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INFRASTRUCTUAL MAINTENANCE IN NIGERIAN UNIVERSITIES: A NECESSITY FOR SUSTAINABLE UNIVERSITY EDUCATION

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Abstract

Infrastructures refer to the essential physical structures and facilities within an organization. They serve as necessary structures that are needed for the smooth running of the organization and without them, the organization's goals and objectives cannot take place. The maintenance of infrastructural facilities ensure that the facilities are utilized efficiently and would allow for productivity. Thus, the maintenance of facilities in Nigerian universities would allow the university to achieve its goals and objectives which would ultimately lead to a sustainable university education. The infrastructural facilities in Nigerian universities, especially that of public universities are usually inefficient, dilapidated and at most times, have long surpassed their use as they have not undergone any sort of maintenance. This has affected academic activities in the university thereby derailing any possibilities of achieving sustainable university education. It is against this background that this paper examines the necessity of infrastructural maintenance in Nigerian universities to achieve sustainable university education in Nigeria. This paper discussed the problems faced by university administrators in their attempts to carry out maintenance of their infrastructure to include underfunding, poor supervision, poor maintenance culture, amongst others. It was concluded at the end of this paper that where the necessary infrastructural facilities do not undergo maintenance, there would be a decline in the activities of the members of the university community, both academic and non-academic. Suggestions to the problems identified in this paper were discussed to include provision of funds, mandatory supervision on infrastructure, routine and regular maintenance of infrastructure, amongst others.

Keywords:
Infrastructure,
Maintenance,
University Education,
Sustainable University Education

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Introduction

Infrastructure consist of physical materials that are used in an organization to facilitate productivity. What makes university education unique is the level of infrastructural facilities it holds as this helps to portray a high standard of its institution in the eyes of the society. The presence of state of the art facilities would enable students in Nigerian universities (especially government owned universities) to compete with their counterparts both nationally (private universities) and internationally at the global stage. The provision of infrastructural facilities and its functions should be closely related to the university brief, academic planning and curriculum development. This aspect of planning takes care of issues like population, staff strength, support staff and the likes. The initial plan ought to take into cognizance the optimal students, staff and program statistics. Unfortunately, the implementation of these plan is not properly guided as the infrastructural base does not necessary match population. Thus, the facilities in Nigerian universities are generally inadequate or they have not been properly maintained for years. Ebehikhalu, & Dawam, (2017) submitted that it is very clear that Nigerian universities have teaching and learning facilities that fall far short of the international best practices and Nigeria's National Minimum standard. Ofor-Douglas (2022a) noted that the lack of infrastructure that should be available to assist students' education and development in other life skills causes those in public schools to be second to those in private school who know the practical and theoretical aspect of their courses. The office of the Dean in some universities is being shared by five to six lecturers, the students do not have adequate lecture halls and hostels accommodations (Ogunode & Abubakar, 2020). According to a survey by the National University Commission in Ogunode (2019) it was revealed that only about 30 percent of Nigerian students' population have adequate access to classroom, lecture theatres, laboratories and libraries. The adequate provision and maintenance of infrastructural facilities are the key to sustainable university education in Nigerian universities. Moreover, the level of qualified staff and its ability to utilize the facilities at its disposal brings about stimulating teaching and learning for a positive outcome of its learners. The aim of this paper is to identify methods of inculcating a maintenance culture of infrastructures in Nigerian universities. The objective of this paper is to identify the problems hindering the adequate maintenance of Nigerian university infrastructure so as to achieve sustainable university education. The researchers have carried out work on related studies but much work have not been done on this area which have limitation and in nature that is why the researcher is carrying out this study on the work to fill the missing gap.

Infrastructure

Infrastructure in the university setting describes the physical structures and facilities utilized to carry out the goals and objectives of the university. They include hostel buildings, lecture halls, seminar halls, auditoriums, staff quarters, staff offices, sports

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complexes, libraries, laboratories, health centers, school farms and facilities like desks, chairs, book shelfs, lab equipment, ICT equipment, e-learning equipment, internet facilities, power supply, and water supply, amongst others. Ogunode & Agwor (2021) asserts that school infrastructural facilities are social capital within the school environment. Ehiametalor, (2001) cited in Maiyeri (2022) asserted that infrastructure as the operational inputs of every instructional program and constitutes elements that are necessary for teaching and learning. The availability of infrastructure in the university plays an important role in the welfare of members of the university community. Ogunode (2020) submitted that inadequate infrastructural facilities is a very big problem facing the administration of public universities in Nigeria. Universities in Nigeria lack the adequate infrastructural facilities needed to achieve quality university education. The existing infrastructures in the universities are also not adequately maintained. Okolocha and Okolocha (2012) as cited in Ofor-Douglas (2022b) acknowledged this assertion when they noted that Nigerian tertiary institutions do not have the necessary equipment and facilities to equip the students with necessary skills and competencies. Edoren, (2014) posited that the state of school infrastructure has been shown to have a major impact on perceived and actual educational quality and on sustained pupil access in Nigeria, as well as on teacher motivation. This emphasizes the view that without the provision of quality infrastructure, a university cannot attain its major goal which is quality university education. Infrastructure should contribute to sustainable development with wider consideration for decision processes, target beneficiaries, and changes needed social, technological, environmental and economic (Sturup and Low, 2019). Subair, Okotoni & Adebakin (2012) maintained that some departments in the universities borrow facilities and equipment to meet up with the standard of Nigerian Universities Commission (NUC) accreditation exercise.

Maintenance

Maintenance is the process of regularly preserving infrastructure in order to ensure its longevity. Tijani et al. (2016) posited that maintenance is the habit of regularly and consistently keeping buildings, machine, facilities, equipment, infrastructure, etc. in a good and working condition. Nkrumah (2017) asserted that maintenance consists of the various activities that are undertaken in order to keep, restore and improve existing infrastructures to be appreciable standards and to sustain utility and value of the facilities over time. Maintenance encompasses all planned or unplanned technical, administrative and managerial efforts made to retain or restore an item to an acceptable condition (Chan, 2010). The maintenance of infrastructure in Nigerian universities require adequate funds. Roslan et al. (2014) mentioned that despite the huge investment in public buildings, the attitude of public institutions on maintenance culture has negatively affected sustainable maintenance strategy to preserve the quality of buildings. The lack of maintenance culture in Nigerian universities would undoubtedly lead to issues such as

poor quality university education, low productivity rate of graduates, brain drain, strike action, disruption in academics, amongst others. Dangara (2016) cited in Ofor- Douglas (2022b) opined that the following type of maintenance ought to be followed inside the facility maintenance plan. These are preventive, routine, emergency repairs, and predictive maintenance.

Tijani et al (2016) suggested some benefits derived from adequate maintenance of infrastructure to include the following:

1. Keeping assets in utmost working condition in order to minimize downtime and disruption to services.
2. Preventing unnecessary damage to assets or facilitation that may result in their performance failure
3. Keeping facilities in a state of good repair for the owner's health and safety.
4. Keeping assets from deteriorating in appearance and aesthetics.
5. Keeping facilities so as to optimally achieve their full potential service life

University Education

University education is education that an individual attains to achieve after completing his/her basic primary and secondary education. It is a higher degree of formal education that offers education in professional courses which an individual would require in his/her goal to contribute to the development of the society. University education is established to meet the needs of the society in the areas of inventions, innovation, and provision of skilled manpower of international repute (who can stand out or compete favorably), and ground breaking research in the universities which will impact positively to the society. University education as posited by the National Policy on Education (FRN, 2013) falls under the umbrella of the post –secondary section of the national education system. The objectives of the universities in Nigerian university education include the following

1. The acquisition, development and inculcation of the proper value orientation for the survival of the individual and societies; the development of the intellectual capacities of individuals to understand and appreciate environment;
2. The acquisition of both physical and intellectual skills which will enable individuals to develop into useful members of the community; the acquisition of an overview of the local and external environments (FRN, 2014).

Ofor-Douglas (2020) highlighted the following as benefits of university education

- Individuals are required to have degrees for a wide range of careers such as medicine, education, engineering, accounting and law and the university provides for the obtainment of such degrees;
- University education will help an individual to succeed in today's work force and establish an enjoyable career of his/ her choice in the near future;

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- The job market is extremely competitive, and employers require the services of skilled employees to work for them. This skill can be developed in the university.

Bloom, Hartley & Rosovsky, 2006; Bloom et al., 2014 cited in Odhiambo (2018) suggested that university education is a determinant as well as a result of income and can produce public and private benefits.

Sustainable University Education

The concern for quality in university education in Nigeria is most desirable for the economic, political, scientific and technological development and advancement of any nation. Quality in education (university education) can be viewed as the ability of the educational system to meet up with the constant demands and expectations of its educational customers which include students, parents, lecturers, staff, and other benefactors etc. (Ofor-Douglas, 2022a). Ganira and Odundo (2018) argued that overriding theme of education for sustainable development is integration of values inherent in sustainable development into all aspects of curricula to encourage change in behaviour that allows a just society for all. Education for sustainable development is one of such issues and focuses on environmental education, disaster risk reduction, safety and security education, financial literacy, poverty education, countering terrorism, extreme violence and radicalization, gender issues and animal welfare (Republic of Kenya, 2017). It is to be understood that university education is seen as an important aspect of sustainable development goals that are related to the transforming and empowering the citizens to enable them become productive members of the society (Chankseliani & McCowan, 2021) cited in (Ofor-Douglas, 2023a). Sustainability is the ability to sustain, maintain, provide for or nourish something for an indefinite period without damaging or depleting it (Edet & Beyin, 2018). Agih (2016) cited in Ofor-Douglas (2023b) assert that education for sustainability is the practice of learning how to achieve global and local sustainable communities through the constant provision of desirable educational needs to people of the young generation such that will be meaningful in their future aspiration. It is oriented towards acquisition of survival skills for service, productivity and contribution to the development of society (Ogbuji, 2013). Education for sustainable development is education that includes activities that aim to provide alternative value and transformative actions that lead to problem-solving and to realize a sustainability society which would benefit the present and future generations.

Problems of Infrastructural Maintenance in Nigerian Universities

Monday and Mallo (2021) rightly stated that poor infrastructural facilities planning, corruption, poor maintenance culture and inadequate funding are factors responsible for inadequate infrastructural facilities in Nigerian higher education (university education

inclusive). Oyebade and Dike (2013) identified factors such as limited infrastructure, poor funding, poor staffing, poor record keeping and socio-political interferences as reasons for poor performance of Nigeria's tertiary institutions. According to the author of this paper, the problems hindering the maintenance culture of infrastructures in Nigerian universities includes:

1. **Corruption:** This is also another problem plaguing the maintenance and improvement of infrastructure in Nigerian universities. Adeyemi (2012), the concept of corruption has defied uniform definition among the practicing policy administrators and the academic communities, and it has continued to be enveloped by value differences, preference amongst the victims and perpetrators. Akanle & Adesina (2015) were of the view that corruption is often encouraged by the collection of social networks and kinsmen who place demands that are beyond the official capacity of the public officers from their section of the country, making these officers go beyond their constitutional mandate to please their social, ethnic and kin networks, thus pursuing them to cut corners and subsequently jeopardizing an existing sustainable development goal. Ebehikhalu & Dawan (2017) mentioned that many of the stakeholders in the university system in Nigeria are also responsible for the rot in the university system. Adenugba (2013) cited in Ofor-Douglas (2022) is of the opinion that the internally generated revenue to boost the finance of the institution, is hampered by corrupt practices being perpetrated by those that are involved in collecting and keeping records.
2. **Underfunding:** A major problem facing the adequate maintenance of infrastructure in universities is underfunding. Funds are essential in the maintenance of infrastructure, especially the buildings. Funding is also necessary for procurement of instructional materials and teaching aids (Uzoigwe, 2013). However, the funds provided for the maintenance of existing infrastructure in Nigerian universities are either inadequate or non-existent. Agboola (2000) as cited in Osaigbo and Ikediashi (2022) maintained that the problem of underfunding which is a major challenge confronting the Nigerian university system has had adverse effects on the performance of the universities. Rufai (2012) rightly observed that the by-effects of dwindling finances in the Nigerian University system are explicated in many adaptive mechanisms such as curtailing of laboratory/practical classes and the reduction in the purchase of library books, chemicals and basic laboratory equipment. Due to this problem of underfunding, university infrastructure become dilapidated and worn out and can hardly be used by members of the university community for anything at all.

3. **Poor supervision:** This is another problem challenging the maintenance of infrastructure in Nigerian universities. There is a lack of adequate supervision in Nigerian universities on the existing infrastructure and facilities in the universities.

Thus, infrastructure in Nigerian universities are often misused and the funds needed to acquire and maintain these infrastructure are often diverted to other sources. The problem of corruption therefore affects various projects across the country which ordinarily assist in attainting or achieving sustainable development goals, unfortunately, as poor and weak infrastructures spread in all sections of the country due to poor supervision, as supervisory officers are more interested in collecting 'kickback' against ensuring the successful completion of such projects or policy actions remains a setback to the attainment of the goals (Olagunju, 2012). When there is an adequate supervisory unit within universities in Nigeria, quality delivery of educational services can be ensured. (Ofor-Douglas, 2020).

4. **Poor Maintenance Culture**: Another problem plaguing the maintenance of infrastructure in Nigerian universities is that of the poor maintenance culture by members of the university community. Maintenance culture refers to the regular practice of ensuring that materials are well taken care of and preserved. Suwaibatul-Islamiah et al. (2012) adequately stated that maintenance culture is the values, way of thinking, behaviour, perception and the underlying assumptions of any person or group or society that considers maintenance as a matter that is important (priority) and practices it in their life. NOUN (2012) as cited in Ayjoko et al (2023) agreed with this assertion and stated that the lack of maintenance culture among stakeholders in institutions of higher learning is another factor reducing physical plants to nothingness. The lack of good buildings or funds to rehabilitate collapsed structures poses threat to the system performance and its sustainability hence education to some extent is falling due to low standards (Monday and Mallo, 2021). Efobi (2014) acknowledged that although developing countries continue to invest heavily in new infrastructure, the sustainably of existing ones suffer from poor maintenance culture.
5. **Overpopulation:** Lastly, the problem of overpopulation in Nigerian universities is hindering the maintenance of infrastructure. Overpopulation in Nigerian universities would undoubtedly affect the maintenance of infrastructure as the existing infrastructure in Nigerian universities are not adequate to cater to the demands of Nigerian universities which usually admit more than the required quota set by NUC. Adeotoro (2008) in Ofor-Douglas (2022b) agreed with this opinion and asserted that the available physical resource does not match the population of both staff and students in Nigerian universities. In Nigeria, it was discovered that there exists a huge gap between the supply and demand for such facilities due to high rate of population growth and other factors (Dabara et al, 2015). Some infrastructure can only cater to a limited number of people hence when a large number over-utilize such infrastructure, it tends to diminish in quality.

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Conclusion

This paper discussed the issue of the maintenance of infrastructure in Nigerian universities for sustainable university education in Nigeria. Infrastructure in Nigerian universities were identified to include physical structures such as hostel buildings, staff quarters, staff rooms, sport centers, libraries, laboratories and facilities such as chairs, tables, e-learning facilities, power supply, water supply, amongst others. It was discovered that there is a poor maintenance culture dominating the Nigerian university scene and this has caused the existing infrastructure to diminish thereby reducing productivity, and their effects on the quality of education in public universities in Nigeria. The problems hindering the maintenance of infrastructure in Nigerian universities were discussed to include underfunding, corruption, poor maintenance culture, irregular supervision of the facilities, amongst others.

Suggestions

Based on the findings of this study, the following suggestions were proffered as possible solutions to the problems hindering maintenance culture of infrastructure in Nigerian university education:

1. There should be an adequate provision of funds for the maintenance of infrastructure in Nigerian universities. The Federal Government should make it a priority to improve on existing infrastructure and also ensure that these infrastructure are capable of meeting 21st century university educational standards. Funds for the general maintenance and improvement of university infrastructure can also be sourced from partnerships with the private sector and foreign universities.
2. The funds allocated towards the maintenance and improvement of infrastructure in Nigerian universities should be adequately supervised to avoid misappropriation or mismanagement of the funds. Corrupt individuals convicted of misappropriation or mismanagement should be adequately dealt with. Nigerian universities should champion the maintenance culture of infrastructure in their various schools. Conferences and seminars which enlighten the university community on how to properly maintain the university infrastructure should be held regularly.
3. A consistent maintenance culture should be adopted by members of the Nigerian university community.
4. There should be regular supervision on how the university infrastructure is being utilized by the university community. CCTV cameras should be installed to catch the culprits guilty of misusing the available infrastructures.
5. The provision of infrastructure should be made to cater to the demands of the university's population.

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