



Educational Inputs and Internal Efficiency in Senior Secondary School, Edo State, Nigeria

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ABSTRACT

Edo State is regarded as one of the educationally advantaged states in Nigeria due to its records in national examination and the level of educational development in terms of infrastructure and high levels of school attendance, especially at the Basic and Post Basic education strata. Successive governments in the State have continued to invest in education in areas such as teacher recruitment, infrastructural development, prompt payment of salaries and pensions of retired teachers. Despite these efforts to improve education in the state internal efficiency indicated by drop out rate, inadequate resources and sub-standard learning environment still persist, and continue to pose serious challenges to effective public senior secondary education in Edo State. This situation, not only hinders smooth transition to higher education level, but also undermines the return on investment in education by government. This study investigated the relationship between educational inputs and internal efficiency of public senior secondary schools in Edo South Senatorial District. The study adopted Descriptive correlational Research Design. 124 Senior Secondary Schools, constituted the population, while 95 schools made up the sample, which was purposively selected from the seven local government areas in the District. A checklist titled: Educational Input checklist, and Internal Efficiency inventory were the instruments used to collect data. Descriptive statistics such as ratios, and percentages, and linear regression were employed in data analysis. Findings revealed that student-teacher ratio ranged between 1:10 and 1:15, which is below the national standard of 1:4. Material resources were found to be inadequate with 86% of the schools within this category. Physics, Maths, English and Biology were most affected. The internal efficiency rate was 68.20%; wastage ratio was 31.21. The combined influence of inputs on internal efficiency was $F(3.72) = 688p < 0.005$ it was recommended that teachers development strategies should be more transparent and derived of favouritism, while equally improving material supplies strategies to curb attrition and wastage in student years were also recommended.

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INTRODUCTION

Secondary Education in Nigeria is an important link between Basic Education and Tertiary Education, and it has experienced some policy reforms with the introduction of Universal Basic Act in 2004 from the 6 – 3 – 3 – 4 system of

education to 9-3-4 model. The aim primarily is to increase access, enhance retention, reduce attrition and promote educational outcomes. With these innovations in policy a lot of challenges persist Otalagbe (2026), reported that Nigeria has

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the highest dropout and out-of-school rates in Africa, with 16.9% of children not attending school. He further emphasized the seriousness of this situation that 18.5 million within children are out of school in Nigeria, 4.9 million are secondary school students. It has also been reported that repetition rate in Nigeria is (16% (1,676,100 students) and a dropout rate of 27% (2998, 200) students (UNICEF Education Fact sheet (2003).

In Edo State the statistics are equally worrisome. Though attrition, dropout rates appear generally moderate but concerning especially in rural communities. It has equally been observed that the dropout rates in Senior Secondary School Level is higher when compared to primary level 20% and 15% respectively. The reasons for these differentials are financial hardship, WAEC/NECO Examination failure, Apprenticeship or vocational preference, family responsibilities and teenage pregnancy. Edo State SUBEB (2025).

Budgetary allocation to the Education Sector in Nigeria in general and Edo State in particular has been in the increase over time, though the percentage difference or representations has not exceeded the United Nations or world bank recommendation for education. The budget office of the federation (2026) reported that the sum of N3.5 trillion out of the total N58.18 trillion representing (6.1%). Went to Education in Edo State, of the total N605.7 billion, education sector has N48 billion (2025 Budget appropriate).

Furthermore, in 2026, total education sector was N70.46 billion out of N939.85 billion budget (7.5%). In spite of these efforts the inefficiency of senior schools is evident reflected in failure or both local and national examinations and prevalence of dropout. For instance, in the 2025 WAEC Result in Edo State of the 1969,313 candidates, 62.96% had credits in five subjects including English and Mathematics and 9.7% had their result withheld; while 27.4% had less than five credits or failed. These statistics could either hinder many students from accessing higher education or may have to resit or totally dropout. Therefore, this study sought to access the inefficiencies in Edo State Senior Secondary

School by determining the relationship between educational inputs and internal efficiency.

On the other hands availability and use of educational inputs determines the level of efficiency in schools. Efficiency could either be internal or external. Internal efficiency relates the level or degree at what students graduate from the school system without much dropout, repetition or withdrawal. Internally efficient school system reduces wastage interns of inputs and students years. External efficiency is measured by the extent at which the graduate from the school system are able to perform in the world of work after schooling. Adeyemi (2025).

STATEMENT OF PROBLEM

Edo State appears to be an educationally advantaged state when compared with other states in Nigeria. Secondary statistics on enrollment retention and examination" results appear moderately encouraging. One would have expected that with increasing budgetary allocation for education and government interventions by encouraging continuous education, and teachers' development, the level of efficiency would be very high. It appears the reverse is the case, as there is persistent inefficiency reflected in waste or valuable education resources, The of this study is what could be responsible for the perceived inefficiency in Edo State Senior Secondary inspite of available educational inputs.

Purpose of the Study

The purpose of this study was to examine the relationship between educational inputs and internal efficiency in Senior Secondary Schools in Edo State. Specific objectives were to

- a. determine the trend of student teacher ratio in public senior secondary schools in Edo State between 2022/2023 and 2024/2025 academic sessions.
- b. Investigate the level of adequacy material resources available in public Senior Secondary Schools in Edo State.
- c. determine the extent of internal efficiency through graduation rates of the 2022/2023 students' cohorts in



public Senior Secondary Schools in Edo State.

Research Questions

The following research questions guided the study

1. What is the trend of the student-teacher ratio in public Senior Secondary School in Edo State between 2022/2023 and 2024/2025 academic sessions?
2. What is the level of adequacy of material resources available in Public Senior Secondary Schools in Edo State
3. To what extent are public Senior Secondary Schools in Edo State internally efficient following the trends of enrolment and graduation of the 2022/2023 cohort

Research Hypothesis

Ho: There is no significant relationship between educational inputs and internal efficiency in public Senior Secondary School in Edo State.

METHODOLOGY

Descriptive Correlational Research Design was adopted for the study. Population

consisted of 186 Senior Secondary School in Edo South senatorial district which has seven local government areas. Oredo, Ikpoba Okha, Uhumwode, Ovia South West, Ovia North East and Egor Local Government Areas using Taro Yamane formula, a sample size of 95 was used. Purposive sampling technique was employed using the systematic model. Instruments used for data collection were the Educational Input Checklist (EIC) and Internal Efficiency Inventory (IEI). The EIC had three sections. A – C designed to evaluate the available resources and level of adequacy. The IEI was used to gather information on students’ enrolments, promotion trends, and calculate the internal efficiency using the input-output ration formula. Research questions were analysed descriptively, while the hypothesis was analysed with regression analysis statistic.

RESULTS

Research Question 1:

what is the trend of student teacher ratio in Public Senior Secondary School in Edo State between 2021/2023 and 2024/2025 academic sessions.

Table 1: Analysis of Human Resource Adequacy in Senior Secondary Schools in Edo State.

Academic Session	No. of Schools	Teachers	Students	Student Teacher Ration	Expected Students Ratio
2022/2023	95	3425	52,66	1:15	1.40
2023/2024	95	3205	51802	1:10	1.40
2024/2025	95	3702	48102	1:12	1.40

The trend analysis above reveals over staffing of teachers with student-teacher ratio ranging from 1:10 to 1:15, which is far below the minimum of 1:40. This over supply of teachers implies a potential waste of resources, and questions the teacher deployment strategy in Edo State Senior Secondary Schools

Research question 2:

What is the level of adequacy of available materials resources in public Senior Secondary Schools in Edo State.

Table 2: Analysis of materials resources Adequacy in Senior Secondary Schools in Edo State.

LGA	Physic Text book	Ratio	Maths Text book	Ratio	English Text Book	Ratio	Ideal STB
Oredo	3787	28:1	1120	301:1	120	23:1	1:3589
Egor	3398	21:1	146	24:1	122	23:1	1:3496

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LGA	Physic Text book	Ratio	Maths Text book	Ratio	English Text Book	Ratio	Ideal STB
Ikpoba	6547	25:1	253	26:1	260	24:1	1:6347
Uhimwode	763	17:1	38	20:1	48	15:1	1:763
Ovia N.W	1166	19:1	65	18:1	50	3:1	1:1168
Ovia S.W	2238	20:1	111	19:1	110	21:1	1,2238
Orhipmwon	923	16:1	54	17:1	57	16:1	1:923

Analysis of materials resources Adequacy reveals levels of inadequacy, especially in physics, mathematics and English Language. The ratio of student to text book ranged between 3.1 to 28:1

Research Question 3:

What is the extent of internal efficiency in Public Senior Secondary Schools in Edo State following the trends of Enrollment and graduate rates for the 2022 cohort.

Table 3: Enrollment and graduation

Enrolment Levels 2022/2023 SS1	2023/2024 SS 2	2024/2025	Dropout Rate	Completion rate	Input/Output rate
17546	15044	10627	39.50%	60.5%	0.60

The following reveals that a total of 6,919 students either dropped out or repeated representing 39.5%, while completion rate was 60.5% signifying a moderator internal efficiency. This could be caused by factors as inadequate resources, poor learning conditions, economic challenges, low student motivation.

Hypothesis One

There is no significant relationship between level of adequate of educational inputs and internal efficiency in Public Senior Secondary Schools in Edo State.

Table 4: Coefficient of the relationship between Educational Inputs and Internal efficiency.

Model	Unstandardized Coefficient Beta	Std error	Standardized Coefficient Beta	T	sig
(Constant)	.463	1.002		.462	1648
Physical Resource	-.239	.086	-.268	-2.769	.002
Human Resource	.984	.257	.365	3.831	.000
Materials Resources	.208	.110	.179	1.896	.006

The regression coefficients table provides insight into how each predictor (material, human, and physical resources) affects internal efficiency. Physical resources have a significant adverse effect on internal efficiency, with an unstandardized coefficient of -0.239 ($p = .007$), indicating that, holding all else constant, a one-unit increase in physical resources is associated with a 0.239-unit decrease in internal efficiency. The corresponding standardized beta of -0.268 confirms the inverse relationship. This adverse effect might reflect issues such as inefficient utilisation or an overabundance of physical

infrastructure that does not translate into better operational efficiency. Human resources, however, show a strong, statistically significant positive effect on internal efficiency, with an unstandardized coefficient of 0.984 ($p < .005$) and a standardised, beta of 0.366. This finding is consistent with the context of public senior secondary schools in Edo State, where human resources are in excess. An abundance of qualified teachers and administrative staff appears to contribute substantially to improved internal efficiency, reinforcing the critical role of human capital in enhancing educational efficiency.

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The regression analysis revealed that material resources hurt internal efficiency, with an unstandardized coefficient of -0.208. This suggests that as material resources increase, internal efficiency tends to decrease when other factors are held constant. However, this relationship is not statistically significant at the 5% significance level ($t = -1.896$, $p = .061$). Therefore, there is no sufficient evidence to conclude that material resources significantly affect internal efficiency in this model, which means that material resources are not a primary driver of internal efficiency, so improving them while still important may not significantly impact efficiency on its own. In summary, the results are consistent with the known resource conditions in public senior secondary schools in State. The surplus in human resources positively affects internal efficiency, whereas material resources do not contribute to efficiency independently. Additionally, an excess of physical resources appears to be counterproductive, possibly due to underutilization or inefficient management. This comprehensive view reinforces the need for balanced resource allocation to maximise internal efficiency in public senior secondary schools.

DISCUSSION OF FINDINGS

Analysis of the student-teacher ratio (Table 1) over the three academic sessions indicates a substantial teacher surplus relative to the student population. The recommended student-teacher ratio of 1:40 is substantially exceeded, with observed ratios ranging from 10:1 to 15:1, and adequacy percentages exceeding 300%, reaching nearly 400% in 2024/2025. This trend suggests that students have a disproportionately high number of teachers, which may be partly due to the urban concentration of teaching staff, as many teachers prefer postings in urban areas for proximity to family or social amenities. Oftentimes, most teaching staff in rural areas request to move to urban schools where their spouses or families reside. While an abundance of qualified teachers may benefit instructional quality, such disproportionate staffing likely reflects poor resource planning and allocation, leading to potential inefficiencies and

unnecessary expenditure. To enhance internal efficiency, staffing is expected to align with actual enrollment, classroom needs, subject demand, and curriculum structure. Omosidi et al. (2021) suggested that while public schools may have a surplus of human resources, management inefficiencies can limit the potential benefits. This indicates that strategic deployment and review of teacher distribution are essential to maximise efficiency and ensure effective resource utilisation.

The findings from this study revealed a critical shortage in material resources across public secondary schools in Edo State. Table 5 shows that most schools fall into the inadequacy category, indicating that most schools have less than the required textbooks for essential subjects such as Mathematics, English, Physics and Civic Education. This alarming shortage significantly undermines effective teaching and learning, thereby affecting internal efficiency in the school system. These results are consistent with the study by Olatunji (2015), which emphasised that the underutilization and inadequacy of material resources in Edo State schools have contributed to poor instructional quality and weakened student performance. Similarly, Fasasi (2017) found that insufficient teaching materials severely constrain internal efficiency in public secondary schools, and that private schools tend to perform better due to improved resourcing.

Atolagbe, Ojo, and Omosidi (2021) also reported that the availability of adequate learning materials enhances educational efficiency, reinforcing the centrality of learning resources to academic outcomes. Similarly, Babatunde, Sagaya, Agbesanya, and Ajadi (2025) found that inadequate learning resources in secondary schools significantly negatively affect students' academic achievement. However, Aliyu and Adeoye (2014) cautioned that the mere availability of instructional resources does not automatically enhance learning outcomes. Instead, effective utilisation, teacher motivation, and administrative competence remain vital mediating factors. This suggests that while addressing material resource shortages is crucial, attention must also be given to the strategic deployment and effective use of



such resources. Taken together, the findings from this study and existing literature underscore that improving internal efficiency in Edo State schools will require not only increased provision of learning materials but also deliberate efforts to ensure their effective utilisation in classroom instruction.

The internal efficiency of the system, as measured by graduation/completion rates (Table 4 indicates that only 60.5% of students who enrolled in SS 1 during the 2022/2023 session were promoted to SS3 by 2024/2025. The dropout or repetition rate stands at 39.5%, suggesting a significant level of inefficiency within the system. The moderate efficiency observed may be attributed to multiple factors, including inadequate learning materials, poor infrastructural conditions, economic challenges, and low student motivation, all of which undermine student retention and success. These findings are supported by Fasasi (2017), who reported a similar trend in public secondary schools across Edo State. His study found that low internal efficiency, particularly in public schools, stemmed from insufficient learning materials and weak administrative supervision, leading to high dropout and repetition rates. Fasasi emphasised that the availability and proper use of resources were significant predictors of student completion rates. Therefore, the observed level of internal inefficiency reflects a systemic imbalance between input adequacy and functional utilisation, implying that internal efficiency is contingent not just on what is available, but on how effectively those resources are managed to support student progression.

A coefficient of relationship between Educational Inputs and Internal Efficiency reveals a nuanced picture of how various educational inputs influence internal efficiency. Notably, physical resources were found to have a significant adverse effect on internal efficiency ($B = -0.239$, $B = -0.268$, $p = .007$). This counterintuitive result suggests that mere abundance of physical infrastructure does not guarantee better learning outcomes and, if poorly managed or underutilised, may even hinder internal efficiency. This finding aligns with Ogunode and Ahaotu (2020), who argued that physical resource expansion without effective

utilisation frameworks often leads to inefficiencies. Conversely, human resources had a strong and statistically significant positive influence on graduation rates ($B = 0.984$, $B = 0.366$, $p < .005$). This corroborates Afolabi and Loto (2021), who found that the availability of qualified teachers significantly enhances teaching effectiveness and student achievement. Olorunsola and Arogundade (2022) also emphasised that the equitable distribution of trained teachers fosters greater internal efficiency and minimises educational wastage. The impact of material resources, although not statistically significant at the 5% threshold ($p = .061$), was marginally substantial and adverse ($B = -0.208$, $B = -0.179$). This result is consistent with your descriptive findings, which showed a shortage of textbooks and teaching aids in most schools. The negative coefficient may reflect current inefficiencies or misallocation in the distribution or use of available materials. Supporting this, Atolagbe et al. (2021) stressed that material adequacy and accessibility (not just their presence) are essential in fostering better student outcomes in both distance and conventional learning settings.

Taken together, these findings suggest that improving internal efficiency in education goes beyond increasing inputs. It requires effective deployment, teacher engagement, and equitable distribution. While human capital appears to be an asset in the current system, the impact of physical and material resources remains dependent on strategic planning, utilisation, and maintenance. Therefore, interventions should not only address shortages but also focus on capacity-building, monitoring, and accountability to ensure that existing resources translate into better educational outcomes. In sum, these findings strongly aligned with both local and international studies, suggesting that addressing educational input deficiencies is key to improving internal efficiency in schools. The high dropout repetition rates highlight an urgent need for systemic intervention that targets both resource provision and effective utilisation strategies.



CONCLUSION

The findings indicate that public senior secondary schools Edo State face significant challenges in the provision and management of educational inputs. Although a surplus of teaching staff may enhance specific learning outcomes, critical shortages of instructional materials, such as textbooks and laboratory equipment, and inefficient management of physical resources hinder overall internal efficiency. This imbalance illustrates that excess human resources cannot compensate for deficits in material and infrastructural inputs, resulting in an educational system where the effectiveness of available resources is undermined. The over-abundance of teachers, when juxtaposed with the under-provision of textbooks and mismanaged infrastructure, creates an imbalanced system in which a resource surplus in one area does not compensate for deficits in others. Overall, the internal efficiency, as indicated by a 60.5% graduation rate, is only moderate and is adversely affected by the resource imbalances.

RECOMMENDATIONS

1. The Ministry of Education should undertake a systematic review of teacher deployment policies to improve the alignment of human resources with school needs. Surplus teachers should be redeployed to schools experiencing critical staff shortages or retrained to serve in specialised subjects or educational support functions. Also, teacher deployment should be based on their area of location. This will reduce the rate at which teachers move from their place of deployment to populate schools that have enough teachers close to their place of residence. This will ensure optimal utilisation of human resources while maintaining quality teaching.
2. School management should ensure proper maintenance of the available material resources, most especially mathematics and English, which are moderately adequate. At the same time, urgent investment is required to procure materials, especially core subject textbooks in civic and biology. The government should partner with NGOS, the private sector, and donor agencies to bridge the gap. Additionally, digital learning resources should be introduced where possible to complement physical materials.
3. Targeted interventions such as remedial programmes, counselling, and monitoring of students' progress should be introduced to reduce dropout rates and improve completion.
4. Education policymakers should adopt a balanced resource allocation model where the focus is not just on quantity but on strategic deployment to areas that directly enhance learning outcomes. Focusing heavily on improving material resources may not yield a proportionate improvement in internal efficiency. Continuous monitoring and evaluation should guide resource provision to ensure that investments translate to better internal efficiency and reduced wastage in the system.

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