

Teacher Need, Supply, and Distribution in Public Secondary Schools: Assessing the Gaps and Policy Intervention in Bayelsa State, Nigeria.

Stella Peremoboere Ugolo ^{1*} James Nwabianke Onukwu ^{2**}

1 Teacher Training, Registration and Certification Board, Ministry of Education, Bayelsa State

2. Foundations, Arts & Social Science Education, Faculty of Education, Federal University Otuoke.

**Email of Corresponding Author: onukwu@fuotuo.ke.edu.ng

Abstract

The availability of teaching manpower is a valuable investment in education. However, its effective utilization, particularly in terms of equitable distribution across schools and alignment with subject specializations, remains a critical concern. This study examined teacher demand, supply gaps, and distribution pattern in public secondary schools in Bayelsa State. A descriptive research design, the population comprised all teachers in the 195 public secondary schools in Bayelsa State, with a total of 3,723 teachers identified and included in the study. Two research instruments were utilized. First, a researcher-designed checklist was used to assess student enrolment patterns and teacher availability based on data from the Post-Primary Education Board for the 2022/2023 school year. Second, a structured four-item questionnaire was administered to school principals to gather insights on policy interventions related to teacher distribution. The checklist, titled Teacher Needs, Availability, Distribution, and Subject Specialization (TNADSS), the questionnaire, titled Policy Intervention and Effective Teachers Distribution Questionnaire (PIETDQUE) ($r = 0.78$), distributed through the WhatsApp platform of school principals. Data were analysed descriptively using percentages, means, and Standard Deviation. Findings revealed a significant shortage in the teaching workforce, with a supply deficit of 38.67%. Additionally, teacher distribution based on subject specialization was grossly inadequate, with a notable absence of teachers for Nigerian languages. The study also highlighted intervention policies aimed at addressing ineffective teacher distribution in the state. Based on these findings, the study recommended among others that teachers' recruitment and distribution should be guided by subject-specific needs, prioritizing critical subjects to enhance educational outcomes.

Keywords: Teacher need, Availability, Distribution and Subject Specialization

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Introduction

The school is a place where human minds are trained and nurtured for societal advancement. As a center for production through the classroom activities, adequacy and effective human resources coordination is expected. Specifically, the teachers who are considered the most important factor of production in the classrooms are required to be properly distributed to ensure availability in terms of quality and number.

Considering the central role of secondary education to nation building and human capital needs, it is expected that efforts are made to ensure availability and utilization of teaching workforce. Teachers, as critical drivers of education, playing pivotal roles in shaping the quality of learning outcomes in schools should be adequate (Okebukola et al. 2020). However, the effective delivery of education in many developing regions, including Nigeria, is hampered by challenges related to teacher need, supply, and distribution. In Bayelsa State, for instance, these issues have become pronounced, particularly in public secondary schools, where disparities in teacher availability and allocation contribute to poor student performance and widening education gap. As noted by Akosubo-Ogori (2023), there exists inadequacy of teachers in vocational schools in Bayelsa state.

The need for adequate and well-distributed teachers in secondary schools is emphasized by the Nigerian National Policy on Education (Federal Republic of Nigeria, 2014), which outlines equitable access to quality education. Despite this, teacher shortages persist, with rural and underserved areas being disproportionately affected. Studies by Ofogebu (2004) and Ugolo (2022) reveal that uneven teacher distribution, poor incentives, and inadequate recruitment policies hinder the ability of schools to meet national education goals. These issues are

further worsened in States, where geographical challenges, waterways, infrastructural deficits, and low job attractiveness deter teachers from accepting postings to remote areas. Moreover, the demand for teachers in core subjects, particularly in science, technology, engineering, and mathematics (STEM), remains a concern as societies are striving to produce a skilled workforce. Okebukola et al. (2020) highlights the critical shortage of STEM teachers across Nigeria, attributing it to inadequate distribution, poor working conditions, and limited career progression opportunities. In Bayelsa State, the problem appears to be compounded by ineffective teachers' deployment strategies, leading to urban-centric teacher concentration and rural neglect. Research suggest that government policy interventions and host community collaboration could address this challenge particularly for developing states (Okendu, 2012) ; (Darling-Hammond and Sykes, 2003).

Carrying out Teacher need assessment, recruitment and employment periodically are vital in ensuring adequate teacher supply. A perennial problem in meeting teacher supply requirements is teacher attrition as the stock is consistently depleted due to retirements, deaths, change of jobs and the like (Ugolo, 2022). The slogan that no educational system can be better than the quality of its teachers had been a recurring jingle and a clear parameter that if the school system desires to survive and improve in academic ranking, creativity, productivity, entrepreneurship and in STEM subjects, its teachers must be supplied in sufficient quantity, quality, specialty and experience. Therefore, high level attrition coming from various distribution and redeployment factor is not healthy (Borman and Dowling, 2008); (Ugolo, 2022). Again, the National Policy on Education emphasizes the importance and relevance of teacher adequacy in schools and so streamlined standards for operation by stating that the minimum qualification of entry into the teaching profession is the Nigerian Certificate in Education, while teacher pupil ratio for primary and secondary schools were put at 1-35 and 1-40 respectively (NPE 2014). Miller (2002), Adepoju (2002), Famade (2002) and Ugolo(2022) had all separately asserted the importance of teacher adequacy and quality in schools and that they have a lot of impact on the learners, noting that teachers are in the frontline implementation and facilitation of all educational policies. Norton et al., (2000) asserted that teacher quality accounted for about 40% of the variance in student's reading and mathematics achievement, more than any other factor or resource. Similarly, Onukwu and Tiebebedigha (2020) noted the essence of effective management of manpower needs for secondary schools in a state. Additionally, Archibong (2001) noted that those working in occupations which do not fit their qualification are mal-employed and therefore show incompetence at work. It is pertinent to state that achieving teacher adequacy in schools has been an herculean task in the Nigerian education system as confirmed by the empirical studies of NERDC (1997), Adeoye (2000),Ugolo (2010); Ugolo (2022) and (Ugolo and Alonge, 2024).

The theoretical framework and consideration for this study is the Human Capital Theory by Becker (1964). Accordingly, the theory advocates that investment in human capital (education) enhances productivity and economic growth. The relevance to this study is that teachers are the most important human asset and that their availability across board is a huge investment that ensures high attainment of educational set objectives (Becker, 1964). By implication, the distribution and redeployment of teachers has become a critical role for the achievement of this objectives. They utilization is guaranteed through effective redeployment to schools and in due consideration of enrolment ratio and subject requirement across the schools. Therefore, equitable distribution to maximize educational benefits is another way of ensuring good human capital investment. Three parameters are used as basic standards for teacher supply in secondary schools. These are teacher/pupil ratio, subject specific supply and number of lesson periods assigned per week(National Policy on Education, 2014). The peculiarity in this is that even if the teacher quantity/quality are adequate, inadequacy may still arise if the number of teachers required for each subject are insufficient, resulting in subject teacher supply gap. This makes the provision of adequate number of well qualified subject teachers the most important precursor. SEDL (2009) highlighted that teacher quality is multidimensional including: quality of preparation; quantity of training opportunities; adequate pool of qualified teachers; effective recruitment processes; distribution and job assignment; quality and availability of professional development opportunities; geographic contexts and population demographics.

Teacher distribution to schools in Bayelsa State, is a function of the post-primary school board. Available data tells that, whereas the number of schools at both levels and enrolment has increased considerably in real terms, teacher supply is inadequate in public schools and this is compounded by poor distribution of the available stock (Ugolo, 2022). Thus, making teacher distribution and utilization processes difficult and faulty. Coombs (1968) pointed out that the education of rural children is plagued by perennial problems of getting enough of qualified teachers to serve in rural schools where they are urgently needed. To ensure effectiveness, teacher adequacy should not be compromised because all schools (Urban and Rural) operate the same curriculum, assessment processes and expectations. Where this is compromised, schools are more likely to produce results that are

inimical to success because principals can only assign subjects and lesson periods to available teachers. The position of SEDL (2009) that “the placement of effective and high-quality teachers in every school is clearly one of the most critical factors in improving student learning” should be noted with seriousness. Aminu (1992) advocated that human resources development and utilization are a fact of life and the perfect attainment of this is the supreme aspiration of any society. Government through its regulatory bodies is expected to ensure adequacy at all time ((Bennell and Akyeampong, 2007; UNESCO, 2015 & 2021; World Bank, 2019 ; Vegas and Umansky, 2005).

Statement of Problem

The delivery of quality education necessary for fostering competitive development in Bayelsa State appears to be facing significant challenges, primarily stemming from limitations and unavailability within the teaching workforce (Ugolo and Alonge, 2024); (Akosubo-Ogori, 2023). While the state government is making significant progress on recruitment and training to address manpower shortages in schools, these measures seem insufficient to resolve the inadequacies in teacher availability. The redeployment and distribution pattern of teachers, in line with subject requirements, student enrolment, and geographical spread remain a persistent challenge.

A notable concern is the reluctance of teachers to accept postings in rural schools, often driven by the lack of social amenities and family ties that influence their preference for urban postings. This has resulted in an imbalance, with urban schools being overstaffed while rural schools face acute shortages, particularly in specific subject areas and in riverine locations. Consequently, a situation of uneven distribution of teachers causing inequities across the schools and local government areas thereby hindering the attainment of quality education. Ugolo (2022) had earlier reported shortages and unequal supply to primary schools according to requirement in the state. However, the distribution pattern of teaching workforce in secondary schools remain underexplored. Are there government policy interventions or a possibility of host community collaboration to address this challenge?:

It is therefore the intention of this study to investigate the supply needs and distribution pattern, availability of teachers across schools, local governments, and subject areas to determine the adequacy. Furthermore, it aims to explore the policy implications and propose strategies for improving teacher distribution to enhance the delivery of quality education in Bayelsa State.

Research Questions

1. What is the available teaching workforce and distribution pattern in public secondary schools in Bayelsa State?
2. What is the requirement of teachers in public secondary schools based on subject specialization in Bayelsa state?
3. What are the policy interventions that can effectively address the gaps in teacher retention, and equitable deployment in Bayelsa State secondary schools?

Methodology

The study adopted a descriptive research design, describing the situation and spread of teachers in secondary schools in Bayelsa State. The population of the study was all the 3, 723 teachers in secondary schools across the 8 local government areas of Bayelsa State. Two research instruments were used for this study. First, researchers made checklist used to assess the enrolment pattern and the availability of teachers in the state from the post-primary school board for the 2022/2023 school year. And then a structured questionnaire of 4 items only to cover policy intervention from the school principals’ perspective. Data were collected using a checklist and structured questionnaire. The checklist was titled ‘Teachers needs, availability, distribution and subject specialization (TNADSS) while the questionnaire was titled "Policy intervention and effective teachers distribution questionnaire (PIETDQUE), $r= 0.78$. The questionnaire consisted of only one section with 4 items on a Likert type rating scale to get the perspectives of school principals on policy intervention towards ensuring teachers supply adequacy across the local governments in Bayelsa State. The data collected was descriptively analysed using percentages, mean and standard deviation. The results are presented in Tables.:

Result Presentation

Research Question 1: What is the available teaching workforce and distribution pattern in Public Secondary Schools in Bayelsa State?

A checklist was used to collect data to answer this research question and descriptively analysed. The result is presented in Table1:

Table1: Analysis Of Available Teaching Workforce and Distribution Pattern in Bayelsa State Public Secondary School as at 2022/2023 Academic Year

LGA	NUMBER OF SCHOOLS	ENROLLMENT	Required Teaching workforce	Available Teaching workforce	Number of teachers in Deficit	Percentage of Deficit %	Remark
Brass	11	6,378	370	106	264	28%	Inadequate/short Supply
Ekeremor	22	8,184	653	267	386	59.11%	Inadequate/Shorth Supply
Kolokuma	12	5,154	407	328	79	19.41%	Inadequate
Nembe	16	3,725	408	144	264	64.715	Inadequate
Ogbia	32	10,873	827	630	197	23.82%	Inadequate
Sagbama	24	10,246	693	401	292	42.14%	Inadequate
Southern Ijaw	44	14,212	1,150	421	729	63.39%	Inadequate
Yenagoa	34	26,246	1,562	1,426	136	8.71%	Inadequate
Total	195	85,018	6,070	3,723	2,347	38.67%	Inadequate

Table 1, revealed that 6, 070 teachers are required for effective teaching and learning in the schools while the availability was 3,723, creating a short supply of 2,347(38.67%) teachers in secondary schools across the state. The item analysis shows that Brass had a short supply of 264(28%), Ekeremor 386(59.11%), Kolokuma 79(19.41%), Nembe recorded inadequacy of 264(64.72), Ogbia 197(23.82%), Sagbama 292(42.14%), Southern Ijaw 729 (63.39%) and then Yenagoa had just 136 (8.71%) inadequacy.

Research Question 2 : What is the requirement and supply of teachers in public secondary schools based on Subject Specialization in Bayelsa state?

To answer this research question, a check list was also used to collect data from the state post-primary school board. The data collected was descriptively analysed and result presented in Table 2:

Table 2: Analysis of Teachers Requirement and Supply Based on Subject Specialization in Public Secondary Schools in Bayelsa State.

Subject	No of Teachers Required	No of teachers available	Supply Gap	Percentage of supply gap	Remark
English/ Literature	558	288	270	48%	Inadequate Supply
Mathematics	421	261	160	38%	Inadequate Supply
Civic /Social Studies	446	303	143	32%	Inadequate supply
Comp Science	279	108	171	61%	Inadequate Supply
Biology	248	192	56	23%	Inadequate Supply
Chemistry	226	143	83	37%	Inadequate Supply
Physics	226	128	98	43%	Inadequate Supply
Integrated Science	209	95	114	54%	Inadequate Supply
Physical and Health Educ.	242	86	156	64%	Inadequate Supply
AgrI cultural Science	271	250	21	8 %	Inadequate Supply
Economics/Commerce	311	324	-13	-4%	Excess Supply
Geography	223	127	96	96	Inadequate Supply
Government	225	209	16	7%	Inadequate Supply
Accts/ business Studies	308	493	-185	-60 %	Excess Supply
History	176	84	92	52%	Inadequate Supply
Fine Arts	166	67	99	60%	Inadequate Supply
Christian Religious Knowledge	213	135	78	37%	Inadequate Supply
Nigerian Language	227	-	227	100%	Not Available
French	154	34	120	78%	Inadequate Supply
Home Econs/Food & Nutrition	239	96	143	60%	Inadequate Supply
Intro-Technology	242	49	193	80%	Inadequate Supply
Music	149	3	146	98%	Inadequate Supply
All Trade Subjects combined	311	248	63	20%	Inadequate Supply
TOTAL	6070	3,723	2,347	39%	Inadequate Supply

The data in Tables 2 shows that teacher need by subject specialization in secondary schools is in critical short supply in many subject areas. In summary, out of the 6070 subject teachers required as computed based on number of subject teachers required per school, only 3723 are available and distributed to schools indicating that 2347 (39%) are in short supply. Specifically, there is shortage of English, mathematics and civic teachers to the tone of 48%, 38% and 32% supply gap. Also, there is inadequate supply of teachers in all the science subjects ranging from 64 % and 61 % in physical/health education and computer science to 23% in biology. Cumulatively, there exist science teacher's shortage to the tone of 47% and this gap is serious educationally, given the place of science in today's world. For history, fine art, Christian religious studies, French and Nigerian language the supply gaps are 52%, 59%, 37% 78 and 100% respectively. Home economics, introductory technology and music recorded supply gaps of 60%, 80% and 98% respectively. However, in agriculture and government the lack was merely 8% and 7% respectively while excessive supply was recorded in economics and business studies to the tone of 4% and 60%.

Research question 3 : What are the policy interventions that can effectively address the gaps in supply of teachers at rural public secondary schools in Bayelsa State?

To answer research question 3, a total of 195 school principals across the state were expected to respond to questionnaire items on a 4 point Likert type rating scale through their WhatsApp platform. However, only 135 of them actually responded as received in an email of the researchers. They responses were collated and descriptively analysed as presented in Table 3:

Table 3: Analysis of Policy Intervention to Address the Supply Gap of Teachers in Rural Public Secondary School in Bayelsa State from the Principals' Perspectives.

Description	N	Mean	SD	Decision
Government policies to favour rural postings in terms of promotion	135	2.31	0.58	Disagreed
provision of incentives for teachers in rural areas (Housing, allowance)	135	2.71	0.80	Agreed
Special rural incentives in collaboration with host communities	135	2.61	0.75	Agreed
Mandatory rural posting for teachers when there is need and stiff penalty for defaulters	135	2.51	0.68	Agreed
Total	135	2.54	0.70	Agreed

Theoretical Mean = 2.50; N= 135

The data from Table 3, shows that the school principals agreed for government policy intervention towards ensuring adequacy and equitable distribution of teachers at the rural schools. However, there was a disagreement with the policy of using promotion as an incentive to encourage rural teachers posting and retention with a mean score of (2.31) while the respondents agreed that provision of incentives like housing allowance would encourage policy implementation for adequacy of teachers in rural areas. Special incentives recorded a mean of (2.61), mandatory rural posting when there is need and stiff penalty for defaulters recorded a mean score of (2.51).

Discussion of Findings

The study identified a significant shortage in the supply and availability of the teaching workforce in public secondary schools across Bayelsa State. This shortage was expected, particularly in predominantly riverine local government areas, where teachers are often reluctant to accept posting due to a lack of social amenities and personal preferences for urban locations. However, a surprising finding was recorded in Nembe Local Government, which reported a 64.72% teacher shortage despite having substantial land areas and well-established schools. This shortfall may be attributed to the region's recurring security challenges over the years. The study confirms the findings of Akosubo-Ogori (2023), which highlighted that the shortage of teachers in vocational schools in Bayelsa State significantly hinders the attainment of educational objectives. Additionally, it supports the assertion of Ugolo and Alonge (2024) and Coombs (1968) that rural education continues to struggle with the persistent challenge of recruiting and retaining qualified teachers where they are most needed. Consequently, the shortage of teachers in public secondary schools across the state remains a pressing issue. Although, this study, disagreed with the assertion of Onukwu and Tiebebedigha (2020) on teaching manpower in secondary schools. This could be attributed to the hug investment by the state government and consequent increase in enrolment of students across the schools.

Findings from research question two revealed a limited supply of teachers in relation to subject specialization. Specifically, the study found that there is no supply of teachers for any Nigerian language, which is a critical concern requiring immediate attention. Nigeria's linguistic diversity has been recognized as an asset when effectively integrated into the school curriculum. The recent push to incorporate cultural pedagogy into the education system to advance STEM education may be unachievable in Bayelsa State public secondary schools if language teachers remain in short supply. The complete absence of teachers for even the predominant Ijaw language underscores the need for urgent intervention to enhance indigenous technological advancements.

Meanwhile, the study found an oversupply of teachers in Accounting/Business Studies and Economics/Commerce, indicating an inaccurate manpower needs assessment and recruitment process at the post-primary school board. This finding aligns with Ugolo's (2022) argument that teacher recruitment should be guided by specific subject-area needs, ensuring that surplus hires in non-essential subjects do not take precedence over more critical areas. Other key subjects, such as Mathematics and English, also suffer from limited teacher supply, emphasizing the issue of inadequacy. These findings reinforce the claims of Akosubo-

Ogori (2023) that subject-specialist teachers are insufficient in vocational schools in Bayelsa State. Similarly, the study corroborates the findings of Okebukola (2020), Adeoye (2000), and Ugolo (2010), which emphasized the limited availability of teachers in essential subject areas across schools.

Findings from research question three indicated that urgent government policy intervention is required to address the teacher supply gap in rural public secondary schools in Bayelsa State. The study highlights the need for a special rural allowance as a retention strategy to ensure an adequate teacher workforce in rural schools. Additionally, it emphasizes the importance of collaboration between school management and host communities to mitigate this shortage. This aligns with previous research suggesting that community engagement can play a crucial role in addressing teacher inadequacy (Darling-Hammond and Sykes, 2003); (Okendu, 2012).

Furthermore, the study underscores the need for stricter penalties for individuals involved in unethical recruitment and deployment practices within the post-primary education board, which contribute to the teacher shortage in rural schools. The prevalence of corruption in teacher postings and redeployments calls for strong policy measures to ensure transparency and fairness in the distribution of teachers across the state.

Recommendations:

Based on the findings and discussions on this study, the following recommendations are made to guide teachers supply and distribution:

1. The government, the owner of public secondary schools should implement financial incentives, such as hardship and rural allowances, to encourage teachers to accept and remain in postings in underserved areas.
2. Recruitment should be based on subject-specific needs, ensuring that critical subjects like Mathematics, English, and Nigerian languages receive priority in teacher placement.
3. Schools and local communities should work together to provide support structures, such as housing and security, to make rural postings more attractive to teachers.
4. Strict monitoring and penalties should be implemented to prevent corruption and favoritism in teacher postings, ensuring fair and equitable distribution of educators across the state.

Conclusion

The shortage of teachers in public secondary schools across the state, with rural and riverine areas being the most affected is a call for concern. This shortage is worsened by teachers' reluctance to accept postings in these locations due to inadequate social amenities, security concerns, and personal preferences for urban centers. The unavailability in specific subject areas, particularly Nigerian languages, posing a serious threat to cultural pedagogy and indigenous knowledge advancement. However, the oversupply of teachers in certain non-priority subjects highlights flaws in the manpower needs assessment and recruitment process at the post-primary school board. Addressing these challenges requires urgent policy intervention. Strategies such as special rural allowances, improved recruitment processes based on subject-specific demands, and stronger collaboration between schools and host communities are crucial to ensuring equitable teacher distribution. It has therefore become imperative that urgent action is taken to address this challenges so as to protect the huge investment the state government is making in education sector.

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Biodata :

1. Dr. Mrs Stella Peremoboere Ugolo is currently the Executive Chairman of Bayelsa State Teachers Training, Registration and Certification Board(TTRCB) of the ministry of Education, Bayelsa State. She was a lecturer at the University of Benin before joining the services of Bayelsa State government. She has many scholarly articles in both national and international reputable journals. pskugolo@gmail.com
2. Dr. James Nwabianke Onukwu is a lecturer at the Faculty of Education Federal University Otuoke. He is also a resources person at the Teachers Training and Certification Board, a member of chartered institute of Personnel Management of Nigeria and a member of Canadian Society for the study of education.