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EVALUATION OF FACTORS RESPONSIBLE FOR INADEQUATE INFRASTRUCTURAL FACILITIES IN PUBLIC UNIVERSITIES IN NORTH CENTRAL NIGERIA

Abstract. The study evaluated the factors responsible for inadequate infrastructural facilities in selected public universities in North Central Nigeria. This study used the design method. This study covered four public universities in North Central Nigeria. The sample was drawn through random and proportionate random sampling techniques. Four public universities were randomly selected from all the public universities in North Central Nigeria. This was followed by a proportionate selection of fifty (50) respondents (academic staff (25) and students (25)) per university per faculty, making four public universities, two hundred (200) respondents (academic staff (100) and students (100)) were then selected using a simple random sampling technique. The researchers used questionnaires as an instrument. There were two types of questionnaires; one for academic staff and the other for students. A four-point adapted Likert scale, including answers: strongly agree (SA)-1, agree (A)-2, disagree (D)-3, and strongly disagree (SD)-4. The reliability of the instrument was established through the test-retest method. The hypotheses were tested using Pearson's product-moment correlation coefficient. The results were held significant at 0.05. The researchers adopted descriptive statistics (means and standard deviations) for data analysis in the study. An item above a mean rating of 2.0 was regarded as significant, while a mean below 2.0 was considered insignificant. This study revealed that inadequate funding, poor planning and projection, institutional corruption, increased student population, and poor administration and management are factors responsible for inadequate infrastructural facilities in public universities in North Central Nigeria. The study also showed that the effects of inadequate infrastructural facilities on students' academic performance include overcrowded lecture halls, prevention from reading properly, poor academic performance, postponement of lectures, slow down learning activities, and increased learning cost. Also, the study disclosed that the effects of inadequate infrastructural facilities on lecturers include poor teaching and research work, delay in teaching and research work, postponement of lectures, low academic staff' morale, increased cost of lecturing and conducting research, leading to poor quality of education and brain-drain in the universities.

Keywords: effects, infrastructural, facilities, higher institution, education

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INTRODUCTION

University education comprises two components: inputs and outputs. Inputs constitute physical and human resources, and outputs consist of the aim or goal and the outcome or result of the education. These physical resources are known as physical infrastructure, which refers to basic facilities and equipment needed for university functioning. The facilities include lecture halls, auditoria, classrooms, libraries, studios, laboratories, administrative blocks, workshops, sports centers, clinics, hostels, staff quarters, toilets, cafeteria, shops, etc. (Ebehikhalu and Dawam, 2016).

Physical facilities for teaching and learning in the universities include faculty/departmental buildings/complexes (lecture rooms, lecture halls, auditoria, staff offices, seminar/conference/board rooms, laboratories, workshops, studios, moot courts, farms, gymnasias, etc.); libraries (central libraries, specialized/professional libraries, faculty libraries, departmental libraries, etc.); institutes/centers (specialized facilities, e.g., ICT infrastructure, special laboratories, conference facilities, etc.), boards (interactive, magnetic, screen and chalk) ICT (computer laboratories and services, network connectivity, multi-media system, public address system, slide, and video projectors) and ergonomics furnishing in laboratories, libraries, and lecture rooms/halls, moot courts, and studios, etc., student accommodation/hostels; municipal/physical infrastructure (power supply, water supply, good road networks, sports, health and sanitation, staff schools, campus markets, security facilities, etc. (Ebehikhalu and Dawam, 2016)

Noun (2012) observes that higher educational institutions in Nigeria are confronted with several challenges. The challenges facing Nigerian higher education are complex. It is a combination of dilapidated infrastructure, graduate unemployment, political interference, disciplinary problems, and market forces. It is well-known that ninety percent (90%) of what exists today as tertiary institutions in Nigeria could be referred to as glorified secondary schools. This is because most of the nation's universities show a stark infrastructural decay and paucity of funds for research work (Jiduwah, 2010). Recent reports on our universities portray a general lack of infrastructural facilities. An average public university in Nigeria lacks basic infrastructure like regular water supply, electricity, and standard accommodation for students. In many instances, the toilets that serve the students are in

bad shape as many do not have running water. Lecture rooms and offices are not available and, if available, are in need of refurbishment. Libraries are poorly equipped and are short of modern books. Laboratory equipment is obsolete, and inputs for teaching are in short supply. Roads and buildings on many campuses are in a state of disrepair. Poor and dilapidated infrastructure is among the major factors that have led to the despicable state of Nigerian universities. Therefore, it is not surprising that this infrastructure's products often fail to rise up to the occasion when put to the test and task. The problem of inadequate infrastructural facilities has attracted many studies, but none of them considered causes or factors responsible for the insufficient infrastructural facilities in Nigerian universities. Based on this gap, this study evaluates the factors responsible for inadequate infrastructural facilities in North Central Nigeria.

This study aims to evaluate the factors responsible for inadequate infrastructural facilities in public universities in North Central Nigeria. Specific objectives include:

1. Finding out the factors responsible for inadequate infrastructural facilities in public universities in North Central Nigeria;
2. Identifying the effects of inadequate infrastructural facilities on students' academic performance; and
3. Finding out the effects of inadequate infrastructural facilities on the academic staff's job performance.

The following research questions were formulated to guide this study:

1. What are the factors responsible for inadequate infrastructural facilities in public universities in North Central Nigeria?
2. What are the effects of inadequate infrastructural facilities on students' academic performance?
3. What are the effects of inadequate infrastructural facilities on the academic staff's job performance?

INADEQUATE INFRASTRUCTURAL FACILITIES

Physical plants are required for teaching, learning, and research. They include classrooms, laboratories, workshops, staff offices, and libraries. Others include hostels (in residential institutions), staff quarters, student and staff recreational facilities, sports and games facilities (Noun, 2012). The infrastructural facilities are one of the materials resources the universities cannot do without. Adejomo (2017) submitted that there is actually

a general belief that the condition of a school's learning environment, especially infrastructure, has an essential impact on students' academic performance and effectiveness. The facilities needed to foster effective learning in an educational institution include adequate power and water supply, good communication systems, improved transportation systems, adequate classrooms, libraries, laboratories, furniture items, and sporting equipment. The quality of infrastructure has a strong influence on the academic standard, which is an index of quality assurance in the school.

Infrastructure has always played a key role in integrating economies within a region. Well-developed and efficient infrastructure is essential for a region's economic development and growth. In a dynamic concept, infrastructure is seen as a regional public good that moves factors of production within and across countries, thus helping the region attain higher productivity and growth (Adejomo, 2017).

As important as these infrastructural facilities to the development of university education. Unfortunately, many public universities are facing the problem of a shortage of inadequate infrastructural facilities. Udida, Bassey, Udofia and Egbona (2009) observed that the lack of adequate infrastructures in our higher education poses a serious setback in achieving higher education goals. In an institution where there are no sufficient classrooms, resource rooms, staff rooms, laboratory facilities, computers, and the like, proper teaching and learning cannot be effective and efficient in the system.

Salisu (2001), in her study on the influence of school physical resources on students' academic performance, concludes that there is a significant difference in the academic performance of students in institutions with adequate facilities and those without them. The lack of good buildings or funds to rehabilitate collapsed structures poses a threat to the system's performance and sustainability; hence, education is falling due to low standards.

In South Africa, Department of Education (2007) observes that South Africa has made progress in addressing the backlogs in the provision of classrooms, sanitation facilities, water on-site, and electricity. However, almost 80% of schools do not have library space, and about seven percent have stocked libraries. Of the high schools surveyed, about 12% had stocked laboratories. The national Department of Education (DoE) (2008) admitted that "improvements [...] have progressed without a clear policy framework."

Subair et al. (2012) carried out a study that investigated the place of infrastructure in maintaining quality in Nigerian universities. It found that there is no significant difference in infrastructural development between the state and federal universities. Thus, it is recommended that the government increase funding toward the development of the infrastructure. It is also recommended that universities adhere to appropriate standards of infrastructure maintenance and enroll only those students for whom they have adequate facilities.

Adejomo (2017) also looked at infrastructural facilities and the students' academic performance in Adekunle Ajasin University, Akungba Akoko, Ondo State, Nigeria. The paper discovered a positive relationship between the students' academic performance, power supply, and health facilities. However, the internet facilities and transportation facilities were not adequate, whereas the water supply was adequate.

Noun (2012) observed that it is worrisome to note that higher educational institutions are fast decaying. All the required resources for the education production process are in short supply. Lecture halls, laboratories, student hostels, library space, books and journals, official spaces are all seriously inadequate. The equipment for teaching and learning is either lacking or very inefficient and in too bad shape to permit the higher education systems the freedom to carry out the basic functions of academics.

There are many factors responsible for the shortage of infrastructural facilities in Nigerian public universities. Some of the factors include inadequate funding, poor infrastructural planning, increased enrollment, corruption, uncompleted projects or abandoned projects, and poor maintenance culture. Noun (2012) submitted that the demand for access is much higher than the system's physical capacity to accommodate students. And the enrolment increases without any appreciable addition to the institutional infrastructure. The resultant effect would eventually be the inadequacy of infrastructural facilities and some other resources.

Inadequate and dwindling budget allocation to tertiary institutions is also a remote factor that puts physical plants in poor condition. The allocation collected in most cases is meant for recurrent expenses. Some institutions have to augment funds received from the government with internally generated revenue (IGR). This prevents institutions concerned from embarking on capital projects (Noun, 2012).

Lack of maintenance culture among stakeholders in institutions of higher learning is another factor reducing physical plants to nothingness. The abuse of toilet facilities, classrooms, and some other facilities in schools is worthy of mentioning here. Maintenance departments in most institutions of learning are handicapped. There are inadequate staff and tools for maintenance work. Some facilities that require minor repairs get spoilt beyond what could be repaired because of negligence (Noun, 2012).

METHODOLOGY

This study used the design method. This study covered four public universities in North Central Nigeria. The sample was drawn through random and proportionate random sampling techniques. Four public universities were randomly selected from the twenty (20) public universities in North Central Nigeria. This was followed by a proportionate selection of fifty (50) respondents, i.e., academic staff (25) and students (25) per university per faculty, making four public universities, two hundred (200) respondents (academic staff (100) and students (100)) were then selected using a simple random sampling technique. The researchers used questionnaires as an instrument. The two types of questionnaires were used; one for academic staff and the other for students. The questionnaire was titled “An Evaluation of Factors Responsible For Inadequate Infrastructural Facilities Questionnaire” (EFRIIFQ). The instrument consisted of three sections. Section A sought personal data of the respondents such as gender, age, years of research experience, qualification, and rank/status. Section B consisted of thirteen items. The second questionnaire also had six-item questions for the students. Both face and content validity were established by experts in the departments of educational management of the Faculty of Education, University of Abuja. A four-point adapted Likert scale was used and included answers: strongly agree (SA)-1, agree (SA)-2, disagree (D)-3, strongly disagree (SD)-4. The reliability of the instrument was established through the test-retest method. This was done by administering the instrument twice within an interval of two weeks to 30 academic staff and 30 students in two faculties in two public universities that were not part of the sample used for the study. The two universities were selected through random sampling techniques in one state. The two sets of responses were correlated

using Pearson’s product-moment correlation coefficient, and a reliability coefficient of 0.84 was obtained. The hypotheses were tested using Pearson’s product-moment correlation coefficient. The results were held significant at 0.05. The researchers adopted descriptive statistics (means and standard deviations) for data analysis in the study. An item above a mean rating of 2.0 was regarded as significant, while a mean below 2.0 was considered insignificant.

RESULTS AND DISCUSSION

Table 1 has an average mean value of 2.00; any value below this is considered insignificant, and values above are considered significant.

The table indicates respondents’ views on the factors responsible for inadequate infrastructural facilities in public universities. The table above shows that the respondents agreed that with confidence with the mean values of 2.32, 2.25, 2.18, 2.13, and 2.30 as accepted that inadequate funding, poor planning and projection, institutional corruption, increased student population, and lack of maintenance culture poor are factors responsible for insufficient infrastructural facilities in public universities in North Central Nigeria. However, inflation with 1.98 was rejected as a factor responsible for inadequate infrastructural facilities in public universities.

Table 2 above shows results for the effects of inadequate infrastructural facilities on students’ academic performance. Based on the benchmark score, any score above 2.00 is considered high and significant, while

Table 1. Factors responsible for inadequate infrastructural facilities in public universities in North Central Nigeria

Item	Mean	Std Deviation	Decision
Inadequate funding	2.32	0.88	significant
Poor planning and poor projection	2.25	0.72	significant
Institutional Corruption	2.18	0.68	significant
Increase in students population	2.13	0.63	significant
Inflation	1.98	0.47	not significant
Lack of maintenance culture	2.30	0.86	significant

Source: Field Survey, 2021.

Table 2. Effects of Inadequate Infrastructural Facilities on Students’ Academic Performance in Public Universities in North Central Nigeria

Item	Mean	Std Deviation	Decision
Inadequate lecture halls and laboratories leads to overcrowdness	2.43	0.91	significant
Inadequate libraries affect student reading	2.15	0.72	significant
Inadequate infrastructural facilities leads to poor academic performance	2.42	0.90	significant
It leads to postponement of lesson	2.28	0.81	significant
Unstable power supply and internet services slow learning activities	2.30	0.83	significant
Shortage of hotels increase students cost of learning	2.21	0.73	significant

Source: Field Survey, 2021.

scores below 2.00 are regarded as low and insignificant. The table revealed that respondent all agreed that with the following scores 2.43, 2.15, 2.42, 2.28, 2.30, and 2.21 that inadequate infrastructural facilities lead to overcrowded lecture halls, prevent students from reading properly, cause poor academic performance, postponement of lectures, slow down learning activities, and increased students’ cost of learning. This means that the effects of inadequate infrastructural facilities lead to the following; overcrowdness of lecture halls, preventing students from reading properly, poor academic performance, postponement of lectures, slow down learning activities students, and increasing students’ cost of learning in the public universities in Nigeria.

Table 3 shows, based on the benchmark score, a value of 2.00; any value below this is considered low and insignificant, and values above are considered high and significant. Table 3 provides feedback on the effects of inadequate infrastructural facilities on the academic staff’s job performance. The result collected in Table 3 discloses that respondents all agreed that inadequate infrastructural facilities affect teaching and research work of academic staff, slow down teaching and research, cause postponement of lecture, discourage academic staff, increase the cost of academic staff, cause poor quality of education and brain-drain with

Table 3. The Following are the Effects of Inadequate Infrastructural Facilities on the Academic Staff Job Performance in Public Universities in North Central Nigeria

Item	Mean	Std Deviation	Decision
Inadequate lecture hall, offices, laboratories poor teaching and research work	2.41	0.89	significant
Unstable power supply and internet Services slow down teaching and research work	2.33	0.87	significant
It leads to postponement of lecture	2.16	0.63	significant
Inadequate infrastructural facilities discourages academic staff	2.23	0.82	significant
It increase lecturers cost of delivering lecture and conducting research	2.19	0.70	significant
It leads to poor quality of education	2.18	0.66	significant
Brain-drain	2.35	0.89	significant

Source: Field Survey, 2021.

the following mean values of 3.41, 2.33, 2.16, 2.23, 2.19, 2.18, and 2.35. This implies that the respondents agreed that the effects of inadequate infrastructural facilities on the academic staff’s job performance include poor teaching and research work of academic staff, delay teaching and research work, cause postponement of lecture, discourage academic staff, increase the cost of academic staff, and cause poor quality of education and brain-drain.

DISCUSSION OF RESULT

The result collected in Table 1 in respect of factors responsible for inadequate infrastructural facilities in public universities revealed that inadequate funding, poor planning and projection, institutional corruption, increased student population, and lack of maintenance culture are factors responsible for insufficient infrastructural facilities in public universities in North Central Nigeria. This result is in line with Ogunode and Nathan (2021b), who investigated the causes of inadequate infrastructural facilities in some public secondary school in FCT and discovered that institutional corruption, inadequate funding of public secondary schools, poor quality

of infrastructural facilities, inadequate infrastructural facility planning, student-caused damage to infrastructural facilities, ineffective monitoring and evaluation of infrastructural facilities, and increased student population are the causes of inadequate infrastructural facilities in public secondary schools in FCT. This result also agrees with the submissions of Oyene (2006) concerning inadequate funding, Ogunode (2020) – institution corruption, poor planning, increased student population are responsible for the shortage of infrastructural facilities in Nigerian universities. These results also confirm the conclusion of Ogunode et al. (2021a), who found that the effect of inadequate funding of Nigerian public universities is responsible for poor teaching and learning, inadequate infrastructural facilities, shortage of academic staff, and poor research programs, staff development programs, and subpar quality of education. Noun (2012) also submitted that inadequate classroom is another thorny issue resulting from the unplanned student population. In addition, laboratories designed to hold a few students are used for hundreds of students. This leads to overutilization of resources in the laboratories and poor supervision. And the quality of instruction is compromised.

Table 2 shows results on the effects of inadequate infrastructural facilities on students' academic performance and indicates that the effects of insufficient infrastructural facilities on students' academic performance include overcrowded lecture halls, prevention of students from reading properly, poor academic performance, postponement of lectures, slowing down learning activities of students and increased students' cost of learning in the public universities in Nigeria. These findings agree with the submissions of John (2015), Ojo (2018), and Ogunode (2020) that inadequate infrastructural facilities affect the academic performance of students in Nigerian higher institutions. The lack of adequate infrastructure in our higher education has posed a serious setback in achieving higher education goals. In an institution where there are no adequate classrooms, resource rooms, staff rooms, laboratory facilities, computers, and the like, proper teaching and learning cannot be effective and efficient in the system. Salisu (2001), in her study on the influence of school physical resources on students' academic performance, concludes that there is a significant difference in the academic performance of students in institutions with adequate facilities and those without them. The lack of good buildings or

funds to rehabilitate collapsed structures poses a threat to system performance and sustainability; hence, education is falling due to low standards. Ebehikhalu and Dawam (201) and Likoko et al. (2013) noted that lack of adequate physical facilities for teaching and learning negatively affects the quality of graduates produced. They believe these facilities are educational inputs that have a strong relationship with the high academic performance of students.

Table 3 shows the results on the effects of inadequate infrastructural facilities on the academic staff's job performance and reveals that respondents agreed that the effects of inadequate infrastructural facilities on the academic staff's job performance include poor teaching and research work of academics staff, delay in teaching and research work, cause postponement of lecture, discourage academic staff, increase the cost of academic staff, cause poor quality of education and brain-drain. This result collaborates Salisu's (2001) finding, who, in her study on the influence of school physical resources on students' academic performance, concluded that there is a significant difference in students' academic performance in institutions with adequate and those with inadequate facilities.

CONCLUSIONS

Public universities in Nigeria were established to provide post-secondary school education for the Nigerian youth. Achieving this objective depends on the quality and quantities of human and material resources like infrastructural facilities. This research was conducted to evaluate the factors responsible for inadequate infrastructural facilities in public universities in North Central Nigeria. Its results led to the following conclusions:

- a. inadequate funding, poor planning and projection, institutional corruption, increased student population, and lack of maintenance culture are factors responsible for inadequate infrastructural facilities in public universities in North Central Nigeria,
- b. the effects of inadequate infrastructural facilities on students' academic performance include overcrowded lecture halls, prevention of students from reading properly, poor academic performance, postponement of lectures, slowing down learning activities of students, and increased cost of learning in the public universities in Nigeria,

- c. the effects of inadequate infrastructural facilities include poor teaching and research work of academic staff, delay in teaching and research work, causes postponement of lecture, discourage academic staff, increase the cost of academic staff, cause poor quality of education, and lead to brain-drain.

RECOMMENDATIONS

Based on the findings, the following measures are recommended by the researchers:

- the government should improve education funding, especially tertiary education, in order to achieve expected goals. The minimum percentage of the total budget of a country that was recommended by UNESCO for an effective educational system is 26%,
- The government should design infrastructural facility plans for all the public universities in Nigeria,
- University administrators should seek the general public's support in the infrastructural development of their schools. Philanthropists, corporate bodies, non-governmental organizations, and alumni associations should assist universities in providing infrastructural facilities to aid effective teaching and learning activities.
- University management should ensure that infrastructural facilities in their schools are maintained. There is a need to take serious look at the maintenance culture, which is lacking in Nigeria, as this will go a long way to reduce the rate of decay of the existing facilities.
- The government should monitor all funds released for infrastructural development in all public universities to curb mismanagement and misappropriation of the funds.

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OCENA CZYNNIKÓW ODPOWIEDZIALNYCH ZA NIEODPOWIEDNIE WYPOSAŻENIE INFRASTRUKTURALNE W PUBLICZNYCH SZKOŁACH WYŻSZYCH W PÓŁNOCNO-ŚRODKOWEJ NIGERII

Abstrakt. W badaniu oceniono czynniki warunkujące nieodpowiednie zaplecze infrastrukturalne w wybranych publicznych uniwersytetach w północno-środkowej Nigerii. Zastosowano metodę projektową. Badanie objęło cztery publiczne uniwersytety w północno-środkowej Nigerii. Próbę wyłoniono za pomocą proporcjonalnego losowania. W ten sposób wyznaczono cztery publiczne uniwersytety ze wszystkich działających w północno-środkowej Nigerii. Następnie dokonano proporcjonalnego wyboru pięćdziesięciu respondentów (25 pracowników akademickich i 25 studentów na wydział) z wybranych czterech publicznych uniwersytetów. W efekcie otrzymano populację dwustu respondentów (100 pracowników akademickich i 100 studentów), z których w drodze losowania wybrano 100 osób do badania kwestionariuszowego. Zastosowano dwa rodzaje kwestionariuszy, tj. jeden skierowano do pracowników akademickich, a drugi do studentów. Zastosowano czteropunktową skalę Likerta, w której: (SA)-1 oznaczało „zdecydowanie się zgadzam”, (A)-2 „zgadzam się”, (D)-3 „nie zgadzam się”, a (SD)-4 „zdecydowanie się nie zgadzam”. Wiarygodność narzędzia ustalono metodą test-retest. Hipotezy testowano za pomocą korelacji iloczynu momentów Pearsona. Uzyskane wyniki uznano za istotne na poziomie 0,05. Do analizy danych w badaniu przyjęto statystykę opisową (średnie i odchylenia standardowe). Pozycja powyżej średniej oceny 2,0 uznano za znaczącą, podczas gdy średnią ocenę poniżej 2,0 za nieistotną. W badaniach wykazano, że nieodpowiednie wyposażenie infrastrukturalne na publicznych uniwersytetach w północno-środkowej Nigerii spowodowane jest niskim poziomem planowania i projekcji, korupcją instytucjonalną, wzrostem populacji studentów oraz nieudolną administracją i zarządzaniem. Na podstawie badań wykazano również, że do skutków nieodpowiedniej infrastruktury wpływających na wyniki w nauce studentów należą przepełnione sale wykładowe uniemożliwiające efektywne czytanie, słabe wyniki w nauce, przekładanie wykładów, spowolnienie działań edukacyjnych i wzrost kosztów nauki. Ponadto badanie ujawniło, że z powodu braku udogodnień infrastrukturalnych wykładowcy nie są w stanie skutecznie nauczać, ich prace badawcze są na niskim poziomie i występują opóźnienia zarówno w realizacji programu nauczania, jak i projektach naukowych. Poza tym wykłady odbywają się nieregularnie, spada morale kadry akademickiej, zwiększają się koszty, a to skutkuje niską jakością kształcenia oraz drenażem mózgow na uniwersytetach.

Słowa kluczowe: efekty, infrastruktura, wyposażenie, uczelnia wyższa, edukacja