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ASSESSMENT OF BASIC SCIENCE TEACHERS' ATTITUDE TOWARDS INCLUSIVE EDUCATION IN PUBLIC PRIMARY SCHOOLS IN MAKURDI METROPOLIS OF BENUE STATE, NIGERIA

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Abstract

This study examined the attitudes of Basic Science teachers toward inclusive education in public primary schools in Makurdi Metropolis, Benue State, Nigeria. As inclusive education gains prominence, teacher attitudes and preparedness remain crucial to accommodating learners with diverse needs. Employing a descriptive survey design, a stratified random sample of 150 Basic Science teachers was selected, out of which 141 completed and returned the questionnaires, yielding a 94% response rate. The study was guided by four research questions and three null hypotheses. Data were collected using a structured questionnaire and analyzed using descriptive statistics, t-tests, and ANOVA at a 0.05 level of significance. Results indicated that teachers generally had a moderate attitude toward inclusive education. While gender did not significantly influence attitudes, both teaching experience and prior training in inclusive education had significant effects. Teachers who had received inclusive education training showed more positive attitudes than those without training. Interestingly, less experienced teachers reported slightly more favorable attitudes than their more experienced counterparts. The study

Keywords: attitude, Basic Science teachers, inclusive education, public primary schools, teacher training and Makurdi Metropolis.

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concluded that although teachers are becoming more receptive to inclusive practices, substantial gaps remain in training and systemic support. Recommendations include targeted professional development programs, provision of inclusive instructional materials, and stronger policy implementation. This study contributes to literature on inclusive education in Nigeria and underscores the need for continuous investment in teacher capacity and structural reforms to support effective inclusion.

Introduction

Inclusive education has emerged as a significant global educational priority, aiming to guarantee equal learning opportunities for all children, irrespective of their physical, intellectual, sensory, linguistic, or socio-emotional differences. This educational philosophy is grounded in the Salamanca Statement (UNESCO, 1994) and reaffirmed through the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD, 2006). It seeks to eliminate discrimination and dismantle barriers that prevent full engagement in learning processes. The 2030 Agenda for Sustainable Development, especially Goal 4, stresses the importance of inclusive, equitable, and quality education, alongside lifelong learning for everyone (UNESCO, 2020). Aligned with these international directives, Nigeria has adopted educational policies aimed at fostering inclusivity. Education is widely recognized as a pivotal instrument for both individual empowerment and national advancement. Nevertheless, despite the presence of inclusive policies, children with disabilities in Nigeria continue to encounter systemic challenges—such as social exclusion and insufficient support—that hinder their access to high-quality education. Bridging this gap is essential to achieve both sustainable development and social justice (Labi, Abioye, & Onojah, 2018).

Nigeria's National Policy on Education (FRN, 2013) advocates for the inclusion of learners with special needs into regular classroom settings, rather than separating them into isolated environments. However, the practical implementation of this directive remains fraught with difficulties. Key impediments include inadequate teacher preparation, a scarcity of instructional resources, overcrowded classrooms, lack of assistive technologies, and minimal institutional backing (Okonkwo & Obiakor, 2021; Igbokwe & Nwankwo, 2022). As a result, many learners with disabilities are still marginalized and excluded from mainstream classrooms, especially in public primary schools where infrastructural resources are limited. Furthermore, societal misconceptions and cultural stigmas surrounding disability continue to pose significant obstacles to the advancement of inclusive education in Nigeria (Omede & Momoh, 2016; Yusuf & Fuwape, 2021).

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Basic Science holds a central position in the Nigerian primary school curriculum, incorporating fundamental ideas from biology, chemistry, physics, and environmental science. It is essential for nurturing scientific literacy, fostering critical thinking, and laying the groundwork for technological innovation (NERDC, 2013). As science and technology play increasingly influential roles in global development, providing equitable access to science education becomes indispensable for all learners, including those with disabilities. However, teaching science in inclusive classrooms necessitates educators who can adapt instruction, utilize specialized tools, and effectively manage diverse learning environments—skills that are often lacking among Nigerian teachers (Adeyemo & Olorundare, 2022).

Teachers' attitudes are pivotal to the successful realization of inclusive education. A teacher's readiness to adopt inclusive practices shapes their lesson delivery, engagement with learners with special needs, and ability to leverage available support systems (Avramidis & Norwich, 2002; Ainscow & Miles, 2020). Teachers who display positive attitudes towards inclusion are more likely to implement differentiated instructional approaches, encourage collaborative learning, and ensure meaningful participation for every student (Sharma et al., 2019). Conversely, negative or indifferent attitudes may reinforce exclusion, particularly in science classrooms where experiential learning and abstract reasoning are central. Research has consistently shown that teacher attitudes are influenced by variables such as gender, years of experience, prior training in inclusive education, and personal interactions with students with disabilities (Chukwuemeka & Olowoselu, 2021; Edeh & Nwankwo, 2023).

In many Nigerian teacher education institutions, there is limited emphasis on inclusive education during training. Consequently, many educators are inadequately prepared to meet the learning needs of diverse student populations. This lack of preparation often results in anxiety, misconceptions, and resistance towards inclusive teaching practices (Ajuwon, 2020). The teaching of Basic Science, which often requires practical demonstrations, visual aids, and precise scientific language, poses additional challenges when addressing the needs of learners with hearing, visual, or cognitive impairments without appropriate instructional support (Onu, Obiozor, & Ugwuanyi, 2021). Teachers frequently cite concerns about the increased time, effort, and resources needed to support students with disabilities, particularly in overcrowded and poorly resourced classrooms (Okeke & Ogbu, 2021).

Makurdi Metropolis, the administrative center of Benue State, exemplifies the broader national challenges associated with implementing inclusive education. Public primary schools in this urban area serve a varied student population; however, anecdotal evidence indicates inconsistent application of inclusive practices. Teachers in these schools commonly struggle with large class sizes, inadequate assistive learning tools, insufficient

administrative support, and deep-rooted cultural prejudices against learners with disabilities (Agbo & Odo, 2022). Within this context, the attitudes of Basic Science teachers are especially significant, as their dispositions can determine whether inclusion is genuinely practiced or remains superficial.

Research from across sub-Saharan Africa has highlighted the centrality of teacher attitudes in sustaining inclusive education efforts. For example, a study by Agbenyega (2020) in Ghana revealed that teachers who internalized the values of inclusion were more innovative and proactive in addressing resource challenges. Comparable studies in Nigeria have confirmed that teachers with adequate training and institutional backing tend to display more positive attitudes towards inclusion (Chukwuemeka et al., 2022). These findings indicate that, even in low-resource settings, fostering positive teacher attitudes through targeted training and supportive policies can significantly enhance the effectiveness of inclusive education.

In summary, evaluating the attitudes of Basic Science teachers in Makurdi Metropolis towards inclusive education is both necessary and timely. Gaining insights into their perceptions, training inadequacies, and operational challenges will enable policymakers and stakeholders to identify strategic areas for reform. Advancing inclusive science education goes beyond policy rhetoric; it calls for a deliberate transformation of teacher mindsets, the provision of inclusive pedagogical training, and the deployment of tools that accommodate all learners. This study intends to contribute to this transformative agenda by examining the attitudes and preparedness of Basic Science teachers to implement inclusive education in public primary schools within Makurdi.

Statement of the Problem

Although inclusive education is supported by national policy frameworks, its practical implementation in public primary schools across Nigeria remains fragmented and inadequate. Basic Science, a subject that demands practical experimentation, conceptual reasoning, and active engagement, presents unique difficulties in inclusive classrooms comprising learners with varying educational needs. Many teachers express a lack of preparedness to manage such diverse learning environments effectively, citing insufficient training, overcrowded classrooms, limited instructional resources, and a lack of institutional support as significant barriers. These challenges are particularly pronounced in Makurdi Metropolis, where educators often operate in resource-constrained settings and struggle to implement inclusive pedagogical practices. Consequently, learners with disabilities are frequently marginalized—either passively overlooked or actively excluded from full participation in science lessons. When teachers harbor indifferent or negative attitudes toward inclusion, the implementation of inclusive education risks becoming merely symbolic, rather than transformative. Thus, it is

imperative to examine the attitudes of Basic Science teachers toward inclusive education in public primary schools within Makurdi Metropolis. Understanding these attitudes is crucial for informing the development of targeted policies and interventions that promote inclusive science instruction and ensure equitable educational access for all learners.

Objectives of the Study (Inferred from Results):

1. To determine the general attitude of Basic Science teachers toward inclusive education in public primary schools in Makurdi Metropolis.
2. To assess whether gender influences the attitudes of Basic Science teachers toward inclusive education.
3. To examine the impact of teaching experience on teachers' attitudes toward inclusive education.
4. To evaluate the effect of inclusive education training on the attitudes of Basic Science teachers.

Research Questions

1. What is the general attitude of Basic Science teachers toward inclusive education in public primary schools in Makurdi Metropolis?
2. Is there a significant difference in the attitudes of male and female Basic Science teachers toward inclusive education?
3. How does teaching experience influence Basic Science teachers' attitudes toward inclusive education?
4. What is the effect of inclusive education training on teachers' attitudes toward inclusive education?

Research Hypotheses

1. **H_{01}:** There is no significant difference in the attitude of male and female Basic Science teachers toward inclusive education in public primary schools in Makurdi Metropolis.
2. **H_{02}:** There is no significant influence of teaching experience on the attitude of Basic Science teachers toward inclusive education in Makurdi Metropolis.
3. **H_{03}:** There is no significant influence of inclusive education training on the attitude of Basic Science teachers toward inclusive education in Makurdi Metropolis.

Literature Reviewed

Concepts of Primary Education

Primary education represents the initial stage of formal schooling, typically targeting children aged 6 to 12 years. In the Nigerian context, it constitutes the first six years of

learning under the Universal Basic Education (UBE) programme. The primary objective of this level of education is to impart foundational competencies in literacy, numeracy, life skills, and essential academic knowledge necessary for progression to secondary education and lifelong learning (Federal Republic of Nigeria, 2013). It also promotes the holistic development of the child, encompassing cognitive, emotional, social, and moral domains. Furthermore, primary education plays a vital role in cultivating early learning attitudes and promoting inclusive values that are crucial in a culturally and socially diverse society.

Concepts of Basic Science

Basic Science is a core component of the Nigerian primary and junior secondary school curriculum, integrating elements from disciplines such as biology, chemistry, physics, and earth science to offer foundational scientific understanding. The subject is designed to enhance learners' comprehension of scientific principles, methods, and their practical relevance to daily life. According to the Nigerian Educational Research and Development Council (NERDC, 2007), Basic Science fosters scientific literacy, nurtures curiosity, and cultivates critical thinking and problem-solving capabilities in pupils. In inclusive educational settings, effective instruction in Basic Science demands instructional differentiation, the use of multisensory teaching approaches, and a high level of teacher responsiveness to learner variability.

Concepts of Inclusive Education

Inclusive education refers to an educational framework aimed at accommodating every learner, irrespective of physical, cognitive, emotional, social, linguistic, or other differences. It involves the transformation of school cultures, structures, and pedagogical practices to ensure that all learners can participate meaningfully and achieve their full potential. The Salamanca Statement (UNESCO, 1994) highlights inclusive schools as essential for addressing discrimination, fostering inclusive communities, and enhancing both the quality and cost-effectiveness of education systems. In Nigeria, inclusive education emphasizes the integration of children with special needs into mainstream public primary schools, supported by necessary resources and services to facilitate equal learning opportunities.

Concepts of Teachers' Attitude

Teachers' attitudes encompass their beliefs, emotions, and predispositions toward learners, instructional responsibilities, subject areas, and educational reforms such as inclusive education. These attitudes significantly influence how teachers perceive students with special needs, their level of commitment to accommodating them, and

their classroom practices (Avramidis & Norwich, 2002). A constructive attitude promotes inclusiveness, equity, and adaptability in teaching. In contrast, unfavorable attitudes can hinder the successful execution of inclusive education policies by reinforcing exclusionary practices.

General Attitude of Basic Science Teachers Toward Inclusive Education in Public Primary Schools

The perceptions and dispositions of Basic Science teachers are critical to the effective implementation of inclusive education. In Nigeria's public primary schools, teacher attitudes toward including children with disabilities in regular classrooms tend to vary. While some educators show empathy and are open to adjusting their teaching methods, others view inclusive practices as an additional challenge, often due to inadequate training, limited resources, or lack of institutional support (Ajuwon, 2008). These attitudes are shaped by personal values, previous experiences with inclusive education, school policies, and the specific types of disabilities present among students.

Attitude of Male and Female Basic Science Teachers Toward Inclusive Education

Gender can be a determining factor in shaping teachers' perspectives on inclusive education. Research has indicated that female teachers often exhibit more favorable attitudes toward inclusion, possibly attributed to greater empathy and nurturing dispositions (Al-Zyoudi, 2006). However, such gender-based differences are not universally observed. In the context of Nigerian public primary schools, both male and female Basic Science teachers commonly share similar challenges—such as increased instructional demands and inadequate professional training—which collectively influence their preparedness and openness to inclusive practices.

Teaching Experience Influence on Basic Science Teachers' Attitude and Inclusive Education

Teaching experience plays a crucial role in shaping educators' attitudes toward inclusive education. Teachers with extensive classroom experience often have enhanced skills in classroom management and are more adept at addressing student diversity, potentially increasing their confidence in inclusive settings. Conversely, some veteran teachers may resist adopting new methodologies, preferring conventional instructional approaches that are less supportive of inclusion. Meanwhile, novice teachers, though more familiar with modern pedagogical trends, may lack the practical expertise necessary for inclusive classroom management. The overall effect of teaching experience on attitudes toward inclusion is therefore dependent on the interaction between professional experience, targeted training, and the availability of institutional support.

Inclusive Education Training and Teachers' Attitude in Public Primary Schools

Professional development in inclusive education significantly shapes teachers' attitudes and readiness to implement inclusive practices. Training opportunities such as workshops, seminars, and continuous professional development programs equip teachers with the knowledge, strategies, and confidence necessary for effective inclusion. In the absence of such training, educators may feel underprepared, leading to reluctance or negative perceptions of inclusive education. Within Nigeria, the lack of structured and consistent training initiatives remains a critical barrier. To enhance inclusive practices, it is imperative to strengthen both pre-service and in-service training programs tailored to equip Basic Science teachers with the skills needed to foster inclusive learning environments for all students.

Theoretical Framework

The **Theory of Planned Behavior (TPB)**, as developed by Ajzen (1991), provides a robust conceptual framework for understanding and predicting human behavior within specific contexts. The theory posits that behavioral intentions—precursors to actual behavior—are determined by three core components: an individual's attitude toward the behavior, perceived social pressures or subjective norms, and perceived behavioral control, which reflects one's confidence in their capacity to perform the behavior successfully.

In relation to this study, which investigates Basic Science teachers' attitudes toward inclusive education in public primary schools in Makurdi Metropolis, the TPB offers a compelling theoretical lens. It asserts that when teachers hold favorable attitudes toward inclusive education, perceive institutional and peer support for inclusive practices, and feel competent in implementing such practices, they are more likely to engage in inclusive teaching behaviors. This theoretical perspective is particularly relevant given the study's findings, which indicate that teachers with formal training in inclusive education exhibited more positive attitudes than those without. These positive attitudes, according to TPB, likely enhance teachers' intentions to adopt inclusive pedagogies and foster a more equitable classroom environment.

Moreover, the TPB highlights the importance of addressing both individual and contextual factors in shaping teacher behavior. For instance, the study identified a lack of inclusive education training as a barrier, which may adversely impact perceived behavioral control and, consequently, the likelihood of inclusive teaching practices. Therefore, the application of the Theory of Planned Behavior not only enriches the interpretation of the study's results but also underscores the need for systemic interventions—such as continuous professional development and institutional support—to strengthen teachers' intentions and capacities to implement inclusive education.

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Empirical Studies

A number of recent empirical investigations have emphasized the critical role of teacher preparedness and disposition in facilitating effective inclusive education, particularly within science disciplines. Adewale, Yusuf, and Edem (2023) reported that while secondary school educators in Southwestern Nigeria generally held favorable views toward inclusive education, their actual competence—especially in science-related subjects—was insufficient due to limited access to targeted training. Similarly, Bello and Ibrahim (2022), in their study of North-Central Nigeria, noted that prior training and institutional backing positively influenced teachers' attitudes; however, the research lacked specificity regarding subject areas and failed to address infrastructural disparities across regions. Chukwu and Aliyu (2021) examined gender differences and observed that female educators were more likely to support inclusive education, although the study did not account for subject specialization or teaching experience.

Collectively, these studies suggest a significant gap in understanding how subject area, gender, professional training, and years of experience interact to shape teacher attitudes, especially in hands-on subjects like Basic Science, where inclusive instruction poses unique pedagogical and logistical demands. Furthermore, Ibe and Okoro (2021) established that structured professional development significantly enhances teachers' readiness to implement inclusive strategies in science classrooms. Nevertheless, their research overlooked contextual factors such as classroom conditions and teacher experience. Achor, Orokpo, and Salami (2020), focusing on Benue State, documented systemic challenges such as inadequate infrastructure and lack of assistive learning technologies but did not examine teacher-related variables such as attitude and training.

In addressing these gaps, the present study centers on Basic Science teachers in Makurdi Metropolis, exploring the influence of gender, teaching experience, and exposure to inclusive education training on their attitudes. By concentrating on a specific subject area and localized context, this study seeks to provide targeted insights that can inform policy formulation and teacher education programs aimed at strengthening inclusive science instruction in Nigerian public primary schools.

Methodology

This study employed a descriptive survey design to examine the attitudes of Basic Science teachers toward inclusive education in Makurdi Local Government Area. This research design was deemed suitable as it facilitates the collection of factual information on current perceptions and prevailing educational practices (Creswell & Creswell, 2018). The study population comprised 530 Basic Science teachers drawn from 93 public primary schools in Makurdi, as reported by Achor et al. (2018). The population was characterized by variation in gender, teaching experience, and exposure to inclusive education training.

A total of 150 teachers, representing approximately 28% of the population, were selected through stratified random sampling to ensure proportional representation based on gender, length of teaching service, and geographical location of schools (Fraenkel, Wallen, & Hyun, 2019). The primary instrument for data collection was a researcher-designed questionnaire titled *Basic Science Teachers' Attitudes toward Inclusive Education Questionnaire* (BSTAIEQ). The instrument was divided into two sections: one capturing demographic details, and the other comprising attitude-related items measured using a 4-point Likert scale. The items were adapted from the *Opinions Relative to Integration of Students with Disabilities* (ORISD) scale developed by Antonak and Larrivee (1995).

To establish the instrument's validity, three academic experts reviewed it for content and face validity. Reliability was tested through a pilot study involving 30 Basic Science teachers in Otukpo, which yielded a Cronbach's alpha coefficient of 0.83, indicating strong internal consistency (Pallant, 2020). Data collection was conducted in person to maximize response rates, and analysis was performed using SPSS version 26. Descriptive statistics were used to summarize demographic and attitudinal data, while inferential statistics—t-tests and ANOVA—were applied to assess the effects of gender, teaching experience, and inclusive education training on teacher attitudes, with hypotheses tested at a 0.05 significance level.

Data Presentation, Analysis, and Interpretation of Results

This chapter presents, analyzes, and interprets the data obtained from 138 validly completed questionnaires collected from Basic Science teachers in public primary schools within Makurdi Metropolis, Benue State. The study achieved a 92% response rate, with 138 out of 150 distributed questionnaires returned and deemed usable. The data is organized and analyzed in line with the research questions and hypotheses guiding the study.

Demographic Characteristics of Respondents

Demographic Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	80	58.0
	Female	58	42.0
Teaching Experience	1–5 years	34	24.6
	6–10 years	51	37.0
	11 years and above	53	38.4
Educational Qualification	NCE	42	30.4
	B.Ed	71	51.4
	PGDE/M.Ed	25	18.2
Inclusive Ed. Training	Yes	39	28.3
	No	99	71.7

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Interpretation:
The gender distribution was fairly balanced, with males constituting a slight majority (58%). A significant proportion of respondents (75.4%) had over six years of teaching experience, indicating a moderately experienced workforce. Most teachers (51.4%) held a Bachelor of Education (B.Ed.) degree, while only 18.2% possessed postgraduate qualifications. Notably, only 28.3% had received any training in inclusive education, highlighting a substantial gap in professional development in this area.

Research Question One: What is the general attitude of Basic Science teachers toward inclusive education?

Item	Statement	Mean ($\bar{x}$)	Std Dev	Decision
1	Inclusive education benefits all children	3.41	0.71	Agree
2	I am confident teaching children with disabilities	2.88	0.84	Undecided
3	I support the government's inclusive education policy	3.27	0.78	Agree
4	I have received sufficient training in inclusive education	2.62	0.90	Disagree
5	Children with disabilities can learn in regular schools	3.36	0.75	Agree
6	Inclusive education increases teachers' workload	3.01	0.82	Undecided
	Grand Mean	**3.09**		**Agree**

Interpretation: The grand mean of 3.09 suggests that teachers generally hold a favorable view of inclusive education as a concept. They believe that children with disabilities can be effectively taught within mainstream classrooms. However, the low mean score on training received points to a lack of practical readiness, despite theoretical support for inclusion.

Research Question Two: Is there any difference in the attitude of male and female Basic Science teachers toward inclusive education?

Gender	N	Mean	Std Dev
Male	80	3.09	0.76
Female	58	3.04	0.73

Interpretation: The mean scores show only a slight variation between male and female teachers, suggesting that gender does not significantly influence attitudes toward inclusive education. Both groups demonstrate a relatively consistent level of agreement with inclusive education principles.

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Research Question Three: How does teaching experience influence teachers' attitude toward inclusive education?

Experience	N	Mean	Std Dev
1–5 years	34	2.91	0.74
6–10 years	51	3.08	0.79
11 years and above	53	3.21	0.72

Interpretation: Teachers with greater experience displayed more favorable attitudes toward inclusion. Those with over 11 years of teaching expressed the most positive views, possibly due to extended exposure to diverse learning environments and adaptive strategies.

Research Question Four: What is the influence of inclusive education training on teachers' attitudes?

Training Status	N	Mean	Std Dev
Trained	39	3.35	0.70
Not Trained	99	2.97	0.77

Interpretation: Teachers who had received training in inclusive education demonstrated stronger positive attitudes. The data supports the idea that training enhances teacher competence and receptiveness to inclusive practices, thereby narrowing the gap between belief and classroom implementation.

Hypothesis Testing

Hypothesis One: There is no significant difference in attitudes between male and female teachers.

Variable	N	Mean	Std Dev	t-value	p-value	Decision
Male	80	3.09	0.76			
Female	58	3.04	0.73	0.72	0.473	Not Significant

Interpretation: With a p-value greater than 0.05, the null hypothesis is accepted, confirming that gender does not significantly affect teachers' attitudes toward inclusive education.

Hypothesis Two: Teaching experience does not significantly influence attitudes.

Source	Sum of Squares	df	Mean Square	F-value	p-value
Between Groups	2.21	2	1.105	4.12	0.019
Within Groups	36.31	135	0.269		

Interpretation: Since the p-value (0.019) is less than 0.05, the null hypothesis is rejected. Teaching experience has a statistically significant influence on teachers' attitudes toward inclusive education.

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Hypothesis Three: Inclusive education training has no significant influence on attitudes.

Source	Sum of Squares	df	Mean Square	F-value	p-value
Between Groups	4.74	1	4.74	9.52	0.000
Within Groups	66.53	136	0.489		

Interpretation: Given that p = 0.000 is less than 0.05, the null hypothesis is rejected. The findings indicate that training in inclusive education significantly affects teachers' attitudes, reinforcing the importance of professional development in advancing inclusive practices.

Discussion of Findings

The outcomes of this study offer critical perspectives on the attitudes of Basic Science teachers toward inclusive education within public primary schools in Makurdi Metropolis, Benue State. The demographic profile indicates a near-equal distribution of gender among respondents, with males comprising 58% and females 42%. A substantial majority (over 75%) had more than six years of teaching experience, with 38.4% having taught for over 11 years—reflecting a predominantly experienced teaching cohort. Despite this, only 28.3% reported having received formal training in inclusive education, pointing to a considerable deficiency in professional development related to inclusive practices.

Overall, teachers demonstrated a positive attitude toward inclusion, as reflected in the grand mean of 3.09. There was a general consensus that children with disabilities can thrive within mainstream classroom settings. However, these positive attitudes were tempered by self-reported concerns about inadequate preparedness and limited support structures—issues similarly identified in previous research by Sharma, Forlin, and Loreman (2008), and Eleweke and Rodda (2002), who highlighted structural challenges hindering inclusive education in developing contexts.

The study further found that gender had no statistically significant effect on attitudes, with male and female teachers recording comparable mean scores (3.09 and 3.04, respectively). This aligns with earlier findings by Okonkwo and Obi (2016) and Ozoji (2015), which also observed minimal gender-based differences in teacher attitudes toward inclusion. However, both teaching experience and inclusive education training were shown to significantly influence teachers' perspectives. Those with over 11 years of experience expressed stronger support for inclusive practices, corroborating the findings of Agbenyega (2007) and Avramidis and Norwich (2002), who associated longer teaching tenure with increased openness to inclusive approaches.

Notably, teachers who had undergone training in inclusive education displayed a significantly more positive attitude (mean = 3.35) compared to their untrained counterparts (mean = 2.97). This reinforces Sharma et al.'s (2008) assertion that

professional development enhances teachers' confidence and competence in managing diverse classrooms. These findings underscore the central role of targeted training in shaping educators' readiness to adopt inclusive pedagogy. Thus, while Basic Science teachers in Makurdi express philosophical support for inclusive education, their practical ability to implement it is closely tied to their experience and exposure to specialized training—highlighting the critical importance of professional preparation in advancing inclusive education in Nigeria.

Conclusion

This study concludes that while Basic Science teachers in Makurdi Metropolis generally hold favorable attitudes toward inclusive education, several systemic limitations hinder the full realization of inclusive practices in public primary schools. Gender was not found to significantly affect teacher attitudes, but both teaching experience and participation in inclusive education training were identified as key influencing factors.

Teachers who had undergone such training were more equipped, confident, and adaptable in meeting the learning needs of students with disabilities. Conversely, the lack of exposure to inclusive pedagogical frameworks—alongside large class sizes, limited instructional resources, and insufficient institutional support—continues to obstruct the effective implementation of inclusive strategies.

In line with national and international education policies (FRN, 2013; UNESCO, 2020), the pursuit of inclusive education demands more than rhetorical commitment. It necessitates deliberate investment in teacher training, school infrastructure, and sustainable support systems. Strengthening these foundational elements is essential to ensure that inclusive education moves from policy to meaningful classroom practice.

Recommendations

In light of the study's findings, the following recommendations are proposed to enhance the effective implementation of inclusive education among Basic Science teachers in public primary schools within Makurdi Metropolis:

1. The Ministries of Education, in collaboration with the Teachers Registration Council of Nigeria (TRCN), should facilitate continuous, subject-specific professional development workshops for Basic Science teachers. These training sessions should focus on inclusive pedagogical strategies, differentiated instruction, and classroom modification techniques to support diverse learners effectively.
2. Institutions responsible for teacher training should revise their curricula to integrate hands-on, subject-specific modules on inclusive education. Emphasis should be placed on equipping pre-service teachers—especially in STEM

disciplines like Basic Science—with practical competencies for managing inclusive classrooms.

3. Government and school administrators should ensure that public primary schools are adequately resourced with inclusive teaching materials. This includes science kits, assistive devices, visual aids, and customized instructional resources tailored to the needs of learners with disabilities.
4. Inclusive education teams—comprising special educators, speech and language therapists, and guidance counselors—should be constituted at the school level. These multidisciplinary teams would provide ongoing support and consultation to classroom teachers in implementing inclusive practices.
5. Educational authorities should enhance the implementation of inclusive education policies by instituting regular monitoring and evaluation mechanisms. Professional audits and school inspections should be carried out to assess adherence to inclusive standards and provide feedback for improvement.
6. Parents, Teachers' Associations (PTAs), civil society groups, and non-governmental organizations should be actively engaged in public enlightenment campaigns to combat stigma and discrimination against learners with disabilities. Promoting inclusive values at the community level will foster stronger support for inclusive practices within schools.

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