

Provision of Educational Infrastructure and the Wellbeing of Beneficiaries in the Niger Delta Region of Nigeria

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Abstract

This study examined the relationship between the provision of educational infrastructure and the wellbeing of beneficiaries in the Niger Delta region, Nigeria. One research hypothesis guided the study. Relevant literature was reviewed, and the study was anchored on the Capability Approach. A cross-sectional survey research design using both quantitative and qualitative approaches was adopted. A sample of 784 respondents was selected through a multi-stage sampling procedure involving cluster, simple random, and purposive sampling techniques. Data were collected using structured questionnaires and In-Depth Interviews (IDI) and analysed using descriptive statistics, thematic analysis, and the Pearson Product Moment Correlation Coefficient (PPMCC). The findings revealed a significant relationship between the provision of educational infrastructure and the wellbeing of beneficiaries in the Niger Delta region, Nigeria ($r = 0.788$, $p < .05$). The study concluded that the provision of functional educational infrastructure, including classrooms, libraries, laboratories, ICT facilities, and other learning resources, significantly improves the wellbeing of beneficiaries by enhancing learning conditions, educational opportunities, academic performance, and overall quality of life. The study recommended that the Niger Delta Development Commission (NDDC) should strengthen investment in educational infrastructure, ensure effective monitoring and completion of projects, and establish sustainable maintenance mechanisms to maximize the wellbeing of beneficiaries.

Keywords: Educational infrastructure, wellbeing, beneficiaries, Niger Delta Development Commission (NDDC), Niger Delta, Nigeria.

Introduction

Educational infrastructure plays a vital role in improving access to quality education and promoting the wellbeing of beneficiaries across the world. Educational infrastructure includes classrooms, libraries, laboratories, information and communication technology (ICT) centres, school furniture, water and sanitation facilities, electricity, and other physical learning resources that create a safe and conducive environment for teaching and learning (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2023). Scholars maintain that investment in educational infrastructure improves school attendance, enhances students' academic achievement, strengthens psychological wellbeing, and increases future employment opportunities by providing learners with quality educational experiences (Organisation for Economic Co-operation and Development [OECD], 2023; World Bank, 2025). Educational infrastructure also promotes social inclusion, reduces inequalities in access to education, and improves the overall quality of life of beneficiaries by creating learning environments that are healthy, secure, and supportive of effective learning (World Bank, 2025; UNESCO, 2023).

Across the world, governments and development agencies continue to invest heavily in educational infrastructure because of its contribution to human development and wellbeing. Studies have shown that modern classrooms, functional laboratories, digital learning facilities, libraries, and adequate

school furniture improve learners' motivation, increase participation in classroom activities, reduce school dropout, and promote better educational outcomes (World Bank, 2025; OECD, 2023). Research further indicates that beneficiaries who learn in well-equipped schools experience lower levels of stress, greater confidence, improved academic performance, and better social and emotional wellbeing than those studying in poorly equipped environments (UNESCO, 2023; World Bank, 2025). Consequently, educational infrastructure has become a critical investment for promoting sustainable development and improving the wellbeing of learners globally.

In Africa, the provision of educational infrastructure has received increasing attention as countries seek to improve educational quality and human capital development. Governments, development partners, and international agencies have invested in constructing classrooms, science laboratories, ICT centres, libraries, sanitation facilities, and teacher support facilities to improve learning conditions across the continent (African Development Bank, 2024; OECD, 2025). Scholars observe that improved educational infrastructure has increased school enrolment, reduced overcrowding, strengthened learning outcomes, and enhanced the social and psychological wellbeing of beneficiaries by providing safe and inclusive learning environments (Chikondi, Banda, & Phiri, 2024; UNESCO, 2023). Furthermore, quality educational facilities have been associated with improved educational participation among disadvantaged groups, enhanced digital literacy, greater educational equity, and increased opportunities for employment and economic empowerment across Africa (OECD, 2025; African Development Bank, 2024).

In Nigeria, the provision of educational infrastructure has remained an important strategy for improving educational outcomes and the wellbeing of learners. Federal and state governments, intervention agencies, and development partners have invested in classrooms, libraries, laboratories, ICT facilities, school furniture, and instructional materials to improve teaching and learning (UNESCO International Institute for Educational Planning, 2021). Studies show that schools with adequate educational facilities record better academic performance, higher school attendance, improved teacher effectiveness, and greater student satisfaction than schools with inadequate infrastructure (Azubuike & Adefeso-Olateju, 2019). Researchers also argue that the availability of functional educational infrastructure reduces learning barriers, improves educational quality, and enhances the educational, psychological, and social wellbeing of beneficiaries by creating a more conducive learning environment (UNESCO IICBA, 2024; World Bank, 2025).

In the Niger Delta region of Nigeria, the provision of educational infrastructure has become one of the major educational intervention strategies of the Niger Delta Development Commission (NDDC) to promote human capital development and improve the wellbeing of beneficiaries. The Commission has constructed and renovated classroom blocks, provided science laboratories, ICT centres, libraries, school furniture, digital learning devices, and other educational facilities in primary, secondary, and tertiary institutions across the region (Niger Delta Development Commission, 2024). These interventions have improved access to quality education, strengthened teaching and learning, enhanced digital skills, and created better learning environments for students and teachers (Niger Delta Development Commission, 2024). The improved educational facilities have also contributed to better academic performance, increased learning motivation, improved educational opportunities, and enhanced the social, economic, and psychological wellbeing of beneficiaries in the Niger Delta region by reducing educational inequalities and expanding access to quality educational resources (Niger Delta Development Commission, 2024; World Bank, 2025).

Statement of the Problem

Despite the enormous revenue generated from oil resources, the Niger Delta region continues to face inadequate provision of educational infrastructure. Many educational institutions in the region still suffer from dilapidated classrooms, poorly equipped libraries and laboratories, inadequate lecture halls, limited information and communication technology (ICT) facilities, insufficient hostel accommodation, and an unconducive learning environment. These deficiencies have negatively affected the wellbeing of beneficiaries by reducing access to quality education, limiting effective teaching and learning, increasing academic stress, lowering students' motivation, and restricting opportunities for academic and personal development. Although the Niger Delta Development Commission (NDDC), state governments, multinational oil companies, and other development partners have invested in the construction and rehabilitation of educational facilities, the shortage and poor quality of educational infrastructure remain major challenges in many communities, thereby limiting the expected improvement in beneficiaries' wellbeing.

Existing studies have largely examined the provision of educational infrastructure in relation to school enrolment, educational access, and academic performance, with limited attention to its influence on the overall wellbeing of beneficiaries. For instance, Ossai (2022) found that improved educational facilities enhanced teaching and learning under the Universal Basic Education Programme in Delta State. However, the study did not specifically examine how the provision of educational infrastructure influences the economic, social, and psychological wellbeing of beneficiaries in the Niger Delta region. This creates an empirical gap in the literature. Therefore, this study seeks to fill this gap by examining the relationship between the provision of educational infrastructure and the wellbeing of beneficiaries in the Niger Delta region, Nigeria. The findings will provide evidence to guide the NDDC, government, and development partners in designing educational infrastructure interventions that will improve the wellbeing of beneficiaries and promote sustainable human development in the region.

Research question

How does NDDC provision educational infrastructure relate to the wellbeing of beneficiaries in the Niger Delta region, Nigeria?

Research objective

The study assessed the relationship between NDDC provision of educational infrastructure and the wellbeing of beneficiaries in the Niger Delta, Nigeria.

Research hypothesis

There is no significant relationship between NDDC provision educational infrastructure and the wellbeing of beneficiaries in the Niger Delta, Nigeria.

Literature review

Educational infrastructure interventions refer to investments in physical facilities such as classrooms, laboratories, libraries, hostels, digital learning environments, and other learning resources intended to improve the educational environment. The quality of educational infrastructure has been widely linked to students' academic performance, motivation, health, and psychosocial wellbeing. Research in educational development literature suggests that conducive

learning environments contribute significantly to both cognitive outcomes and broader indicators of quality of life. For instance, a study by Ofem et al (2023), examined the relationship between Niger Delta Development Commission (NDDC) developmental interventions and the wellbeing of rural dwellers in the Southern Senatorial District of Cross River State, Nigeria. The objective of the study was to assess how selected NDDC intervention programmes, including educational interventions and road construction projects, have influenced the overall wellbeing of rural populations in the study area.

Efanga and Otu (2018), studied the relationship between NDDC classroom construction projects and the wellbeing of school children in rural Niger Delta. Using a quasi-experimental design with 500 students across 20 schools, they found that children in schools with NDDC-built classrooms had lower rates of waterborne diseases (15% vs 35%), reduced absenteeism due to illness (20% vs 45%), and better access to sanitation facilities compared to schools without such infrastructure. The study concluded that infrastructure interventions significantly improve health wellbeing. Ogbu and Okafor (2020), assessed the impact of NDDC library and laboratory construction on academic performance and psychological wellbeing in Bayelsa State. The study, involving 300 secondary school students, revealed that students in schools with NDDC-built libraries and labs scored 25% higher in standardized tests and reported greater academic self-efficacy and career aspirations. The authors attributed these improvements to enhanced learning environments.

Akpan and Udoh (2018), examined challenges in NDDC infrastructure projects, noting that delayed project completion, poor quality of materials, and lack of community involvement often undermined potential wellbeing benefits. They recommended that NDDC adopt a community-based monitoring framework to improve project outcomes. Egbulonu and Eletuo (2018), investigated the effects of Niger Delta Development Commission (NDDC) intervention projects on the growth of oil-producing communities in Abia State, Nigeria, covering the period from 2001 to 2017. The primary objective of the study was to examine whether NDDC intervention expenditures across key sectors contributed to economic growth in the host communities. Notably, the study explicitly included education and health interventions as one of the core independent variables, thereby incorporating an education intervention component within its analytical framework. Methodologically, the study adopted a quantitative econometric research design, utilising secondary time-series data sourced from the NDDC Abia State Budget Office.

The independent variables comprised NDDC intervention expenditures in education and health, energy and water, roads and bridges, and agricultural and fisheries development, while Gross State Domestic Product (GSDP) served as the dependent variable measuring community growth. The data were analysed using advanced econometric techniques, including unit root tests, Johansen cointegration tests, and an Error Correction Model (ECM) to establish both short-run and long-run relationships among the variables. The findings revealed that NDDC interventions in education and health, energy and water, and agricultural development had a positive relationship with economic growth in the oil-producing communities. Importantly, interventions in education and health were found to have a statistically significant positive impact on community growth, highlighting education infrastructure and related services as a critical driver of development outcomes.

Yangambi (2023), explored the impact of school infrastructures on students' learning and performance in three public secondary schools within the Kinshasa-Ngaliema education division in the Democratic Republic of the Congo, situating the study within concerns that inadequate physical facilities undermine educational quality in many developing contexts. Recognizing that the physical environment including buildings, classrooms, lighting, air quality, temperature control,

and learning resources can shape both teaching effectiveness and student engagement, the study aimed to determine how variations in school infrastructure are associated with academic performance outcomes. Employing a quantitative research design, data were collected through a questionnaire administered to a convenience sample of 108 teachers across the three schools, who provided assessments of existing infrastructure conditions and their effects on instructional processes and student achievement. Descriptive analysis of responses showed strong consensus among teachers that poor or poorly maintained infrastructure, such as inadequate classrooms and uncomfortable environments, hindered both teaching and learning, limiting students' ability to perform effectively. Furthermore, comparative performance data suggested variation across the schools, with those perceived to have relatively better infrastructure showing higher success rates in state examinations.

Theoretical framework

Capability Approach

The Capability Approach was developed by Amartya Sen (1999) and further expanded by Martha Nussbaum (2011). The theory argues that development should not be measured merely by the availability of resources but by people's ability to use those resources to improve their lives. According to the theory, wellbeing is achieved when individuals have the real opportunities and freedom to utilize available resources to attain valued outcomes. In the educational sector, the provision of educational infrastructure such as classrooms, libraries, laboratories, ICT facilities, hostels, and conducive learning environments enhances students' capabilities by creating opportunities for quality learning, skills acquisition, academic success, and personal development.

In relation to this study, the Capability Approach provides a useful framework for explaining how the provision of educational infrastructure influences the wellbeing of beneficiaries in the Niger Delta region. The theory recognizes that educational infrastructure alone may not automatically improve beneficiaries' wellbeing unless such facilities are functional, accessible, adequately maintained, and effectively utilized. Modern classrooms, well-equipped laboratories, functional libraries, ICT facilities, and safe learning environments can enhance learning experiences, reduce academic stress, improve educational achievement, and strengthen the economic, social, and psychological wellbeing of beneficiaries. However, inadequate facilities, poor maintenance, overcrowding, and unequal access may prevent beneficiaries from fully realizing these benefits.

The Capability Approach is therefore relevant to this study because it explains that the provision of educational infrastructure contributes to beneficiaries' wellbeing only when the infrastructure expands their opportunities to learn, develop skills, and improve their quality of life. The theory also provides a basis for understanding why differences in the quality, accessibility, and utilization of educational infrastructure may result in varying levels of wellbeing among beneficiaries in the Niger Delta region of Nigeria.

Methodology

The study adopted a cross-sectional survey research design using both quantitative and qualitative approaches to examine the relationship between the provision of educational infrastructure and the wellbeing of beneficiaries in the Niger Delta region, Nigeria. The quantitative approach involved the administration of structured questionnaires to beneficiaries of the Niger Delta Development Commission (NDDC) educational infrastructure interventions, while the qualitative approach

employed In-Depth Interviews (IDI) to obtain detailed information from selected beneficiaries and key stakeholders. Specifically, the study examined provision of educational infrastructure as the independent variable and wellbeing of beneficiaries as the dependent variable.

The study was conducted in the Niger Delta region of Nigeria. Although the NDDC operates in the nine oil-producing states of Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo, and Rivers, two states (Akwa Ibom and Delta) were randomly selected for the study. The region was selected because it has benefited substantially from NDDC educational infrastructure projects, including the construction and renovation of classrooms, libraries, laboratories, lecture halls, ICT centres, and other educational facilities aimed at improving educational development and the wellbeing of beneficiaries.

The target population comprised beneficiaries of NDDC educational infrastructure projects in selected public tertiary institutions in Akwa Ibom and Delta States between 2018 and 2025. The study population consisted of 20,752 beneficiaries. Using the Taro Yamane (1967) sample size determination formula at a 0.05 level of significance, a minimum sample size of 392 respondents was obtained. To ensure adequate representation of the two selected states, the sample size was doubled, resulting in a total sample of 784 respondents, comprising 392 respondents each from Akwa Ibom and Delta States.

A multi-stage sampling technique involving cluster sampling, simple random sampling, and purposive sampling was adopted. In the first stage, the nine NDDC states were treated as clusters, from which Akwa Ibom and Delta States were selected through simple random sampling using the balloting method. In the second stage, public tertiary institutions with verifiable evidence of benefiting from NDDC educational infrastructure projects were purposively selected. In the third stage, 784 beneficiaries of the educational infrastructure projects were purposively selected to complete the questionnaire. In addition, two (2) participants were purposively selected for the In-Depth Interview based on their knowledge and experience regarding NDDC educational infrastructure interventions.

Data were collected from both primary and secondary sources. Primary data were obtained through structured questionnaires and In-Depth Interviews, while secondary data were sourced from scholarly journal articles, textbooks, government publications, official NDDC reports, conference papers, newspapers, and other relevant documents. Quantitative data were analyzed using descriptive statistics, including frequencies, percentages, mean, and standard deviation, while the Pearson Product Moment Correlation Coefficient (PPMCC) was used to test the hypothesis at the 0.05 level of significance. Qualitative data obtained through the In-Depth Interviews were analyzed thematically to complement and explain the quantitative findings. The Pearson Product Moment Correlation Coefficient is presented as follows:

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)(N\sum Y^2 - (\sum Y)^2)}}$$

Where:

r = Co-efficient of the correlation
y = Dependent variable
x = Independent variable
Σ = Summation

Analysis and discussion

TABLE 1: Respondents' perception on NDDC educational infrastructure and the wellbeing of beneficiaries

S/No	Statement	SA	A	D	SD	Total
6	NDDC-funded infrastructure improved the learning environment	310 (41.2%)	288 (38.3%)	92(12.2%)	62 (8.2%)	752
7	School facilities improved due to NDDC interventions	332 (44.1%)	268 (35.6%)	90(12.0%)	62 (8.2%)	752
8	Improved infrastructure enhanced comfort and safety in school	354 (47.1%)	246 (32.7%)	90(12.0%)	62 (8.2%)	752
9	NDDC projects increased access to educational opportunities	288 (38.3%)	310 (41.2%)	90(12.0%)	64 (8.5%)	752
10	Modern facilities positively influenced teaching and learning	332 (44.1%)	268 (35.6%)	90(12.0%)	62 (8.2%)	752

Source: Field Work, 2026

Testing of hypothesis

There is no significant relationship between NDDC provision educational infrastructure and the wellbeing of beneficiaries in the Niger Delta, Nigeria.

Decision Rule:

Pearson's product moment correlation decision rule states that "if calculated r-value is greater than or equal to critical (table) r-value from a sample size n, at 0.05 alpha (α) level of significance", reject null-hypothesis (H_0) and accept alternate hypothesis (H_1).

TABLE 2: Summary of PPMC Analysis for NDDC provision educational infrastructure and the wellbeing of beneficiaries in the Niger Delta, Nigeria

Factors	N	Mean	SD	r-value	Sig.
NDDC provision educational infrastructure	752	2.8765	0.8943	0.788**	.05
The wellbeing of beneficiaries	752	2.9231	0.8765		

Significant at * $P < .05$; Critical r-value = 0.072 $df = 750$

Results:

Table two shows that the calculated r-value of 0.788 was greater than the critical r-value of 0.072 at a 0.05 level of significance with 750 degrees of freedom. This result leads to the rejection of the null hypothesis (H_0) and the acceptance of the alternative hypothesis (H_1), which states that there, is a significant relationship between NDDC provision educational infrastructure and the wellbeing of beneficiaries in the Niger Delta, Nigeria.

Discussion of findings

NDDC provision educational infrastructure and the wellbeing of beneficiaries

The result of the hypothesis revealed a significant relationship between NDDC provision educational infrastructure and the wellbeing of beneficiaries in the Niger Delta, Nigeria ($r = 0.788$, $p < .05$). The overwhelming majority of respondents confirmed that NDDC-funded infrastructure improved the learning environment, enhanced comfort and safety, increased access to educational opportunities, and positively influenced the wellbeing of beneficiaries in the Niger Delta, Nigeria.

From the Key interview guide: An IDI respondent, a school principal in Cross River State described the impact of NDDC infrastructure projects:

“ Our school received a block of three classrooms from NDDC in 2019. Before then, we had over 120 students sitting in a dilapidated hall with a leaking roof. During the rainy season, classes were often suspended. After the NDDC intervention, attendance improved from 65% to over 90%. Students are more comfortable, and teachers can deliver lessons effectively. We also received desks and chairs, which reduced the problem of students sitting on the floor. The wellbeing of both students and teachers has improved significantly.”

However, A Community Leader in Akwa Ibom State Noted Challenges:

“ eeh.., not all NDDC infrastructure projects are completed. In our community, NDDC started a six-classroom block in 2020. They laid the foundation and built the walls, but the project was abandoned. Now, the unfinished structure has become a hideout for miscreants. We have not seen the benefits. NDDC must ensure projects are completed and handed over properly.”

This finding is consistent with the assertion of Efanga and Otu (2018), they studied the relationship between NDDC classroom construction projects and the wellbeing of school children in rural Niger Delta. Using a quasi-experimental design with 500 students across 20 schools, they found that children in schools with NDDC-built classrooms had lower rates of waterborne diseases (15% vs 35%), reduced absenteeism due to illness (20% vs 45%), and better access to sanitation facilities compared to schools without such infrastructure. The study concluded that infrastructure interventions significantly improve health wellbeing. Ogbu and Okafor (2020) assessed the impact of NDDC library and laboratory construction on academic performance and psychological wellbeing in Bayelsa State. The study, involving 300 secondary school students, revealed that students in schools with NDDC-built libraries and labs scored 25% higher in standardized tests and reported greater academic self-efficacy and career aspirations. The authors attributed these improvements to enhanced learning environments. Akpan and Udoh (2018), examined challenges in NDDC infrastructure projects, noting that delayed project completion, poor quality of materials,

and lack of community involvement often undermined potential wellbeing benefits. They recommended that NDDC adopt a community-based monitoring framework to improve project outcomes.

Conclusion

The study examined the relationship between the provision of educational infrastructure and the wellbeing of beneficiaries in the Niger Delta region, Nigeria. Evidence from the literature reviewed indicates that the provision of quality educational infrastructure, including classrooms, libraries, laboratories, ICT facilities, lecture halls, and other learning resources, contributes significantly to improving access to quality education, enhancing academic performance, promoting skills acquisition, and improving the social, economic, and psychological wellbeing of beneficiaries. The Capability Approach further explains that educational infrastructure enhances wellbeing only when beneficiaries are able to access and effectively utilize these facilities to improve their learning experiences and quality of life.

Although the Niger Delta Development Commission (NDDC) and other stakeholders have invested in educational infrastructure across the Niger Delta region, many institutions still face inadequate and poorly maintained facilities, which continue to limit the expected wellbeing outcomes among beneficiaries. This study therefore provides empirical evidence on the relationship between the provision of educational infrastructure and the wellbeing of beneficiaries in the Niger Delta region. The findings are expected to assist the NDDC, government, and development partners in formulating policies and implementing sustainable educational infrastructure interventions that will enhance beneficiaries' wellbeing and promote long-term human capital development in the Niger Delta region, Nigeria.

Recommendations

Based on the findings the following recommendations are made:

1. The Niger Delta Development Commission (NDDC) should increase investment in the provision, rehabilitation, and maintenance of educational infrastructure such as classrooms, libraries, laboratories, ICT centres, lecture halls, and sanitation facilities across educational institutions in the Niger Delta. This will provide a conducive learning environment, improve teaching and learning, and enhance the educational, psychological, and social wellbeing of beneficiaries.
2. The NDDC should establish a transparent project monitoring and evaluation framework to ensure that all educational infrastructure projects are completed on schedule, constructed to approved standards, and properly handed over to beneficiary institutions. Regular supervision, independent audits, and community participation should be incorporated to prevent project abandonment, ensure accountability, and maximize the wellbeing benefits of the interventions.
3. The Federal Government, NDDC, state governments, and educational institutions should develop a sustainable maintenance policy for educational infrastructure by providing adequate funding for routine maintenance, equipping completed facilities with modern teaching and learning resources, and strengthening institutional capacity for facility management. This will ensure the long-term functionality of educational infrastructure and sustain its positive impact on the wellbeing of beneficiaries in the Niger Delta region.

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