School Plant Management for Effective Instructional Delivery in Public Senior Secondary Schools in Port Harcourt Metropolis

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Abstract
The purpose of the study was to investigate the management of school plant by principals for effective instructional delivery in public senior secondary schools in Port Harcourt Metropolis. To achieve this, four research questions and four null hypotheses were formulated to guide the study. A systematic random sampling technique was adopted to sample 672 from the population of 2131 teachers and principals. The instrument for data gathering was a researcher's made structured questionnaires of likert type scale. The instrument was validated by experts in Educational Management. Pearson product moment correlation was used for reliability which gave r-coefficient of 0.84. The data collected were analyzed with mean, standard deviation and t-test statistics. Findings show that teachers disagreed that school principals made use of professionals in procuring facilities and equipment, failed to carry out routine services of facilities and equipment, fail to establish maintenance units. The findings also revealed that students were not asked to replace damaged equipment. These findings were confirmed by the rejection of Ho1 and Ho2, while Ho3 and Ho4 were accepted. The study recommended that government, through the Ministry of Education should endeavor to carry out routine maintenance in the schools in order to achieve effective instructional delivery, through a functional school plant management.

Keywords: *School Plant, Plant Management, Instructional Delivery, Senior Secondary School.*

Introduction

School plant management is an essential tool in the achievement of secondary school objectives. The effective and efficient management of school plant contributes immensely to high quality development in education. Olujide (2001) stated that "the attainment of good school plant management requires committed and qualified principals".

School plants are made up of the school land and all the physical structures on it. It also includes the site, buildings, physical equipment, recreational spaces and books used for the achievement of educational objectives (Oluchukwu, 2002). From these views, school plant simply means the location, fixed structures and movable materials in school.

High educational standards are achieved when school plants are effectively managed in schools. This is when students live in clean, attractive and pleasant learning environment, classrooms and hostels in good working conditions, the laboratories, libraries, and workshops well equipped. Adesina and Ogunsaju (2003) in their recognition of the need for school plant and effective performance of educational programs noted that "For effective teaching and learning situations, school plant and educational goals should be viewed as being closely interwoven and interdependent apart from protecting student from the sun, rain, heat and cold". In this context, school plant and educational goals are interdependent. Therefore, school plant management is an essential tool in the achievement of quality instructional delivery in the

school. Adesina and Ogunsaju (2003) clearly highlighted that "the availability of necessary equipment will enable the students to make use of their senses for learning".

High level of students' academic performance may not be guaranteed where instructional space such as classrooms, libraries, technical workshops and laboratories are lacking (Ajayi 2007). Unfortunately, through personal observation by the researcher, it has been observed that some public secondary schools in Port Harcourt metropolis have leaking roofs, broken windows, poor equipped laboratories and libraries, dilapidated buildings, 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 instructional delivery in secondary school environment. Corroborating these, Mboto (2000) lamented that "most secondary schools have poor school buildings structure, classes extremely hot in hot weather and very damp during the raining season, teaching equipment of all sorts in short supply". Proving this, recently some public secondary schools in Port Harcourt Metropolis were flooded during the resumption period of September 2017/2018 academic session. Effective instructional delivery in school under such conditions cannot be guaranteed. The researcher views the situation as a serious threat to the attainment of goals and objectives of secondary education in Rivers State.

Ogbonnaya (2013) referred the principal as "the Chief Executive of secondary schools in Nigeria". This simply means that the principal has the responsibility of ensuring that school buildings, facilities and total school environment are properly managed in order to ensure effective instructional delivery in the school. The management of school plant rests squarely on the principal who is an administrator and instructional leader of the school. His duties among others cover the procurement, maintenance, utilization and safety of the school plant so as to achieve the goals and objectives of secondary education system.

Okonkwo (1997) stated that "Schools in the rural areas are likely to face problems of school plant facilities and maintenance". If so, what about schools in urban areas? It is against this backdrop that the researcher is motivated to investigate school plant management for effective instructional delivery in public senior secondary schools in Port Harcourt metropolis.

Statement of the Problem

School plant management is very potential for the realization of secondary school objectives. However, where school plants are inadequate, poorly maintained, and not safe guarded the teaching and learning process becomes difficult. The goals and objectives of secondary school may not be achieved under this condition.

Interactions with principals and teachers as well as personal observations revealed that most public senior secondary schools in River State have poorly equipped laboratories and libraries, dilapidated buildings, blown off roofs, sagging roofs, cracked and decaying walls, etc. Effective teaching and learning under this situation cannot be guaranteed.

Arising from the above, the problem of this study put in interrogative form is: how do principals in public senior secondary schools in Port Harcourt metropolis manage their school plants for effective instructional delivery?

Purpose of the Study

The purpose of this study was to investigate the management of schools plant by principals for effective instructional delivery public senior secondary schools in Port Harcourt metropolis under the following objectives:

1. To investigate the principals' roles in the procurement of school plant facilities for effective instructional delivery.
2. To investigate the principals' activities in school plant maintenance for effective instructional delivery.
3. To investigate the safety measures adopted by the principals in safeguarding school plants for effective instructional delivery.
4. To investigate the measures adopted by principals in utilization of school plant facilities for effective instructional delivery.

Research Questions

The following research questions guided the study;

1. What roles do principals play in the procurement of school plant facilities for effective instructional delivery?
2. What are the school plant maintenance activities of the principals in Port Harcourt metropolis for effective instructional delivery?
3. What safety measures do principals put in place in safe guarding school plants for effective instructional delivery?
4. In what ways do principals ensure the utilization of school plants for effective instructional delivery?

Hypotheses

The following hypotheses were postulated to guide the study and were tested at 0.05 level of significance.

$H0_1$: There is no significant difference between teachers and principals opinion on procurement of school plant facilities by principals.

$H0_2$: There is no significant difference between teachers and principals opinion on maintenance of school plant by principals.

$H0_3$: There is no significant difference between teachers and principals opinion on safety measures of school plant adopted by the principals.

$H0_4$: There is no significant difference between teachers and principals opinion on utilization of school plant by the principals.

Methodology

This study adopted the descriptive survey research design and the sample size of the study consisted of all the principals and 639 teachers in public senior secondary schools in Port Harcourt metropolis. A total sample of 664 respondents was randomly selected from the educational zone. A self-structured questionnaire titled: School Plant Management Practices Questionnaire (SPMPQ) was used to gather data from respondents. The questionnaire adopted a likert type four (4) point rating scale of strongly agree = 4 (SA), Agree = 3 (A), Disagree = 2 (D) and Strongly Disagree = 1 (SD). The instrument was subjected to content and face validity by experts in the Department of educational Foundations, Faculty of Technical and Science education, Rivers State University. All copies of the questionnaire were administered by the researcher in the schools visited in different days with an assistance from a teacher in each of the school visited. Responses to the questionnaire were carefully analysed in tables using mean and standard deviation while the hypotheses were tested using z-test statistical tool at 0.05 level of significance.

Results and Discussion

Research Question 1: What roles do principals play in the procurement of school plant facilities?

Table 4.1: Teachers and principals responses on the roles of principal's roles in the procurement of school plant

S/N	Items	Teachers N = 636			Principals N = 28		
		$\overline{X}$	SD	Decision	$\overline{X}$	SD	Decision
1	Principals consider the issue of durability of equipment's before procurement.	3.08	0.85	Agreed	3.02	0.90	Agreed
2	They make use of professionals in procuring facilities and equipment.	2.05	0.84	Disagreed	2.64	0.91	Agreed
3	They adhere to government guidelines in procuring facilities and equipment.	2.97	0.85	Agreed	3.36	0.62	Agreed
4	They consider current trends and technology in procuring facilities and equipment.	2.62	0.84	Agreed	3.42	0.51	Agreed
5	They consider students comfort in procuring equipment.	2.65	0.86	Agreed	3.36	0.56	Agreed
	Total	**2.67**	**0.85**	**Agreed**	**3.16**	**0.70**	**Agreed**

Table 4.1 shows the mean perception of teachers and principals on the roles principals play in the procurement of school plant facilities. Based on the decision levels, it is clear that the teachers score Agree on items 1, 3, 4 and 5, Disagree on item 2 giving the grand mean score as 2.67. Since 2.67 mean falls in the 2.50-3.49 range of Agree, it was deduced that the teachers agree that the principals play significant roles in the procurement of school plant facilities considering durability, current trends, comfort of students and adhering to government rules but disagree the fact that they make use of professionals.

Research Question 2: What are the school plant maintenance activities of the principals in Port Harcourt metropolis for effective instructional delivery?

Table 4.2: Teachers and principals responses on school plant maintenance activities of the principals in Port Harcourt metropolis

S/N	Items	Teachers N = 636			Principals N = 28		
		$\overline{X}$	SD	Decision	$\overline{X}$	SD	Decision
6	Principal's carryout regular repairs of school damaged facilities and equipment.	3.01	0.81	Agreed	3.14	0.85	Agreed
7	Principals often carry out routine servicing of the	2.06	0.71	Disagreed	2.93		Agreed

	school facilities and equipment.						
8	Principals establish maintenance units to monitor maintenance of school plant facilities.	2.28	1.04	Disagreed	2.75		Agreed
9	Students are asked to replace equipment damaged out of carelessness.	2.09	0.84	Disagreed	2.07		Disagreed
10	They ensure proper supervision of school plants to detect area of attention.	3.34	0.67	Agreed	3.32		Agreed
	Grand mean	**2.56**	**0.81**	**Agreed**	**2.84**	**0.64**	**Agreed**

The data gathered for school plant maintenance activities of the principals, Table 4.2 reveals that the teachers score Agree on items 6 and 10 but disagreed in items 7,8 and 9 giving the grand mean score as 2.56 which falls within 2.50-3.49 range of Agree. However, based on the grand mean score of 2.56, teachers agree on the school plant maintenance activities of the principals.

The same table also revealed how the principals responded to the items. By the scores, Agreed on items 6, 7, 8 and 10, but Disagreed on item 9 having 2.84 as their grand mean which falls within 2.50-3.49 range of Agree Technically, based on the grand mean of 2.84, the principals Agree on the school plant maintenance activities.

Research Question 3: What safety measure do principals put in place in safe guarding school plants for effective instructional delivery?

Table 4.3: Teachers and Principals responses on safety measures principals put in place in safe guarding school plants for effective instructional delivery

S/N	**Items**	**Teachers N = 636**			**Principals N = 28**		
		$\overline{X}$	**SD**	**Decision**	$\overline{X}$	**SD**	**Decision**
11	Principals keep proper inventory record of the school facilities and equipment.	2.98	0.86	Agreed	3.35	0.63	Agreed
12	They assign to teachers areas of responsibility in securing school facilities.	2.98	0.88	Agreed	3.25	0.63	Agreed
13	Principals appoint students to be in charge of some school plant items.	3.26	0.56	Agreed	3.2	0.74	Agreed
14	Principals ensure that school buildings are locked with keys after official hours.	3.37	0.49	Agreed	3.50	0.58	Strongly agreed

15	Principals provide storage, shelter and wardrobes for library, laboratory, agricultural and other school equipment	3.35	0.67	Agreed	3.32	0.49	Agreed
	Grand mean	**3.19**	**0.69**	**Agreed**	**3.33**	**0.61**	**Agreed**

Table 4.3 above reveals the respondents views on safety measures principals put in place in safe guarding school plants for effective teaching and learning. The teachers mean score on items 11, 12, 13, 14 and 15 fall within 2.50-3.49 range of Agree, giving the grand mean score as 3.19. Since 3.19 mean values was within 2.50-3.49 range of Agree, it was inferred that the teachers Agreed on the safety measures principals put in place in safe guarding the school plants for effective instructional delivery.

Research Question 4: In what ways do principals ensure the utilization of school plants?

Table 4.4: Teachers and principals responses on ways principals ensure the utilization of school plants for effective instructional delivery.

S/N	Items	Teachers N = 636			Principals N = 28		
		$\overline{X}$	SD	Decision	$\overline{X}$	SD	Decision
16	Principals ensure that school plants are used specifically for the purpose which they are meant to serve.	3.10	0.87	Agreed	3.36	0.49	Agreed
17	They ensure that students are allowed to use sporting facilities in the schools.	3.33	0.62	Agreed	3.39	0.57	Agreed
18	They make sure that students make effective use of the library and laboratory. workshops.	3.63	0.61	Agreed	3.21	0.63	Agreed
19	Principals ensure that students utilize the computers available to them and equipment's in the workshop	3.03	0.91	Agreed	3.46	0.58	Strongly agreed
20	They make sure that teachers utilize the available instructional materials or equipment in school.	3.01	0.89	Agreed	3.46	0.58	Agreed
	Grand mean	**3.17**	**0.78**	**Agreed**	**3.38**	**0.57**	**Agreed**

Table 4.4 reveals that teachers mean score on items 16-20 falls within 2.50-3.49 range of Agree, giving their grand mean score as 3.17. The above findings implies that the teachers Agree that the principals ensure the utilization of school plants through ensuring that the school plants are used specifically for the purpose they are made for, ensure effective use of the library and laboratory, and make sure that teacher utilize the available instructional materials.

Hypotheses Testing

Hypothesis 1: There is no significant difference between teachers and principals responds on principals roles in procurement of procurement of school plant facilities.

Table 4.5: T-Test on the views of teachers and principals on the role of principals in the procurement of school plant facilities

Respondents	N	$\overline{X}$	SD	P	DF	Std error	z-cal.	z-crit.	Decision
Teachers	636	2.67	0.85	0.05	662	0.14	3.59	1.96	Ho_1 Rejected
Principals	28	3.16	0.70						

From table 4.5, since the calculated value of t-test (3.59) was greater than the critical (table) value of t-ratio (1.96), the null hypothesis was rejected while the alternative hypotheses were accepted. This implies that there was notable difference between the perceptions of the teachers and principals on the roles of principals in the procurement of school plant facilities for effective instructional delivery in schools.

Hypotheses 2: There is no significant difference between teachers and principals responds on measures of maintenance of school plant by principals.

Table 4.6: T-Test on perception of teachers and principals on measures of maintenance of school plant by principals for effective instructional delivery

Respondents	N	$\overline{X}$	SD	P	DF	Std error	z-cal.	z-crit.	Decision
Teachers	636	2.56	0.81	0.05	662	0.12	2.24	1.96	Ho_2 Rejected
Principals	28	2.84	0.64						

From table 4.6, the calculated value of t-ratio (2.24) was greater than the critical value of t-ratio (1.96), the null hypothesis was rejected, while the alternative hypotheses was accepted. This implies that there was notable difference between the perceptions of teachers and principals on measures of maintenance of school plant by principals for effective instructional delivery in school.

Hypotheses 3: There is no significant difference between teachers and principals responds on safety measures of school plant adopted by the principals.

Table 4.7: t-Test on perception of teachers and principals on measures of safety of school plant facilities for effective instructional delivery

Respondents	N	$\overline{X}$	SD	P	DF	Std error	z-cal.	z-crit.	Decision
Teachers	636	3.19	0.69	0.05	662	0.12	1.18	1.96	Ho_3 Accepted
Principals	28	3.33	0.61						

From table 4.7, the calculated value of t-ratio (1.18) was less than critical value of t-ratio (1.96), the stated null hypotheses was accepted. This indicates that both the Teachers and the principals agreed on the measures of safety of school plants by the principals for effective instructional delivery.

Hypotheses 4: There is no significant difference between teachers and principals responds on the ways principals ensure the utilization of school plant.

Table 4.8: T-Test on perception of teachers and principals on way principals ensure the utilization of school plants

Respondents	N	$\overline{X}$	SD	P	DF	Std error	z-cal.	z-crit.	Decision
Teachers	636	3.17	0.78	0.05	662	0.11	1.87	1.96	Ho_4 Accepted
Principals	28	3.38	0.57						

From table 4.8, the calculated value t-ratio (1.87) was less than the critical value of t-ratio (1.96), the stated null hypotheses was accepted. This indicates that both the teachers and the principals agreed on the ways in which principals ensure the utilization of school plant for effective instructional delivery in schools.

Discussion of Findings

The findings of this study revealed that principals do not make use of professionals in procurement of school plant facilities but they consider current trends and technology, students comfort, durability of equipment's and adherence to government guidelines in procurement of school facilities. This agreed with Onwurah (2004) who stated that the procurement of school facilities has to adhere to modern trends that takes the students comfort into consideration.

The findings revealed that principals ensure proper supervision of school plants but maintenance practices such as; routine servicing, establishment of maintenance units and replacement of damaged equipment's/items are not effective. This is not in accordance with Ajayi (2007) who identified corrective maintenance, preventive/predictive, shut down, running and breakdown maintenance as the type of maintenance considered to be helpful in school. It is believed that this could be one of the reasons most parents avoid sending their children to public schools. Corroborating this, Danestry (2004) believed that there are serious negative implications to students when school facilities are not properly maintained. It leads to poor quality educational output, school run the risk of losing students to other well-equipped institutions, health and sanitary problems.

The findings also revealed that the safety practices portrayed by the principals includes; proper inventory records of school equipment/ items, provision of storage shelter and wardrobes for library, and agricultural equipment, also appointment of teachers and students to take adequate responsibility in securing some school facilities. This agreed with Olujide (2001) who asserts that books should be well stored and protected from attack by cockroaches, mice and termites. This is also in corroboration with Wakeham (2003) who states that the principals is responsible for establishing school units for facilities maintenance, safety and repairs.

The findings of this study also revealed the need for proper utilization of school facilities for the purpose they are made for. This is in accordance with Obi (2003) who stated that the numbers of books in the library will mean nothing if the books are not used.

Hypothesis one showed that there is significant difference in the responds of teachers and principals on procurement of school plant facilities. Hence the null hypothesis was rejected while the alternate hypothesis accepted.
Hypothesis two showed that there is significant difference in the responds of teachers and principals on maintenance of school plant facilities. Hence the null hypothesis was rejected while the alternate hypothesis accepted.

Hypothesis three showed that there is no significant difference in the responds of teachers and principals on safety of school plant facilities. Hence the null hypothesis was accepted.
Hypothesis four showed that there is no significant difference in the responds of teachers and principals on utilization of school plant. Hence the null hypothesis was also accepted.

Summary

This study was undertaken to ascertain the roles of principals in procurement of school plant facilities; maintenance activities of the principals, measures put in place by the principals in safe guarding the school plant facilities and to ascertain the ways in which principals insure the utilization of school plant facilities for effective instructional delivery in public senior secondary schools in Port Harcourt Metropolis.

This study was carried out in Port Harcourt Metropolis which is made up of Port Harcourt City Educational Zone and Obio/Akpor Educational Zone. The study adopted descriptive survey design. The population comprised all the 33 principals and 2,121 teachers in Port Harcourt Metropolis. The sample size for the study was 672 respondents. Four research questions and four null hypotheses were formulated to assess the study. Data was collected through questionnaire from teachers and principals of public senior secondary schools in Port Harcourt Metropolis.

Findings were made through the analysis of data as presented in chapter 4. The research questions were answered and the null hypotheses tested. Hypotheses 1 & 2 were rejected with significant difference found between the variables, while hypotheses 3 and 4 were accepted with no significant difference found between variables.

Conclusion

Based on the analysis of the data that were gathered during the investigation, the researcher concludes that teachers and principals were of the opinion that durability of equipment, government guidelines, students comfort, current trends and technology are factors that must be considered in the procurement of school plant facilities. More so, the respondents agreed on the school plant maintenance activities of the principals for effective instructional delivery.
This study therefore established that for effective instructional delivery to take place in schools, the procurement and maintenance of school plant facilities are factors that all the stake holders in schools must put into consideration especially the administrators.

Educational Implications

Based on the general findings, there arise some implications for students, teachers and the educational administrators.
For students, the availability of current technology will inspire them to pursue their career by making use of these modern inventions and at the same time giving them the comfort they need so as to have an effective instructional delivery environment.

For teachers, based on the rate at which principals ensure the utilization of school plant facilities, the teachers and instructors are inspired to provide the students with the best of their knowledge on their area of specialization. For the educational administrators, there is every need to ensure the procurement of more facilities as to replace the old ones, ensure the maintenance and safety of the facilities as to prevent loss or waste of available resources, and ensure the utilization of these facilities in order to achieve the purpose which they are made for.

5.4 Recommendations

Based on the findings of this study, the following measures were suggested to bring about improvement in the system.

- The government through the ministry of education at the state and federal levels should provide adequate workshop equipment, laboratory and library facilities to meet with the students' projected enrolment figures in all public secondary schools in Port Harcourt Metropolis.
- The government through the ministry of education should endeavor to carry out routine maintenance periodically in the schools in order to have a stable functional school plant.
- The safety of the school plant facilities entrusted to educational administrators (principals) should be their paramount responsibility so as to avoid the waste of resources.

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