

## **CRITICAL ASSESSMENT OF INFRASTRUCTURE SYSTEMS IN PUBLIC TERTIARY INSTITUTIONS IN NIGERIA: A CASE STUDY OF THE FEDERAL POLYTECHNIC, ILARO**

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### **ABSTRACT**

Efficient and sufficient infrastructure systems are crucial to effective teaching and learning. For over a decade now tertiary institutions in Nigeria are underfunded yielding conspicuous decline and deficit in the infrastructure systems in public institutions. Typically, number of students, staff and programs are on the increase which in essence should translate to technological and socioeconomic development of the nation. However, the large turnouts of graduates are unemployable with certificates that have little or no recognition, even if good grades. In this study, an assessment of the infrastructure systems of tertiary institutions and its effects on students' performance is investigated. Results show that deferred maintenance and deficit in infrastructure development rate are factors responsible for the turnout of poor quality and, hence, unemployable graduates. Among others, it is recommended that master plan for infrastructure development should be formulated for each public tertiary institution with monitoring structures in place to ensure the funding and execution of the master plans until each institution attains self-sustenance.

**Keywords:** infrastructure systems, students' performance, tertiary institutions.

### **INTRODUCTION**

The emerging global concept of knowledge economy for creation and development of goods and services through highly skilled workforce have stimulated interests in evaluation of intellectual capital

development and crisis of deficient graduates in Nigeria. The significance of quality and adequate infrastructure on academic performance of students has recently gained universal attention. In consequence, the United Nations in 2015 developed a blueprint 2030

Agenda for Sustainable Development Goals (“SDGs 9.1) towards developing quality, reliable, sustainable and resilient infrastructure to support economic development and human well-being, with a focus on affordable and equitable access for all (UNESCO, 2019). It is observed that public institutions in Nigeria experience budgetary constraints for educational infrastructure to meet up with the rapid growth in public institutions and hence over the years have been continuously plagued with deficient maintenance and operation, erratic service delivery, vulnerability to insurgencies and natural disasters, inadequate attention to recovery form failure, environmental protection and public safety, among others.

Amadi & Ohaka (2018) described education infrastructure as assets required to support and improve educational activities. There are a number of critical inputs into tertiary education such as teaching faculty, curricula, admission procedure, etc. but this work investigates the conceptual framework of tertiary education infrastructure on human capital development and its effects on endogenous development in Nigeria. Hence, teaching and learning based on an assessment of education infrastructure is thus considered.

## LITERATURE REVIEW

Empirical and theoretical investigations have established strong evidence that high-quality infrastructure facilitates better instruction, improves student outcomes, and reduces dropout rates, among other benefits (Enefola, 2016). Though the infrastructure systems constitute the hardware but the significance of such systems are the essential services they provide to the users (Anyaeji, 2017). Education infrastructure fundamentally include laboratories & workshops, equipment & consumables, classrooms & lecture theaters, library & information technology Services, staff offices & boardrooms, power supply infrastructure, transportation & road networks/walkways, health and security facilities, conveniences, cafeterias, as well as sporting, recreation & tourism facilities, all of which are crucial elements of learning environments in tertiary institutions.

Globally, educational funding has always been a challenge, especially in developing and underdeveloped nations that often times it requires interventions from foreign non-governmental organizations (NGO) such as USAID, UNESCO, World bank support, etc. (USAID Education, 2017). The path to national and economic

development in fast growing economies has always been through prioritizing human capital development above development of natural resources. Adekunle (2019) reported that human capital development was the path Nigeria followed that made the few existing Nigerians tertiary institutions ranked better among global contemporaries until the discovery of Oil in the early 1970s. Nigeria has afterwards focused more on oil exploration and exploitation and much less on human capital development and hence has ever since depended primarily on Expatriate in human capital, a trend that grows exponentially by the year. However, those who control technologies by their advanced education system control the economy and resources of dependent nation even without necessarily having the natural resources, hence the ongoing agitation for local content in the petroleum and other similar industries. Accordingly, Akinyosoye(2010) adjudged that it is not achievable for Nigeria to attain top 20 economies in the world based on the current earnings from the exploitation her natural resources.

UNESCO recommends 26% of yearly budgetary allocation to Education but this highest percentage allocated to education in Nigeria in the past 30 years is 8% while the

lowest allocated to exploration and exploitation of mineral resources within the period is 30%. Whereas, all the natural resources without the exception of agricultural raw materials/staples are transported outside Nigeria for processing and transported back to Nigeria for consumption most times with subsidy and hence Nigeria is known to be a consumer nation. Developed nations however achieved competence in human capital through developed educational systems which empowers them to control the economy and resources of the developing and underdeveloped nations (Bank, n.d.).

Strong evidences have severally been established that poor learning environments and inadequate infrastructure adversely affects students' performance (Enefola, 2016). However, through exhaustive data analyses, the level of education and the geographical location of the learning environment offer extensive but incisive differences in the prevalent challenges in developing world. Peculiar to Nigerian case and more pronounced is dichotomy in higher institutions of learning which has entrenched and empowered marginalization of the Polytechnic sector in the nation. Hence, polytechnic sector is more affected by low and inadequate

infrastructure than the university counterparts.

While foreign researches have shown that in the design of education infrastructure the factors that mostly influence teaching and learning activities are three correlated elements namely *naturalness* (e.g. brightness, air quality, topography), *stimulation* (e.g. complexity, color), and *individualization* (e.g. flexibility of the learning space), though not established in any hierarchical order of significance, Nigerian tertiary institutions are however primarily plagued by energy related problems. Since polytechnic education is aimed at training middle level technical manpower, modern workshop and laboratory equipment are at every point in time most essential to impart the requisite practical skills for sustainable development but inadequate access to energy to power the few available outdated equipment which were mostly acquired at the inception of the institutions cannot facilitate the expected high quality effective training of manpower.

Reports according to the Adesulu et al. (2019) in a national daily showed that all the hostels in Nigerian public tertiary institutions are mostly whitewashed decayed infrastructure, grossly

overcrowded and unhygienic accommodating only a handful of students, a situation that was described as very depressing for students in need of habitable accommodation suitable for them to achieve their primary assignment of learning. As a result of the deplorable condition of living, there are numerous cases of health breakdowns among the students in campuses that have poor health facilities, a situation that has led to several cases of students' unrests across the nation. According to Oketch et al., (2014), provision of suitable, sanitary, safe and secure water and conveniences in schools is critical in reducing dropout rates for girls and hence demands institutionalized arrangements and commitment for regular cleaning and maintenance of the facilities.

## METHODOLOGY

This study adopts participatory assessment technique for infrastructure (PATI) approach to assess the availability, capacity and physical condition of education infrastructure at the Federal Polytechnic, Ilaro. Interviews were held with individuals, class representatives, student union leaders, teaching and non-teaching members of staff in the Institution, former graduates and parents.

## RESULTS AND DISCUSSION

The essential parts of the findings are discussed under the following subheading below.

*Lecture & Practical Periods:* To a greater extent, it was discovered that lecture time table affects learning more than accommodation problems for practical oriented courses. Students are more dissatisfied with their lecture time table than any other factors requesting courses with calculations to be fixed in the morning, whereas only one lecture period is daily available in the morning. Two factors that primarily affect lecture time tables are lack of power supply and inadequate number of classrooms. Because of high cost of running power plants, it is practically impossible to run heavy duty diesel generators for the whole day for all the academic activities on campus except for some key areas such as Libraries, IT Centers, mass communication department, etc. with Inverters as backups. Out of many considerations, daily schedule of power supply compels laboratory and workshop practical to be fixed between 10 a.m. and 2 p.m. which is the most active hours for learning and hence restrains lectures to only a period between 8 am to 10 a.m. and the rest between 2 p.m. and 7 p.m. If all the laboratories and workshops are well

equipped with modern day equipment, this would be more beneficial to the students.

*Conveniences:* In the survey carried out more ladies share the male restrooms and 1 out of every 5 females return without using the restroom while all the female users return spitting and dressing up properly after leaving the restroom. More male students prefer to urinate around the conveniences than use the convenience. It was found out that once a day daily cleaning is not sufficient for female restrooms but may be sufficient for male restrooms.

*Leisure:* When they have free period in between lectures and they feel like relaxing they cluster in groups at the love garden but mostly at the closer of the two markets and for many of the off-campus students means skipping the rest of the classes for the day. Hence, a need for leisure centers on campus is essential to improve students learning process.

Availability of part-time jobs for students on campus: Because of economic restrains on majority of the students to cope with financial implication of their academic pursuits, 2 out of every 5 of the students run their programs on crash basis. It became apparent that opportunity to supplement

their allowances through part-time jobs on campuses is very essential for qualitative education. However, because of lack of funding, public institutions are primarily engaged in Internally Generated Revenues (IGR) to raise funds for running of the schools. IGR is a standard practice across institutions worldwide but it is effective and efficient when all the essential infrastructures are adequately in place and the learning environment can be said to have reached a level of self-sustenance.

## **CONCLUSION**

A summary of the main findings of this assessment is thus provided. The study reveals that education infrastructure is basic to teaching and learning upon which all other inputs to tertiary education can be based. It therefore, to the most significant level, determines the quality, competence and relevance of Nigerian graduates to industrial and economic growth of the nation. Though Nigeria has a huge working age population but the labour capacity is extremely low as a result of a shortage of requisite skills which has adversely affected the employability especially of the technical graduates who are necessary to position the nation to achieve attainable dynamic growth potential. Significantly, a good number of the teaching staff as well is

graduates of the same degenerating quality who resort to self-improvements.

Results from the assessment therefore highlight the relative importance of the present and future need for urgent infrastructure investment in public tertiary education sector in Nigeria. The most pressing need however is to relieve the inadequacies of energy supply, hygienic conveniences and procurement of up-to-date training equipment. Aside adequate number of well-equipped lecture theaters, every class should have a designated classroom equipped with modern teaching aids. This would solve the problem of inappropriate course scheduling due to unavailability of sufficient classrooms. In order to identify and prepare infrastructure projects to promote effective teaching and learning environment, considerations should be given to the above mentioned factors. Blueprint on investments to build all the necessary infrastructures should be developed with strong integration and coordination between the policy-making and implementation to be monitored by a transparent regulatory model.

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