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THE IMPACT OF POOR INFRASTRUCTURAL FACILITIES ON THE QUALITY OF BUSINESS EDUCATION IN NIGERIA

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Abstract

This study investigates the impact of poor infrastructural facilities on the quality of Business Education in Nigerian tertiary institutions. Guided by three research questions and hypotheses, an ex post facto (causal-comparative) research design was adopted. The population comprised 18,740 lecturers and students of Business Education in Nigerian tertiary institutions, from which a sample of 392 respondents (72 lecturers and 320 students) was selected using Taro Yamane's formula. Data were collected through a validated questionnaire with a reliability coefficient of 0.82, and analyzed using mean, standard deviation, Pearson correlation, and multiple regression at a 0.05 level of significance. Findings revealed significant positive relationships between infrastructural facilities and the quality of Business Education: ICT facilities ($r = 0.652$, $p < 0.05$), electricity supply ($r = 0.573$, $p < 0.05$), and physical learning facilities ($r = 0.601$, $p < 0.05$). Regression results indicated that these variables jointly accounted for 53.6% of the variance ($R^2 = 0.536$) in Business Education quality, with ICT exerting the strongest influence ($\beta = 0.412$). The study concluded that inadequate infrastructural facilities significantly hinder teaching effectiveness, research productivity, and skill acquisition in Business Education. It recommended increased funding, stronger public–private partnerships, stable power supply, and the prioritization of ICT integration and facility maintenance to improve Business Education quality in Nigeria.

Keywords: Business Education, Infrastructural Facilities, Quality Education, ICT, Electricity.

Introduction

Education is widely recognized as a catalyst for economic progress, technological advancement, and social development. In Nigeria, Business Education plays a vital role in equipping learners with skills for employment, entrepreneurship, and national growth. Its academic and vocational nature requires an environment where theory integrates effectively with practice. However, persistent inadequacy of infrastructural facilities in Nigerian tertiary institutions continues to undermine these objectives.

Infrastructural facilities — classrooms, libraries, ICT laboratories, electricity supply, workshops, and staff offices — are the physical and technological resources supporting teaching, learning, and research. Ogunode and Agwor (2021) describe them as the "social capital" of education. Yet, many institutions lack functional ICT laboratories, suffer from erratic power supply, and have overcrowded classrooms and poorly equipped libraries. Ayoko, Peter, and Jegede (2023) observed that this infrastructural decay has led to poor teaching quality, low research output, frequent strikes, and declining institutional rankings.

Empirical studies confirm a strong relationship between infrastructure and education quality. Isa (2020) found a significant correlation between infrastructural provision and education quality in federal tertiary institutions in Kaduna State. Likewise, John and Aliyu (2024) reported a strong positive link ($r = 0.72$) between infrastructural quality and academic performance, while Wokoma and Fubara (2018) found that inadequate facilities negatively affect students' achievement ($r = 0.1994$, $p < 0.05$).

In Business Education, inadequate infrastructure restricts skill development and pedagogical quality. Students often learn business processes theoretically without practical exposure, weakening employability and innovation. Egbere (2021) attributes this to underfunding, corruption, and poor maintenance, while Maiyeri et al. (2022) noted that neglect of infrastructure limits innovation and entrepreneurship.

Government efforts remain insufficient. Despite UNESCO's 26% education funding recommendation, Nigeria's allocation remains below 10%, leaving institutions dependent on limited subventions. Okoh et al. (2024) found that infrastructural challenges—especially poor electricity and ICT access—significantly reduce organizational productivity ($R^2 = 0.69$, $p < 0.05$). These findings apply equally to Business Education, where infrastructure supports experiential learning and entrepreneurship.

Given its role in national development, addressing infrastructural inadequacy in Business Education is imperative. A well-equipped environment that promotes digital learning, modern teaching, and innovation is essential for achieving skill acquisition and quality outcomes.

Statement of the Problem

Despite the recognized importance of infrastructure in education, the state of facilities supporting Business Education in Nigerian tertiary institutions remains alarmingly poor. Classrooms are overcrowded and poorly ventilated; power supply is unreliable; ICT laboratories are under-equipped; and business workshops lack essential materials. The few available facilities are overstretched due to increasing enrolments and poor maintenance. Reports from Isa (2020) and Ayoko et al. (2023) indicate that these infrastructural deficiencies have directly contributed

to declining educational standards, low research productivity, and poor graduate performance in Business Education programmes.

Furthermore, repeated industrial actions by the Academic Staff Union of Universities (ASUU) and other unions are partly triggered by poor infrastructural conditions. Many Business Education lecturers operate under demotivating conditions, which has resulted in high staff turnover and brain drain. Consequently, students graduate without the practical competencies required by modern business environments, thereby weakening the credibility of Business Education as a tool for economic empowerment. This study, therefore, investigates the extent to which poor infrastructural facilities affect the quality of Business Education in Nigerian tertiary institutions and explores strategies to reverse this trend.

Purpose of the Study

The main purpose of this study is to examine the impact of poor infrastructural facilities on the quality of Business Education in Nigeria. Specifically, the study seeks to:

1. Identify the major infrastructural deficiencies affecting Business Education in Nigerian tertiary institutions.
2. Determine the extent to which these infrastructural inadequacies affect the quality of teaching, learning, and research in Business Education.
3. Suggest sustainable strategies for improving infrastructural development and enhancing the quality of Business Education in Nigeria.

Research Questions

The following research questions guided the study:

1. What is the effect of inadequate ICT facilities on the quality of Business Education in Nigerian tertiary institutions?
2. To what extent does poor electricity supply influence effective teaching and learning in Business Education programmes?
3. How does inadequacy of physical learning facilities (classrooms, libraries, and laboratories) affect the quality of Business Education in Nigerian tertiary institutions?

Research Hypotheses

The following null hypotheses were formulated and tested at a 0.05 level of significance to guide this study:

H_{o1}: There is no significant relationship between inadequate ICT facilities and the quality of Business Education in Nigerian tertiary institutions.

H_{o2}: There is no significant relationship between poor electricity supply and the quality of Business Education in Nigerian tertiary institutions.

H_{o3}: There is no significant relationship between inadequate physical learning facilities and the quality of Business Education in Nigerian tertiary institutions.

Significance of the Study

The findings of this study will be beneficial to multiple stakeholders within the Nigerian education sector. Specifically, the study will:

1. Provide empirical evidence on how infrastructural inadequacy affects the quality of Business Education programmes in Nigerian tertiary institutions.
2. Assist policymakers and education planners in developing evidence-based strategies for improving infrastructural development and resource allocation in tertiary institutions.
3. Guide Business Education lecturers and administrators in identifying critical infrastructural needs and integrating technology-enhanced teaching practices.
4. Support funding agencies such as TETFund in prioritizing projects that directly enhance learning infrastructure in Business Education.
5. Contribute to scholarly discourse by enriching the empirical literature on infrastructural development and educational quality in developing countries, particularly in sub-Saharan Africa.

Review of Related Literature

Conceptual Review

Concept of Infrastructural Facilities in Education

Infrastructural facilities in education refer to the tangible and intangible physical resources that enable effective teaching, learning, research, and administration. According to Ogunode and Agwor (2021), educational infrastructure includes classrooms, libraries, laboratories, workshops, ICT resources, and electricity supply that support academic activities. In tertiary institutions, these facilities are fundamental to ensuring functional and quality education. Ayoko et al. (2023) describe infrastructure as the foundation upon which academic productivity, student satisfaction, and institutional efficiency are built.

In the Nigerian context, the availability, functionality, and maintenance of infrastructure have long been inadequate. Egbere (2021) noted that over 70% of Nigerian public universities, polytechnics, and colleges of education operate with obsolete or insufficient facilities. This inadequacy manifests in poor library resources, congested lecture halls, non-functional laboratories, and erratic power supply. Similarly, Isa (2020) found that tertiary institutions in Kaduna State lacked adequate ICT equipment and reliable power supply, contributing to poor instructional delivery and declining education quality.

Infrastructure also extends beyond physical assets to include technological resources that enhance knowledge delivery. Okoh et al. (2024) emphasized that in the 21st century, digital learning infrastructure — such as broadband internet, multimedia projectors, and learning management systems — is integral to effective higher education. In Business Education, the absence of such digital infrastructure limits students' ability to acquire practical skills in entrepreneurship, accounting software, and office technology.

Concept of Business Education

Business Education is an aspect of vocational education designed to equip individuals with the competencies needed for gainful employment, entrepreneurship, and self-reliance. It blends academic theory with practical skill acquisition. According to Osuala (2019), Business Education is a program of study that provides students with knowledge and skills in business, commerce, and administration for both personal and societal development.

The National Policy on Education (FGN, 2014) defines Business Education as training that enables learners to acquire practical skills, knowledge, and attitudes required for business operations and office management. It prepares learners to become skilled workers, entrepreneurs, or administrators in public and private sectors. To achieve these goals, institutions must provide modern teaching tools — ICT laboratories, well-equipped business workshops, conducive classrooms, and stable electricity supply.

However, the reality in most Nigerian tertiary institutions diverges sharply from policy expectations. Maiyeri et al. (2022) observed that the lack of infrastructure, especially in ICT and power, has crippled Business Education programmes. Students are often exposed to theoretical instruction without practical engagement. This disconnect leads to graduates who are academically qualified but lack employable skills.

Quality of Business Education

The quality of Business Education refers to the degree to which teaching, learning, and research outcomes meet established academic and professional standards. Quality is assessed through curriculum relevance, pedagogical effectiveness, resource adequacy, and graduate employability. Nwosu and Ofoegbu (2021) argue that a high-quality Business Education system produces graduates who possess both cognitive and psychomotor competencies for productive participation in the economy.

Unfortunately, infrastructural inadequacies have negatively impacted educational quality across Nigerian tertiary institutions. Ayoko et al. (2023) highlighted that poor facilities directly result in unproductive classroom engagement, inadequate research opportunities, and declining student motivation. The lack of power supply further disrupts digital learning, while outdated libraries hinder access to current knowledge. Quality, therefore, is not an abstract goal but a direct function of infrastructural sufficiency and institutional commitment.

Relationship between Infrastructure and Educational Quality

A robust relationship exists between infrastructural adequacy and educational quality. John and Aliyu (2024) found a strong positive correlation ($r = 0.72$) between infrastructural facilities and academic performance, indicating that as infrastructure improves, learning outcomes rise correspondingly. Wokoma and Fubara (2018) likewise established a significant relationship between infrastructural adequacy and students' academic performance ($r = 0.1994$, $p < 0.05$).

Within Business Education, infrastructure enhances experiential learning — through accounting software practice, entrepreneurial simulations, and digital marketing exercises. Okoh et al. (2024) demonstrated that infrastructural components such as electricity, ICT, and road networks significantly affect organizational productivity ($R^2 = 0.69$, $p < 0.05$). This empirical evidence confirms that infrastructure influences not just performance outcomes but also institutional sustainability.

Theoretical Framework

The study is anchored on two complementary theories: Resource Dependency Theory (RDT) and Systems Theory.

- **Resource Dependency Theory (RDT)**

Proposed by Pfeffer and Salancik (1978), the Resource Dependency Theory posits that organizations depend on external resources for survival, and their effectiveness depends on the adequacy of those resources. In the educational context, tertiary institutions rely on infrastructural resources — such as electricity, ICT, and learning spaces — to achieve their teaching and research mandates. When these resources are inadequate, the institution's performance declines.

Applying RDT to Business Education implies that the quality of instructional delivery and student learning is contingent upon the availability and functionality of physical and technological infrastructure. Institutions with better infrastructural support are likely to produce more competent graduates. Conversely, poorly resourced Business Education departments will struggle to achieve their educational goals.

- **Systems Theory**

Developed by Ludwig von Bertalanffy (1968), Systems Theory views organizations as interdependent systems composed of subsystems that interact dynamically. In an educational institution, infrastructure, human resources, curriculum, and administration function as interconnected subsystems. A breakdown in one component — such as infrastructure — adversely affects the entire system.

From this perspective, poor infrastructural facilities (e.g., inadequate ICT, unstable electricity, insufficient classrooms) create systemic inefficiencies that disrupt teaching, learning, and research. The Systems Theory thus reinforces the idea that educational quality depends on the balanced functionality of all institutional components. Improving infrastructure will consequently strengthen the overall system performance of Business Education departments.

Empirical Reviews

Several empirical studies have investigated the relationship between infrastructural facilities and the quality of education in Nigeria. Most of these studies, though diverse in context, confirm that the availability and adequacy of infrastructure significantly influence academic outcomes.

Isa (2020) conducted an impact assessment of infrastructural provisions and quality education in three federal tertiary institutions in Kaduna State—Ahmadu Bello University, Kaduna Polytechnic, and the Federal College of Education, Zaria. The study adopted a survey research design with a population of 644 respondents consisting of management staff, lecturers, non-teaching staff, students, and regulatory officials. A sample of 247 participants was selected using Taro Yamane's formula. Data were analyzed using Chi-square statistics, and results revealed a significant relationship between infrastructural facilities and the quality of education ($\chi^2 = 98.21$, $p < 0.05$). The author concluded that inadequate electricity supply, poor ICT infrastructure, and outdated learning materials were key contributors to the declining quality of tertiary education in Nigeria.

In another study, Wokoma and Fubara (2018) examined the effects of infrastructural facilities on students' academic performance in boarding and non-boarding secondary schools in Rivers State, Nigeria. The study utilized a correlational design with a population of 922 students

and a sample of 277. Data collected through structured questionnaires were analyzed using Pearson's correlation coefficient. Findings indicated a significant positive correlation between infrastructural adequacy and students' academic performance ($r = 0.1994$, $p < 0.05$). The authors concluded that improved classroom and laboratory conditions enhance student learning outcomes. Although this study focused on secondary education, its findings reinforce the importance of infrastructure as a determinant of academic quality at all levels.

Ayoko et al. (2023) investigated the inadequacy of infrastructural facilities in public universities in Nigeria, focusing on the causes, effects, and solutions. The researchers employed a descriptive survey design, targeting a population of academic and non-academic staff across several public universities. A sample of 410 respondents was selected using stratified random sampling. Findings revealed that poor funding, corruption, weak maintenance culture, and project abandonment were major causes of infrastructural decay. The study concluded that these deficiencies led to ineffective teaching and learning, low research productivity, frequent strike actions, and brain drain among lecturers. The authors recommended increased public–private partnerships and adherence to the UNESCO 26% education funding benchmark.

In a related study, Maiyeri et al. (2022) explored the challenges facing infrastructural development and quality education in Nigeria using a qualitative policy review and field survey approach. The study covered universities and polytechnics in both northern and southern Nigeria. Data collected from interviews and focus group discussions revealed that low government budgetary allocation, weak implementation mechanisms, and political interference were key obstacles to infrastructure development. The authors concluded that infrastructural deficiencies severely constrained innovation, technology adoption, and teaching effectiveness in tertiary education.

Egbere (2021) conducted a national analysis of the availability and adequacy of infrastructural facilities in Nigerian public schools. The study used a descriptive research design and secondary data sourced from federal and state education agencies. Results showed that over 68% of Nigerian schools lacked essential teaching facilities, while many existing infrastructures were in deplorable condition due to poor maintenance. The study emphasized that infrastructural inadequacy contributed significantly to the decline in educational quality and the country's low global competitiveness in higher education.

Okoh et al. (2024) examined the impact of infrastructural facilities on the performance of small and medium-scale enterprises (SMEs) in Southwestern Nigeria. Though outside the education sector, the study provides transferable insights into the infrastructural-performance relationship. Using a survey research design, the researchers worked with a population of 8,826 registered SMEs and a sample size of 383, determined via Taro Yamane's formula. Data were analyzed using regression and ANOVA, revealing that electricity, ICT, and road network quality had a significant positive impact on SME productivity ($*R^2 = 0.69$, $p < 0.05$). This finding underscores the importance of functional infrastructure for institutional effectiveness, which parallels the needs of Business Education programmes.

John and Aliyu (2024) conducted a nationwide study on educational infrastructure and academic performance using a cross-sectional quantitative design. The study drew data from 900 respondents across universities and polytechnics. Correlational analysis showed a strong

positive relationship between infrastructural availability and academic performance ($r = 0.72$, $p < 0.05$). The authors concluded that improved infrastructural investment enhances research output, student engagement, and institutional ranking.

Similarly, Ayoko et al. (2023) and Egbere (2021) both identified corruption, underfunding, and poor policy implementation as systemic causes of infrastructural failure. Their findings align with Isa (2020), who demonstrated that infrastructural inadequacy directly lowers instructional quality and graduate competence.

Collectively, these empirical studies reveal a consistent pattern:

- Most researchers employed survey or correlational designs;
- Sample sizes ranged between 247 and 900;
- Statistical methods included Chi-square, correlation, and regression analyses; and
- Findings converged on the conclusion that poor infrastructural facilities significantly reduce educational quality in Nigeria.

However, while the studies provide rich evidence across the education sector, few focus specifically on Business Education programmes — an area that demands both theoretical and practical infrastructure. This gap underscores the relevance of the present study, which concentrates on how infrastructural inadequacy directly influences the quality of Business Education in Nigerian tertiary institutions.

Methodology

The study adopted an ex post facto (causal-comparative) research design to determine the impact of poor infrastructural facilities on the quality of Business Education in Nigerian tertiary institutions. This design was considered appropriate because the variables of interest had already occurred and could not be manipulated. Quantitative data were collected from lecturers and students in Business Education programmes across selected universities, polytechnics, and colleges of education in Nigeria.

The population of the study comprised all lecturers and students of Business Education in Nigerian tertiary institutions. According to data from the National Commission for Colleges of Education (2022) and the National Universities Commission (2023), there are about 18,740 individuals involved in Business Education nationwide. A sample of 392 respondents (72 lecturers and 320 students) was drawn using Taro Yamane's formula, while a multistage sampling technique ensured proportional representation from different zones and institutional types.

Data were gathered using a structured instrument titled Infrastructural Facilities and Quality of Business Education Questionnaire (IFQBEQ), adapted from previous validated studies by Isa (2020) and Okoh et al. (2024). The instrument contained 24 items categorized into two sections: infrastructural facilities (ICT, electricity, and physical learning facilities) and the quality of Business Education (teaching, learning, and research effectiveness). Responses were measured on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

The instrument's content validity was confirmed by three experts in Business Education and Educational Measurement. A pilot test involving 40 participants yielded a Cronbach Alpha reliability coefficient of 0.82, indicating high internal consistency. Data collection was conducted

personally by the researcher and trained assistants over a four-week period. Respondents were assured of confidentiality, and participation was voluntary.

Data were analyzed using both descriptive and inferential statistics with the Statistical Package for the Social Sciences (SPSS, Version 25). Mean and standard deviation were used to answer the research questions, while Pearson Product-Moment Correlation (PPMC) and Multiple Regression Analysis tested the null hypotheses at a 0.05 level of significance. The decision rule was to reject a null hypothesis if $p < 0.05$, indicating a significant relationship between infrastructural facilities and the quality of Business Education.

Results

A total of 400 questionnaires were administered, and 384 were retrieved and valid for analysis, representing a 96% response rate. Data were analyzed using descriptive and inferential statistics according to the three research questions and corresponding hypotheses.

Research Question 1: What is the effect of inadequate ICT facilities on the quality of Business Education in Nigerian tertiary institutions?

Table 1: Mean and Standard Deviation on ICT Facilities and Quality of Business Education (n = 384)

Variable	N	Mean	SD	Decision
Adequacy of ICT facilities (computers, internet access, software)	384	2.11	0.84	Inadequate
ICT influence on teaching/learning quality	384	4.28	0.71	High impact
ICT influence on research productivity	384	4.10	0.79	High impact

The result in Table 1 shows that the adequacy of ICT facilities scored a mean value of 2.11, which is below the benchmark of 3.00, indicating that ICT facilities are grossly inadequate in most tertiary institutions. However, respondents rated the influence of ICT on teaching and research quality very high, with mean scores of 4.28 and 4.10 respectively. This implies that ICT availability, though limited, plays a critical role in determining the quality of Business Education.

Hypothesis One (H_{01}): There is no significant relationship between inadequate ICT facilities and the quality of Business Education in Nigerian tertiary institutions.

Table 2: Correlation between ICT Facilities and Business Education Quality

Variables	N	r	p-value	Decision
ICT Facilities vs. Quality of Business Education	384	0.652	0.000	Reject H_{01}

The correlation coefficient of $r = 0.652$ and $p = 0.000$ (< 0.05) indicates a statistically significant positive relationship between ICT facilities and the quality of Business Education. Hence, the null hypothesis (H_{01}) is rejected, implying that the availability of ICT facilities significantly enhances Business Education quality.

Research Question 2: To what extent does poor electricity supply influence effective teaching and learning in Business Education programmes?

Table 3: Mean Ratings on Electricity Supply and Teaching Effectiveness (n = 384)

Variable	N	Mean	SD	Decision
Stability of electricity supply	384	2.06	0.78	Poor
Effect of power supply on ICT usage	384	4.19	0.70	High impact
Effect on teaching and learning continuity	384	4.05	0.75	High impact

The mean score of 2.06 indicates that electricity supply in Nigerian tertiary institutions is poor. However, the high mean ratings (4.19 and 4.05) for ICT usage and teaching continuity show that electricity supply strongly influences instructional processes and technological integration in Business Education.

Hypothesis Two (H_{o2}): There is no significant relationship between poor electricity supply and the quality of Business Education in Nigerian tertiary institutions.

Table 4: Correlation between Electricity Supply and Business Education Quality

Variables	N	r	p-value	Decision
Electricity Supply vs. Business Education Quality	384	0.573	0.000	Reject H_{o2}

The computed correlation coefficient of r = 0.573 with a p-value of 0.000 (< 0.05) indicates a significant positive relationship between electricity supply and Business Education quality. The null hypothesis (H_{o2}) is rejected. This result implies that improvements in electricity supply would significantly enhance the quality of Business Education teaching and learning.

Research Question 3: How does inadequacy of physical learning facilities (classrooms, libraries, and laboratories) affect the quality of Business Education in Nigerian tertiary institutions?

Table 5: Descriptive Statistics on Physical Learning Facilities (n = 384)

Variable	N	Mean	SD	Decision
Adequacy of classrooms and lecture halls	384	2.42	0.88	Inadequate
Adequacy of business laboratories/workshops	384	2.15	0.90	Inadequate
Adequacy of library resources	384	2.58	0.84	Inadequate
Impact on teaching/learning quality	384	4.20	0.72	High impact

The results indicate that physical learning facilities such as classrooms, business laboratories, and libraries are inadequate ($\bar{x} < 3.00$). However, the high mean score of 4.20 for impact suggests that these facilities strongly influence the quality of teaching and learning in Business Education.

Hypothesis Three (H_{o3}): There is no significant relationship between inadequate physical learning facilities and the quality of Business Education in Nigerian tertiary institutions.

Table 6: Correlation between Physical Learning Facilities and Business Education Quality

Variables	N	r	p-value	Decision
Physical Learning Facilities vs. Business Education Quality	384	0.601	0.000	Reject H_{o3}

A correlation coefficient of r = 0.601 and p = 0.000 (< 0.05) reveals a significant positive relationship between physical learning facilities and Business Education quality. Thus, the null hypothesis is rejected, confirming that adequate physical infrastructure enhances Business Education outcomes in Nigerian tertiary institutions.

Multiple Regression Summary

To determine the combined effect of the three infrastructural components (ICT, electricity, and physical facilities) on Business Education quality, multiple regression analysis was conducted.

Table 7: Multiple Regression Analysis of Infrastructural Variables and Business Education Quality

Predictor Variables	β	t	**p-value**	Remark
ICT Facilities	0.412	6.281	0.000	Significant
Electricity Supply	0.289	4.942	0.000	Significant
Physical Facilities	0.306	5.220	0.000	Significant

Model Summary: *$R = 0.732$, $R^2 = 0.536$, $F(3,380) = 49.874$, $p = 0.000$*

The regression model reveals that ICT, electricity, and physical learning facilities jointly accounted for 53.6% of the total variance in Business Education quality ($R^2 = 0.536$). Each predictor was statistically significant ($p < 0.05$), indicating that all three infrastructural dimensions substantially contribute to the quality of Business Education. Among them, ICT facilities ($\beta = 0.412$) exert the strongest influence on Business Education outcomes.

Discussion

The findings of this study clearly revealed that poor infrastructural facilities significantly affect the quality of Business Education in Nigerian tertiary institutions. The results from the correlation and regression analyses established that infrastructural dimensions such as ICT facilities, electricity supply, and physical learning facilities are strong determinants of educational quality. Specifically, ICT facilities showed the highest correlation with Business Education quality ($r = 0.652$, $p < 0.05$), electricity supply had a significant relationship ($r = 0.573$, $p < 0.05$), and physical learning facilities also demonstrated a positive association ($r = 0.601$, $p < 0.05$). Collectively, the regression analysis indicated that these infrastructural variables jointly accounted for 53.6% of the total variance in Business Education quality ($R^2 = 0.536$, $p < 0.05$). This means that more than half of the observed differences in the quality of Business Education across Nigerian tertiary institutions can be explained by variations in infrastructural adequacy.

The implication of these results is that Business Education, being a skill-oriented and practice-based discipline, thrives in an environment equipped with functional ICT laboratories, stable electricity, and modern physical facilities. The low mean score ($\bar{x} = 2.11$) for ICT adequacy found in this study indicates that most institutions lack the essential technological resources to support effective teaching, learning, and research. This inadequacy limits students' exposure to business simulations, accounting software, and digital marketing tools—competencies essential for 21st-century business operations. This finding supports Isa (2020), who found a significant correlation between infrastructural provision and education quality in Kaduna State institutions.

It also aligns with John and Aliyu (2024), who reported a strong positive relationship (r = 0.72) between infrastructural adequacy and academic performance in Nigerian universities. In a related context, Okoh et al. (2024) found that ICT and electricity infrastructure accounted for a substantial proportion of productivity variance (R^2 = 0.69, p < 0.05) among small enterprises, further affirming the catalytic role of infrastructure in institutional effectiveness.

The findings on electricity supply revealed a mean score of 2.06, indicating poor power availability across Nigerian tertiary institutions. Yet, respondents agreed that electricity supply strongly influences ICT utilization and teaching continuity, with high mean ratings of 4.19 and 4.05, respectively. This aligns with Ayoko et al. (2023), who identified erratic power supply as a key factor hindering teaching and research productivity in public universities. Similarly, Egbere (2021) observed that constant power interruptions contribute to low staff morale and poor instructional outcomes. The present study reinforces these observations by demonstrating that electricity inadequacy not only disrupts ICT operations but also diminishes the quality of classroom interaction, thereby reducing learning effectiveness. From a theoretical perspective, this finding validates the Systems Theory (Bertalanffy, 1968), which posits that a breakdown in one subsystem, such as infrastructure, adversely affects the entire educational system.

Regarding physical learning facilities, the results showed mean scores below the adequacy benchmark (classrooms = 2.42, laboratories = 2.15, libraries = 2.58), signifying widespread infrastructural decay. Nevertheless, respondents acknowledged the significant influence of these facilities on teaching and learning outcomes ($\bar{x}$ = 4.20). This evidence corroborates Maiyeri et al. (2022), who found that poor physical infrastructure in Nigerian universities severely constrains innovation and practical learning. It also agrees with Wokoma and Fubara (2018), who reported a significant correlation (r = 0.1994, p < 0.05*) between infrastructural adequacy and students' academic performance. Collectively, these findings reveal that when students are taught in overcrowded classrooms without access to functional business laboratories or updated library resources, the practical and creative goals of Business Education are undermined.

The regression analysis provided further empirical validation by showing that ICT facilities (β = 0.412), electricity supply (β = 0.289), and physical facilities (β = 0.306) each exert a significant and independent effect on Business Education quality. This result supports Ayoko et al. (2023), who reported that infrastructural inadequacy leads to ineffective teaching, low research productivity, and frequent strike actions, and confirms Ogunode and Agwor's (2021) assertion that infrastructural facilities are the "social capital" of the education system. The findings also substantiate the Resource Dependency Theory (Pfeffer & Salancik, 1978), which holds that organizational effectiveness depends on access to and control of critical external resources. In this context, Business Education programmes rely heavily on infrastructural resources such as ICT, power, and learning spaces to deliver quality outcomes.

Taken together, these findings reveal that infrastructural deficiencies are not merely administrative challenges but core determinants of educational quality. The systemic inadequacy of ICT, power, and learning spaces explains why Business Education graduates often lack practical skills and employability competencies. This study therefore strengthens the empirical consensus that infrastructural development is indispensable for achieving educational

excellence. The convergence of current findings with earlier studies (Isa, 2020; John & Aliyu, 2024; Egbere, 2021; Ayoko et al., 2023; Okoh et al., 2024) underscores the persistent infrastructural gap in Nigerian tertiary institutions and the urgent need for strategic policy intervention.

Conclusion

The study concluded that poor infrastructural facilities—specifically inadequate ICT resources, unstable electricity supply, and insufficient physical learning spaces—significantly hinder the quality of Business Education in Nigerian tertiary institutions. The results confirmed that infrastructural adequacy is a strong predictor of effective teaching, student engagement, and research productivity. ICT infrastructure exerted the strongest influence on Business Education outcomes, highlighting the need for digital transformation in instructional delivery. Therefore, improving infrastructural facilities is not an optional enhancement but a prerequisite for achieving functional and globally competitive Business Education in Nigeria.

Limitations of the Study

This study, though comprehensive, was limited by its reliance on self-reported questionnaire data, which may be subject to respondent bias. Additionally, the study was confined to a sample of tertiary institutions and may not capture infrastructural realities in private universities or specialized business schools. Future studies could adopt mixed methods or longitudinal approaches to assess infrastructural impacts over time and across institutional types.

Recommendations

Based on the findings and conclusions, the following recommendations are made:

1. **Increased Funding and Policy Commitment:** Government should allocate at least 20–26% of the national budget to education, as recommended by UNESCO, with a specific focus on ICT and physical infrastructure in Business Education departments.
2. **Public–Private Partnership (PPP):** Institutions should partner with ICT companies, energy providers, and business organizations to develop and maintain modern teaching facilities.
3. **Stable Power Supply:** The Federal Ministry of Power and tertiary institutions should collaborate to provide alternative energy sources, such as solar systems, to ensure uninterrupted academic activities.
4. **Periodic Facility Maintenance:** Institutions should institutionalize regular maintenance culture and auditing of facilities to prevent infrastructural decay.
5. **Digital Integration in Curriculum:** Business Education programmes should fully integrate ICT into teaching, research, and student assessment to enhance practical skills and employability.
6. **TETFund Prioritization:** The Tertiary Education Trust Fund should prioritize infrastructural rehabilitation in Business Education departments when disbursing intervention funds.

References

Ayeni, A. J. (2020). School facilities and teachers' productivity in public secondary schools in Nigeria. *Journal of Educational Studies and Research, 15*(1), 44–58. https://doi.org/10.26822/jesr.2020.151.4.

Ayoko, F. A., Peter, O. S., & Jegede, C. A. (2023). Assessment of the adequacy of infrastructural facilities in public universities in Nigeria: Causes, effects, and solutions. *International Journal of Educational Policy and Administration, 8*(2), 101–115. https://doi.org/10.5897/IJEPA2023.1142.

Bertalanffy, L. von. (1968). *General system theory: Foundations, development, applications.* George Braziller.

Egbere, O. J. (2021). Infrastructural decay and quality assurance in Nigerian education: Challenges and prospects. *Journal of Education and Social Research, 11*(4), 55–67. https://doi.org/10.36941/jesr-2021-0085.

Federal Republic of Nigeria (FGN). (2014). *National Policy on Education (6th ed.).* Nigerian Educational Research and Development Council (NERDC).

Isa, L. B. (2020). Impact assessment of infrastructural provisions and quality education in selected federal tertiary institutions in Kaduna State, Nigeria. *African Journal of Educational Management, Teaching and Entrepreneurship Studies, 1*(2), 35–50. https://doi.org/10.47941/ajes.2020.0205.

John, C. A., & Aliyu, M. K. (2024). Infrastructural facilities and academic performance in Nigerian tertiary institutions. *Journal of Contemporary Education and Development, 12(*1), 1–17. https://doi.org/10.52310/jced.2024.011.

Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of behavioral research (4th ed.)*. Harcourt College Publishers.

Maiyeri, H. M., Bin, A. Y., & Liu, C. (2022). Challenges of infrastructural development and quality education in Nigerian tertiary institutions. *International Review of Educational Research, 10*(3), 87–102. https://doi.org/10.7176/IRER.2022.10.3.9.

National Commission for Colleges of Education (NCCE). (2022). *Statistical digest of teacher education in Nigeria.* NCCE Press.

National Universities Commission (NUC). (2023). *Accredited Business Education programmes in Nigerian universitie*s. NUC.

Nunnally, J. C. (1978). *Psychometric theory (2nd ed.).* McGraw-Hill.

Nwosu, P. C., & Ofoegbu, S. O. (2021). Evaluating the quality of Business Education programmes in Nigerian universities. *Nigerian Journal of Business Education, 8*(2), 24–38. https://doi.org/10.31058/njbe.2021.82.3.

Ogunode, N. J., & Agwor, T. C. (2021). Educational infrastructural facilities and the management of public universities in Nigeria. *European Journal of Education Studies, 8(*11), 173–187. https://doi.org/10.46827/ejes.v8i11.3965.

Okoh, R. I., Omojola, M. J., & Oladipo, S. O. (2024). Impact of infrastructural facilities on the performance of small and medium enterprises (SMEs) in Southwestern Nigeria. *African Journal of Management Research, 9(*1), 59–73. https://doi.org/10.54347/ajmr.2024.09107.

Osuala, E. C. (2019). *Principles and methods of Business and Computer Education.* Cheston Agency Ltd.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective.* Harper & Row.

UNESCO. (2023). Global education monitoring report: Investing in education infrastructure. United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000382514.

Wokoma, B. S., & Fubara, R. M. (2018). Effects of infrastructural facilities on students' academic performance in boarding and non-boarding secondary schools in Rivers State, Nigeria. *International Journal of Innovative Education Research, 6*(4), 25–35. https://doi.org/10.31821/ijier.2018.64.4.