INFLUENCE OF NON-AVAILABILITY OF POWER SUPPLY AND INEFFECTIVE COMMUNICATION INFRASTRUCTURE ON THE ACADEMIC ACHIEVEMENT OF BUSINESS EDUCATION STUDENTS

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Abstract
This study investigated the influence of non-availability of power supply and ineffective communication infrastructure on the academic achievement of business education students in public tertiary institutions in Anambra State. Two research questions guided the study, and two hypotheses were tested. A descriptive survey design was adopted, with a population of 224 business education students from four public tertiary institutions offering business education programs. Data were collected using a structured questionnaire developed by the researcher, with reliability coefficients of 0.784 and 0.78 respectively, as determined by Cronbach's alpha. Data were analyzed using mean, standard deviation, and t-test to answer the research questions and test the hypotheses. The findings showed that the non-availability of power supply significantly influenced students' academic performance. Similarly, ineffective communication infrastructure affected students' academic achievements. Gender did not influence respondents' opinions, but the location of institutions had an effect. The study recommended that the federal government legislate to deregulate the national electricity grid to improve power supply. Additionally, federal and state governments should partner with telecommunication companies to provide reliable communication and data networks within tertiary institutions. These measures would enhance teaching and learning, ensuring an improved academic environment for students.

Keywords: Non-availability of Power Supply, ineffective communication infrastructure, Academic Achievement

Introduction

Education serves as a fundamental instrument for shaping the minds of individuals and advancing societal progress. It enhances the knowledge, skills, and character of citizens, as well as equipping them to contribute meaningfully to national development. Nigeria's National Policy on Education acknowledges the pivotal role of education in driving national development, positioning it as an indispensable tool for achieving various national goals, including the establishment of a free and democratic society, the promotion of justice and equality, the creation of a united and self-reliant nation, the development of a dynamic economy, and the provision of ample opportunities for all citizens. Specifically, tertiary education in Nigeria (Aderemi & Mohammed, 2024), which follows the completion of secondary education, is critical to the country's development. This level of education includes universities, colleges of education, polytechnics, mono-technics, and post-secondary vocational training institutions. Tertiary institutions are responsible for producing the high-level manpower required across all sectors of the economy by imparting advanced knowledge, skills, and competencies. To achieve these objectives, academic programmes are available to instill students with knowledge, skills and competencies in various fields. One of these academic programmes is business education.

Business education is that type of education which helps the students to achieve all the aims of education at any level of learning but has as its primary aim- he preparation of students for a business career and enables those in that career to become more efficient and to advance to higher business positions. At the tertiary level, the term Business education is sometimes used as

synonymous with education in the broad area of business administration in which the objective is primarily preparation for the professional careers in the management and administration of business and economics. Akinbowale (2017) saw business education as the education programme all aimed at training, equipping, inculcating in students the necessary and important skills, knowledge, attitudes and values needed for becoming a successful entrepreneur and passing such knowledge, experience and value to people available for it.

Business Education in the context of this study is an avenue for the transfer of skills, knowledge, attitudes and values for managing a business owning. It goes beyond the transfer of knowledge to the actual transfer of skills, and values to operate successfully in a business environment successfully. Nwokike et al., (2018) stated that the goals of Business Education is the production of manpower who possesses the requisite knowledge, skill and attitude for harnessing other resources and bringing them into a cooperative relationship yielding the goods and services demand by society for the satisfaction of their wants and needs. This implies that the mandate of Business Education is to produce the relevant and human resources, which are the wealth of any nation. The attainment of the goals of business education is reflected in the academic achievement of students.

Achieving high grades are key objectives across all educational levels, benefiting both students and educational institutions. As a result, understanding the factors that influence students' academic success has long been a primary focus of research (Lee & Stankov, 2018). According to Sharive (2018), academic achievement represents the outcomes or results of education, reflecting how well a student, teacher, or institution has met their educational goals. This achievement is typically assessed through continuous evaluation methods such as tests, assignments, and final examinations. Academic achievement encompasses outcomes that demonstrate the extent to which a student has fulfilled their learning objectives, including milestones like earning a bachelor's degree. The realization of the goals of business education in Nigeria has proven to be a significant challenge. Ajisafe et al. (2015) attributed this difficulty to several factors, particularly the non-availability of essential resources and ineffective communication infrastructure like poor internet connectivity, inadequate phone networks and insufficient digital tools.

Electrical power is crucial for communication in education and accessing information through the internet. However, Nigeria's inadequate supply of energy has been a problem for the past 50 years, leading to the use of fuel-powered electricity generators to cater for various sectors. This has led to a negative impact on the economy and the development of the country. Energy is the bedrock of economic and technological development, but the generation and consumption per capital are often low (Babajide et al., 2016). Power outages pose a major threat to the Nigerian economy, affecting every sector. Studies have shown that electricity promotes literacy by allowing students to read and study when there is no natural light (Amadi, 2015). Abdullah et al. (2016) found that some students felt nervous, anxious, or on edge due to erratic power supply. The frequency of power outages increased the likelihood of students experiencing anxiety and this study failed to consider the effects of irregularity on school environment, learning experience, study habits, and other student and lecturer activities. Just like poor outages, ineffective communication infrastructure was another factor that could influence academic achievement of students.

Ineffective communication infrastructure within the business education program can severely hinder both teaching and learning processes. Inadequate communication often results from a lack of access to modern digital tools and a deficient infrastructure that fails to support

effective interaction among educators and students (Koko & Whyte, 2023). Students may become frustrated and demotivated due to the difficulties they face in accessing communication technologies, leading to decreased engagement and academic achievement (Hew & Cheung, 2018). When teachers are unable to communicate clearly or utilize appropriate teaching materials, students may struggle to grasp essential concepts, leading to confusion and disengagement (Bupo & Wobo, 2016). The impact of these communication barriers on students' academic achievement is profound (Wang et al., 2020). Poor internet connectivity, inadequate phone networks and insufficient digital tools limit students access to educational resources, hinder communication with instructors, peers and restrict opportunities for collaboration learning. When students cannot access vital information or receive timely feedback from their instructors, their ability to perform academically diminishes. Akpomi and Bupo (2019) stated that poor communication can lead to misunderstandings regarding assignments, expectations, and learning objectives, which ultimately results in lower grades and reduced motivation. Akpomi and Bupo stated that students may miss out on collaborative learning opportunities, as effective teamwork relies heavily on clear communication. This isolation can further diminish their learning experience and academic achievement. Furthermore, the perception of business education as a less desirable field compared to traditional disciplines can discourage students from fully engaging with the programme. When evaluating the academic achievement of business education students in public tertiary institutions in Anambra State, it is important to consider moderating factors such as gender and the location of the institutions.

Gender plays a significant role due to the influence of gender-related psychological factors on learning as well as the impact of peer pressure, which can vary by gender. The choice of gender was based on the differences in their academic achievement, subject choice and digital divide. Additionally, a student's ability to adapt to changes in the learning environment may sometimes be influenced by their gender. The location of the university is another critical factor, particularly whether the institution is situated in an urban or rural area. This study, therefore, investigated the influence of non-availability of power supply and ineffective communication infrastructure on the academic achievement of business education students in public tertiary institutions in Anambra State.

Statement of the Problem

Tertiary institutions in Anambra State serve as critical engines for the development of human capacity, playing a pivotal role in the socio-economic advancement of the state. However, the academic achievements of business education students in Anambra are being severely hampered by two critical infrastructure challenge: the non-availability of reliable power supply and ineffective communication infrastructure. The Nigeria power sector is plagued by inadequate power supply, resulting in frequent power outages. This situation affects business education students' academic achievement and also affect the operation of educational institutes, leading to canceled classes, delayed examinations and reduce teaching hours. The lack of reliable electricity hinders business education students' ability to access digital resources, participate in online learning and complete assignments. This non- availability of power supply not only disrupts the learning process but also affect students' motivation, engagement and overall academic achievement. Inadequate reliable power supply severely obstructs the ability of these institutions to deliver quality education and conduct essential academic activities.

Furthermore, this issue is compounded by ineffective communication infrastructure, which further isolate these institutions from accessing vital resources and support. The researcher is deeply concerned that these infrastructural challenges will negatively impact students'

academic achievement, limiting their ability to reach their full potential and undermining the broader goals of education in the state. Ineffective communication infrastructure exacerbates the changes faced by business education students. Poor internet connectivity, inadequate phone networks and insufficient digital tools limit students access to educational resources, hinders communication with instructor, peers and restrict opportunities for collaborative learning. Business education students are unable to reach their full potential, leading to suboptimal academic achievement, reduce competitiveness in job market. This study aims to investigated the influence of non-availability of power supply and ineffective communication infrastructure on the academic achievement of business education students in public tertiary institutions in Anambra State.

Research Questions

The following research questions guided the study:

1. To what extent does non-availability of power supply influence the academic achievement of business education students in public tertiary institutions in Anambra State?
2. To what extent does ineffective communication infrastructure influence the academic achievement of business education students in public tertiary institutions in Anambra State?

Hypotheses

The following null hypotheses were tested at .05 level of significance:

1. There is no significant difference in the mean ratings of respondents on the influence of non-availability of power supply on the academic achievement of business education students in public tertiary institutions in Anambra State based on gender.
2. There is no significant difference in the mean ratings of respondents on the influence of ineffective communication infrastructure on the academic achievement of business education students in public tertiary institutions in Anambra State based on location of institutions.

Methods

The research design for the study was a descriptive survey design. The study was carried out in Anambra State, Nigeria. The population of this study comprises 224 students enrolled in business education programmes at four public tertiary institutions in Anambra State. These institutions include Nnamdi Azikiwe University in Awka, Chukwuemeka Odumegwu Ojukwu University in Igbariam, Federal College of Education (Technical) in Umunze, and Nwafor Orizu College of Education in Nsugbe. The breakdown of the student population according to their academic levels is as follows: 119 students at the 300 level in Nnamdi Azikiwe University, 30 students at the 300 level in Chukwuemeka Odumegwu Ojukwu University's Igbariam campus, 56 students at the 200 level in Federal College of Education, Umunze, and 19 students at the 200 level in Nwafor Orizu College of Education, Nsugbe. The instrument for data collection was a structured questionnaire developed by the researcher. The questionnaire titled “Influence of Non-Availability of Power Supply and ineffective Communication infrastructure on Academic Achievement of Business Education Students (INAPSPCNAABES)." The instrument consists of two sections: Section A and Section B. Section A focuses on collecting demographic data from the respondents covering gender and location of institution. Section B contains 20 items spread in two clusters. Cluster B1 contains 10 items on the influence of non-availability of power supply on academic achievement of business education students while cluster B2 contains 10 items on

the influence of ineffective communication infrastructure on academic achievement of business education students. The instrument is structured on a four-point rating scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE). The instrument was face and content validated by three experts in the Faculty of Education, Nnamdi Azikiwe University, Awka. The instrument was administered to a sample of 20 business studies students in two universities in Delta State. Delta State was chosen for its similarities in educational characteristics with Anambra State, despite not being part of the study itself. The purpose of this selection was to gather preliminary data and assess the suitability of the instrument for the main study. The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) version 21. To measure the internal consistency of the instrument, Cronbach's alpha was applied. As the reliability coefficients obtained were 0.84 and 0.78 for clusters 1 and 2, respectively. These reliability coefficients indicate a satisfactory level of internal consistency and reliability for the instrument.

The data for this study were collected by the researcher with the help of two research assistants. The research assistants were provided with detailed instructions on how to administer and collect the questionnaires. The completed questionnaires were collected on the spot from the respondents. The distribution and collection of the questionnaires took place over a period of two weeks. A total of 224 questionnaires were administered to match the manageable size of the study population. The retrieval rate for the questionnaires was 99%, meaning that almost all of the questionnaires were returned and available for data analysis. Mean and standard deviation was used to answer the research question. In analyzing the mean, any item with mean value between 2.50 and above is considered to a high extent. Consequently, any item with mean value less than 2.50 was regarded to a low extent. In analyzing the hypothesis, t-test was used to test the null hypotheses at .05 level of significance. A null hypothesis was rejected where the P - value is less than the stipulated level of significance (.05). Inclusively, if the p- value is greater than or equal to the stipulated level of significance (.05), the hypothesis was acceptable.

Results

Research Question 1: To what extent does non-availability of power supply influence the academic achievement of business education students in public tertiary institutions in Anambra State?

Table 1: *Mean and standard deviation (SD) of influence of non-availability of power supply on academic achievement of business education students*

	Item Description	N	Mean	SD	Remarks
1	Was there consistent power supply during on line learning.	224	3.00	.81	High Extent
2	Do you feel that power outages hinder your academic progress.	224	2.55	.50	High Extent
3	There is a link between academic achievement of students and power supply	224	2.16	.69	Low Extent
4	Consistent power supply motivated studying	224	2.17	.69	Low Extent

5.	Consistent power supply was required to effectively carry out of assignments	224	3.54	.50	Very High Extent
6	Power supply availability is required for working partnership between students of business educations	224	1.33	.75	Very Low Extent
7	Power supply frustrated students study plans	224	2.33	.74	Low Extent
8	Non availability of power supply brings about inadequacy in the usage of zoom for learning	224	1.04	.57	Very Low Extent
9	Consistent power supply enables students to take part in, out of class sessions.	224	2.50	.76	High Extent
10	Non availability of Power supply led to laziness in student	224	1.44	.81	Very Low Extent
	Grand mean		**2.20**	**.68**	**Low Extent**

The results in Table 1 indicate the extent to which the non-availability of power supply influences the academic achievement of business education students in public tertiary institutions in Anambra State. An item-by-item analysis reveals that item 5, with a mean score of 3.54, was rated to a very high extent by the business education students. Items 1, 2, and 9, with mean scores ranging between 2.50 and 3.00, were rated to a high extent. Items 3, 4, and 7, with mean scores ranging between 2.16 and 2.33, were rated to a low extent by respondents. Meanwhile, items 6, 8, and 10, with mean scores ranging between 1.04 and 1.44, were rated to a very low extent. The grand mean score of 2.20 also indicates a low extent of influence of the non-availability of power supply on the academic achievement of business education students in public tertiary institutions in Anambra State. The standard deviation of .68 shows that the respondents' opinions were closely aligned.

Research Question 2: To what extent does poor communication network influence the academic achievement of business education students in public tertiary institutions in Anambra State?

Table 2: *Mean and standard deviation of extent of influence of poor communication network on the academic achievement of business education students*

	Item Descriptions	**N**	**Mean**	**SD**	**Remarks**
11	Reliable communication infrastructure would improve your academic achievement.	224	3.50	.50	Very High Extent
12	Does poor Communication infrastructure influence your engagement and motivation in online learning	224	3.27	.69	High Extent
13	Difficulty to connect to instructor on line as a result of communication infrastructure.	224	3.16	.68	High Extent
14	Due to poor communication network lecturer could not teach the business education student effectively.	224	3.00	.81	High Extent

15	There is no difference between teaching business education students in the classroom and employing communication and online platform for teaching	224	2.66	.75	High Extent
16	How often do you experience network downtime during online learning.	224	3.65	.69	Very High Extent
17	Due to ineffective communication infrastructure students fine its difficulty to fully participate in on line learning.	224	3.33	.75	High Extent
18	Poor communication networks hinder students' ability to ask questions.	224	3.74	.81	Very High Extent
19	Business education students often experience technical issues during online discussion.	224	2.16	.69	Low Extent
20	Poor communication network discourage peer to peer student feedback among business education students.	224	3.32	.74	High Extent
	Grand Mean		**3.17**	**.71**	**High Extent**

The results in Table 2 demonstrate the extent to which ineffective communication infrastructure influence the academic achievement of business education students in public tertiary institutions in Anambra State. An item-by-item analysis reveals that items 11, 16, and 18, with mean scores ranging between 3.50 and 3.74, were rated to a very high extent by the respondents. Items 12, 13, 14, 15, 17, and 20, with mean scores ranging between 3.00 and 3.33, were rated to a high extent by the business education students. Item 19, with a lower mean score, was rated to a low extent by the respondents. The grand mean score of 3.17 indicates a high extent of influence of ineffective communication infrastructure on the academic achievement of business education students in public tertiary institutions. The standard deviation of .71 suggests that the respondents' opinions were closely related.

Hypothesis 1: There is no significant difference in the mean ratings of respondents on the influence of non-availability of power supply on the academic achievement of business education students in public tertiary institutions in Anambra State based on gender.

Table 3: *Independent t-test of male and female respondents on the influence of non- availability of power supply on academic achievement of business education students*

Variation	N	Mean	SD	t-cal	Df	p-value
Male business education students	84	22.50	3.11			
				.150	222	.602
Female business education students	140	32.52	3.09			

The result from Table 3 revealed the independent t-test of male and female business education students on non- availability of power supply on academic achievement in public tertiary institutions in Anambra State. This revealed the t-(222) =.150, p-value = .602 at .05 level of significance. The P-value of .602 was greater than .05 level of significance thus the null hypotheses was accepted. Thus, there is no significant difference in the mean responses of male and female business education students on influence of non- availability of power supply on academic achievement of business education in public tertiary institutions in Anambra State.

Hypothesis 2: There is no significant difference in the mean ratings of respondents on the influence of ineffective communication infrastructure on the academic achievement of business education students in public tertiary institutions in Anambra State based on location

Table 4: *Independent t-test of urban and rural respondents on the influence of ineffective communication infrastructure on academic achievement of business education students*

Variation	N	Mean	SD	t-cal	DF	p-value
Urban business education students	119	30.52	2.64			
				.274	222	.004
Rural business education students	105	31.61	2.70			

Analysis from Table 4 displayed the independent t-test of urban and rural business education students on the influence of ineffective communication infrastructure on academic achievement of business education students in public tertiary institutions in Anambra State. The result displayed the t-(224) =.274, p-value = .004 at .05 level of significance. The P-value of .004 was less than .05 alpha level, as a result the null hypothesis was rejected. Therefore, there is a significant difference in the mean responses of urban and rural business education students on the influence of ineffective communication infrastructure on academic achievement of business education students in public tertiary institutions in Anambra State.

Discussion

The study revealed that the non-availability of power supply influenced the academic achievement of business education students in public tertiary institutions in Anambra State to a low extent. This limited influence is likely because students were not engaged in technologically supported learning platforms due to the lack of power. Despite frequent power shortages, students relied on alternative energy sources, which were often inadequate for effective learning. Additionally, the constant noise from generators further distracted students, exacerbating their challenges. This aligns with Babajide et al. (2016), who emphasized the importance of reliable electricity for academic activities, and Amadi (2015), who noted the negative impact of poor power supply on students and households. Furthermore, the study found no significant difference in the opinions of male and female students on this issue, suggesting a consensus that power supply deficiencies did not significantly impact academic performance.

Conversely, ineffective communication infrastructure had a high level of influence on students' academic achievement. This finding aligns with AI-Busaidi and AI-Shihi (2019), who reported that ineffective communication infrastructure cand hinder students' ability to participate in online discussions, group project and other collaborative learning activities. Also, Kaur and Grupa (2020) stated that students may struggle to access online learning platforms, digital libraries and other educational resources due to poor internet connectivity or inadequate digital tools. Alqurshi also highlighted how poor network connectivity disrupts access to lectures and study materials, while (Larkin, 2019) identified ineffective communication infrastructure can cause delays in communication, leading to missed deadlines, lost opportunities and decreased academic success. However, Effective communication has adversary influence student academic achievement. students may experience increase stress and anxiety due difficulties they face in accessing communication technologies, leading to negative impacts on their mental health and wellbeing.

Conclusion

Based on the finding of the study, the researcher concluded that non-availability of power supply and ineffective communication infrastructure influence academic achievement of business education students in tertiary institutions in Anambra State. Though non-availability of power supply has low extent of influence on academic achievement of business education students, it still has an influence on students' academic achievement. It is therefore imperative that measures are put in place to improve infrastructures for quality teaching and learning in business education.

Recommendations

Based on the findings of this study, the researcher proffers the following recommendations:

1. Federal government should promote legislation that would lead to the deregulation of the national electricity grid. This legislation should enable state and private sectors to produce their own electricity. This will improve the level of power supply in tertiary institutions.
2. Federal and state governments should partner with telecommunication companies within tertiary institutions in Nigeria focused on providing telecommunication and data networks so as to facilitate teaching and learning activities.

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