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The Readiness Level of Mainstream Teachers for Implementing Inclusive Mathematics Teaching in Mainstream Classrooms

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Abstract

This study examines the readiness of mainstream primary school Mathematics teachers to implement inclusive Mathematics teaching in classrooms that accommodate both mainstream and students with special educational needs (SEN). It highlights the challenges and opportunities presented by inclusive education programs in Malaysia, where the success of such initiatives hinges on teachers' knowledge, skills, and attitudes. Using a quantitative survey design, data were collected from 32 Mathematics teachers in the Tatau District, Sarawak. The study evaluates the levels of preparedness in three domains: knowledge, teaching skills, and attitudes. Findings reveal that while overall readiness is high, specific areas such as managing diverse student needs and adopting innovative teaching strategies require further improvement. The study underscores the importance of professional development, peer collaboration, and administrative support to enhance teacher preparedness. A significant correlation between knowledge, skills, and attitudes indicates the necessity of a holistic approach in teacher training to foster effective inclusive teaching practices. These findings provide critical insights into strengthening inclusive education policies and ensuring equitable learning opportunities for all students, particularly in Mathematics.

Keywords: Mathematics, Special Education Needs (SEN), Teaching

Introduction

Inclusive education aims to provide meaningful and challenging education to all students, including Students with Special Educational Needs (SEN), by offering various forms of assistance and support (Nind, 2005). According to the Malaysian Ministry of Education (2013), the Inclusive Education Program (IEP) is a program where SEN students learn alongside mainstream students in the same classroom within government or government-aided schools. The IEP is divided into two approaches: full inclusion and partial inclusion. In the full inclusion approach, SEN students learn full-time with mainstream students in the same environment using the same National Curriculum (Lewis & Doorlag, 2011). On the other hand, partial inclusion allows SEN students to learn with mainstream students for specific subjects or activities based on their abilities (Tin & Wah, 2018). The primary goal of the IEP is to

enhance SEN students' participation in both academic and non-academic areas, particularly in subjects like Mathematics.

Inclusive education also faces challenges, particularly in teaching Mathematics to Students with Special Educational Needs (SEN) in inclusive classrooms. According to Norfishah et al. (2018), although Mathematics is taught in mainstream classrooms, it can be challenging for teachers, especially in the context of partial inclusion. These challenges are further complicated by the increasing diversity of SEN students, including those with learning disabilities, physical disabilities, hearing impairments, visual impairments, speech difficulties, and other disabilities (Malaysian Ministry of Education, 2013). The National Joint Committee on Learning Disabilities (NJCLD, 1990) also stated that intellectual disabilities encompass a range of issues, such as difficulties in reading, writing, solving mathematical problems, and short memory spans. Reber (2001) noted that students' memory problems are caused by factors such as distractions, lack of focus, and the time needed for memory processing (Aznan, 2011).

The effectiveness of inclusive education in mainstream classrooms largely depends on teachers' attitudes, knowledge, and skills. According to Biamba (2016), teachers must possess adequate teaching techniques and materials to meet the needs of Students with Special Educational Needs (SEN). Faiza Abbas (2016) emphasized that teachers who have never attended special education training often feel unprepared to teach SEN students effectively. Teachers' attitudes also play a crucial role, as highlighted by Muhammad Zulhilmi and Norshidah (2020), who stated that teachers' readiness levels are measured through cognitive, behavioral, and affective acceptance. Teachers must provide the best services without discriminating against SEN students.

A study by Norliah and Mohd Hanafi (2016) found that although teachers implement Inclusive Education Programs (IEP), they often use the same teaching methods and techniques for all students, without considering the specific needs of Students with Special Educational Needs (SEN). In this context, constructivist theory (James, 2019) emphasizes learning as an active and dynamic process where students are viewed as meaning-makers rather than passive recipients. To assess teachers' readiness in implementing IEP, Shulman's (1986) Pedagogical Content Knowledge (PCK) model is frequently used. This model helps evaluate how effectively teachers can integrate their content knowledge and pedagogical skills to meet the requirements of inclusive teaching.

In this Study, Several Objectives will be Examined, Including

1. To identify the readiness level of mainstream primary school Mathematics teachers in implementing inclusive Mathematics teaching.
2. To determine the differences in knowledge based on teaching experience among mainstream primary school Mathematics teachers regarding inclusive Mathematics teaching.
3. To determine the differences in teaching skills based on teaching experience among mainstream primary school Mathematics teachers regarding inclusive Mathematics teaching.

4. To identify the relationship between the knowledge, skills, and attitudes of mainstream primary school Mathematics teachers in the implementation of the inclusive education program.

This Study will also Help Answer the Following Research Questions

1. What is the level of readiness of mainstream primary school mathematics teachers for inclusive mathematics teaching?
2. What are the differences in knowledge based on the teaching experience of mainstream primary school mathematics teachers regarding inclusive mathematics teaching?
3. What are the differences in teaching skills based on the teaching experience of mainstream primary school mathematics teachers regarding inclusive mathematics teaching?
4. What is the relationship between the knowledge, skills, and attitudes of mainstream primary school mathematics teachers in the implementation of inclusive education programs?

The Research Hypotheses Discussed are

1. There is no significant difference in knowledge based on the teaching experience of mainstream primary school mathematics teachers for inclusive mathematics teaching.
2. There is no significant difference in teaching skills based on the teaching experience of mainstream primary school mathematics teachers for inclusive mathematics teaching.
3. There is no relationship between the knowledge, skills, and attitudes of mainstream primary school mathematics teachers for inclusive mathematics teaching.

Literature Review

Inclusive mathematics teaching refers to a teaching approach that ensures all students, including those with special educational needs (SEN), can learn in the same environment. This approach requires adaptations to the curriculum, teaching strategies, and learning materials to meet the diverse needs of students. One suitable approach is the use of games in mathematics teaching, as this method can engage students and enhance their motivation for learning mathematics (Boaler, 2016).

However, the implementation of inclusive mathematics teaching depends on the readiness of subject teachers, which is influenced by various factors. Teaching experience is one of the main factors, where more experienced teachers tend to be more prepared and confident in implementing inclusive teaching (Florian & Spratt, 2013). Additionally, support from colleagues and administration also plays an important role. Teachers who receive collaborative support are better able to overcome challenges and develop effective teaching practices (Avramidis & Norwich, 2002).

However, a lack of knowledge or experience among teachers in teaching students with special educational needs (SEN) can affect the teaching and learning (T&L) process for all students, including mainstream students. Therefore, it is important to assess the level of teacher readiness in terms of demographics, knowledge, skills, attitudes, and the support they receive. This level of readiness reflects the confidence and ability of teachers to successfully implement an inclusive education approach.

In conclusion, the level of readiness of mainstream teachers for inclusive mathematics teaching varies and is influenced by their knowledge, skills, attitudes, support, and available resources. Measuring and understanding this level of readiness is crucial to ensure the effective implementation of inclusive education. The conceptual framework for measuring teacher readiness involves aspects of knowledge, teaching skills, attitudes, and perceptions based on their teaching experience (Sharma et al., 2008). This study is expected to help educators identify areas that need improvement to strengthen the implementation of inclusive education in schools.

Problem Statement

Mathematics is one of the core subjects in education and serves as an important focus in developing higher-order thinking skills among students. However, the implementation of inclusive education in mathematics, which emphasizes access to quality education for all students, including those with special needs, still faces challenges in mainstream classrooms. Studies have shown that the readiness and competence of mainstream mathematics teachers in implementing inclusive mathematics teaching significantly influence its success. Teachers need to have skills in planning and implementing diverse and appropriate teaching strategies as well as knowledge of students' special needs in mathematics to ensure that all students can reach their potential in learning mathematics (Sharma & Sokal, 2015; Zulfikar et al., 2018).

The main issue in this study is the potentially low level of readiness among mainstream mathematics teachers, which may be due to a lack of specialized training in inclusive education in mathematics, limited resources, and insufficient guidance in managing classrooms that include students with diverse needs. Additionally, previous studies have shown that teachers' attitudes and perceptions toward inclusive education also play a crucial role in influencing the effectiveness of its implementation (Florian & Black-Hawkins, 2011; Sharma et al., 2018).

Various studies have shown that without an inclusive approach, these students may fall behind in academic achievement, particularly in mathematics. Research also indicates a lack of awareness and understanding of effective teaching strategies to ensure that every student has an equal opportunity to succeed. Florian and Black-Hawkins (2011) examined the concept of inclusive pedagogy and stated that an inclusive approach is crucial in ensuring that all students, including those with special needs, have access to quality and effective education. This study also emphasizes the importance of teaching strategies that are responsive to individual needs to ensure equitable academic achievement.

Furthermore, non-inclusive teaching approaches can negatively affect students' motivation and self-confidence. This issue is exacerbated by the fact that mathematics is a subject that requires a deep understanding of concepts and strong problem-solving skills. Skemp (1976) stated that understanding mathematical concepts requires a more profound and meaningful teaching approach. Without inclusive and adaptive teaching methods, students risk falling behind, particularly those who need additional support to grasp complex mathematical concepts. Moreover, studies show that many people are unaware of or do not understand the proper ways to teach mathematics to ensure that all students have an equal opportunity to succeed.

This issue is further compounded by an inflexible assessment system, which often fails to account for individual differences in learning. Therefore, it is crucial to understand the extent to which the implementation of inclusive mathematics teaching can have a positive impact on students' academic achievement and well-being. In this context, this study aims to identify the readiness of mainstream teachers in the field of mathematics to implement inclusive mathematics teaching in mainstream classrooms. This can be achieved by focusing on aspects such as inclusive knowledge in mathematics, the skills to teach mathematics inclusively, attitudes towards students in teaching mathematics, and the challenges faced by teachers. A deeper understanding of these issues can provide guidance for the development of more effective and inclusive education policies in the field of mathematics. This is to ensure that the necessary support and additional training required by teachers to implement effective inclusive teaching in mathematics can be identified.

Furthermore, inflexible mathematics assessment systems often fail to consider individual differences in learning. This causes students with special needs or different learning styles to feel marginalized and less motivated. Difficulties in understanding basic mathematical concepts can lead to more significant problems in learning more complex concepts in the future. Tomlinson (2001) discussed the need for flexible assessments that take individual differences into account, including in complex subjects like mathematics. Without assessments that are responsive to students' needs, students with different learning styles or special needs may struggle to grasp fundamental concepts, which can have long-term effects on their motivation and achievement.

This issue highlights the urgent need for a more inclusive and effective approach to mathematics teaching. The purpose of this study is to identify the challenges faced by teachers in implementing inclusive mathematics teaching and to propose effective methods to address these issues. The primary focus is to ensure that all students, regardless of their background and abilities, can reach their full potential in mathematics.

Methodology

This study adopts a quantitative approach using a survey research design. The survey was conducted quantitatively to collect data from respondents. According to Chua (2011), survey research allows researchers to gather and analyze responses from participants within a short period. Additionally, it is suitable for large samples. Safiek (2021) suggested studies involving larger samples and focusing on factors influencing teachers' readiness. Rathaneswaary and Ruhizan (2022) recommended studies involving teachers in regular or boarding schools to identify the constraints faced by Special Education Teachers (SET).

This study was conducted among teachers in the Tatau District, Sarawak, involving 250 teachers. The researcher selected 32 mainstream teachers who teach Mathematics as the study sample. A stratified sampling technique was used to select the sample. All the teachers agreed to participate in this study as respondents. These teachers were chosen based on the subjects they teach and their experience teaching students with special needs (SEN) in Mathematics. This selection was made to ensure the researcher could obtain quality data to answer the prepared survey questions effectively.

Subsequently, the researcher used a questionnaire to collect data. The questionnaire was adapted from a previous study (Nirmala and M. Hanafi, 2021). The questionnaire consisted of four sections: Section A, B, C, and D. Section A focused on teachers' demographics, Section B on teachers' knowledge, Section C on teaching skills, and Section D on teachers' attitudes and perceptions. The questionnaire was distributed to all participants via Google Forms, along with guidelines and instructions. The questions in the questionnaire were structured using a five-point Likert scale. Table 4.1 provides a more detailed breakdown of the questionnaire instrument used.

Table 4.1
Details of the Questionnaire Instrument

Part	Construct	Number of Items
A	Teacher's Demography	3
B	Teacher's Knowledge	5
C	Teacher's Teaching Skill	8
D	Teachers' Attitudes and Perceptions	9

This study also involved descriptive analysis, including frequency, percentage, and mean. Descriptive analysis was used to answer the first research question. To analyze teachers' knowledge, teaching skills, attitudes, and perceptions, the statistical approach used was in the form of mean scores. The researcher re-categorized the five-point Likert scale into three levels. These categories aimed to classify each item into specific levels to ensure the analysis was clearer and more meaningful (Zamri Mahamod and Umi Nadihah Mohd Nor, 2012). Table 4.2 below shows the levels and classifications calculated.

Table 4.2
Levels and Classifications that have been calculated

Level Of Implementation	Mean Score
Low	1.00 to 2.33
Medium	2.34 to 3.66
High	3.67 to 5.00

Source modified from Azam Awang (2000)

Next, this study presents several key questions for analysis. The first question, which is the level of preparedness of mainstream secondary school teachers towards the implementation of the inclusive education program, is analyzed using a descriptive method as no hypothesis is being tested. The second question examines whether there is a significant difference between teachers' knowledge and their teaching experience in the inclusive education program, which is analyzed using a one-way ANOVA test. The third question also uses a one-way ANOVA test to investigate the significant difference between teachers' teaching skills and their teaching experience. Additionally, this study also assesses the relationship between teachers' knowledge, skills, and attitudes in the implementation of the inclusive education program.

Study Findings

Part A : Demographic

Table 5.1 shows the analysis of the demographic section involved in this survey study.

Table 5.1

Analysis of the demographic respondent

Demographic	Category	Number of Respondent	Percentage Score (%)
GENDER	MALE	16	50
	FEMALE	16	50
TEACHING EXPERIENCES	1-2 YEARS	8	25
	2-5 YEARS	14	43.75
	5 YEARS AND ABOVE	10	31.25
HIGHEST LEVEL OF EDUCATION	DIPLOMA	1	3.125
	BACHELOR'S DEGREE	29	90.63
	MASTER'S DEGREE	2	6.25
	DOCTORATE	0	0

This study involved a total of 32 respondents, with a balanced gender distribution: 16 males (50%) and 16 females (50%). The respondents had varying teaching experiences, with 8 individuals (25%) having 1 to 2 years of experience, 14 individuals (43.75%) with 2 to 5 years of experience, and 10 individuals (31.25%) possessing more than 5 years of experience.

In terms of the highest level of education, the majority of respondents, 29 individuals (90.63%), held a Bachelor's degree, followed by 2 individuals (6.25%) with a Master's degree. One individual (3.125%) had a Diploma qualification. No respondents held a Doctoral degree. This demographic data indicates that the respondent group consists of experienced and qualified individuals, providing a solid foundation to ensure that the study's findings are relevant and offer meaningful insights within the context of this research.

Mathematics Teachers' Knowledge Aspect Towards Inclusive Mathematics Teaching

Table 5.2 shows that the overall mean for mathematics teachers' knowledge in inclusive mathematics teaching is 3.74, which falls within the high level. This indicates that, overall, teachers possess a good level of knowledge in implementing inclusive mathematics teaching, although there are variations in their understanding of specific aspects assessed.

For the first item, which is teachers' understanding of the diversity of issues in inclusive mathematics teaching, 25% of respondents showed a low level of understanding (SD), while 41% were at a moderate level (D). However, 34% of respondents were at a high level (SD), indicating that nearly one-third of teachers already have a good understanding of these diverse issues.

For the second item, which concerns teachers' knowledge of techniques to manage special needs students in inclusive mathematics classes, the largest percentage is at the moderate level, at 40.625%. Meanwhile, 31.25% demonstrated a high level (SD), 12.5% a very high level (SA), and the remaining 9.375% and 6.25% were at SD and D levels, respectively. This highlights the need for improved skills specifically in managing special needs students.

For the third item, which focuses on identifying special needs students in inclusive mathematics classes, 53.125% of respondents were at a moderate level (D), 18.75% at a high level (SD), and 6.25% at a very low level (SD). While the majority are at moderate to high levels, this indicates that some teachers still require deeper knowledge in identifying special needs students.

Next, the fourth item, which pertains to teachers' knowledge of the types of inclusive education implemented in schools, shows that 46.875% of teachers are at a moderate level (D), 37.5% at a high level (SD), 9.375% at a very high level (SA), and 6.25% at a very low level (SD). The data suggests that while most teachers have a moderate to high level of knowledge, there is room for improving their understanding of the broader concepts of inclusive education.

Finally, for the fifth item, which focuses on teachers' knowledge of strategies to be employed in inclusive mathematics teaching, 12 teachers were at a high level (SD), 11 at a moderate level (D), 7 at a very high level (SA), and 37.5% were at a very low level (SD). These findings indicate that teachers understand inclusive teaching strategies at a satisfactory level but require additional training to elevate their understanding to a higher level.

Overall, the study's findings reveal that while the level of mathematics teachers' knowledge in inclusive aspects is high on average, there are specific areas that need further attention and improvement, particularly in identifying special needs students and mastering inclusive teaching strategies. This is crucial to ensure more effective and comprehensive mathematics teaching in inclusive classrooms.

Table 5.2
Distribution of Mathematics Teachers' Knowledge Aspect in Inclusive Mathematics Teaching

No	Item	SD	D	SD	A	SA
1.	I understand the diversity of issues in inclusive mathematics teaching.			25%	41%	34%
2.	I know the techniques for managing students with special needs in the inclusive mathematics classroom.	9.375%	6.25%	31.25%	40.625%	12.5%
3.	I know how to identify students with special needs in the inclusive mathematics classroom.		6.25%	18.75%	53.125%	21.875%
4.	I know the types of inclusive education implemented in the school.		6.25%	37.5%	46.875%	9.375%
5.	I know the strategies that must be implemented in inclusive mathematics teaching.		6.25%	34.375%	37.5%	21.875%
Overall Means					3.74	High

Teachers' Teaching Skills Aspect in Inclusive Mathematics Teaching
Based on Table 5.3, the overall mean for mathematics teachers' skills in inclusive mathematics teaching is 3.92, which falls within the high level. This indicates that teachers possess good skills in implementing inclusive mathematics teaching, although there are variations in skills across the assessed aspects.

For the first item, related to the use of appropriate teaching strategies in inclusive mathematics teaching and learning, 31.25% of teachers were at the moderate level (D), high level (SD), and very high level (SA). No respondents were at the low level (SD), indicating that most teachers are already applying relevant strategies, though there is room for improvement at the highest skill levels.

In the second item, regarding the arrangement of students' seating according to the inclusive mathematics education program model, the largest percentage was at the high level (SD),

which is 53.125%, followed by 21.875% at the moderate level (D) and 9.375% at the very high level (SA). A small percentage of respondents, 6.25%, were at the low level (SD), reflecting that the majority of teachers understand and implement effective seating arrangements.

For the third item, related to the use of color cards and visual materials in inclusive mathematics teaching, 81.25% of teachers were at the high level (SD), while 9.375% were at the very high level (SA). A small number of teachers, 3.125%, were at the low level (SD) and moderate level (D). This indicates that the use of tools such as color cards and visual materials is widely practiced, though there is room to maximize their use.

Next, for the fourth item concerning the assignment of tasks based on students' abilities, 62.5% of teachers were at the high level (SD), and 28.125% were at the very high level (SA). A small number of teachers were at the moderate level (D), 6.25%, reflecting a high level of awareness in tailoring tasks to students' abilities.

In the fifth item, related to the preparation of teaching materials suited to students' abilities, 65.625% of teachers were at the high level (SD), and 25% were at the very high level (SA). A small percentage of teachers, 9.375%, were at the moderate level (D), showing that most teachers can prepare teaching materials appropriate to students' needs.

For the sixth item, concerning opportunities for moderate-achieving students to interact with high-achieving students, 50% of teachers were at the high level (SD), and 34.375% were at the very high level (SA). Only 15.625% were at the moderate level (D), indicating good efforts to encourage social interaction among students of different achievement levels.

In the seventh item, related to providing encouragement and support to special needs students, 46.875% of teachers were at the high level (SD), and 34.375% were at the very high level (SA). However, 18.75% were at the moderate level (D), highlighting the need for additional efforts to consistently enhance support for special needs students.

Finally, for the eighth item, concerning teachers' belief in the influence of students' social development on academic achievement, 53.125% of teachers were at the high level (SD), and 31.25% were at the very high level (SA). Only 15.625% were at the moderate level (D), indicating that most teachers recognize the importance of social relationships in academic achievement.

Overall, the findings of this study indicate that mathematics teachers in inclusive schools have a high level of skills across various aspects of inclusive mathematics teaching. Nevertheless, there are areas, such as providing encouragement to special needs students and using innovative strategies, that could be further enhanced to ensure more effective and comprehensive teaching.

Table 5.3
Distribution of Teachers' Teaching Skills Aspect in Inclusive Mathematics Teaching

No	Items	SD	D	SD	A	SA
1.	I use appropriate teaching strategies in inclusive mathematics teaching and learning.		6.25%	31.25%	31.25%	31.25%
2.	I arrange students' seating according to the inclusive mathematics education program training model	6.25%	9.375%	21.875%	53.125%	9.375%
3.	I use color cards and visual materials in inclusive mathematics teaching.	3.125%	3.125%	3.125%	81.25%	9.375%
4.	I will ensure that tasks are assigned according to the students' abilities.		3.125%	6.25%	62.5%	28.125%
5.	I prepare teaching materials that are appropriate for the students' ability levels in the inclusive mathematics classroom.			9.375%	65.625%	25%
6.	I will provide opportunities for students with moderate achievement to interact with students who have high achievement.			15.625%	50%	34.375%
7.	I frequently provide encouragement and support for students with special needs in inclusive mathematics teaching.			18.75%	46.875%	34.375%
8.	I believe that students' social development influences their academic achievement.			15.625%	53.125%	31.25%
Overall Mean					3.92	High

Teachers' Attitudes and Perceptions Aspect in Inclusive Mathematics Teaching

Based on Table 5.4, the overall mean for mathematics teachers' attitudes and perceptions in inclusive mathematics teaching is 3.86, which falls into the high category. This indicates that, overall, mathematics teachers have positive attitudes and perceptions toward the implementation of inclusive mathematics teaching. However, there are variations in the levels of attitudes and perceptions across the aspects assessed.

For the first item, related to giving full attention while teaching in inclusive mathematics classes, 53.125% of teachers were at a high level (SD), and 34.375% were at a very high level (SA). No teachers were at the low (SD) or moderate (D) levels, indicating that teachers' attention to inclusive teaching is satisfactory.

In the second item, which concerns the tendency of teachers to read materials related to the development of special needs students in mathematics, 56.25% were at a high level (SD), and 18.75% were at a very high level (SA), while 18.75% were at a moderate level (D). Although the majority showed positive attitudes, there is room to encourage more teachers to consistently read related materials.

For the third item, which pertains to the interest in attending courses related to teaching special needs students in mathematics, the majority of teachers were at a high level (SD) at 65.625%, while 12.5% were at a very high level (SA). A small number of teachers, 6.25%, were at a low level (SD), reflecting the need to encourage more teachers to participate in enrichment courses.

In the fourth item, related to seeking information about learning difficulties in mathematics among special needs students in the media, 46.875% of teachers were at a high level (SD), and 25% were at moderate (D) and very high (SA) levels, respectively. A small percentage of teachers, 3.125%, were at a low level (SD), indicating consistent efforts by most teachers to seek additional information.

Next, for the fifth item, concerning discussions and sharing of teaching methods with other teachers, 59.375% of teachers were at a high level (SD), and 21.875% were at a very high level (SA). A small number of teachers, 3.125%, were at a low level (SD), showing that most teachers are open to discussions and learning from their peers.

For the sixth item, related to not feeling stressed when managing special needs students, 50% of teachers were at a high level (SD), and 12.5% were at a very high level (SA). However, 12.5% of teachers were at a low level (SD), showing that while the majority feel comfortable, a small number still require emotional and professional support.

In the seventh item, which assesses readiness to attend enrichment courses related to inclusive mathematics teaching, 56.25% of teachers were at a high level (SD), and 21.875% were at a very high level (SA). This reflects teachers' proactive attitudes in enhancing their skills.

For the eighth item, related to being caring and friendly when communicating with special needs students, 65.625% of teachers were at a high level (SD), and 18.75% were at a very high level (SA). This indicates that the majority of teachers understand the importance of positive communication with students.

Finally, for the ninth item, which concerns the perception that special needs students are a new challenge for teachers, 50% of teachers were at a high level (SD), and 34.375% were at a very high level (SA), while 12.5% were at a moderate level (D). This indicates that most teachers view this challenge as an opportunity to enhance their professionalism.

Overall, the findings show that mathematics teachers have positive attitudes and perceptions toward inclusive mathematics teaching. However, certain aspects, such as emotional readiness in managing special needs students and interest in reading additional materials, could be improved. This positive attitude is essential in ensuring that inclusive mathematics teaching can be implemented more effectively.

Table 5.4
Distribution of Teachers' Attitudes and Perceptions Aspect in Inclusive Mathematics Teaching

No	Items	SD	D	SD	A	SA
1.	I give my full attention while teaching in the inclusive mathematics classroom.			12.5%	53.125%	34.375%
2.	I enjoy reading materials related to the development of students with special needs in mathematics.		6.25%	18.75%	56.25%	18.75%
3.	I am interested in attending courses related to teaching students with special needs in mathematics.	6.25%		15.625%	65.625%	12.5%
4.	I frequently seek information related to mathematics learning issues among students with special needs in the media.		3.125%	25%	46.875%	25%
5.	I enjoy discussing and sharing teaching methods with other mathematics teachers.	3.125%		15.625%	59.375%	21.875%
6.	I do not feel stressed when managing students with special needs.	12.5%		25%	50%	12.5%
7.	I am always willing to attend enrichment courses related to inclusive mathematics teaching.			21.875%	56.25%	21.875%
8.	I am caring and friendly when communicating with students with special needs.			15.625%	65.625%	18.75%
9.	I believe that students with special needs are a new challenge for a teacher.		3.125%	12.5%	50%	34.375%
Overall Mean					3.86	High

Table 5.5
Summary of the Overall Mean of Mainstream Mathematics Teachers' Preparedness in Inclusive Mathematics Teaching

Teacher's Readiness Level	Overall Mean Score	Level of Interpretation
Teacher's Knowledge	3.74	High
Teaching Skills	3.92	High
Teacher's Attitude and Perception	3.86	High

Table 5.5 shows that the preparedness of teachers in the implementation of inclusive mathematics education is overall at a high level. Teachers' knowledge recorded a mean value of 3.74, indicating that teachers have a good understanding of the concepts, strategies, and needs in inclusive mathematics teaching. In terms of teaching skills, the high mean of 3.92 reflects the teachers' ability to implement effective teaching, including the use of appropriate techniques and teaching materials that meet the needs of students with special needs. Additionally, teachers' attitudes and perceptions towards inclusive teaching are also at a high level, with a mean value of 3.86, demonstrating teachers' commitment and readiness to face the challenges of implementing inclusive education programs. Overall, these findings reflect positive teacher preparedness in supporting the implementation of inclusive mathematics education, but improvements in certain aspects are still needed to ensure the effectiveness of this program.

Table 5.6
Difference in Teachers' Knowledge Based on Teaching Experience

Teaching Experiences	N	Mean	Standard Deviation	F	Significant
1- 2 Years	8	3.625	0.744	0.362	0.700
2- 5 Years	14	3.857	0.534		
5 Years and above	10	3.680	0.801		

Table 5.6 presents the study analysis, which shows that teaching experience does not have a significant difference in teachers' preparedness for implementing inclusive mathematics education. This is supported by the significant value of 0.700 ($p > 0.05$). Teachers with 2-5 years of teaching experience recorded the highest mean value of 3.857 with a standard deviation of 0.534, followed by teachers with more than 5 years of experience, with a mean of 3.680 and a standard deviation of 0.801. Teachers with 1-2 years of teaching experience recorded a mean value of 3.625 with a standard deviation of 0.744.

These findings indicate that although there is a slight difference in mean values between the teaching experience groups, the difference is not statistically significant. This reflects that teachers' preparedness to implement inclusive mathematics education is consistent across different teaching experience groups. Nevertheless, appropriate support and training approaches are still necessary to ensure that all teachers, regardless of their experience, can improve their preparedness for inclusive teaching.

Table 5.7
Difference in Teaching Skills Based on Teachers' Teaching Experience

Teaching Experiences	N	Mean	Standard Deviation	F	Significant
1- 2 Years	8	4.063	0.433	1.306	0.286
2- 5 Years	14	4.018	0.512		
5 Years and above	10	3.663	0.812		

Table 5.7 shows that there is a difference in the mean teaching skills of teachers based on teaching experience; however, this difference is not statistically significant, as indicated by the significant value of 0.286 ($p > 0.05$). Teachers with 1-2 years of teaching experience recorded the highest mean of 4.063 with a standard deviation of 0.433, followed by teachers with 2-5 years of experience with a mean of 4.018 and a standard deviation of 0.512. Meanwhile, teachers with more than 5 years of experience recorded the lowest mean of 3.663 with a standard deviation of 0.812.

Although the mean values show slight differences between the experience groups, statistical analysis indicates that teaching experience does not have a significant impact on teachers' teaching skills in the context of inclusive education. These findings suggest that teaching skills are not necessarily influenced solely by the length of teaching experience. Therefore, it is important to provide professional development and continuous support to ensure that all teachers, regardless of experience, can strengthen their teaching skills to effectively implement inclusive education.

Correlation Relationship

Table 5.8
Relationship between Teachers' Knowledge, Skills, and Attitudes in Inclusive Mathematics Teaching

	Knowledge		Skills		Attitude	
	Correlation Coefficient (*r*)	Significant Value	Correlation Coefficient(*r*)	Significant Value	Correlation Coefficient (*r*)	Significant Value
Knowledge	1		0.567	<0.001	0.669	<0.001
Skills	0.567	<0.001	1		0.723	<0.001
Attitude	0.669	<0.001	0.723	<0.001	1	

Table 5.8 shows that there is a significant relationship between teachers' knowledge, skills, and attitudes in inclusive mathematics teaching. The analysis results indicate a moderate positive relationship between teachers' knowledge and skills, with a correlation coefficient ($r = 0.567$) and a significant value ($p < 0.001$). This reflects that an increase in teachers' knowledge is closely related to an improvement in their skills in implementing inclusive teaching.

Additionally, there is a strong positive relationship between teachers' knowledge and attitudes, with a correlation coefficient ($r = 0.669$) and ($p < 0.001$). This suggests that a higher level of knowledge can influence teachers' positive attitudes towards inclusive teaching. The strongest relationship is found between teachers' skills and attitudes, with a correlation coefficient ($r = 0.723$) and ($p < 0.001$), indicating that high skills are closely related to positive attitudes in inclusive mathematics teaching.

Overall, these findings reflect that all three aspects and knowledge, skills, attitudes are significantly interrelated and play a crucial role in ensuring the effectiveness of inclusive mathematics teaching. Therefore, a holistic approach, such as professional training and continuous support, should be provided to teachers to simultaneously enhance all three aspects.

Implications of the Study

The implications of this study provide several important recommendations to strengthen the implementation of inclusive education programs, particularly in mathematics teaching. The study findings indicate that teachers' knowledge, skills, and attitudes are at a high level; however, some aspects, such as techniques for managing students with special needs and seating arrangements, require improvement. This suggests that continuous professional development is necessary to ensure teachers receive adequate exposure to more effective inclusive teaching methods.

Furthermore, the significant relationship between teachers' knowledge, skills, and attitudes towards inclusive mathematics teaching emphasizes the importance of a holistic approach in teacher training. As suggested by Safiek (2021), studies involving a larger number of teachers, with a focus on factors influencing their readiness, are critical. Support through the provision of relevant and contextual teaching materials is also necessary, especially for teachers in rural areas who face resource constraints.

This study also suggests that collaboration among teachers is a valuable medium for sharing best practices in inclusive teaching. Rathaneswaary and Ruhizan (2022) emphasize that understanding the challenges faced by special education teachers is a crucial step in improving support for them. Overall, the implications of this study show that the success of inclusive education depends on comprehensive teacher professional development, adequate resource provision, and collective cooperation between teachers, administrators, and other stakeholders.

Conclusion

The implementation of inclusive mathematics teaching in Malaysia is not an easy task. Mainstream teachers need to learn extensively about inclusive learning. This is due to the fact that teachers, who are responsible for ensuring the success of educational programs, must be open to any changes. Ultimately, for a support program to succeed, many people need to collaborate and support one another. This is especially relevant to the implementation of inclusive mathematics teaching.

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