



A Diagnosis of School Plant Conditions for Effective Academic Performance in Secondary Schools in Rivers State

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Abstract

The study diagnosed school plant conditions for effective academic performance in secondary schools in Orashi region in Rivers State. Descriptive survey design was adopted. The study collected data from 138 respondents through 34 items validated 'School Plant Condition Assessment Questionnaire'. Pearson's Correlation Coefficient (r) was used to ascertain the reliability of the instrument which yielded a reliability coefficient of 0.90. Mean and standard deviation were used to answer the four research questions, while Pearson's Product Moment Correlation was used to test the three hypotheses at 0.05 level of significance. The research found that the conditions of classroom buildings, teaching/learning facilities and infrastructural facilities were generally bad. It was further found that there is significant positive relationship between conditions of classroom buildings, teaching/learning facilities and infrastructural facilities and effective academic performance in public secondary school. It was concluded that school plant conditions for effective academic performance in public secondary schools is generally bad and not encouraging. The study recommended among others that Ministry of Education planning unit should regularly conduct a diagnostic check on the state of school plants in public secondary school as a way of preventing further deterioration.

Keywords: Conditions, Effective Academic Performance, School Plant, Secondary Schools.

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INTRODUCTION

Over the years, the deteriorating of quality of education in Nigeria no doubt has raised a lot of concern in the society. The deterioration in the system seems to translate to low level of students' academic performance in secondary schools. Consequently, the feeling is that several factors could be responsible. Among the blamed factors are the deteriorating conditions of school plants in secondary schools. This is so because physical environment of the school are indeed an outstanding determinant of effective academic performance and the attainment of educational goals and objectives.

No doubt, school plant is very essential in any educational system. School plant is physical/material things within the school premises. It is the material provisions of the school which include all the infrastructure, facilities and equipment that are needed and used to support the delivery of effective teaching and learning and smooth school administration. It means that without such facilities being kept in good conditions the objectives of the school organization would hardly be achieved.

The relevance of secondary education to the upbringing of the children's future cannot be over emphasized. Secondary education is defined by Federal Republic of Nigeria, in Section 5 of her National Policy on Education as "the education children received after primary education and before the tertiary stage" (FRN, 2014, p.11). It is expected that a child who cannot proceed to the tertiary level of education would have acquired necessary skills and knowledge at the secondary education level to enable him/her be self-reliant and contribute to the growth and development of the society. It was on this basis, that the Federal Republic of Nigeria in her National Policy on Education (2014, p.11) stated that the broad goals of secondary education are "to prepare the individual for useful living within the society; and for higher education". Still in this regard, Ezekiel-Hart and Adiele (2010, p.185) maintained that "secondary education should be able to equip students with marketable skills for a wide range of employment opportunities, including self-employment". However, this expectation cannot be achieved if the necessary school plants are lacking or are in bad conditions in secondary schools. Thus, the school plants have to be provided in appropriate quantity, quality and of good conditions, to meet the standards for promoting any meaningful teaching and learning activities.

The problem of neglect and decadence of school plants in secondary schools in Rivers State was considered serious enough that government at various times has made frantic efforts towards the provision, renovation and rehabilitation of deteriorating school plant. In spite, of these numerous anxious efforts by various governments a cursory observation within the secondary education system in Rivers State on infrastructural base especially within the Orashi region still suggests unpleasant situation capable of impeding effective teaching and learning activities. In recent times too there has been public outcry about the deplorable state of school plants in public secondary schools in Rivers State. There had been reports from different areas that students often time learn under unsafe and unhygienic conditions; some school buildings do not have ceilings, no doors and windows for sufficient ventilation; broken chairs and desks are common sights in the classrooms; cracked floors and broken windows, leaking roofs, good percentage of school buildings collapsing and constituted death-traps for the learners etc. These observations are confirmed by a report of Education Sector Support Programme in Nigeria (ESSPIN, 2009) which reported that approximately 75% or more of the existing school infrastructure in schools visited in Nigeria were in very poor condition. This attest to the fact that

the conditions of school plants at secondary schools' level are in a terrible situation in all states of the federation.

The general conditions of school plants in most public secondary schools in Nigeria especially as witnessed in Rivers State are unacceptable. As it had been observed that enrolment in public secondary schools increases without commensurate expansion of the needed school plants in the schools. Regrettably, this implies that school plants in most Nigerian public secondary schools have been in bad conditions or state of disrepair for a relatively long period without any good attention to put them in good functional state.

The situation recounted above creates an impression that the education managers and school principals in most public secondary schools in Rivers State lack maintenance culture. Such unhealthy and unsafe conditions of the school learning environments as indicated above becomes worrisome and keep the researchers wondering whether school plants could actually contribute to effective academic performance of students. This however, poses essential task on educational planners in the planning process and school administrators in management of school plants and therefore call for proper and effective school plant diagnosis. It is against this background that the researchers considered it necessary to carry out a diagnosis of the conditions of school plants for effective academic performance in public secondary schools.

Statement of the Problem

In recent times, it has been generally observed that adequate attention is not paid to the conditions of school plants in Nigeria educational system, particularly in public secondary schools. This has resulted to the deteriorating nature and pressure on the existing school plants. This situation seems to impair and threaten the quality of teaching and learning for effective academic performance, and capable of creating health and safety problems for students and staff. This state of affairs has been a source of concern to stakeholders in education. The issue at stake is whether the present conditions of school plants such as classroom buildings, teaching/learning facilities, and infrastructure guarantee effective academic performance in secondary schools in Rivers State. These are the issues the researchers are set to resolve in this study.

Purpose of the Study

The specific purpose of this study is to:

1. Determine the conditions of classroom buildings for effective academic performance in public secondary schools in Rivers State.
2. Determine the conditions of teaching/learning facilities for effective academic performance in public secondary schools in Rivers State.
3. Determine the conditions of infrastructural facilities for effective academic performance in public secondary schools in Rivers State.
4. Determine whether the conditions of school plant can lead to students' effective academic performance in public secondary schools in Rivers State.

Research Questions

The study was guided by the following research questions:

1. What are the conditions of classroom buildings for effective academic performance in public secondary schools in Rivers State?
2. What are the conditions of teaching/learning facilities for effective academic performance in public secondary schools in Rivers State?
3. What are the conditions of infrastructural facilities for effective academic performance in public secondary schools in Rivers State?
4. To what extent can the conditions of school plant lead to effective academic performance among secondary schools' students in Rivers State?

Hypotheses

The following null hypotheses (Ho) was postulated and tested in the study:

- Ho₁. There is no significant relationship between conditions of classroom buildings and effective academic performance in public secondary schools in Rivers State.
- Ho₂. There is no significant relationship between conditions of teaching/learning facilities and effective academic performance in public secondary schools in Rivers State.
- Ho₃. There is no significant relationship between conditions of infrastructural facilities and effective academic performance in public secondary schools in Rivers State.

THEORETICAL FRAMEWORK/ LITERATURE REVIEW

This study is anchored on Social System Theory. The General System Theory was propounded by an Austrian biologist Karl Ludwig Von Bertalanffy (1901-1972) in 1950, in his publication captioned "An Outline of General System Theory". Von Bertalanffy" emphasized that real system are open to, and interact with their environments, and that they can acquire qualitatively new properties through emergence, resulting in continual evolution. Basically, the theory reduces every phenomenon to a whole, made up of interdependent parts, which contribute to the proper functioning of the whole. Peretomode (1991, p.94) describes a social system as "the structural interaction of groups or entities in a given human setting to accomplish society's role". Within the context of school organization, the theory described schools as being like complex living systems open to and influenced by the inputs and demands of the members of the organization as well as the constantly changing outside environment (Bolman & Deal, 2003). It further regards schools as social systems that operate within the realm of input - process - output cycles. In the view of this theory the essential inputs in schools consist of human, material and financial, resources.

The material resources comprise of the physical inputs that make the school plant which include school buildings, furniture, instructional facilities, infrastructure and play grounds, etc. These material resources or physical inputs are processed and transformed through social interaction such as classroom teaching, lectures, seminar, excursion, experiments, within and outside the school to produce the desired results or outputs. The output component constitutes the ultimate goal of the school such as quality educated person, skills acquired, disciplined, employable and productive individual for societal consumption. It is pertinent to note that the feedback component of the school as a social system consists of the information about the school

system that enables it to correct itself as a result of the reaction to the outputs from the school either positively or negatively via work place, the home, and the larger society.

Base on this theory, the school is viewed as dynamic interactive social system where the students and teachers work together with available educational facilities to achieve stated educational objectives with maximum effectiveness and efficiency (Ehiametalor, 2001). This means that within the school social system, teacher's interaction with students in terms of teaching and learning is made possible through the use of various school plants facilities. Thus, the expectation in this theory is that the adequate provision and good conditions of physical inputs (i.e. school plant) in the school system will create a conducive school environment for effective teaching and learning, which will in turn facilitate effective academic performance among students.

Concept School Plant

The concept of school plant has been interpreted variously but all pointing to one thing. For instance, school plant is defined by Enaohwo and Eferakeya (1989) as the entire physical infrastructural facilities provided in the school for the purpose of educating the child. They further maintained that when school plant is lacking, the result will be poor learning and poor representation in all spheres of life. Similarly, Onwurah (2004) refers to school plant as the school site, the building, the playground, the equipment and other materials provided for effective teaching and learning. The description of school plant above means that they are specifically installed or built with the obvious intention of aiding teaching and learning activities in the school.

In further conceptualizing the meaning of school plant, Kpee (2013) defined it as all facilities needed for the take-off and sustenance of a school. He asserts that school plant includes all school infrastructures and non-human resources needed by the school for its establishment. Equally, school plant is more explicitly defined by Okorosaye-Orubite et al. (2017) as all types of buildings for academic and non-academic activities, sports facilities, conveniences, accommodation, open spaces, instructional spaces, administrative space, relaxation spaces. Likewise, Ibara (2018, p.54) refer to school plant as "all the material provisions in a school environment essential for teaching and learning in educational institution". School plants are also described as "educational facilities or physical facilities which consist of all the facilities except human beings needed and used to ensure teaching and learning in a school" (Ukaigwe, 2018, p.102).

Informed by the above definitions, the researchers wish to describe school plant as all educational facilities or material resources such as buildings, infrastructures, land, equipment, machineries, tools, furniture, fixtures and fittings which are put into use and capable of providing educational services for the attainment of educational goals and objectives. Going by the definitions it means that school plant consists of movable and immovable facilities. It thus implies that one of the ways in which curriculum finds its physical expression is through the construction and internal arrangement of the school plant. Thus, the bad conditions and lack of required school plants for teaching and learning process could make curriculum implementation impossible and in turn affect effective academic performance.

Echoing from the above, the distinctive features of school plant according to Amirize (2009) are the permanence of location of the establishment as a knowledge industry; the construction or provision of relevant structures, facilities and equipment for the operations and

activities devoted to educational purposes; and conveying an idea of a place where some production or productive services take place. In collaboration to the above, Amirize (2009) and Ukaigwe (2018) agrees that the scope of what is actually referred to as school plant within a school territory include the school site, paths, sports and games playgrounds (i.e. football field, lawn-tennis court), roads, school fence, parking lots, trees, flowers, landscape, farms and gardens. Others are toilet facilities, storage facilities, apparatus and tools, transportation, ICT facilities, food services, school building, furniture (i.e. chalkboards, cabinet, tables, chairs, and cupboards), equipment, classrooms, dining halls, assembly hall or auditorium, school library, administrative offices, staff quarters, and laboratory. Comprehensively, apart from human resource, school plant comprises every single useful thing starting from the school gate to the walls fence covering the school compound. In general, therefore school plant varies from instructional facilities to residential facilities to health facilities to recreational facilities to transport facilities and to general purpose facilities found in the school compound.

The above review of the concept of school plant no doubt illustrates the fact that in educational institutions, school plant constitutes vital inputs which involves all physical facilities except human beings needed, used and capable of generating favorable learning environment as well as facilitating effective teaching and learning process for the achievement of educational goals and objectives.

Relevance and Impact of School Plant for Effective Academic Performance.

Academic performance in this context refer to an outcome of all aspect of students' academic tasks which could be poorly or successfully stated in a formal structured school programme. School plants are expected to meaningfully contribute to student's academic performance. Adaralegbe (1960 as cited in Abraham, 2003, p.165), observed that "the right type of atmosphere required for effective learning is that consisting of better school buildings, more and better teaching facilities". To this extent, Nte (2009) noted that what matters for any school facility to be classified as an integral part of the physical plant is that it must contribute something to the education of the child in the long run. This signifies that school plant is indeed a vital determinant factor in the achievement of the child education pursuit and the general educational goals and objectives.

A weighty academic performance of a student in a particular secondary school is sometimes attributed to the situation of school plant of that school. This view is in consonant with Akpan (2011) position, that the general appearance of school facilities constitutes the basis upon which members of the public pass their judgments about the academic performance going on in the school. It also agreed with Asiyai (2012) view, who argued that the quality of education delivered by teachers and academic achievement of pupils of any school is dependent on several factors of which school facilities is paramount. Similarly, Okorosaye-Orubite et al. (2017), posits that school plant significantly impact and influence directly or indirectly on the teaching and learning process, and therefore may act as a pictorial representation of what goes on in a particular institution. It follows that school plant is of great relevance in the school system and constitute an integral part of the learning environment and therefore has positive impact on the educational activity, processes, and programmes.

It was rightly argued by Nwagwu (1978 as cited in Ibara, 2018, p.90) that "the school building in a learning environment has much impact on the comfort, safety and performance of the child". Further highlighting on the relevance and impact of school plant in schools, Enaohwo

and Eferakeya (1989) asserts that facilities such as furniture, laboratory equipment and materials have direct impact in the teaching-learning process, without these facilities the empty buildings and structures cannot actually be used for the purpose for which they are meant. This position implies that physical structures in the school compound without equipment and facilities are at best a purposeless monument and of no academic value.

Nlerum (2010), also argued that the availability or non-availability of facilities in schools affects the academic performance of students in secondary schools. She is of the view that teaching materials facilitate teaching and learning activities which result in effective teaching and effective academic performance. To further buttress on the impact of school plant as a vehicle for effective teaching and learning, Asiyai (2012) and Odufowoken (2011) asserts that school plant occupies a premium place among factors which affect student's performance in education institutions. They further explain that the quality of teaching and learning in schools as a predictor of student's performance is contingent upon the availability and adequacy of school plant. The above explanations portend the fact that school plant is of great value to teaching and learning process and therefore, the education system needs these plants or facilities to function effectively in order to attain the educational needs, goals and programmes realization.

It is on the basis of the above that Udosen (2012) outlined five importance of school plants as:

- to improve students' performance in achievement test;
- to improve attendance and reduces dropout rate;
- to improve students' attitude to learning;
- to increase students' retention rate; and
- to boosts teaching effectiveness.

In the view of Ameh (2018) school plant is very important in achieving positive outcomes in the teaching and learning. To him, the site, size, arrangement and other equipment can either be welcoming or repulsive to teachers and students alike. This view is supported by Nweke (2008 as cited in Nwankwoala, 2018) who opined that school plant plays an indisputable role in the maintenance and promotion of teaching and learning in the school system. School plants therefore serve as means to achieve the implementation of educational policy goals and worthwhile education activities.

In another dimension, Nwankwoala (2018) maintained that school plant is of great importance to an educational process because it offers stability and comfort to learning activities. She itemized some other importance of school plants to include: sheltering the staff and student personnel in the learning environment; aiding effective teaching and learning processes; increases teachers' retention; creates conducive and psychological balance for both teachers and students; boosts the ego of the host community; offers enough space for extracurricular activities; functions as residence for staff and students such as hostels functions as resource centers such as the libraries; and functions as recreational centers such as film halls. This means that the impact and importance of school plants has been noted to profoundly influence the act of effective teaching and learning and serves a number of purposes for the individual persons and the larger society.

From the review, there is a general agreement among scholars that school plant is critical inputs that aids the attainment of school goals and capable of ensuring effective academic performance of students. It facilitates teaching and learning process and also protects the physical well-being of the school personnel.

Issues on School Plant Conditions in Secondary Schools

A careful survey or diagnosis of the conditions of existing school plants in Rivers State may question the intention of the government on education. Regrettably, common observation in secondary schools education shows that physical facilities, infrastructures, equipment in many schools are in the state of disrepair or in bad conditions. For instance, Ehiamentor (2001, p.120) reported that “most school buildings are poor and are even made worse by over-crowding”. In some instances, he asserts, “teaching conditions are so bad as to make class instruction almost impossible”. The buildings are generally old and many are not conformed to the standards, which were regarded as adequate when they were built.

Nnabuo (2001, p.140) also reported that “classes have been held under unsafe and unhygienic conditions”. He argued that, some school buildings had no ceilings with the unbearable consequences during the hot or very humid weather. Some school plants lack adequate doors and windows for sufficient ventilation. Similarly, Ogundele (2005) reiterates that most school buildings are in varying levels of dilapidation and disrepair, most schools buildings are without roofs and create an unhealthy environment for teaching and learning. The implication of this, is that school plant at secondary schools level are in a terrible shape, littered with battered structures, overcrowded classrooms and worn out equipment. This situation is even unbearable in rural areas and definitely portends grave consequences for Nigeria secondary education.

Lamenting on the type of building found in our schools, Nwachukwu (2005) remarks that public schools have witnessed stagnation and decay and further complained with dismay that most schools are a caricature of what schools should be in a modern state collapsing buildings, leaking roofs, unkempt surroundings, etc. This observation is supported by Maduagwu (2006) who reported that:

many school buildings destroyed during the Nigerian Civil War have remained unattended to. Worst still, some of the school buildings built by the missionaries in the 50s and 60s have remained the same without expansion. As a result, the infrastructures have been overstretched with growing enrolment. In some places, students and teachers are forced to stay under the trees for teaching and learning process (pp.30-31).

In addition to this Okoro (2008) also observed that:

Lack of illumination, too much heat, broken roof tops, windows, walls and door create problem in that rays of the sun and rain penetrate and dislodge class arrangements. A classroom under this situation may experience holes in it which harbour rodents and other animals such as rats, lizards, snakes, etc that endanger the lives of the learners in the class (p.156).

Further buttressing on the above assertions Ihuoma (2008) stated that some of the school building and equipment are architecturally obsolete, and lack the taste of contemporary time and

that they cannot contribute to functional education. This scenario could be attributed to lack of political will on the part of government to properly implement educational plans and policies and lack of maintenance culture. This shows how neglected school plants conditions are in public secondary schools.

An examination of most Nigerian public secondary schools school plants shows typical evidence of broken windows and doors, collapsed ceilings, damaged roofs, cracked walls, faded paints, broken furniture, non-functional equipment, electrical fittings and damaged infrastructures Otu (2002); cracking walls and floors, blown off roofs, poor sanitary system (Yusuf & Adiyun, 2012); dilapidated buildings, broken windows, leaking roofs, collapsed ceilings, unventilated and overcrowded classrooms (Akinsola, 2012), dilapidated buildings with leaking roofs such that snakes and other reptiles occupy most of them (Dike, 2012); worn out physical structures, leaking roofs, inaccessible routes, poor aesthetics, classrooms without windows and doors, dusty floors with little or no desks and chairs (Oladunjoye, 2012). This implies that most schools in Nigeria and in Rivers State in particular still suffer from infrastructural decay which has made the school environment look so dilapidated that nothing in them attracts the learners neither conducive to learning.

Empirical Review

Various studies have been carried out to buttress the impact of school plant on effective academic performance of students, the quality and standard of education. For instance, the survey study on facilities status in Nigeria schools by UNESCO (2000) revealed a situation of serious defects in facilities and concluded that the existing buildings are in a state of decay due to lack of maintenance and repair. In the same vein, Isaac and Musibau (2010) conducted a study which established that well planned school plants in terms of location, structure, and facilities will facilitate effective teaching and learning process and enhance better learning outcomes of the students.

Other empirical research have also established the fact that school plants or physical facilities in public secondary schools were generally in bad conditions (Eke, 2010; Ogbilikana, 2010; and Ordu, 2005), are in a terrible (very bad) state (Amanchukwu & Ololube, 2015), were generally in a state of dilapidated (Nweneka, 2016). Similarly, Jagaba (2004) reported that playgrounds, libraries and laboratory equipment are generally in poor condition in many secondary schools. This assertions agreed with the finding of Farombi (as cited in Owoeye & Yara, 2011) which shows that “the classroom learning environment in some schools was poor”. He cited examples of schools with absence of ceiling, some roofing sheets not in place, windows and doors removed etc. This associated school plants poor conditions are according to Education Sector Support Programme in Nigeria (ESSPIN, 2009) due to lack of maintenance culture and shoddy job habit of contracts and compromise by supervisory authorities. Such scenario confirms that school children in most schools are taught in a dehumanized condition.

In others related studies school plants such as classrooms, library, science laboratory, science laboratory equipment, computer laboratory, school halls, books and library facilities, technical workshop, technical workshop facilities, audio-visual material and sick bay were found to be in bad conditions (Olanrele, 2012). While school plants such as staffrooms, chalk or white marker board, pitches and courts, and school garden/farm (Olanrele, 2012; Wobo, 2014); classroom, science laboratory, visual material, and school hall (Wobo, 2014) were found to be in

good conditions. This is also confirmed by Njoku (2012) study, who found that most basic school's facilities were fairly in good condition.

Nwokike (2012) also revealed that the conditions under which students learn in many schools as unhealthy and deplorable; most of our schools have very old and dilapidated buildings, and deplorable environments. In a very recent research carried out by Elenwa (2019) it was discovered that school plants such as chairs, desks and tables; classrooms; chalk/white marker boards; and administrative/staff offices were fairly in good condition. His further findings shows that the general conditions of school plants for improved academic performance among students in public secondary schools in Rivers State were grossly bad. Such situation does not augur well for the wellbeing of the Nigerian secondary schools for effective academic performance.

Several studies conducted in Nigeria on school plant and students' academic performance revealed that the condition of school plants in schools have a significant relationship with academic performance of students. For instance, researcher such as Olutola (1989) found that there is positive correlation between school plant and students' academic performance. Corroborating the above finding, research findings of Chan (1979 reported in Asiyai, 2012) shows that students who were taught in modernized buildings scored consistently higher across a range of standardized tests. On his part, Marsden (2005 findings reported in Williams et al., 2008), shows that safe and orderly classroom environment (aspect of instructional space), school facilities (accessories) were significantly related to students' academic performance in elementary schools. In a related study on "school plant planning as correlate of students' academic performance in southwest Nigeria secondary schools" conducted by Adesina (2011) found that instructional space like classroom was significantly related to improved students' academic performance.

From the above review and explanations, one can safely posit that the deteriorating condition of school plants in public secondary schools is at alarming stage and capable of adversely affecting effective teaching and learning, and hence contributing to the non realisation of functional education, educational goals and objectives neither effective academic performance among students. It also implies that adequate quality school plants are significantly related to effective academic performance of students in secondary schools.

METHODS

The study employed descriptive and survey and co-relational research design. The population of the study comprised all public secondary schools' principals and teachers located in Orashi region in Rivers State, Nigeria. A total of fifty (n=50) secondary schools principals and eighty-eight (n=88) teachers totaling one hundred and thirty-eight (n=138) sampled respondents was randomly drawn from one hundred and thirty-nine (n=139) public senior and junior secondary schools using stratified and simple random sampling technique. Content and face validity method was adopted to validate a self-designed 34-item instrument titled "School Plant Condition Assessment Questionnaire" (SPCAQ) which was used for data collection. The questionnaire was structured using 4-point summated rating scale of Very Good (VG)/Very High Extent (VHE); Good (G)/High Extent (HE); Bad (B)/Low Extent (LE); and Very Bad (VB)/Very Low Extent (VLE). The test-retest method was adopted using Pearson's Product Moment Correlation Coefficient (r) to obtain a reliability coefficient of 0.90 as a measure of internal consistency of the questionnaire. One hundred and thirty-eight (n=138) copies of the

questionnaire were personally administered to the respondents and retrieved after been completed. All the research questions were answered with mean and standard deviation, while the null hypotheses were tested at 0.05 level of significance (two-tailed test) using Pearson's Product Moment Correlation (r). To answer the research questions, decision were taken based on the mean of boundary limit of the four responses pattern. Thus, any calculated mean value within the range of 3.50-4.00 was regarded as Very Good/Very High Extent; 2.50-3.49 as Good/High Extent; 1.50-2.49 as Bad/Low Extent; and 0.50-1.49 as Very Bad/Very Low Extent.

RESULTS AND DISCUSSION OF FINDINGS

Research Question 1: What are the conditions of classroom buildings for effective academic performance in public secondary schools in Rivers State?

Table 1: Mean and standard deviation analysis of respondents answer to items on the conditions of classroom buildings in public secondary schools

S/N	Assess the condition of your school classroom buildings concerning the items below.	Principals (N=50)		Teachers (N=88)		Mean set		Remarks
		\bar{X}_1	SD	\bar{X}_2	SD	\bar{X}_1	\bar{X}_2	
1	Roofs	3.06	1.16	2.85	1.05	2.95		Good
2	Walls	1.98	0.68	1.79	0.83	1.88		Bad
3	Windows and doors	1.94	0.86	1.87	0.85	1.90		Bad
4	Ceilings	3.10	1.07	3.31	0.95	3.20		Good
5	Ventilation	1.82	0.84	2.01	0.95	1.91		Bad
6	Paintings	2.00	0.90	2.11	0.96	2.05		Bad
7	Floors	2.74	1.08	3.35	0.89	3.04		Good
8	Chairs/desks	3.12	0.89	2.86	1.10	2.99		Good
9	Buildings structure	2.04	0.90	2.27	1.01	2.15		Bad
10	Electrical fittings	1.83	0.84	2.03	0.96	1.93		Bad
	Total Mean/SD =	23.63	9.22	24.45	9.55	24.00		
	Aggregate Mean/SD =	2.36	0.92	2.44	0.95	2.40		

From the mean analysis of data in table 1, the respondent's response indicates that the condition of the roofs (XX=2.95); ceilings (XX=3.20); floors (XX=3.04); and chairs/desks (XX=2.99) in classroom buildings were good. While the condition of the walls (XX=1.88); windows/doors (XX=1.90); ventilation (XX=1.91); paintings (XX=2.05); buildings structure (XX=2.15); and electrical fittings (XX=1.93); in classroom buildings were bad. Generally, the result show aggregate mean set value of 2.40 which indicates that the conditions of classroom buildings in public secondary schools in Orashi region in Rivers State is bad.

Research Question 2: What are the conditions of teaching/learning facilities for effective academic performance in public secondary schools in Rivers State?

Table 2: Mean and standard deviation analysis of respondents answer to items on the conditions of teaching/learning facilities in public secondary schools

S/N	Assess the condition of the following teaching/learning facilities in your school.	Principals (N=50)		Teachers (N=88)		Mean set \bar{X}_1 \bar{X}_2	Remarks
		\bar{X}_1	SD	\bar{X}_2	SD		
1	Chalk boards	3.10	1.07	3.31	0.95	3.20	Good
2	White marker boards	1.06	0.81	1.64	0.67	1.35	Very bad
3	Library facilities/textbooks	2.04	0.90	2.27	1.01	2.15	Bad
4	Audio visual instructional facilities	1.16	0.75	1.26	0.46	1.21	Very bad
5	Science laboratories/equipment	2.00	0.91	2.11	0.96	2.05	Bad
6	Workshops & equipment/tools	1.06	0.81	1.32	0.85	1.19	Very bad
7	Computer lab./internet facilities	1.12	0.84	1.28	0.76	1.22	Very bad
8	School garden	3.18	0.89	3.10	0.93	3.10	Good
	Total Mean/SD =	14.72	6.98	16.29	6.59	15.48	
	Aggregate Mean/SD =	1.84	0.87	2.03	0.82	1.93	

From the mean analysis of data in table 2, the respondent's response indicates that chalk boards (XX=3.20) and school garden (XX=3.10) were in good condition. While library facilities/textbook (XX=2.15) and science laboratories/equipment (XX=2.05) were in bad condition. And white marker boards (XX=1.35); audio visual instructional facilities (XX=1.21); workshops & equipment/tools (XX=1.19); and computer lab./internet facilities (XX=1.22) were in very bad condition. Generally, the result show aggregate mean set value of 1.93 which indicates that the conditions of teaching/learning facilities in public secondary schools in Orashi region in Rivers State is bad.

Research Question 3: What are the conditions of infrastructural facilities for effective academic performance in public secondary schools in Rivers State?

Table 3: Mean and standard deviation analysis of respondents answer to items on the present conditions of infrastructural facilities in public secondary schools

S/N	Assess the condition of the following infrastructural facilities in your school.	Principals (N=50)		Teachers (N=88)		Mean set \bar{X}_1 \bar{X}_2	Remarks
		\bar{X}_1	SD	\bar{X}_2	SD		
1	Assembly hall	2.04	0.90	2.27	1.01	2.15	Bad
2	Staff quarters	1.26	0.46	1.62	0.69	1.44	Very bad
3	Students' hostels	1.10	0.72	1.24	0.52	1.17	Very bad
4	Football pitch	2.96	0.98	3.04	1.08	3.00	Good
5	Lawn/table tennis, volleyball & basketball courts	11.83	0.84	2.03	0.96	1.93	Bad
6	Admin. offices/staff room	3.14	0.80	2.96	1.01	3.05	Good
7	Toilet/sanitary facilities	1.98	0.68	1.79	0.83	1.88	Bad
8	Pipe born water/bore hole	1.82	0.84	2.01	0.95	1.91	Bad
9	Electricity supply	2.00	0.91	2.11	0.96	2.06	Bad

10	Health care facilities (sick bay)	1.36	0.52	1.52	0.57	1.44	Very bad
	Total Mean/SD =	19.49	5.94	20.59	8.58	20.03	
	Aggregate Mean/SD =	1.94	0.59	2.05	0.85	2.00	

From the mean analysis of data in table 3, the respondent's response indicates that football pitch (XX=3.00) and administrative offices/staff room (XX=3.05) were in good condition. While assembly hall (XX=2.15); lawn/table tennis, volleyball & basketball courts (XX=1.93); toilet/sanitary facilities (XX=1.88); pipe born water/bore hole (XX=1.91); and electricity supply (XX=2.06) were in bad condition. And staff quarters (XX=1.44); students' hostels (XX=1.17); and health care facilities (XX=1.44) were in very bad condition. Generally, the result show aggregate mean set value of 2.00 which indicates that the conditions of infrastructural facilities in public secondary schools in Orashi region in Rivers State is bad.

Research Question 4: To what extent can the conditions of school plant lead to effective academic performance among secondary schools students in Rivers State?

Table 4: Mean and standard deviation analysis of respondents answer to items on the extent to which conditions of school plant can lead to effective academic performance among secondary schools students

S/N	Assess the extent to which condition of school plant can improve effective academic performance.	Principals (N=50)		Teachers (N=88)		Mean set		Remarks
		\bar{X}_1	SD	\bar{X}_2	SD	\bar{X}_1	\bar{X}_2	
1	Better classroom buildings can improve effective academic performance	2.98	1.02	2.96	0.98	2.97		High extent
2	Effective academic performance can be enhanced through well planned school plant	2.94	1.09	3.27	0.95	3.10		High extent
3	Good condition of teaching/learning facilities can improve effective academic performance	2.66	1.15	3.01	0.98	2.83		High extent
4	Good condition of infrastructural facilities can improve effective academic performance	2.90	1.07	3.17	0.92	3.03		High extent
5	Conducive learning environment can enhance effective academic performance	3.12	0.89	2.86	1.10	2.99		High extent
6	Effective academic performance may not necessary be achieved through condition of school plant	1.06	0.81	1.64	0.67	1.35		Very low extent
	Total Mean/SD =	15.66	6.03	16.91	5.60	16.27		
	Aggregate Mean/SD =	2.61	1.00	2.81	0.93	2.71		

From the mean analysis of data in table 4, the respondent's response indicates that better classroom buildings (XX=2.97); well-planned school plant (XX=3.10); good condition of teaching/learning facilities (XX=2.83); good condition of infrastructural facilities (XX=3.03); and conducive learning environment (XX=2.99) can improve effective academic performance to

high extent. Generally, the result show aggregate mean set value of 2.71 which indicates that good conditions of school plant to high extent can lead to students' effective academic performance public secondary schools in Orashi region in Rivers State.

Test of Hypotheses

Research Hypothesis 1: Ho₁. There is no significant relationship between conditions of classroom buildings and effective academic performance in public secondary schools in Rivers State.

Table 5: Pearson correlation analysis between conditions of classroom buildings and effective academic performance among secondary schools students

Variables	N	\bar{X}	SD	Df	R-value	P-value	Decision
Conditions of classroom buildings	138	2.40	0.93	136	0.66	.000	Rejected
Effective academic performance	138	2.71	0.96				

The result of data on table 5 indicates that the calculated r-value of 0.66 is greater than the table p-value of .000 at 136 degree of freedom and 0.05 level of significance. This shows that the calculated r-value is statistically significant at $p > 0.05$ (two tailed). Therefore the tested null hypothesis (Ho₁) was rejected. This implies that there is significant moderate positive relationship between conditions of classroom buildings and students' academic performance. Thus, the conditions of classroom buildings significantly correlate with students' effective academic performance in public secondary schools in Orashi region in Rivers State.

Research Hypothesis 2: Ho₂. There is no significant relationship between conditions of teaching/learning facilities and effective academic performance in public secondary schools in Rivers State.

Table 6: Pearson correlation analysis between conditions of teaching/learning facilities and effective academic performance among secondary schools students

Variables	N	\bar{X}	SD	Df	R-value	P-value	Decision
Conditions of classroom buildings	138	1.93	0.84	136	0.88	.000	Rejected
Effective academic performance	138	2.71	0.96				

The result of data on table 6 indicates that the calculated r-value of 0.88 is greater than the table p-value of .000 at 136 degree of freedom and 0.05 level of significance. This shows that the calculated r-value is statistically significant at $p > 0.05$ (two tailed). Therefore the tested null hypothesis (Ho₂) was rejected. This implies that there is significant high positive relationship between conditions of teaching/learning facilities and students' academic performance. Thus, the

conditions of teaching/learning facilities significantly correlate with students' effective academic performance in public secondary schools in Orashi region in Rivers State.

Research Hypothesis 3: Ho₃. There is no significant relationship between conditions of infrastructural facilities and effective academic performance in public secondary schools in Rivers State.

Table 7: Pearson correlation analysis between conditions of infrastructural facilities and effective academic performance among secondary schools students

Variables	N	\bar{X}	SD	Df	R-value	P-value	Decision
Conditions of classroom buildings	138	2.00	0.75	136	0.47	.000	Rejected
Effective academic performance	138	2.71	0.96				

The result of data on table 7 indicates that the calculated r-value of 0.47 is greater than the table p-value of .000 at 136 degree of freedom and 0.05 level of significance. This shows that the calculated r-value is statistically significant at $p > 0.05$ (two tailed). Therefore the tested null hypothesis (Ho₃) was rejected. This implies that there is significant low positive relationship between conditions of infrastructural facilities and students' academic performance. Thus, the conditions of infrastructural facilities significantly correlate with students' effective academic performance in public secondary schools in Orashi region in Rivers State.

DISCUSSION OF FINDINGS

Data analysis of research question 1 in table 1 revealed that roofs, ceilings, floors, and chairs/desks in classroom buildings were in good conditions in public secondary schools in Orashi region. This findings confirm the reports, opinions and of findings (Nnabuo, 2001; Otu, 2002; Akinsola, 2012; Yusuf & Adiyun, 2012 and Elenwa, 2019) who at various time has observed, found and reported similar bad conditions of classroom buildings. Finding also shows that walls, windows/doors, ventilation, paintings, buildings structure, and electrical fittings were in bad conditions in public secondary schools in Orashi region. This findings contradict the position and reports of (Adiyun, 2012; Akinsola, 2012; Dike, 2012; Nnabuo, 2001; Nwachukwu, 2005; Oladunjoye, 2012; Otu, 2002; and Yusuf & Adiyun 2012) who's views and opinions on conditions of classroom buildings concerning the above issue are contrary to the present study.

It was further discovered that the general condition of classroom buildings as component of school plants in public secondary schools in Orashi region in Rivers State was bad. This finding agrees with the reports of UNESCO (2000), Ehiamentalor (2001), and the finding of Farombi (cited in Owoeye & Yara, 2011) on the poor state and decadence of existing school buildings. This finding is also in line with Elenwa (2019) who found that the general conditions of school plants for improved academic performance among students in public secondary schools in Rivers State were grossly bad.

Further hypothesis test on the relationship between conditions of classroom buildings and students' academic performance proved that conditions of classroom buildings significantly correlate with students' effective academic performance in public secondary schools in Orashi

region in Rivers State. This finding tally with Chan's research findings reported in Asiyai (2012) who shows that students who were taught in modernized buildings scored consistently higher across a range of standardized tests. Similarly, the finding agrees with Marsden (2005) research conclusion as reported in Williams et al. (2008), that safe and orderly classroom environment (aspect of instructional space) were significantly related to students' academic performance in elementary schools and Adesina (2011) who found that instructional space like classroom was significantly related to improved students' academic performance. It is therefore, important for educational planners, school administrators, facilities planners, educational leadership and others stakeholders in education to devote substantial attention and effort to the condition of classroom buildings in public secondary schools in order to improve, enhance and complements teaching and learning process for effective academic performance.

Research question 2 was analysed through data in table 2. Findings revealed that chalk boards and school garden were the only teaching/learning facilities that were in good conditions for effective academic performance in public secondary schools in Orashi region in Rivers State. This finding agree with Njoku (2012) finding that most schools facilities were fairly in good condition. The study supports that of Olanrele (2012), Wobo (2014), and Elenwa (2019) findings that school facilities such as chalk board and school garden were in good condition, but contradicts them on the conditions of following facilities such as white marker board, science laboratory and visual material that were found to be in good conditions. The condition of existing teaching/learning facilities as component of school plant is a key factor in effective teaching and learning in schools. For effective teaching and learning to occur and by extension effective academic performance of students the existing teaching/learning facilities must be in good condition.

But regrettably, findings show that the conditions of teaching/learning facilities in public secondary schools in Orashi region in Rivers State were bad and some in state of disrepair. The study shows that teaching/learning facilities such as library facilities/textbook, and science laboratories/equipment were in bad conditions, while facilities such as white marker boards, audio visual instructional facilities, workshops & equipment/tools, and computer lab./internet facilities were in very bad condition. Such state of affaire will hardly aid students to maximize their potential, skills and not attainment of effective academic performance. This finding agreed with Olanrele (2012) findings in the case of library, science laboratory, science laboratory equipment, computer laboratory, books and library facilities, technical workshop, technical workshop facilities, and audio-visual material which were found to be in bad conditions.

Remarkably, the study revealed that the conditions of teaching/learning facilities in public secondary schools in Orashi region in Rivers State are generally bad. This provoking result is supported by Ordu (2005), Eke (2010), Ogbilikana (2010) and Olanrele (2012) findings that the conditions of some of the above listed school plants were in bad state. Jagaba (2004) view also correlate these findings when he asserts that playgrounds, libraries and laboratory equipment are generally in poor condition in many secondary schools. Such scenario as found by this study confirm that school children in most schools are taught in a terrible and dehumanised condition and as such demands adequate attention. This assertion correlate the view of Nwokike (2012) who opined that the conditions under which students learn in many schools are unhealthy and deplorable, and that most of our schools have very deplorable environments.

Further hypothesis test on the relationship between conditions of teaching/learning facilities and students' academic performance proved that conditions of teaching/learning facilities significantly correlate with students' effective academic performance in public

secondary schools in Orashi region in Rivers State. This finding align with Marsden (2005) research finding reported in Williams et al. (2008) that school facilities (accessories) were significantly related to students' academic performance. This requires that adequate provision and maintenance of teaching/learning facilities is imperative. It is then apparent that where teaching/learning facilities are properly kept in good condition will enhance effective teaching and learning, thereby leading to students' effective academic performance.

Research question 3 was analysed through data in table 3. Findings revealed that football pitch and administrative offices/staffroom were the only infrastructural facilities that were in good conditions for effective academic performance in public secondary schools in Orashi region in Rivers State. This finding is in agreement with Olanrele (2012), Wobo (2014), and Elenwa (2019) who in their respective studies found that administrative offices/staffrooms and football pitches were in condition. Infrastructural facilities which are physical enablers of teaching and learning is so scanty in schools that their impact both in the main stream academic or extracurricular activities are not much felt among the students. This is confirm by this present findings, which shows that infrastructural facilities such as assembly hall; lawn/table tennis, volleyball & basketball courts; electricity supply; pipe born water/bore hole; and toilet/sanitary facilities were in bad conditions, while others such as staff quarters; students' hostels; and health care facilities were in very bad conditions. This finding is supported by Education Sector Support Programme in Nigeria (ESSPIN, 2009) which reported that approximately 75% or more of the school existing infrastructure in Nigeria is in very poor condition. And also corroborate with Olanrele (2012) finding on the bad condition of school halls and sick bay.

Summarily, findings revealed that the conditions of infrastructural facilities in public secondary schools in Orashi region in Rivers State are generally bad. This trend suggests that the school authority lacks maintenance culture and has left the infrastructural facilities to wither to that stage of dilapidation and disrepair. This finding agrees with that of Olatund (as cited in Njoku, 2012 who found that, the level of infrastructural facilities in schools were very poor. A situation where the bad conditions of school infrastructural facilities are associated to an ugly nature of varying levels of dilapidated buildings, shuttered electrical and water installation, blown off roofs, poor sanitary system, leaking roofs and lack of pitches and courts etc., cannot guarantee effective teaching and learning activities and is capable of adversely affecting the realisation of our educational goals and objectives.

Further hypothesis test on the relationship between conditions of infrastructural facilities and students' academic performance proved that conditions of infrastructural facilities significantly correlate with students' effective academic performance in public secondary schools in Orashi region in Rivers State. This finding is in agreement with Olutola (1989) who revealed that there is positive correlation between school plant and students' academic performance. This implies that better condition of school plant would enhance effective students' academic performance and vice versa.

Research question 4 was analysed through data in table 4. Findings shows that better classroom buildings, well planned school plant, good condition of teaching/learning facilities, good condition of infrastructural facilities, and conducive learning environment can improve effective academic performance to high extent in public secondary schools in Orashi region in Rivers State. It is glaring that the result indicates that good conditions of school plant to high extent can lead to students' effective academic performance. This finding is in consonant with Torupere (2016) who found that aesthetic beauty of the school and infrastructural facilities significantly influence students' academic performance, and Jimoh et al. (2017) who found that

educational equipment, buildings and playgrounds are group of school plants that have individual significant influence on students' academic performance. This implies that the school plant has significant interaction effect on students' academic performance. This implies that the school plant has significant interaction impact on students' academic performance. All of these would have implications for the conduct of educational activities because school plants are needed to develop mental knowledge, competences and skills that are necessary perquisites for academic attainment. Consequently, this finding suggests that school plant is an indispensable factor in the conduct and fulfillment of educational programmes and the overall achievement of educational goals and objectives.

CONCLUSION

The study established the fact that school plant conditions for effective academic performance in public secondary schools in Orashi region in Rivers State is generally bad and not encouraging. The educational implication of such trend is that students and teachers will hardly realise and maximize their potential and the development of the required skills. It could therefore, infer that where the condition of classroom buildings, teaching/learning facilities and infrastructural facilities are in state of decay, dilapidation and disrepair neither effective teaching and learning nor students' effective academic performance in secondary schools can hardly be achieved. In spite of the fact that school plant conditions significantly correlate with students' effective academic performance.

Recommendations

Consequent upon the foregoing findings and conclusions, the following recommendations are made:

- In order to keep the school plants near its original functional condition, there should be periodic check, regular and preventive maintenance. To this end, the school administrator should properly monitored the condition of the school plants and should curb any nonchalant attitude towards ensuring their good conditions, and encourage effective maintenance culture among the staff and students. So that any little defacements should be promptly reported and corrected or repair before they reach alarming proportions.
- School administrators, teachers, students and other custodian of the school plants should be regularly trained and retrain on how to use certain school plant facilities, especially modern technological devices and how to keep the facilities in good condition.
- Rather than establish more secondary schools, the government need to expand and improve the existing secondary schools by furnishing them with adequate modern school plant infrastructures and facilities at the right time, right quality and quantity, and in the right place.
- Ministry of Education planning unit should regularly conduct a diagnostic check on the present state of school plants in public secondary school as a way of preventing further deterioration of the school plants in public secondary school. This will help in checking the deplorable, and dilapidation nature of school plants condition.
- The federal and state government should adequately fund education. Inform and sensitize school principals and teachers on the need and value of school plant to the school system.

This will help to awaken them towards paying more caring attention to the conditions of existing school plants in public secondary schools.

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