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

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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.

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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 Ofoegbu (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 rural 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) highlight 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 suggests that government policy interventions and host community collaboration could address this challenge particularly for developing states (Darling-Hammond & Sykes, 2003; Okendu, 2012).

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 has 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 factors is not healthy (Borman & 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). Adepoju (2002), Famade (2002), Miller (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 students' 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 Adeoye (2000), Ugolo (2010), Ugolo (2022), and (Ugolo & Alonge, 2024).

Theoretical Framework

This study is hinged on 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. The Southwest Educational Development Laboratory (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 secondary schools in Bayelsa State, is a function of the post-primary school board. Available data suggest 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) in Ugolo and Alonge (2022) 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 placement of effective and high-quality teachers in every school is clearly one of the most critical factors in improving student learning and 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 (UNESCO, 2015 & 2021; World Bank, 2019).

Research Objectives

The study mainly is to investigate the supply needs and distribution pattern, availability of teachers across schools, local governments, and subject areas in Bayelsa State Public Secondary schools. Specifically, the study hopes to:

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

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 & 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 requirements in the states. 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 Byelsa 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, from the Bayelsa State Post Primary School Board. 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. This was done by using the drafted checklist to cross check and ascertain available teaching workforce in various schools. Evidences of available teachers and their roles assigned were seen in attendance, classrooms/subject assigned with acknowledgement from teachers as well. 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 government in Bayelsa State. This is because, the other aspect of availability was treated by using the checklist as earlier stated. The questionnaire was distributed through the WhatsApp platform of school principals The data collected was descriptively analysed using percentages, mean and standard deviation. The results are presented in Tables.

Results 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 2021/2022 Academic Year

LGA	Number of Schools	Enrolment	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/ Short 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:

The data in Table 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 teachers' shortage to the tune 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

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
Agr1cultural 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**

merely 8% and 7% respectively while excessive supply was recorded in economics and business studies to the tune 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 then 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 brings to light a multidimensional crisis in teacher supply and subject-area specialization across Bayelsa State's public secondary schools. While teacher shortages in rural and riverine communities such as Southern Ijaw and Ekeremor were anticipated due to geographical isolation and lack of basic amenities, the significant shortage reported in Nembe Local Government Area is both unexpected and concerning. Despite Nembe's substantial landmass and established schools, it recorded a 64.72% teacher shortfall. This anomaly is plausibly linked to longstanding security challenges in the region, suggesting that insecurity can be as decisive a deterrent to teacher deployment as poor infrastructure or remoteness. These findings echo the broader rural-urban educational disparity emphasized by scholars such as Coombs (1968) and Ugolo and Alonge (2024), who argue that rural education continues to suffer due to persistent challenges in attracting and retaining qualified teachers. However, this study diverges from the position of Onukwu and Tiebebedigha (2020), possibly due to changes in contextual realities or methodological differences, underlining the need for constant policy reassessment.

A critical dimension of the teacher shortage revealed in this study is the mismatch between subject-specific demand and supply. There is a complete absence of teachers for Nigerian languages, including the predominant Ijaw language, which poses a major threat to the integration of cultural pedagogy in education. As Nigeria's linguistic diversity has been acknowledged as a national asset, the failure to supply teachers in indigenous languages undermines efforts to culturally contextualize learning, especially in STEM education. Countries like New Zealand, through their Māori language revitalization policy, have demonstrated how national efforts to integrate indigenous language teaching can enhance cultural identity and educational engagement. In Bayelsa State, a similar policy push is required, involving scholarships, targeted training programs, and guaranteed employment for Nigerian language teacher-trainees. Without such interventions, the state risks further marginalizing indigenous knowledge systems and limiting culturally responsive educational reforms.

Conversely, the study identified an oversupply of teachers in subjects such as Accounting/Business Studies and Economics/Commerce. This points to a flawed manpower needs assessment and recruitment process at the post-primary school board. It reinforces Ugolo's (2022) argument that recruitment should be guided by subject-area needs to avoid an imbalance that prioritizes non-essential subjects over core academic areas. The situation contrasts with models in countries like Singapore, where teacher recruitment is centrally managed and based on national subject-demand forecasts. In Finland, similarly, teacher training admissions are tied to long-term projections of educational needs. Bayelsa State would benefit from adopting a data-driven recruitment strategy that aligns teacher intake with specific school-based subject shortages particularly in critical subjects like Mathematics, English, and Nigerian languages.

The study also highlights governance-related issues, particularly unethical practices in recruitment and deployment, as a contributor to teacher shortages. Corruption, favouritism, and political interference in postings are systemic problems that hinder equitable distribution of the teaching workforce. Comparative insights from Rwanda, where a Teacher Service Commission ensures transparent deployment through biometrics and public audit systems, show that effective governance mechanisms can address these challenges. India has similarly introduced centralized digital platforms for teacher postings, reducing the risk of manipulation. Bayelsa State should establish a Teacher Recruitment and Deployment Audit Unit, equipped with legal backing and digital infrastructure to track, monitor, and ensure fairness in postings. Transparency and accountability in deployment are critical to restoring trust and efficiency in the teacher workforce system.

Furthermore, the study advocates for a special rural allowance to improve teacher retention in underserved areas. This policy suggestion is in line with practices in other countries. In Ghana, for instance, deprived area incentives such as higher pay, accelerated promotion, and housing provisions have successfully attracted teachers to hard-to-reach areas. The United States implements teacher loan forgiveness programs for educators working in low-income or high-need schools. Bayelsa State could adopt a similar incentive-based strategy, offering housing support, hardship allowances, and accelerated career progression to teachers posted to rural and riverine communities. Such measures would help counteract the reluctance of teachers to work in disadvantaged areas.

Finally, the study emphasizes the importance of collaboration between school authorities and host communities as a viable strategy to combat teacher shortages. Community engagement has proven effective in contexts such as Ethiopia, where local communities contribute to teacher accommodation and support. Japan also provides a model where school-community councils foster local involvement in teacher support and integration. In Bayelsa, similar partnerships can be fostered to improve teacher welfare and security, increase accountability, and promote mutual ownership of the educational process. Encouraging communities to play a role in teacher retention efforts would not only strengthen ties between schools and residents but also provide a buffer against challenges that may otherwise discourage teachers from remaining in such areas.

The findings of this study underscore a complex but solvable challenge of teacher shortage and subject imbalance in Bayelsa State's public secondary schools. A multi-pronged strategy is necessary, combining incentive policies, accurate manpower planning, indigenous language integration, anti-corruption frameworks, and community partnerships. Drawing on successful models from other regions and adapting them to the local context will be crucial for achieving a more equitable and efficient education system in Bayelsa 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, poses 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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