



EXAMINING CONTEMPORARY CHALLENGES TO INCLUSIVE EDUCATION IMPLEMENTATION IN RURAL PUBLIC SENIOR SECONDARY SCHOOLS IN KATSINA STATE, NIGERIA

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ABSTRACT: *The study examined contemporary challenges to inclusive education implementation across rural public senior secondary schools across the three senatorial districts (Katsina Central - KC, Katsina South - KS and Katsina North - KN) of Katsina State. A descriptive survey design was employed in the study. Structured questionnaire was used to collect data on socioeconomic characteristics, resource implementation, involvement, and challenges from 210 teachers sampled using multistage sampling procedure. Frequency counts, means, standard deviation, ANOVA, and multiple linear regression were employed in data analysis. Results revealed that the respondents were predominantly males (72.9%) with bachelor's degrees (66.2%) and moderate teaching experience. The majority (67.1%) had no special education training, with only 30.5% attending workshops. The implementation result revealed poor resource availability with 98.6%, 98.1% and 96.2% lacking braille materials, hearing aids, and assistive technology devices, respectively. Overall (40.5%), implementation level was low. Involvement was worrisome, with 80.5% never advocating for inclusive resources and 75.7% not engaging in professional development. District-level analysis revealed significant variations with KS (77.8%) having low implementation and 73% low involvement, while KC showed better performance with 50% high implementation level. Key challenges included inadequate funding (84.3%), poor policy implementation (84.8%), insufficient teacher training (78.1%), and shortage of specialists (81%). Regression analysis indicated that gender, teaching experience, and education level influenced implementation, with female teachers showing better implementation outcomes. Advanced education (M.Ed) improved theoretical understanding but created a theory-practice gap in practical skills application. Substantial implementation gaps existed between inclusive education policies and practice in rural Katsina State schools. Critical challenges include inadequate resources, limited teacher training, poor stakeholder involvement, and significant district-level disparities. It is recommended that targeted interventions on funding mechanisms, teacher training programmes, resource provision, and district-specific implementation strategies should be pursued by the state government.*

KEYWORDS: Inclusive education, rural schools, involvement, implementation, challenges.



INTRODUCTION

Inclusive education represents a fundamental shift in educational philosophy and practice, emphasizing the right of all children to access quality education regardless of their physical, intellectual, social, or other conditions (UNESCO, 2023). This paradigm promotes educational environments where diversity is valued and all learners, including those with special educational needs, are accommodated within mainstream educational settings. In Nigeria, particularly rural public senior secondary schools in Katsina State, the implementation of inclusive education seems to be facing unique and complex challenges that require careful investigation.

It is obvious that Nigeria's commitment to inclusive education is anchored in various international agreements and national policies, including the ratification of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and the development of national inclusive education frameworks (Ayodeji, 2023). However, despite these policy commitments, significant gaps exist between theoretical frameworks and practical implementation. Rasheed (2014) examined whether inclusive education in Nigeria represents "a myth or reality," highlighting the disconnect between policy aspirations and ground-level realities. This disconnect is inadvertently pronounced in rural settings where infrastructure, resources, and capacity constraints are most acute.

The challenges facing inclusive education implementation in sub-Saharan Africa, including Nigeria, have also been identified to include inadequate infrastructure, insufficient funding, limited teacher training, and socio-cultural obstacles (Alexis et al. 2024), which collectively impede progress towards achieving Sustainable Development Goal 4 by 2030. Nwogu (2015) also provided a philosophical perspective on these barriers, emphasizing how structural inequalities have continued to limit educational opportunities for marginalized groups, including students with disabilities and those from disadvantaged backgrounds. The rural-urban divide further exacerbates these inequalities, with rural communities often lacking the basic infrastructure and specialized support services necessary for effective inclusive education implementation.

Teacher preparation and capacity development represent fundamental prerequisites for successful inclusive education implementation. Nwosu, Letzel-Alt, and Marcela (2025) have observed gaps in theoretical knowledge and practical application among Nigerian teachers. Their findings point to the need for enhanced pre-service and in-service teacher training programmes that adequately prepare educators for the realities of inclusive classroom management.

The digital divide and technological barriers present additional contemporary challenges to inclusive education implementation. Gideon, Seun, and Abiodun (2021) examined the effects of digital gaps on e-learning in rural secondary schools across Nigeria during the COVID-19 pandemic, revealing how technological disparities exacerbated existing educational inequalities. It is observed that technology presents opportunities for advancing inclusive education when appropriately implemented (Carmen del Río et al., 2025).

Understanding these contemporary challenges in Katsina State's rural public senior secondary schools is crucial if evidence-based strategies to improve inclusive education implementation is to be achieved. The state's predominantly rural setting, combined with the challenges facing



Nigeria's educational system in general, creates a complex environment where multiple barriers intersect to impede inclusive education progress. The study therefore was an attempt to examine these challenges with a view to providing informed policy development and implementation strategies not only for Katsina State but for similar contexts across Nigeria.

Statement of the Problem

Despite Nigeria's policy commitment to inclusive education, significant implementation challenges persist in rural public senior secondary schools, particularly in Katsina State. Ayodeji (2023) in this direction noted that while substantial gaps exist between theoretical commitments and practical implementation, Rasheed (2014) questioned whether inclusive education in Nigeria really represents genuine progress or is largely theoretical.

The problem seems to manifest through interconnected barriers ranging from teachers' inadequate preparation, infrastructure and digital deficit to gaps between theoretical knowledge and practical skills (Nwosu et al., 2025). Other contemporary challenges include access to both basic and specialized educational resources (UNICEF Nigeria, 2024)

It is against this background that the study examined the contemporary challenges that are facing inclusive education implementation in rural public senior secondary schools in Katsina State, where the intersection of policy-practice gaps, capacity constraints, resource limitations, and contextual factors may have been existing and creating barriers to achieving inclusive educational environments for all learners.

Objectives

The general objective of the study is to examine the contemporary challenges to inclusive education implementation in rural public senior secondary schools in Katsina State, Nigeria. The specific objectives include to:

1. assess teachers' level of involvement in implementing inclusive education
2. find out the level of implementation of inclusive education in Katsina State Senior Secondary Schools
3. identify the challenges to implementation of inclusive education in Katsina State Senior Secondary Schools.



LITERATURE REVIEW

The concept of inclusive education has evolved significantly in recent years, moving beyond traditional notions of special education integration to encompass a comprehensive framework that addresses diverse learning needs, cultural differences, and socioeconomic barriers (UNESCO, 2023). This expanded understanding has become particularly important in developing nations like Nigeria, where educational systems need to navigate multiple challenges while striving to meet international standards and commitments.

Rasheed (2014) provides a critical examination of inclusive education in Nigeria, questioning whether current efforts represent genuine progress or merely theoretical aspirations. This foundational critique establishes the persistent tension between policy development and practical implementation that continues to characterize Nigeria's inclusive education landscape. Rasheed (2014)'s analysis reveals that despite policy commitments, systemic challenges have continued to impede meaningful progress toward true inclusive educational environments.

From a historical perspective, Nigeria's approach to inclusive education is grounded in the policy frameworks that align with international best practices and commitments (Ayodeji, 2023). However, the translation of these policies into effective practice remains in doubt, particularly in rural contexts where implementation capacity is most limited. Ayodeji's work identifies several implementation challenges, including inadequate funding mechanisms, lack of clear implementation guidelines, poor coordination between federal and state authorities, and limited monitoring and evaluation systems.

The Education International (2024) study reinforces these findings, stressing that while Nigeria has made obvious policy progress, the bedrock of inclusion remains unstable due to persistent implementation gaps. The Education International (2024)'s analysis reveals further that policy development has outpaced implementation capacity, creating a disconnect between theoretical frameworks and practical realities in schools across the country.

Nwogu (2015)'s earlier study provides a philosophical perspective on the barriers to educational equality in Nigeria, arguing that systemic inequalities have continued to perpetuate exclusion despite policy commitments to inclusion. Nwogu (2015)'s analysis further noted how structural barriers, especially those affecting rural and marginalized communities, require approaches that should aggressively address the root causes rather than merely symptoms of exclusion.

Teacher preparation has also emerged as a fundamental prerequisite for successful inclusive education implementation. Nwosu, Letzel-Alt, and Marcela (2025) conducted comprehensive research on Nigerian student teachers' experiences in managing learners with special needs in inclusive classrooms. Nwosu et al. (2025)'s findings revealed significant gaps between theoretical knowledge gained during teacher preparation programs and the practical skills required for effective inclusive classroom management. This implies a need for enhanced practicum experiences and specialized training that prepare teachers for the realities of diverse classroom environments, particularly in resource-constrained settings typical of rural schools.

Physical infrastructure and learning resources play crucial roles in implementing inclusive education effectively. However, significant gaps exist in the provision of appropriate facilities and materials, particularly in rural areas. The challenges range from basic infrastructure



deficiencies and the absence of specialized resources required for supporting diverse learning needs (Gideon, Seun & Abiodun, 2021).

Gideon, Seun and Abiodun (2021), who examined the effects of digital gaps on e-learning in rural secondary schools across Nigeria during the COVID-19 pandemic, further revealed how technological disparities exacerbate existing educational inequalities and highlighted the critical importance of addressing digital inclusion as an integral component of broader inclusive education strategies. Their study demonstrated that rural schools face compound disadvantages, lacking both basic technological infrastructure and the specialized digital resources that could support inclusive learning environments.

Carmen del Río et al. (2025) provided a contrasting perspective through their systematic review of inclusive education through technology. While identifying potential for technological solutions to support inclusive education, their research also emphasizes the prerequisites of appropriate infrastructure and training that are often absent in rural contexts. This analysis presents the complex relationship between technological solutions and the foundational requirements for their effective implementation.

Financial constraint has also been a persistent challenge to inclusive education implementation. Resource allocation patterns often favour urban schools and basic educational provisions, leaving rural schools with inadequate funding for specialized inclusive education programs and services. Alexis et al. (2024), on challenges affecting quality education in sub-Saharan Africa, with specific attention to Sustainable Development Goal 4, identified funding constraints as the fundamental obstacle to inclusive education implementation, from infrastructure development to teacher training and programme support. UNICEF Nigeria (2024) provides additional context through their situation analysis of education in Nigeria, documenting continued challenges in ensuring universal access to quality education. Their findings emphasize that inclusive education cannot be separated from broader efforts to achieve universal primary and secondary education access.

Regional studies have provided valuable results into the specific manifestations of inclusive education challenges across different parts of Nigeria. Oluremi (2015), who examined inclusive education implementation in Southwestern Nigeria, questioned whether current efforts represent genuine progress or continued exclusion. Their work revealed patterns that are relevant for understanding similar challenges in other regions, including Katsina State of Northwestern Nigeria.

Respondents' Socioeconomic Characteristics

Table 1 presents respondents' socioeconomic characteristics from the three senatorial districts. The results revealed that overall, 39%, 35.7%, 21.9% and 3.3% were 36-45, ≤ 35 , 46-55 and > 55 years, respectively. KS had the youngest workforce with 44.4% aged ≤ 35 ; 51.2% in KC had between 36-45 age bracket while 7.9% in KN showed moderate age of > 55). Regarding educational qualification, overall, 66.2% had a Bachelor's degree (B.Ed), National Certificate in Education (NCE) (27.6%) and Master's degree (M.Ed) (6.2%). At a district level, KC led in advanced qualifications with 75% and 7.1% having B.Ed and M.Ed respectively. KS (39.7%) had the highest NCE representation while KN showed a balanced distribution with B.Ed (66.7%) and NCE (28.6%). Overall, 45.2% had teaching experience ≤ 10 . Senatorial districts'



results revealed that KN (50.8%) had the youngest teaching force with ≤ 10 years experience. KS recorded 25.4% with >20 years while KC showed a balanced experience mix. Gender distribution showed males (72.9%) and females (27.1%). Senatorial districts like KN showed extreme imbalance with males having 82.5%, KS had the best female representation with 34.9%, while KC fell between 28.6% females. Special education training results showed a critical result, such that, overall, the majority had no training (67.1%), workshop attendance (30.5%), certificate course (1.0%) or degree programme (1.4%). KS had the best training profile with 44.4%, and 52.4% with no training attended workshops. KC (78.6%) and KN (74.6%) had no training and limited workshop participation (20%).

Table 1: Respondents' socio-economic characteristics

Variable	KC	KN	KS	Overall
Age:				
≤ 35	29.8	34.9	44.4	35.7
36-45	51.2	36.5	25.4	39
46-55	17.9	20.6	28.6	21.9
>55	1.2	7.9	1.6	3.3
Educational Status:				
B.ED	75	66.7	54	66.2
M.ED	7.1	4.8	6.3	6.2
NCE	17.9	28.6	39.7	27.6
Teaching Experience:				
≤ 10	40.5	50.8	46	45.2
11-20	47.6	28.6	28.6	36.2
>20	11.9	20.6	25.4	18.6
Gender:				
Female	28.6	17.5	34.9	27.1
Male	71.4	82.5	65.1	72.9
Training in Special Education:				
Non	78.6	74.6	44.4	67.1
Workshop attendance	21.4	20.6	52.4	30.5
Certificate course	0	1.6	1.6	1
Degree programme	0	3.2	1.6	1.4

Implementation of Inclusive Education Resources

Table 2a shows the implementation status of inclusive education resources across the state. The results show that braille materials and equipment (98.6%), hearing aids and assistive listening devices (98.1%), assistive technology devices (96.2%), therapy spaces (94.8%), visual aids and large print materials (94.3%), communication boards (92.9%), emergency evacuation equipment (91.9%), specialized assessment tools (91.4%) and wide doorways and hallways (40.5%) were not implemented. Resources partially implemented included accessible library facilities (43.3%) and accessible playground areas (49.1%). The weighted means (1.02–1.83) indicate overall poor implementation. KC and KN showed higher weighted means, better than



KS (1.0). However, KS showed better performance only in basic infrastructure like doorways and ramps. Table 2b further presents results on the implementation levels of inclusive education resources, with KC (50%) and KN (60.3%) moderate profile; KS struggled with 77.8% at low implementation level while, overall, 40.5% had low implementation.

Table 2a: Implementation of inclusive education resources

Item	% Adeqt Impl Not adeqt				Weighted mean			
	Adeqt	Impl	Not adeqt	Patially	KC	KN	KS	Overall
Accessible computer workstations	0.5	2.4	71.4	25.7	1.29	1.43	1.32	1.34
Accessible library facilities and materials	1.4	6.2	43.3	49.1	1.93	1.89	1.22	1.7
Accessible playground/recreational areas	1.4	9.5	43.8	44.8	2.05	1.94	1.22	1.77
Accessible toilets/washrooms for students with disabilities	1	0.5	68.1	30.5	1.31	1.51	1.21	1.34
Adaptive physical education equipment	1	1	78.1	20	1.36	1.29	1.06	1.25
Assistive technology devices (keyboards, switches, software)	0.5	0.5	96.2	2.9	1.05	1.05	1.06	1.05
Braille materials and equipment	0.5	0	98.6	1	1	1.02	1.05	1.02
Communication boards and alternative devices	0.5	0	92.9	6.7	1.1	1.02	1.1	1.07
Dedicated resources room for specialized instruction	0.5	1	87.1	11.4	1.19	1.03	1.22	1.15
Emergency evacuation equipment for students with disabilities	0.5	0	91.9	7.6	1.15	1.02	1.05	1.08
Hearing aids and assistive listening devices	0.5	0	98.1	1.4	1.02	1.02	1.03	1.02
Modified furniture for students with physical needs	1	0	82.4	16.7	1.2	1.14	1.21	1.19
Modified instructional materials for different learning styles	0	1	73.8	25.2	1.31	1.4	1.13	1.28
Modified laboratory equipment for science classes	0.5	2.4	71.4	25.7	1.37	1.43	1.21	1.34
Specialized assessment tools for learning needs	0	0.5	91.4	8.1	1.12	1.05	1.11	1.1
Therapy spaces (speech, occupational, physical)	0	0.5	94.8	4.8	1.07	1.02	1.08	1.06
Visual aids and large print materials for visually impaired	0.5	0	94.3	5.2	1.11	1.02	1.05	1.06
Wheelchair-accessible ramps at school entrances	2.9	5.2	65.2	26.7	1.69	1.59	1.1	1.48
Wide doorways and hallways for wheelchair access	3.3	10	40.5	46.3	2.02	1.81	1.59	1.83

Key: **Adeqt** (Adequately implemented); **Impl** (Implemented); **Partially** (Partially implemented); **Not** (Not implemented)

**Table 2b: Categorization of implementation of inclusive education resource**

Variable	Category	KC (n=84)	KN (n=63)	KS (n=63)	Pooled (N=210)	Mean	SD	Min	Max
Implementation Level	Low	32.1	14.3	77.8	40.5	24.08	5.10	19	61
	Medium	17.9	60.3	9.5	28.1				
	High	50	25.4	12.7	31.4				

Involvement in Inclusive Resources Implementation

The result (Table 3a) reveals that overall (80.5%, 75.7%, 73.8%, 71.9%, 69.5%, and 61.4%) never advocated for inclusive support resources, engaged professional development, curriculum adaptation, IEP development, policy development, implemented differentiated teaching strategies for diverse learners and participate in training programmes, respectively. KC recorded the highest weighted mean across most activities (1.39–2.19) with particular reference to show better collaboration with specialists (2.19). KN recorded middle-range weighted means maintaining consistency with KC in some areas, like training participation. KS recorded the lowest weighted mean across all activities (1.06–1.60), particularly in curriculum adaptation (1.06) and professional development (1.10). Table 3b further reveals that KC had a polarized distribution of low involvement (42.9%), high involvement (41.7%), and moderate (15.5%) levels. KN displayed a balanced spread with low (42.9%), moderate (25.4%) and high (31.7%) involvement levels. KS showed the most concerning involvement pattern with low (73%) and only high (19%) levels. Overall results show low (51.9%), high (31.9%) and moderate (16.2%) levels.

Table 3a: Respondents' level of involvement in implementation

Items	% Always Never Rarely Sometimes				Weighted mean KC KN KS Overall			
Adaptation of curriculum materials for students with special needs	1	75.7	21.4	1.9	1.39	1.35	1.06	1.28
Advocacy for resources to support inclusive practices	0.5	80.5	12.9	6.2	1.4	1.22	1.13	1.27
Collaboration with special education specialists and support staff	2.4	46.7	16.7	34.3	2.19	1.98	1.51	1.92
Developing individualized education plans (IEPs)	2.9	73.8	16.7	6.7	1.48	1.33	1.32	1.39
Engagement in professional development focused on inclusion	0	80	13.3	6.7	1.36	1.32	1.1	1.27
Implementation of differentiated teaching strategies for diverse learners	1	69.5	22.9	6.7	1.55	1.48	1.1	1.39
Participation in inclusive education policy development at school level	1	71.9	20	7.1	1.52	1.43	1.11	1.37
Participation in inclusive education training programmes	5.2	61.4	23.3	10	1.58	1.59	1.6	1.59

**Table 3b: Categorization of involvement**

Variable	Category	KC (n=84)	KN (n=63)	KS (n=63)	Pooled (N=210)	Mean	SD	Min	Max
Involvement Level:	Low	42.9	42.9	73	51.9	11.48	3.39	8	27
	Medium	15.5	25.4	7.9	16.2				
	High	41.7	31.7	19	31.9				

Challenges to Implementation

The results as shown in Table 4a show inadequate funding (84.3%, weighted mean 3.8), poor policy implementation (84.8%), weighted mean 3.78), insufficient teacher training (78.1%, 3.71), and shortage of specialists (81%, 3.73) as the most severe challenges. Moderate challenges included inadequate infrastructure (32.9%, 3.23), limited parental involvement (36.7%, 3.04), distance barriers (27.6%, 2.9), and large class sizes (39.5%) while less severe constraints were cultural stigma (2.14). Senatorial districts' results revealed that KS had the highest severe weighted mean scores for most barriers, particularly in distance (3.29), infrastructure (3.73) and class sizes (3.43). KN had moderate severe funding (3.94), training (3.97), and policy (3.95) as challenges. KC had the least constraints with lower weighted means. Table 4b presents data on the level of challenges faced in implementing inclusive education across the three districts. The results revealed that KC had low (46.4%), moderate (29.8%) and high (23.8%) challenges. KN showed a balanced distribution with 41.3%, 41.3% and 17.5% having low, moderate and high challenges, respectively. KS faced the most severe constraints with 44.4%, 31.7% and 23.8% having low, moderate and high challenges, respectively. Overall results show low (38.1%), moderate (33.8%) and high (28.1%) challenge levels.

Table 4a: Respondents' challenges to implementation

Constraint	%				Weighted mean			
	Minor	Moderate	Not	Severe	KC	KN	KS	Overall
Cultural stigma in the community	48.6	18.6	23.3	9.5	2.15	2.08	2.19	2.14
Distance to school limiting access for students with disabilities	27.6	27.6	9	35.7	2.88	2.54	3.29	2.9
Inadequate funding	1.4	12.9	1.4	84.3	3.67	3.94	3.84	3.8
Inadequate physical infrastructure for accessibility	21	32.9	0.5	45.7	3.04	3.00	3.73	3.23
Insufficient teacher training in special education	2.9	17.1	1.9	78.1	3.62	3.97	3.59	3.71
Lack of assessment tools for diverse learning needs	3.3	18.6	1.0	77.1	3.56	3.89	3.76	3.72
Large class sizes impeding individualized attention	39.5	26.2	6.2	28.1	2.48	2.48	3.43	2.76
Limited availability of specialized teaching materials	3.8	20	0.5	75.7	3.64	3.73	3.78	3.71
Limited parental involvement	16.7	36.7	8.6	38.1	3.33	3.06	2.63	3.04
Poor implementation of inclusive education policy	2.4	11.0	1.9	84.8	3.6	3.95	3.86	3.78



Shortage of special education teachers/specialists	4.8	12.9	1.4	81	3.56	3.95	3.75	3.73
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Table 4b: Categorization of constraints to implementation

Variable	Category	KC (n=84)	KN (n=63)	KS (n=63)	Overall (N=210)	Mean	SD	Min	Max
Challenges Level	Low	46.4	41.3	23.8	38.1	36.47	4.71	11	44
	Medium	29.8	41.3	31.7	33.8				
	High	23.8	17.5	44.4	28.1				

Multiple Linear Regression Analysis on Determinants

Table 5 presents regression analysis results of factors that influenced the implementation of inclusive education across the three districts and overall. The result revealed that age in KC showed positive effect ($\beta = 0.29$, $p < 0.05$) with no significant relationship in KN, KS, and overall. Teaching experience overall also showed a small but negative effect ($\beta = -0.01$, $p < 0.01$) while KC, KN and KS had no significant effects. Overall, gender ($\beta = -0.01$, $p < 0.01$) showed small negative significant effects ($\beta = -0.01$, $p < 0.01$) while no significant effects were recorded across the districts. Male teachers show lower overall inclusive education implementation compared to female teachers. For implementation composite, weak negative relationship ($\beta = -0.198$, $p < 0.05$) prevailed. KS ($\beta = -0.697$, $p < 0.001$) showed strong a negative relationship while no significant effects was shown in KC and KN. Overall, involvement composite marginally had a significant negative effect ($\beta = -0.179$, $p < 0.10$). KC had a negative significant effect ($\beta = -0.396$, $p < 0.05$), while no significant effect was recorded in KS and KN. Education Level (M.ED) showed a large positive significant effect in KC ($\beta = 3.85$, $p < 0.05$) while NCE had a marginally significant negative effect ($\beta = -1.8$, $p < 0.10$) in KN and a marginally significant positive effect ($\beta = 3.19$, $p < 0.10$) in KS.

Table 5: Determinants of inclusive education implementation

Variable	KC	KN	KS	Overall
Intercept	34.092(4.774)** *	34.289(5.708)* **	38.572(253.073)	44.091(4.755)** *
Age (years)	0.29(0.122)*	-0.026(0.111)	0.171(0.139)	0.066(0.042)
Teaching Experience	-0.151(0.105)	-0.059(0.127)	0.003(0.126)	-0.01(0.003)**
Implementation Composite	-0.109(0.131)	0.123(0.15)	-0.697(0.186)***	-0.198(0.083)*
Involvement Composite	-0.396(0.162)*	0.169(0.145)	0.224(0.191)	-0.179(0.1)†
Gender (Male vs Female)	-1.373(1.183)	-1.446(0.99)	-1.087(1.019)	-1.578(0.683)*
Education: M.ED	3.85(1.883)*	-0.559(1.9)	-7.143(1.968)***	-0.617(1.218)
Education: NCE	0.894(1.296)	-1.8(0.997)†	3.19(1.68)†	0.762(0.799)
Training: Non	0.122(1.257)	0.871(3.031)	4.227(255.185)	-2.649(4.221)
Training: Degree		-3(3.886)	25.832(254.49)	1.499(5.01)
Training: `Workshop		0.537(3.049)	6.368(255.173)	-1.448(4.229)
R squared	0.277	0.181	0.683	0.264



Adj_R_squared	0.2	0.023	0.622	0.227
F_statistic	3.588	1.147	11.187	7.129
F_p_value	0.0014	0.3473	0	0
N	84	63	63	210
F_statistic_sig	3.588**	1.147	11.187***	7.129***

Test of Difference

Table 6a is a one-way ANOVA result followed by post-hoc comparisons conducted to examine differences in three key variables (implementation, involvement, and challenges) across the three senatorial districts. The result revealed statistically significant differences in implementation scores across the three senatorial districts [$F(2, 207) = 8.351, p < 0.001$]. The effect was highly significant ($p = 0.0003$), indicating substantial variation in implementation effectiveness between districts. The between-groups sum of squares (406.116) represented a meaningful portion of the total variance (5439.624), suggesting that district affiliation accounted for approximately 7.5% of the variance in implementation scores. Similarly, involvement scores differed significantly across districts [$F(2, 207) = 11.43, p < 0.001$]. This represented the strongest effect among the three outcomes, with the highest F-value observed. The between-groups variance (239.556) constituted about 9.9% of the total variance (2408.381), indicating that district membership was a strong predictor of involvement levels. Challenge scores also showed significant differences across districts [$F(2, 207) = 4.801, p = 0.0092$]. While still statistically significant at the $p < 0.01$ level, the effect was more moderate compared to implementation and involvement. The between-groups variance (205.456) represented approximately 4.4% of the total variance (4634.329).

The post-hoc analysis (Table 6b) revealed that no significant difference was observed between KN and KC (mean = -0.675, $p = 0.69$), indicating statistically equivalent implementation performance between these two districts. Between KS and KC, the analysis showed a significant difference (mean = -3.262, $p = 0.0003$), indicating that KS scored significantly lower in implementation effectiveness compared to KC. This represents a highly significant difference with a large effect size. A significant difference was also found between KS and KN (mean = -2.587, $p = 0.01$), demonstrating that KS performed significantly worse than KN in implementation effectiveness. Similar patterns emerged for involvement, with KS showing lower involvement compared to KC and KN. Between KS and KC, a high significant difference was found (mean = -2.556, $p < 0.001$), indicating substantially lower involvement in KS compared to KC. KS and KN revealed a significant difference (mean = -1.778, 95% $p = 0.007$), showing that KS had lower involvement than KN. Comparison between KN and KC revealed no significant difference (mean = -0.778, $p = 0.32$), suggesting comparable levels of involvement between these districts. In comparing challenges encountered, the pattern reversed, with higher scores indicating more challenges faced. For KS and KC, a significant difference was observed (mean = +2.389, $p = 0.006$), indicating that KS experienced significant challenges more than KC. KS and KN showed no significant difference (mean = +1.381, $p = 0.22$), suggesting that while KS faced more challenges than KN, this difference was not statistically significant. KN and KC also showed no significant difference (mean = +1.008, $p = 0.39$), indicating comparable challenge levels between the districts.

**Table 6a: ANOVA results showing differences in implementation, involvement, and challenges across the senatorial districts**

Outcome	Source	df	sum_sq	mean_sq	f_value	p_value	significance
Implementation	Between Groups	2	406.116	203.058	8.351	0.0003	***
	Within Groups	207	5033.508	24.316			
	Total	209	5439.624				
Involvement	Between Groups	2	239.556	119.778	11.43	0	***
	Within Groups	207	2168.825	10.477			
	Total	209	2408.381				
Challenges	Between Groups	2	205.456	102.728	4.801	0.0092	**
	Within Groups	207	4428.873	21.396			
	Total	209	4634.329				

Table 6b: Post-hoc analysis

outcome	mean_diff	lower_ci	upper_ci	p_adj	significance
Implementation:					
KN-KC	-0.675	-2.615	1.266	0.6905	ns
KS-KC	-3.262	-5.202	-1.322	0.0003	***
KS-KN	-2.587	-4.661	-0.513	0.01	*
Involvement:					
KN-KC	-0.778	-2.051	0.496	0.3215	ns
KS-KC	-2.556	-3.829	-1.282	0	***
KS-KN	-1.778	-3.139	-0.416	0.0066	**
Challenges:					
KN-KC	1.008	-0.812	2.828	0.3926	ns
KS-KC	2.389	0.569	4.209	0.0062	**
KS-KN	1.381	-0.565	3.327	0.217	ns

DISCUSSION OF FINDINGS

The result on respondents' age indicates that the teaching workforce showed potential in terms of age and basic qualifications. However, lack of special education training among the majority represents a crucial barrier to inclusive education implementation in rural Katsina State secondary schools. This finding is in line with Nwosu, Letzel-Alt and Marcela (2025), who found that Nigerian teachers lack adequate preparation for managing learners with special needs. In corroboration, Rasheed (2014) questioned whether inclusive education in Nigeria is "a myth or reality." The World Health Organization and World Bank (2022) has also



emphasized that teacher preparation is critical for inclusive education systems, particularly in low- and middle-income nations.

The result on implementation suggests obvious disparities in resource implementation. KC was the most successful district, while KS seemed to have challenges with majority low implementation. The overall distribution showed that the majority were in the low category, indicating substantial room for improvement across the state. This finding is consistent with the report of UNESCO (2023) on inclusive education in Nigeria, which noted that policy progress has been weakened by implementation challenges. The result further implies a systemic failure in inclusive education implementation, with specialized equipment and assistive technologies almost completely absent. Even basic accessibility features like ramps and wide doorways were inadequately implemented. The recent study of Alexis et al. (2024) also identified challenges to quality education in sub-Saharan Africa to include inadequate infrastructure and resources. The absence of assistive technologies is worrisome too, as Carmen del, Julio, Daniel, and Daniel (2025) emphasized that inclusive education requires appropriate tools to be effective.

That more districts showed low involvement is an indication of widespread disengagement. KS practically struggled, as most had low involvement. The "moderate" category was consistently the smallest across the districts, meaning involvement tends to be either high or low rather than moderate. KC showed strong high involvement while overall involvement was high. What this implies is that the vast majority of teachers were not actively engaged in inclusive education practices. This lack of involvement, combined with poor resource implementation, as shown in Table 2, and limited special education in Table 1, may have created barriers to effective inclusive education. This finding supports the observations of Orlando and Olaoluwa (2024), who noted that empowering education in Nigeria faces challenges in terms of teacher engagement and inclusivity. This suggests teachers that were unprepared, unsupported, or lacked institutional encouragement (Education International, 2024).

Implementation rate was also low, indicating absence of meaningful inclusive education resources and barriers to students with disabilities in accessing quality education in the state. This is consistent with UNICEF (2024) situation analysis, which explored challenges in educational access and quality in Nigeria. Though KC had the most favorable implementation, the majority faced low constraints while KS faced the most barriers. This may have been the reason for their poor implementation and involvement scores. KN sits in the middle, with a relatively even distribution across challenge levels. Overall, the distribution is relatively balanced across the three levels, but more than a quarter of all districts faced high challenges. The varied implementation challenges across the districts is consistent with the study outcome of Nwogu (2015) on barriers to equality of access to educational opportunity in Nigeria.

The post-hoc analysis revealed a consistent pattern across all the variables. KS consistently under performed relative to KC and KN on implementation and involvement while experiencing significant challenges than KC. Katsina Central and KN showed statistically equivalent performance across all measures, with no significant differences in any pairwise comparison between these districts. The result corresponds with Nwoke, Oyiga and Cochrane (2024), who assessed the phenomenon of out-of-school children and challenges in different regions.



The effect rates were substantial, particularly for comparisons involving KS. The largest mean differences were observed in implementation followed by challenges and involvement. All significant comparisons showed confidence intervals that excluded zero, providing robust evidence for genuine differences between districts. These substantial effect sizes indicate that the differences observed are not merely statistical artifacts but represent meaningful differences in inclusive education implementation. These findings suggest that KS faced systematic challenges that distinguished it from the other two senatorial districts. The consistency of results across multiple outcome measures strengthens the conclusion that district-level factors influenced implementation, involvement, and challenges in this context. These differences in implementation are in tandem with Oluwaseun (2014), who found variations across geographical contexts, due to socioeconomic and infrastructural disparities in inclusive education research in Nigeria.

CONCLUSION/RECOMMENDATIONS

This study examined contemporary challenges to inclusive education implementation in rural public senior secondary schools across three senatorial districts in Katsina State, Nigeria. The findings revealed a complex landscape of systemic barriers that impeded the effective implementation of inclusive education practices in these rural contexts. While the teaching workforce demonstrated adequate age demographics and basic qualifications, a critical gap emerged in specialized training as the majority of teachers lacked special education training. KC consistently outperformed other districts with higher implementation rates and greater teacher involvement while KS struggled with low implementation and high operational challenges. KN maintained intermediate performance, indicating that district-specific factors determined inclusive education success.

Specialized equipment and assistive technologies were almost entirely absent across all districts. Even basic accessibility infrastructure like ramps and wide doorways showed inadequate implementation, creating barriers for students with disabilities. Over half of all districts demonstrated low teacher involvement in inclusive education practices, implying that teachers were unprepared, unsupported, and lacked institutional encouragement to engage actively in inclusive education initiatives. The correlation between poor resource implementation, limited training, and low teacher involvement indicates a systemic problem requiring intervention. The substantial effect rates observed in comparative analysis provide robust evidence that district-level factors influenced programme outcomes. It is recommended that government should:

1. implement an intensive special education training programme targeting all secondary school teachers in rural Katsina State.
2. prioritize KS district given its poor performance across all measures.
3. prioritize installation of basic accessibility features including ramps, wide doorways, and accessible toilets starting with schools in districts that showed higher needs.
4. create district-level resource centers to serve multiple schools and ensure efficient utilization.



5. develop partnerships with NGOs and international organizations to supplement government funding.
6. develop a comprehensive inclusive education policy framework specific to rural contexts.
7. advocate for mandatory inclusive education components in all teacher preparation programs.

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