with students with disabilities, especially in developing countries such as Indonesia. This study aims to explore Indonesian teachers' attitudes toward and implementation of AI in teaching students with disabilities in inclusive and special school settings.

A quantitative research design using a survey method was applied. A total of 249 teachers responded to a validated online questionnaire. Descriptive statistics were used to analyze the responses, and SPSS version 29 was utilized to obtain frequencies, means, and standard deviations.

Findings report that most teachers expressed positive attitudes toward the use of AI in improving the quality of learning for students with disabilities. Teachers mostly agreed that AI could help identify students' learning needs and facilitate the design of more appropriate teaching materials. However, opinions were divided regarding the potential of AI to replace the role of teacher. Despite many teachers reporting experience with AI use, the study also found that the implementation of AI varied widely, likely due to disparities in access to infrastructure and resources between schools.

This study contributes to the growing body of literature by offering local insights into the use of AI in special and inclusive education in Indonesia. The findings suggest that while teachers are open to integrating AI into their practice, ongoing support, training, and equitable access to technology are essential to ensure meaningful and sustainable implementation. This research provides valuable implications for policymakers, school leaders, and stakeholders aiming to promote inclusive quality education aligned with Sustainable Development Goal 4 (SDG 4).

Keywords: Artificial intelligence; Inclusive education; Special education; Teachers, Quality education

INTRODUCTION

In recent years, there has been a rapid development and use of artificial intelligence (AI) in various sectors, including education (Braunstein, 2024; Bulut et al. 2024). AI innovations including adaptive learning systems, text-to-speech tools, and predictive analytics provide significant potentials to enhance the teaching and learning process (Murugesan & Cherukuri, 2023; Pham & Sampson, 2022). Particularly, AI offers new opportunities to tackle diverse learning needs, including for students with disabilities. AI has the potential to design and create more inclusive learning environment while at the same time support more equal participation for all students (Nacheva & Czaplewski, 2024). Inclusive education, as mandated in the Convention on the Rights of Persons with Disabilities (UNCRPD), highlights that every child entitled to receive quality education in the general education system. In Indonesia, the Law 8/2016 on Persons with Disabilities mandated that government should provide quality and inclusive education for individuals with disabilities either in mainstream school or special school. This is also in line with the attempts to strengthen inclusive education are also part of

Indonesia's global commitment to the Sustainable Development Goals (SDGs), especially SDG 4: Quality Education. SDG 4 highlights the importance of ensuring inclusive and quality education for all and supporting lifelong learning opportunities. In particular., target 4.5 specifically proposes for eliminating gender disparities and ensuring equal access to all levels of education and vocational training for vulnerable groups, including people with disabilities. Therefore, the application of technologies such as AI is a promising instrument in expanding and improving the quality of learning while at the same time, strengthening the sustainability of inclusive education (Hopcan et al., 2023; Pagliara et al., 2024).

In the Indonesian context, a country with the fourth biggest population in the world, efforts to apply technology in education have risen, particularly since the COVID-19 pandemic, which has influenced massive use of technology. Various programs have been launched by the government to improve the teachers' awareness on the benefits of using technologies through different activities including teacher training and the development of digital platforms such as *Guru Belajar Guru Berbagi*. Recently, under the new approach called *deep learning*, schools are gearing up on integrating AI into learning (Raup et al., 2022). However, research and discussion around AI in education often focus solely on general education, while inclusive and special education have not received balanced attention. This mirrors an expanding trend, where the voices and needs of students with disabilities and their teachers are still frequently excluded in the discussion on educational technology. Majority of the existing research come from Western contexts and focus more on general education, so they have not sufficiently reflected the unique challenges and opportunities faced by teachers in educating students with disabilities (Hopcan et al., 2023; Yang et al., 2024). Additionally, majority of studies emphasize the technical aspects or potential of AI in general, without highlighting the real experiences and perspectives of teachers who are at the forefront of implementing the technology (Hopcan et al., 2023; Yang et al., 2024).

This theoretical gap is an important basis for conducting research based on local contexts and focusing on the perspectives of teachers who teach in inclusive and special schools. Understanding their views is vital to formulate policies, training, and technology development that are truly inclusive and in accordance with the realities on the ground. In the framework of achieving SDG 4, ensuring that the implementation of AI strengthens not only the effectiveness of learning but also equity of access and diversity is urgent. Hence, this study aims at exploring the perspective of Indonesian teachers on the application of AI on teaching students with disabilities, both in inclusive and special schools. This study will answer these following questions:

1. What are teachers' attitudes toward the use of AI in the education of students with disabilities?
2. How is AI being implemented in the education of students with disabilities?

METHODOLOGY

This study implemented the quantitative research design with survey to gather the teachers' perspective on the use of AI for teaching. Recent studies on the teachers' perspective were also utilized this design (Ashar et al., 2023; Rasmitadila et al., 2021). A survey study is the part of the quantitative methods which collects data from a pool of respondents through providing multiple questions (Ponto, 2015). This design was chosen as it was suitable to answer this study's questions. This design would allow the quick and efficient data collection compared to other designs. Responded were selected purposively based on previously designed criteria (Namey et al., 2020). This sampling method was commonly applied in a quantitative study. Inclusion criteria for teacher respondents including having been teaching in a current school for at least on year and have at least one student diagnosed with disability in the past or on-going classes. After one week of collecting survey responses, a total of 249 responses were

received, with all responses considered valid as all questions were completed accurately. Many teachers were from special education background (p=49%) and have been teaching for more than ten years (p=67%). Detailed information on the teachers' demography is provided in Table 1.

Criteria	Number	Percentage
Educational Background		
a. Special education	123	49%
b. Education majors other than special education	105	42%
c. Non-education major	21	9%
Years of Teaching		
a. Less than 5 years	39	16%
b. 5-10 years	42	17%
c. More than 10 years	168	67%

Table 1: Demography of respondents

A close-ended questionnaire was used in the survey. The questionnaire was developed by the author in a close discussion with the expert on the educational technology. There were ten statements related to the research questions. Respondents were asked to choose their perspective of each statement by choosing strongly agree, agree, neutral, strongly disagree, and disagree. Validity and reliability test was held before the instrument was shared to respondents. The result of validity and reliability test showed that the instrument was valid and reliable to collect the data. The questionnaire was distributed online, with the author sharing the survey link through WhatsApp groups of teachers who had previously participated in a national inclusive education training, in which the authors served as one of the facilitators. Respondents were provided with the information on research objectives, possible risk of completing the survey and anonymity of their participations on the survey. Rewards are also given for selected respondents after completing all statements on the questionnaire. They usually needed 10 to 15 minutes to complete the questionnaire. After data were collected, data were analyzed using descriptive statistic to obtain the lecturer' perspectives. SPSS Version 29 was used to obtain the percentage, mean and standard deviation of each statement.

RESULTS AND DISCUSSION

Responds from teachers were analyzed to obtain the mean and standard deviation in each statement. The results are provided in Table 2. Mean analysis shows that most teachers agreed with the statements provided in which there are eight statements with mean more than 3.5. This is similar with the result of standard deviation analysis, in which seven statements show a low standard deviation meaning that teachers' responses were similar. Only three statements show conflicting responses of the teachers. For more in-depth explanation, results are also provided through the percentage for each statement under two sub-sections related to research questions as follows.

No	Statement	Mean	Standard Deviation
1	I believe that the use of AI can help improve the quality of learning for students with disabilities.	4.0722	0.8182
2	I feel comfortable using AI technology in teaching and learning activities	4.0361	0.7982
3	I support the integration of AI into the special education curriculum or the general education curriculum	4.1084	0.7917
4	I believe AI can facilitate the individual needs of students with disabilities.	4	0.9183
5	I am concerned that AI might replace the role of teachers in special education.	2.5421	1.3199

No	Statement	Mean	Standard Deviation
6	I have used AI in the learning process for students with disabilities.	3.5060	0.9615
7	I find AI is helpful in identifying the learning needs of students	3.8554	0.9585
8	I find AI is helpful in preparing and designing more appropriate learning materials for students with disabilities	4.1084	0.8361
9	The use of AI in learning has become part of routine practice at my school	3.3975	1.0747
10	My school provides access to AI-based technology to support learning	3.5180	1.1133

Table 2: Results of data analysis

Teachers' Attitudes Toward the Use of Ai in the Education of Students with Disabilities

Attitudes play pivotal role in shaping someone's behavior. Some argue that attitude is the strongest predictor of someone's action (Verplanken & Orbell, 2022). Thus, in implementing AI on teaching students with disabilities, teachers' positive attitude is essential (Aghaziarati et al., 2023; Galindo-Dominguez et al., 2024). Results (as seen in the table 3) indicate that most of the teachers agree and strongly agree that the use of AI could improve the quality learning and helping facilitate learning for students with disabilities. These findings support the previous studies which reported that teachers are optimistic on the use of AI to support the learning outcomes (Nalli et al., 2022; Xu, 2024).

No	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I believe that the use of AI can help improve the quality of learning for students with disabilities.	36%	36%	27%	1%	0%
2	I feel comfortable using AI technology in teaching and learning activities	32%	39%	28%	1%	0%
3	I support the integration of AI into the special education curriculum or the general education curriculum	35%	43%	20%	2%	0%
4	I believe AI can facilitate the individual needs of students with disabilities.	34%	36%	25%	4%	1%
5	I am concerned that AI might replace the role of teachers in special education.	12%	12%	20%	30%	26%

Table 3: Results of teachers' attitudes

It is also interesting to note that more than fifty percents of teachers feel comfortable using AI technology. This reflects the big potentials of AI in supporting learning in special and inclusive education (Confer, 2023; Hopcan et al., 2023). Further, reflecting the need for further training for teachers in using AI. Teachers are also supportive with the idea of integrating AI into either special education curriculum or general education curriculum. Indeed, in Indonesia this idea has been taking shapes under the new leadership of Minister of Education. Globally, this idea is also being heavily discussed (Bae et al., 2021; Yang, 2022). Among other statements, there seems to be a polarization of teachers' opinion on the possibility of AI taking over the role of teachers, even though roughly half of teachers disagree with this statement, some are seeing this as a possible treat. This mirrors the previous studies which reported the same concerns over the use of AI for some teachers' role (Jong et al., 2022; Yan et al., 2024).

Implementation of Ai in the Education of Students with Disabilities

Using high technology on teaching students with disabilities have reported positive learning outcomes (McNicholl et al., 2021; Rizk & Hillier, 2022). Far before the invention of AI, special

education teachers have applied assistive technologies to support learning. Given the rising development of AI, this practice of teaching with technology is assumed to be improving. As indicated on Table 4, nearly half of teachers have used AI in the learning process. This finding duplicates previous research which also reported that teachers have implemented AI on teaching.

No	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I have used AI in the learning process for students with disabilities.	14%	37%	39%	5%	5%
2	I find AI is helpful in identifying the learning needs of students	26%	42%	26%	2%	4%
3	I find AI is helpful in preparing and designing more appropriate learning materials for students with disabilities	35%	45%	17%	2%	1%
4	The use of AI in learning has become part of routine practice at my school	21%	18%	42%	17%	2%
5	My school provides access to AI-based technology to support learning	24%	26%	32%	13%	5%

Table 4: Results on the implementation of AI

Further, some teachers also agreed that AI is helpful in identifying learning needs and designing learning materials. This finding once again reflects the potentials of using AI in supporting quality education in special and inclusive education setting (Barua et al., 2022; Goldman et al., 2024). Some interesting findings are, only less than forty percent of teachers use AI frequently. This indicates the need for further exploration on the underlying factors influencing this different practice. Previous studies suggest that the provision of supporting infrastructure might be the vital factor (Alnaqbi & Yassin, 2021; Cukurova et al., 2023). It is also intriguing that teachers' opinions were divided on the schools' provision of necessary technology. This finding may highlight unequal distribution of facilities and infrastructure of schools.

CONCLUSION

This study has captured the general view of Indonesian teacher's perspective on the use of AI in supporting learning for students with disabilities. Findings reveal that majority of teachers have positive attitudes on using AI for their daily practices in the classroom. Further, they also believe on the positive impact of using AI. This finding could be a positive signal for the schools and related stakeholders to conduct trainings for training related to the use of AI, given the positive attitudes from the teachers. However, some teachers also worried about the possible negative effect of AI, including taking over their roles as teachers. Thus, the trainings should also consider the psychological aspects of using AI.

This study also reports that many teachers have applied the AI in supporting learning involving students with disabilities. This finding implies that future policy or training related to the use of AI for students with disabilities should also consider teachers existing skills and knowledge. Therefore, it could be more impactful and well-targeted. It is also interesting to note that some schools might not have adequate facilities to support AI compared to other schools. Hence, providing relevant facilities should also be the priority for schools.

As the first study on the Indonesian teachers' perspective on the use of AI in special and inclusive education, this study has provided the general overview of the perspective. Attitudes and practices are multidimensional, and in-depth studies are needed to better understand the issue. Further, this study has not recognized the teachers' educational background and experiences on using technology, which could be the determining factors of their attitudes and experiences. Therefore, follow up study should also consider these factors while conducting the similar study.

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ASSESSMENT OF THE IMPLEMENTATION OF INCLUSIVE EDUCATION THROUGH SCHOOL SELF-EVALUATION IN SENIOR HIGH SCHOOLS NUNUKAN REGENCY, NORTH KALIMANTAN PROVINCE

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ABSTRACT

This study aims to describe the assessment of the implementation of inclusive education through school self-evaluation in senior high schools as an effort to improve school quality. The research employed a descriptive quantitative approach with a survey technique. The scoring range for each standard was 1–4. The survey instrument was developed based on the eight national education standards outlined in the school self-evaluation. The results of the study show the percentage scores and their corresponding categories as follows: (1) content standard 37% (poor), (2) process standard 50% (fair), (3) graduate competency standard 59%, (4) educator and education personnel standard 62% (good), (5) facilities and infrastructure standard 41% (fair), (6) management standard 52% (fair), (7) financing standard 46% (fair), and (8) assessment standard 50% (fair). Overall, the assessment of the implementation of inclusive education in senior high schools in Nunukan Regency falls under the "fair" category with an average percentage of 49.6%. The recommendation generated from this study is the need for teacher competency development in designing adaptive curricula for all students, including those with special needs. Additionally, from a budgetary perspective, special attention is required from the local government to support the technical operational activities of inclusive education implementation in schools.

Keywords : assessment; inclusive education; school self-evaluation; Nunukan

INTRODUCTION

Inclusive education is an effort to provide opportunities for all children to access educational services according to their needs (Daniels, H., & Garner, P., 2013). The presence of inclusive education creates space to prevent and minimize discrimination in obtaining a proper education (Akbarovna, A. S., 2022). The primary strength of inclusive education in a social context lies in equality and justice within diversity (Ainscow, M., Booth, T., et al., 2000). Indonesia, as an archipelagic and pluralistic country, is characterized by its diverse ethnicities, religions, cultures, races, socio-economic backgrounds, physical and psychological conditions, and other differences.

In this context, the implementation of inclusive education in Indonesia began in the early 2000s, based on Article 31 of the 1945 Constitution, which guarantees the right of every citizen to receive education without discrimination (Hata et al., 2021). Over time, the regulations regarding the implementation of inclusive education have continued to develop at both national and regional levels, as reflected in the latest regulation, the Minister of Education, Culture, Research, and Technology Regulation Number 48 of 2023 concerning Reasonable Accommodation for Students with Disabilities in early childhood, primary, secondary, and higher education institutions, as well as at the regional level (provincial/city/regency) through governor, mayor, or regent regulations.

The implementation of inclusive education in Nunukan Regency, North Kalimantan Province, has shown a positive trend. This is evidenced by the increasing number of regular schools

providing inclusive education, from early childhood education (PAUD), elementary school (SD), junior high school (SLTP), and senior high school (SMA) levels. These data indicate that Nunukan Regency has opened access and opportunities for all children to receive optimal education. As part of strengthening regional policy, North Kalimantan Province has issued Governor Regulation Number 21 of 2024 on the Implementation of Inclusive Education. This regulation generally governs several aspects, including: 1) general provisions (definitions and basic principles of inclusive education), 2) planning (strategies and steps for implementing inclusive education), 3) data and information (collection and management of data related to students with special needs), 3) roles and responsibilities (roles of local government, schools, and related parties in implementing inclusive education), 4) implementation of inclusive education (standard procedures for inclusive education in schools), 5) coordination (collaboration among agencies and institutions in supporting inclusive education), and 6) guidance, supervision, and 7) evaluation (monitoring and evaluation mechanisms).

Based on the researchers' preliminary findings in the field, several challenges remain in the practice of inclusive education implementation. These challenges include: 1) limited teacher competence in meeting the learning needs of students with special needs, 2) not all inclusive schools have policies encouraging the admission of new students with special needs, 3) inadequate facilities and infrastructure that are not accessible to all students, especially those with motor, hearing, and visual impairments, 4) lack of collaboration between inclusive schools and special schools, and 5) suboptimal operational funding for inclusive education implementation. Efforts undertaken by the North Kalimantan Provincial Government to support inclusive education implementation include establishing an Inclusive Education Working Group (POKJA) involving academics, practitioners, and professionals tasked with collecting data and supporting inclusive education implementation in the region. Additionally, the North Kalimantan Province Education Quality Assurance Agency (BPMP) has played an active role in advocating inclusive education service policies to local governments (cities/regencies) and educational institutions.

Further findings at the upper secondary school level reveal that two senior high schools, SMA X and SMA Y, have been implementing inclusive education since the 2019/2020 academic year by admitting students with physical and motor impairments each new academic year. This reflects a concrete step and commitment by the schools in implementing inclusive education at the institutional level in Nunukan Regency. However, several aspects still require attention, such as: 1) limiting the criteria for admitting students with special needs, 2) school resources, 3) funding, and others. Therefore, to examine the extent of inclusive education implementation at SMA X and SMA Y, this study aims to describe the assessment results of inclusive education implementation through school self-evaluation. School Self-Evaluation (EDS) is an internal evaluation process conducted by schools to assess their performance in implementing inclusive education programs. According to Yusuf, M., Choiri, S., & Supratiwi, M. (2017), EDS serves as a basis for developing school improvement plans and provides essential information for data management systems. This assessment process involves school principals, teachers, school committees, parents, and education supervisors.

The essence of this research is not merely to assess the implementation of inclusive education, but also to provide insights for school quality improvement based on the eight National Education Standards, namely: 1) content standards, 2) process standards, 3) graduate competency standards, 4) educator and education personnel standards, 5) management standards, 6) facilities and infrastructure standards, 7) financing standards, and 8) assessment standards. Therefore, the findings of this study are expected to provide concrete recommendations for schools in implementing inclusive education that is more accessible and responsive to the diversity of all students.

METHODOLOGY

This research was conducted at X Senior High School and Y Senior High School, both of which have implemented inclusive education. This study employed a quantitative method with a descriptive approach (Sugiyono, 2013). The data collection technique utilized a survey method with an assessment instrument based on the national education standards comprising 8 main indicators. The score range in the survey was from 1 to 4, with the following descriptions: 1 = not implemented, 2 = available but not yet optimal, 3 = implemented but needs improvement, 4 = well implemented and effective. Subsequently, the data were processed into mean scores and presented in percentage (%) diagrams with the following classifications:

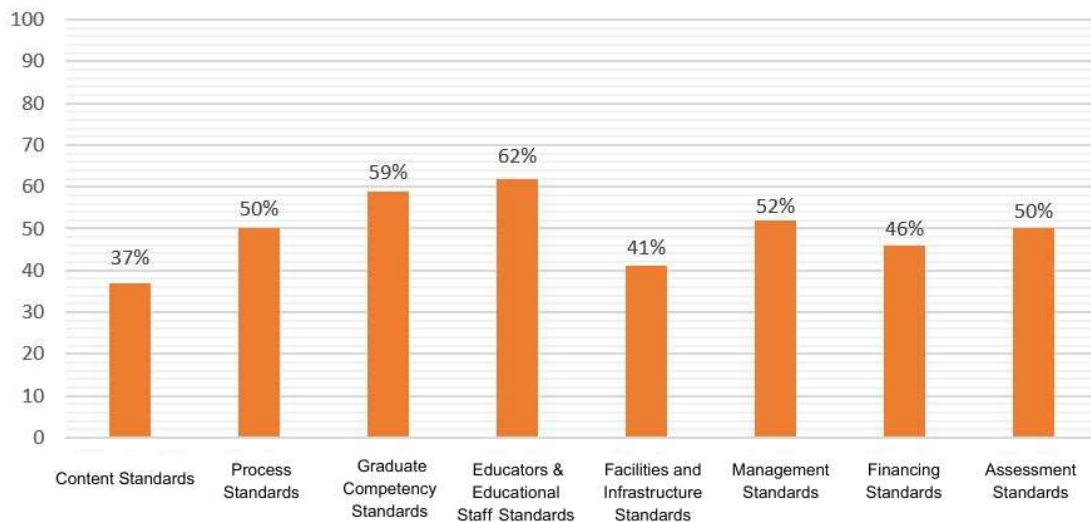
Percentage (%)	Category
81% - 100%	Very Good
61% - 80%	Good
41% - 60%	Fair
21% - 40%	Poor
0% - 20%	Very Poor

Table 1. Percentage Classification of Inclusive Education Implementation Assessment in Senior High Schools (Sugiyono, 2013)

RESULTS AND DISCUSSION

The survey assessment was conducted periodically by the researcher to identify the consistency of the schools in implementing inclusive education. The survey was carried out over a period of six months, equivalent to one academic semester. The results of the researcher's survey on the implementation of inclusive education in Nunukan Regency, North Kalimantan Province, will be presented in the following graphical illustration.

Figure 1: Percentage of the Inclusive Education Assessment Results through EDS at SMA Nunukan, North Kalimantan



Content Standards

The average assessment result for the content standards aspect obtained a percentage of 37%, which falls into the low category. This aspect comprises three indicators: an adaptive curriculum, curriculum objectives and structure, and learning load. This finding indicates that subject teachers have not yet developed content standards based on the learning needs of students, including those with special needs. Meanwhile, in the implementation of inclusive education, content standards must be flexible without diminishing the essence of core competencies, thereby accommodating the diverse learning needs of all students, including those with special needs (Shutaleva, A., Martyshev et al., 2023).

Process Standards

The process standards obtained a percentage of 50%, categorized as fair. This aspect consists of five indicators: lesson planning, implementation, interaction and guidance, accessible learning resources and facilities, and flexible and adaptive assessment. Among these five indicators, the highest score was achieved in the lesson implementation indicator with an average score of 2.5, while the remaining four indicators had average scores ranging from 1 to 2 (see Table 2). Process standards in inclusive education emphasize adaptive and responsive learning processes that encourage participation from all students, including those with special needs. The learning process is designed to prioritize engagement rather than focusing solely on quantitative outcomes (Wulan, R., & Sanjaya, W., 2022). Nevertheless, assessment must be designed to remain fair and accurate. The competence of teachers and the availability of learning aids are key factors in achieving optimal learning processes.

Graduate Competency Standards

The survey on graduate competency standards obtained a percentage of 59%, categorized as fair. There are four indicators within this standard (see Table 2). The highest result was recorded in the attitude indicator, with an average score of 3. This indicates that graduates possess an attitude of respect for diversity and demonstrate positive character. The average scores for the other indicators ranged from 2 to 3. The implementation of graduation standards in inclusive education requires strong commitment and collaboration among stakeholders. The entire school community is expected to play a role in fostering openness toward diversity in society and equipping graduates with the necessary skills to face the workforce.

Educators and Educational Staff Standards

The survey results for the educators and educational staff standards obtained a percentage of 62%, categorized as fair. Both schools have teaching staff qualified in their respective fields of expertise. Among the five indicators for educators and educational staff standards, the highest score was achieved in the personality competence indicator, with an average score of 3 (see Table 2). A positive attitude toward inclusive education and the presence of students with special needs have been demonstrated by the educators and educational staff at these schools. One of the challenges in implementing inclusive education is teacher competence. Competent and committed educators and educational staff are essential. Government support in continuous professional development is part of the strategy to enhance the quality of inclusive education (Wray, E., Sharma, U., & Subban, P., 2022).

Facilities and Infrastructure Standards

The assessment of facilities and infrastructure standards obtained a percentage of 41%, categorized as fair. This standard comprises seven indicators, with the highest score recorded in the school building indicator, achieving an average score of 2.5. The school building demonstrates a relatively high level of accessibility for all students, including those with motor and visual impairments. Facilities and infrastructure in inclusive education are guided by the principles of accessibility, equality, safety, and fostering potential in a learner-friendly environment for all students (UNESCO, 2020).

Management Standards

The management standards, according to the survey results, obtained a percentage of 52%, categorized as fair. The highest average score was achieved in the school policy indicator, with a score of 3 (see Table 2). The schools have obtained legal authorization from the Nunukan District Government to provide inclusive education, thereby admitting students with special needs each academic year. Management standards in inclusive education require a holistic and collaborative approach that embraces the principles of school community involvement,

curriculum flexibility, and continuous evaluation, contributing to school development (Yusuf, M., Choiri, S., & Supratiwi, M., 2017).

Financing Standards

The survey results showed that the financing standards obtained a percentage of 46%, categorized as fair. Budget utilization reporting was the highest-scoring indicator, with an average score of 2.5 among the four other indicators. Both schools demonstrated transparency in their budget utilization. Financing in the implementation of inclusive education is a critical matter as it impacts all supporting aspects of both academic and non-academic services (Daniels, H., & Garner, P., 2013).

Assessment Standards

The assessment standards obtained a percentage of 50%, categorized as fair. The highest-scoring indicator was reporting documents among the five indicators, with an average score of 3. Student reporting documents include both quantitative and qualitative reports that show students' progress. The assessment system in inclusive education is guided by key principles: fairness and equity, special accommodations, and holistic evaluation. The evaluation process is conducted according to the needs and characteristics of students, including those with special needs (Yusuf, M., Choiri, S., & Supratiwi, M., 2017).

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ASSESSMENT OF THE MANAGEMENT PERFORMANCE, LEADERSHIP STYLES, AND EFFECTIVENESS OF SCHOOL PRINCIPALS IN PUBLIC ELEMENTARY SCHOOLS IN BARMM: TOWARD A LEADERSHIP MODEL FRAMEWORK

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ABSTRACT

This study evaluates the management performance, leadership styles, and effectiveness of public elementary school principals in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), ultimately culminating in the development of a proposed leadership model framework. Using purposive sampling, a total of 251 respondents participated in the study, and data were collected through validated questionnaires and semi-structured interviews. Specifically, the research investigates several key dimensions of leadership, including communication of school vision, instructional leadership, creation of a student-centered learning climate, human resource management, community partnerships, and school operations. Notably, the findings reveal a strong consensus among principals regarding the importance of setting high expectations, empowering teachers, fostering a safe and inclusive learning environment, and strengthening engagement with parents and the wider community. Moreover, their effectiveness was most evident in the domains of instructional leadership, student-centered learning environments, and community collaboration.

In addition, eight emergent leadership themes, such as Holistic Outcome-Driven Leadership, Islamic Governance, and Culturally Responsive Leadership—highlight a unique integration of academic rigor, collaborative leadership practices, and socio-cultural sensitivity. Consequently, a triangulated framework of leadership effectiveness was developed, identifying student outcomes, teacher development, and community engagement as interdependent pillars for achieving academic excellence. In response to these insights, the study introduces the Leadership Empowerment and Advancement through Development in BARMM (LEAD-BARMM) Model, which builds on the positive outcomes of existing in-service training programs while incorporating regional culture, principal demographics, leadership styles, and performance evaluation systems. Ultimately, the LEAD-BARMM model positions leadership development not only as a path for individual professional growth but also as a strategic, system-wide catalyst for transformative educational leadership in the BARMM region.

Keywords: leadership; management performances; (NCBSSH-TDNA) Tool; MBHTE-BARMM (LEAD-BARMM Model)

INTRODUCTION

The leader's role is confined to simply and he/she has least role and participation in the decisions made by group in the organization (Ogunsanwo, 2000). Goleman (2000) on the basis of previous studies has claimed that different leadership styles have diverse effects on organizational variables like clarity and commitment of workers, sense of responsibility in organizational climate. Reconstruction of organization, setting, directions for subordinates, and motivating and developing people are the common practices of successful principals (Jacobson, 2011). Therefore, school leaders directly or indirectly affect the various aspects of school and classroom process along with academic performance (Sammons et al., 2011). for education reforms to succeed, principal as gatekeeper must be skilled and hence, he needs for continuous educational development (Nusbuga, 2009).

The status of basic education in the Philippines continues to be a critical concern among stakeholders in the education sector. Each appointed Secretary of the Department of Education is confronted with the immense responsibility of improving the quality of education, particularly within public schools. This persistent challenge is primarily due to the country's consistently low performance in the Programme for International Student Assessment (PISA). In the 2018 PISA results, which assessed 15-year-old students worldwide, the Philippines ranked below average in reading, mathematics, and science compared to most other participating countries (PISA 2022 Results Factsheets, Philippines, 2019). When compared to the more recent 2022 PISA results, it was observed that the overall performance remained largely unchanged in the same subject areas. Between 2018 and 2022, the gap in mathematics scores between the top and bottom 10% of students narrowed slightly; however, the gaps in reading and science remained the same. Although low-achieving students showed improvement in mathematics, high-achieving students exhibited no significant progress. Furthermore, the percentage of students performing below proficiency Level 2 in all three domains did not change significantly (PISA 2022 Results Fact Sheets, Philippines, 2022). PISA, conducted every three years, is a global benchmark for assessing the effectiveness of education systems worldwide.

As an elementary teacher with nearly two decades of experience in public schools, the researcher has consistently observed how leadership practices shape learning environments. This study emerged from day-to-day reflections on how principals—whether collaborative or authoritarian—influence both teacher morale and student performance, particularly within the unique sociopolitical context of the Bangsamoro region. It was also observed that while some schools in the region continue to struggle due to ineffective leadership, others thrive under strong and visionary leadership. By identifying and analyzing these patterns, the study aims to propose a leadership model specifically tailored to post-conflict educational settings.

In relation to this, the National Competency-Based Standards for School Heads (NCBS-SH), as outlined in DepEd Order No. 32, series of 2010, serve as an integrated theoretical framework that defines the key dimensions of school leadership. It encompasses seven core domains that serve as a guide for effective school management: school leadership, instructional leadership, creating a student-centered learning climate, human resource management and professional development, parental involvement and community partnership, school management and operations, and personal and professional attributes and interpersonal effectiveness. The NCBS-SH also functions as a self-assessment mechanism that enables school heads to reflect on their past and present practices in order to identify their professional development needs and plan for future improvement (NCBSSH-TDNA Guide and Tools, 2012).

To systematically determine the training and development needs essential for effective school management, the National Competency-Based Standards for School Heads Training and Development Needs Assessment (NCBSSH-TDNA) is employed. This tool plays a vital role in assessing the competencies of school heads based on the prescribed responsibilities outlined in the Implementing Rules and Regulations (IRR) of Republic Act 9155 and in DepEd Order No. 32, s. 2010. Through this self-assessment, school heads are encouraged to evaluate their current performance and identify areas for growth within the seven competency domains. According to Maybelle et al. (2022), the NCBSSH-TDNA is essential for identifying leadership competencies aligned with the national standards and ensuring alignment with the practical demands of school management.

As Kadir (2019) asserts, effective educational management relies on proper resource allocation, accountability, and participatory decision-making—collectively referred to as good governance. Nidadhavolu (2019) adds that school leaders must also motivate and empower their subordinates to enhance job satisfaction and promote organizational commitment.

METHODOLOGY

The study aimed to assess and analyze the management performance, leadership styles, and overall effectiveness of public elementary school principals under the Ministry of Basic, Higher, and Technical Education–Bangsamoro Autonomous Region in Muslim Mindanao (MBHTE-BARMM). Specifically, it examined the personal profile of the respondents in terms of age, sex, civil status, highest educational attainment, length of service, eligibility, employment status, current position, number of years as school head, and leadership trainings attended. It also evaluated the management performance of the respondents across the seven dimensions of the National Competency-Based Standards for School Heads (NCBSSH), namely: school leadership, instructional leadership, creating a student-centered learning climate, human resource management and professional development, parent involvement and community partnership, school management and operations, and personal and professional attributes and interpersonal effectiveness. Furthermore, the study explored how the principals' leadership styles influenced their effectiveness in fostering a positive school climate. Based on the findings, it aimed to develop a model design that could serve as a framework for enhancing school leadership within the unique cultural and educational context of BARMM.

To address these objectives, the study employed a mixed-methods research design, integrating both quantitative and qualitative approaches. Quantitative data were gathered through a structured survey questionnaire, while qualitative insights were collected through interviews and open-ended questions embedded within the same instrument. A total of 251 public elementary school principals from various schools across the BARMM region participated in the study. The survey tool was developed based on the indicators from the National Competency-Based Standards for School Heads Training and Development Needs Assessment (NCBSSH-TDNA) Tool, as outlined in DepEd Order No. 32, s. 2010. The first part of the instrument captured data on the respondents' personal profiles, while the second part assessed their management performance. Informed by both statistical results and thematic insights, the study ultimately proposed a contextualized leadership framework—the LEAD-BARMM Model (Leadership Empowerment and Advancement through Development in BARMM)—which reflects the dynamic interplay of cultural, managerial, and instructional leadership dimensions relevant to the region.

FINDINGS AND DISCUSSION

Based on the findings of the study, the conclusions offer insights into the strengths and areas for development among school leaders, reflecting their pivotal role in shaping the quality of basic education in the region. These findings aim to inform policy decisions and capacity-building initiatives within the Ministry of Basic, Higher and Technical Education (MBHTE) to further empower school leaders and improve institutional performance.

The majority of respondents belonged to the older age bracket, were female, married, and held master's degree units. They had served for 26 to 30 years in the Department of Education, held Licensure Examination for Teachers (LET) eligibility, and were classified as regular permanent employees. Most occupied the Teacher I rank and served as elementary school heads with 11 to 15 years of leadership experience. A significant number had participated in leadership training and showed strong interest in enhancing their professional skills through seminars and other learning opportunities.

Anchored on these findings, the principals of public elementary schools in the BARMM region are generally found to be effective leaders. They demonstrated knowledge, expertise, capability, and the ability to devise innovative solutions to challenges within their respective schools. These school heads, operating under the MBHTE, exhibited high levels of competence in fulfilling administrative duties as outlined in the National Competency-Based Standards for School Heads (NCBS-SH), particularly in the domains of school leadership, parental

involvement and community partnerships, school management and operations, and personal and professional attributes—including interpersonal effectiveness.

These findings emphasize the critical function of school principals in fostering an environment that promotes collaboration, accountability, and continuous improvement. Consequently, the assessment of their management performance, leadership styles, and effectiveness across the divisions of Lanao del Sur I, Lanao del Sur II, and Marawi City has established a strong foundation for school advancement—particularly in the areas of planning, monitoring, and community engagement.

Ultimately, these efforts are expected to foster better educational outcomes, instill a culture of continuous learning, and equip schools to respond to the evolving challenges of the 21st-century educational landscape. The overall survey reflects a strong positive perception of principals' management performance and underscores the significance of leadership style and effectiveness in promoting a collaborative and high-performing educational environment.

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