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# School Plant Maintenance Predict Effective Secondary School Administration In Rivers State

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## ABSTRACT

This study examined school plant maintenance as predictor of effective secondary school administration in Rivers State, Nigeria. The study was guided by three objectives, three research questions and three null hypotheses. The study adopted a correlation survey research design, with a population of 5,833 teachers from 320 public senior secondary schools in Rivers State. The sample size of the study was 583 teachers representing 10% of the entire population which was drawn from the population using stratified sampling technique. The instrument was a two set questionnaire titled: School Plant Maintenance Questionnaire (SPMQ) and Effective Administration of Secondary School Questionnaire (EASSQ). The instruments were validated and their reliability were tested using Cronbach alpha method and reliability coefficients of 0.85 and 0.81 for both respectively were derived. For method of data analysis, the research questions were answered using simple regression, while hypotheses were tested with t-test associated with simple regression at 0.05 level of significance. The findings of the study revealed that instructional plant maintenance significantly predict effective secondary school administration in Rivers State, while administrative and convenience plant maintenance does not significantly predict effective secondary school administration in Rivers State. Based on this finding, it was recommended among others that the government should continue making effort to ensure that instructional plant are maintained through replacement of leaking roofs, rebuilding of collapsed blocks or creaked walls and provision of seats to enhance students learning for effective secondary administration. Also, principals should solicit for the support of school host communities and Non-Governmental Organisations (NGOs) to help in the maintenance of administrative plant to enhance school administration than relying on the government alone to do.

**Keywords:** School Plant, Maintenance, Secondary School Administration

## INTRODUCTION

Globally, education has remained a systematic process through which a child or an adult acquires knowledge, experience, skill and sound attitude. It makes an individual civilized, refined, cultured and educated. To attain a civilised and socialised society, education is the only means, because its intended goal is to make an individual become meaningful and responsible in the society. To Adesina (2021), education is a major force in the economic, intellectual, social and cultural empowerment. He further stresses that education has the capacity to bring about character and attitudinal change, as well as restructure capabilities for desired development.

The achievement of the right to education requires that young people be given the opportunity necessary for the acquisition of the knowledge, skills, attitudes and values which will enable them lead happy and

productive lives as individuals and discharge their social duties for the betterment of life in the society (Fafunwa, in Ikegbusi, 2022). Nigeria, having realised the effectiveness of education as a powerful instrument for national progress and development, adjusted her educational philosophy and methodology to match the ideals and challenges of changing economic and social structure of modern society (Federal Republic of Nigeria, 2013).

Consequently, it is not a gainsaying that secondary education is very important and unique in the Nigerian education system. Secondary education is the second in the tripod of education starting from the primary, secondary and tertiary stages in ascending order of magnitude (Amaghionyeodiwe & Osinubi, 2022). The importance of secondary school in educational system cannot be overemphasized. A major factor that necessitates the acquisition of secondary education in Nigeria is that the education being provided at the primary level is proving to be insufficient for a child to acquire permanent literacy, communicative and numeracy skills expected from him/her at the end of the training (Chinelo, 2021).

The broad aims and objectives of secondary education in Nigerian educational system are:

- i. Preparation for useful living within the society (self-employment), and
- ii. Preparation for higher education.

Specifically, it aims at:

- a. Providing all primary school leavers with the opportunity for education of higher level irrespective of sex, social status, religious or ethnic background;
- b. Offering diversified curriculum to cater for differences in talents, opportunities, and future roles;
- c. Providing trained manpower in applied science, technology and commerce at sub-professional grades;
- d. Developing and promoting Nigerian languages, arts and culture in the context of the world's cultural heritage;
- e. Inspiring students with a desire for self-improvement and achievement of excellence;
- f. Fostering national unity with an emphasis on the common ties that unite us in our diversity;
- g. Raising a generation of people who can think for themselves, respect the views and feelings of others, respect the dignity of labour, appreciate those values specified under our broad national goals, and live as good citizens; and
- h. Providing technical knowledge and vocational skills, necessary for agricultural, industrial, commercial, and economic development (FRN, 2013).

Heads of secondary schools are tasked with the implications of these objectives. The success of secondary school education rests on a good administration involving the proper maintenance of school plants. For effective secondary school administration, there is need for collaboration among school personnel as well as stakeholders in ensuring that school plant are well maintained.

School plant refers to any facility within a school environment that helps to achieve pre-determined goals and objectives. Agabo (2017) describe school plant as the school site, all the essential structures-permanent and semi-permanent such as machines and laboratory equipment and chalkboard needed for effective teaching and learning. It involves all the necessary facilities needed to facilitate the teaching and learning process. School plant is made up of indispensable systems and structures required by any educational system to function effectively and achieve the objectives for which it was established. The authors noted that since education seeks to develop the minds and character of future citizens, their abilities, skills and potentials must be nurtured to meet the needs of contemporary society. To do this, school plants have to be supplied in adequate quantity and quality and maintained effectively through thorough supervision.

Accordingly, Walson as cited in Okona (2023) states that since school plant is sine qua non to the achievement of school goals; it is a primary function of school administrators, top management staff and government to is to ensure that school plants are maintained.

School plant can therefore be seen as the systems and structures needed to achieve a purpose for which the system was instituted. No educational system or school can function without the presence of school plant. Without the availability of them, no school can carry out its activities properly. It covers all the

necessary things used in any school to meet the needs of the school. Every school has its main goal and objective which is to promote a healthy teaching and learning culture. This can only be achieved when facilities in form of school plant are available. It refers to the structures, sites, buildings and equipment located within any school vicinity (Okona, 2023).

Anything located or situated within the premises of a school is known as school plant. All the tangible things found inside a school is referred to as school plant. It is referred to as the site, buildings, and permanent and semi-permanent structures as well as equipment needed for effective teaching and learning. Before any school is sited, it must plan the structures that will be present in the school. No school can exist without school plant which is in the form of facilities, equipment, building, laboratories, and many more. To ensure the effectiveness of the school plant in order to enhance school administration, they must be properly maintained.

Maintenance is defined as a process that involves functional checks, servicing, repairing or replacing of necessary devices, equipment, machinery, building infrastructure, and supporting utilities in industries, business, residential area and institutions such as the school. Consequently, school plant maintenance is the act of returning or keeping of school plant to its original form after usage. This involves repainting of school building, repairs and replacement of faulty equipment to its original state. It is generally seen as the rational repair and replacement of the educational facilities within an institution. It can also be viewed to be the process of managing, constructing, utilizing, repairing and replacing school facilities in order to improve school administration and for the achievement of educational goals (Okona, 2023).

However, Dare (2018) and Okona (2023) note that school plant are maintained within the school system based on their category. To the scholars there are two categories of school plant, and they are:

- a. Direct Plant which has to do with instructional plant; and
- b. Indirect Plant which include; administrative plant, convenience plant, circulation plant and recreational plant

Instructional plant maintenance is the refurbishing, reconstruction or replacement of plant or spaces where students receive academic lesson to suite the purpose for which the school is established. They are vital parts of the school plant that are basic to actual teaching and learning, the absence of these instructional spaces amounts to non-existence of a school. Such spaces include classrooms, laboratories, libraries, auditorium, gymnasium, art room, music room, multipurpose hall and other room set aside for teaching and learning. The maintenance of instructional spaces involves redesigning and reconstructing of such spaces in consonance with planned educational programme for that given school. The extent in which these spaces could enhance effective teaching and learning depends on how they are utilised and maintained. It is likely that well maintained instructional spaces facilitate effective teaching and learning process and as well enhance school administration.

Administrative plant maintenance includes renovating and replacement of plant or space for principal office, vice principal office, staffroom for teachers, sick bay, general office, and security office and conference room. Fundamental purpose of the administrative plant is to provide services to the school population and the entire public that access the school. These spaces are to be finished with necessary operational facilities, such as; tables, chairs, cabinets, shelves, computers, photocopying machines, etc. So as not only to provide pleasant aesthetic environment, but should encourage friendship and supportive atmosphere for teachers' performance.

Convenience plant as the name imply, are special rooms or spaces designed for human relaxation, excretion of human waste etc. They are toilets, bathrooms, cafeteria, kitchen, dormitories, custodian sheds and stores. Convenience plant in schools serve to accommodate the non-classroom needs of students and staff. The maintenance of such plant or spaces demands that sanitary facilities should be provided and replaced to satisfy sanitary requirements and provide for educational needs as well.

Effective secondary school administration is dependents upon well maintained school plant. If a school wants to attain a high level of administration, then there is need for school plant maintenance. The need for facility maintenance arises due to a number of factors among which include; the daily routine use of the facility, aging of the facility, over utilization, changing curricula to support contemporary instructional

practices, extreme climate conditions which causes the wear and tear of facilities, lack of funding, lack of maintenance culture, carelessness exhibited by users, deferred maintenance and so on.

The importance of plant maintenance to effective functioning or administration of schools has been recognised globally as a process that need not be taken for granted, because it is aimed at providing end-users with comfortable effective quality environment with minimum resources to enhance school organisational effectiveness (Leung, et al., 2004). On the other hand, Ajayi (2021) observes that high level of school administration will not be achieved where school plants are ill-sited, structurally defective, not properly ventilated, not spacious enough and poorly maintained.

Plant maintenance is even more important now, especially in this era of low budgetary allocation to educational sector which has affected construction of new buildings and even the procurement of new facilities. As aptly suggested by Agenyi, et al (2019), paradigm shift is thus required from the traditional form of school plant maintenance to modern and sophisticated methods that improve the quality of teaching and learning processes. Instituting a plant maintenance culture in the school system involves making plant maintenance an integral part of school administration. A concerted effort of all stakeholders which include the government, school administrators, teachers, Parents Teachers Association (PTA) and custodial staff is imperative. It is more cost effective to maintain what has been acquired because when rapid deterioration sets in, repairs cost ultimately becomes prohibitive and the value of the facility could depreciate steeply. Hence, this study examined the topic “school plant maintenance as predictor of effective secondary school administration in Rivers State.

#### **Statement of the Problem**

Despite the crucial role of school infrastructure in supporting teaching and learning, many secondary schools in the country face significant challenges in maintaining their physical plants. Schools are posed with poor school plant planning, deteriorating conditions, out-of-date design and capacity utilization pressures due to the continuous neglect by government and schools’ administrators. These have posed a threat to the maintenance of school plants in most public schools in Nigeria. Particularly, public secondary schools in Rivers State are in very deplorable conditions, causing students to suffer unwarranted inconveniences before, during and after school hours. The whole idea for the setting up of schools would be forfeited if public secondary school plants are not maintained adequately, hence this in return may have a negative effect on the school administration.

A visit to some schools in Rivers state by the researcher reveals that most school compounds are bushy with dilapidated buildings and leaking roofs, broken chairs and desks, rough floors and windows without louvers, poor equipped laboratories and libraries, blown off roofs, cracked decaying walls, sagging roofs and some teaching equipment in short supply. Situations such as these cannot be seen as appropriate for effective secondary school administration, and this is tantamount to creating a very hostile study environment. Several researchers have investigated factors such as school climate, instructional materials, school gates, physical facilities, and infrastructure as components that affect school administration, but not many have bothered much on the impact of school plant maintenance on secondary school administration. It seems that public secondary schools in Rivers state still lack good and reliable maintenance culture.

In the light of the foregoing, the researcher is bothered about the school plant, lack of lightning, blown off roofs which indicate absence of or little maintenance, deteriorated laboratories that are harmful and unhealthy conveniences such as toilets, which could cause sickness to both teachers and students, poor state of library facilities which reduces the motivation of students in cultivating a good reading culture and also most of the school compounds have turned into wild forest thereby, denying the students ample space for recreational/extracurricular activities. These and many more have left the schools in a very sorry state. All these ugly situations could be attributed to inadequate and poor maintenance culture which may have affected school administration. Therefore, it is against this crux that this study investigated the extent school plant maintenance predict effective secondary school administration in Rivers State.

#### **Aim and Objectives of the Study**

The aim of this study was to examine the extent school plant maintenance predict effective secondary

school administration in Rivers State. Specifically, the objectives of the study sought to:

1. determine the extent instructional plant maintenance predict effective secondary school administration in Rivers State.
2. ascertain the extent administrative plant maintenance predict effective secondary school administration in Rivers State.
3. investigate the extent convenience plant maintenance predict effective secondary school administration in Rivers State.

### **Research Questions**

The following research questions guided the study:

1. To what extent does instructional plant maintenance predict effective secondary school administration in Rivers State?
2. To what extent does administrative plant maintenance predict effective secondary school administration in Rivers State?
3. To what extent does convenience plant maintenance predict effective secondary school administration in Rivers State?

### **Research Hypotheses**

The following hypotheses were tested at 0.05 level of significance:

1. Instructional plant maintenance does not significantly predict effective secondary school administration in Rivers State.
2. Administrative plant maintenance does not significantly predict effective secondary school administration in Rivers State.
3. Convenience plant maintenance does not significantly predict effective secondary school administration in Rivers State.

## **METHODOLOGY**

This study adopted a correlation design to ascertain if the independent variable predict the dependent variable. The population of this study consisted of 5,833 teachers (i.e. 2,844 male and 2,989 female) in 320 public senior secondary schools in Rivers State. The sample size was 583 respondents representing 10% of the entire population. The sample was drawn using stratified random sampling technique. This ensured that all members of the population are given equal opportunity of being selected. The research instrument for the study was a two set questionnaire titled: School Plant Maintenance Questionnaire (SPMQ) and Effective Administration of Secondary School Questionnaire (EASSQ). The instruments have sections A, B and C. The section A consisted of the demographic information of the respondents, while section B dealt with questionnaire items on SPMQ which are made up of three parts. Each has 7-items with a total number of 21 items. The second instrument EASSQ was section C, it consisted of 20 items. Both SPMQ and SPMQ were structured after the 4-point Likert rating scale of Very High Extent (VHE) = 4 points, High Extent (HE) = 3 points, Low Extent (LE) = 2 points and Very Low Extent (VLE) = 1 point. Cronbach alpha reliability statistics was used to test the reliability of the two instruments. The reliability coefficients of both instrument are 0.85 and 0.81 As part of data collation, 583 copies of the questionnaire were administered to the respondents and explained to them how to go about responding to the items, after which, 577 copies of the questionnaires were retrieved from the respondents after they have duly responded to them and were found suitable for data analysis, representing 98% retrieval rate. For the data that were analyzed, the research questions were answered using simple linear regression, while the hypotheses were tested using t-test associated with simple linear regression.

**RESULTS AND ANALYSIS**

**Research Question 1:** *To what extent does instructional plant maintenance predict effective secondary school administration in Rivers State?*

**Table 1: Simple Regression on the Extent Instructional Plant Maintenance Predict Effective Secondary School Administration in Rivers State**

Model	R	R Square	Adjusted R Square	Extent of Prediction	Decision
1	.814 <sup>a</sup>	.513	.511	51.3%	High Extent

**Decision Rule: 100%- 75% (Very High Extent), 74% - 50% (High Extent), 49%-25% (Low Extent) and 0% - 24% (Very Low Extent)**

Table 1 revealed that the regression (r) and regression square (r<sup>2</sup>) coefficients are .814 and .513 respectively, while the adjusted r square is .512. The extent of prediction (i.e. coefficient of determinism) is 51.3% (.513×100). By implication, the result shows that instructional plant maintenance predict effective secondary school administration in Rivers State to a high extent by 51%.

**Research Question 2:** *To what extent does administrative plant maintenance predict effective secondary school administration in Rivers State?*

**Table 2: Simple Regression on the Extent Administrative Plant Maintenance Predict Effective Secondary School Administration in Rivers State**

Model	R	R Square	Adjusted R Square	Extent of Prediction	Decision
1	.512 <sup>a</sup>	.152	.150	15.2%	Very Low Extent

**Decision Rule: 100%- 75% (Very High Extent), 74% - 50% (High Extent), 49%-25% (Low Extent) and 0% - 24% (Very Low Extent)**

Table 2 revealed that the regression (r) and regression square (r<sup>2</sup>) coefficients are .512 and .152 respectively, while the adjusted r square is .150. The extent of prediction (i.e. coefficient of determinism) is 15.2% (.152×100). By implication, the result indicates that administrative plant maintenance predict effective secondary school administration in Rivers State to a very low extent by 15%.

**Research Question 3:** *To what extent does convenience plant maintenance predict effective secondary school administration in Rivers State?*

**Table 3: Simple Regression on the Extent Convenience Plant Maintenance Predict Effective Secondary School Administration in Rivers State**

Model	R	r Square	Adjusted r Square	Extent of prediction	Decision
1	.362 <sup>a</sup>	.024	.022	2.4%	Very Low Extent

**Decision Rule: 100%- 75% (Very High Extent), 74% - 50% (High Extent), 49%-25% (Low Extent) and 0% - 24% (Very Low Extent)**

Table 3 revealed that the regression (r) and regression square (r<sup>2</sup>) coefficients are .362 and .024 respectively, while the adjusted r square is .022. The extent of prediction (i.e. coefficient of determinism) is 2.4% (.024×100). By implication, the result reveals that convenience plant maintenance predict effective secondary school administration in Rivers State to a very low extent by 2%.

**Test of Hypotheses**

**Hypothesis 1:** Instructional plant maintenance does not significantly predict effective secondary school administration in Rivers State.

**Table 4: t-test Associated with Simple Regression on the Extent Instructional Plant Maintenance Significantly Predict Effective Secondary School Administration in Rivers State**

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	p-value	Alpha level	Decision
	B	Std. Error					
(Constant)	2.325	.133		15.182	.000	0.05	Ho <sub>1</sub> Rejected
1 Instructional Plant Maintenance	.147	.041	.371	4.651	.031		

**a. Dependent Variable: Effective Secondary School Administration**

Table 4 revealed that standard beta value and t-test are .371 and 4.651. The p-value of 0.03 is less than the level of significance of 0.05. Therefore, the null hypothesis is rejected. By implication, instructional plant maintenance significantly predict effective secondary school administration in Rivers State.

**Hypothesis 2:** Administrative plant maintenance does not significantly predict effective secondary school administration in Rivers State.

**Table 5: t-test Associated with Simple Regression on the Extent Administrative Plant Maintenance Significantly Predict Effective Secondary School Administration in Rivers State**

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	p-value	Alpha level	Decision
	B	Std. Error					
(Constant)	1.736	.117		14.761	.000	0.05	H0 <sub>2</sub> Accepted
1 Administrative Plant Maintenance	-.072	.033	-.021	-.425	.173		

**a. Dependent Variable: Effective Secondary School Administration**

Table 5 revealed that standard beta value and t-test are -.021 and .425. The p-value of .173 is higher than the level of significance of 0.05. Therefore, the null hypothesis is accepted. By implication, administrative plant maintenance does not significantly predict effective secondary school administration in Rivers State.

**Hypothesis 3:** Convenience plant maintenance does not significantly predict effective secondary school administration in Rivers State.

**Table 6: t-test Associated with Simple Regression on the Extent Convenience Plant Maintenance Significantly Predict Effective Secondary School Administration in Rivers State**

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	p-value	Alpha level	Decision
	B	Std. Error					
(Constant)	1.721	.295		12.341	.000	0.05	H0 <sub>3</sub> Accepted
1 Convenience Plant Maintenance	.216	.124	.224	.152	.061		

**a. Dependent Variable: Effective Secondary School Administration**

Table 6 revealed that standard beta value and t-test are .224 and .152. The p-value of .061 is less than the level of significance of 0.05. Therefore, the null hypothesis is accepted. By implication, convenience plant maintenance does not significantly predict effective secondary school administration in Rivers State.

## **DISCUSSION OF FINDINGS**

The first finding of the study revealed that instructional plant maintenance predict effective secondary school administration in Rivers State to a high extent by 51%. Similarly, a corresponding hypothesis tested establishes that instructional plant maintenance significantly predict effective secondary school administration in Rivers State. These findings are in agreement with Ajayi (2021), Philippines Department of Education (2022), Mark (2022) whose empirical works reported that the maintenance of instructional plant significantly contributes to effective secondary school administration. Ajayi (2021) buttressed that effective secondary education administration may not be guaranteed where instructional plant such as class rooms, libraries, technical workshops and laboratories are structural defective, not properly cleaned, restructured, painted, ventilated and not spacious enough for use. He further emphasized that a well maintained instructional plant have a high positive and significant relationship with school administration.

The second finding of the study revealed that administrative plant maintenance predict effective secondary school administration in Rivers State to a very low extent by 15%. Also, a corresponding hypothesis tested establishes that administrative plant maintenance does not significantly predict effective secondary school administration in Rivers State. These findings contradict Oluchukwu (2020), Eya and Leonard (2022), Hamdallah (2023) who in their respective empirical reported that administrative plant maintenance significantly predict effective administration in schools. The scholars opined that for schools to be effective in its administration, the school administrators and other school personnel must do everything possible to ensure that administrative plant are maintained. However, the finding agree with Adesina (2021) who observed that administrative plant maintenance contribute to a low extent to school administration. To the scholar, the reason behind this could be attributed to the fact that little or nothing is done by the government and school management to ensure that administrative plant are maintained.

The third finding of the study showed that convenience plant maintenance predict effective secondary school administration in Rivers State to a very low extent by 2%. Similarly, a corresponding hypothesis tested establishes that convenience plant maintenance does not significantly predict effective secondary school administration in Rivers State. These findings are in line with Sharma et al. (2020), UNESCO (2021), Jaiyeoba and Atanda (2021) whose empirical studies showed that convenience plant maintenance contribute to effective secondary school administration to a low extent. To Jaiyeoba and Atanda (2021) poor maintenance of toilet facilities as convenience plant repels teachers and students' regularity in school. If such happens, important topics missed may not be recovered, thereby leading to students' failure since the continuity of such subject's content has been tampered. The cafeteria also as a convenience plant is a place set aside for food vendors to sell food to students. Students who are famished would find it difficult to concentrate in class, especially those ones whose parents do not cook before leaving home. However, the finding contradict Kumar and Yadav (2018), WHO (2019), UNICEF (2021) whose empirical works provided that convenience plant maintenance enhance effective secondary school administration to a high extent. Therefore, school management should endeavour to provide and maintain a school convenience plant as it is essential for effective school administration.

## **CONCLUSION**

Based on the findings of the study, and the discussions on them, it is concluded that instructional plant maintenance significantly predict effective secondary school administration in Rivers State, while administrative, convenience, circulation and recreational plant maintenance does not significantly predict effective secondary school administration in Rivers State.

## **RECOMMENDATIONS**

Based on the findings and conclusion of the study, the following are hereby recommended:

1. Government should make effort to ensure that instructional plant are maintained through replacement of leaking roofs, rebuilding of collapsed blocks or creaked walls and provision of seats to enhance students learning for effective secondary administration.

2. Principals should solicit for the support of school host communities and Non-Governmental Organisations (NGOs) to help in the maintenance of administrative plant to enhance school administration than relying on the government alone to do.
3. Government as a matter of urgency should build new convenience plant and refurbish the already existing ones in schools as most public secondary schools within Rivers state do not have such plant to cater for students and teachers need of them.

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