

PRINCIPALS' SCHOOL PLANT MANAGEMENT STRATEGIES FOR IMPROVED STUDENTS' ACADEMIC PERFORMANCE IN IMO STATE SECONDARY SCHOOLS IN POST COVID-19 ERA

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Abstract

The researcher investigated principals' school plant management strategies for improved students' academic performance in Owerri Education zone secondary schools. Two research questions were posed and two null hypotheses formulated to guide the study. The study adopted the descriptive survey design. From the population of 2,927 teachers, a sample size of 292 teachers (male and female) was drawn using stratified random sampling technique. A researcher constructed instrument titled: Principals' school plant management strategies scale (PSPMSS) was utilized to elicit information from the respondents. The instrument has 20 items in two clusters, prepared along four points Likert rating scales of Strongly Agree, Agree, Disagree and Strongly Disagree with their corresponding points of 4, 3, 2, and 1, respectively. The instrument was duly validated by two specialists in Educational Management and Planning as well as one specialist in Educational Measurement and Evaluation from Imo State University, Owerri. A test retest was used to ascertain a reliability co-efficient index of 0.87 using Cronbach alpha statistics. Research questions were answered using mean and standard deviation while z-test statistics was used to test the null hypotheses at 0.05 level of significance. The findings of the study revealed among others that the principals' school plant provisions for improved students' academic performance are not adequate. It was also revealed that principals' school plant utilization strategies were positive. Based on the findings, it was recommended among others that the government should ensure that adequate fund is made available to the principals for the procurement and management of school plant.

Key words: School Plant, Management, Students' Academic Performance.

Introduction

School plant is the sum total of the educational facilities provided in schools to enhance the implementation of educational programmes. They included materials and physical resources such as school sites, building, equipment,

machines, laboratories, electricity, borehole, security facilities and others. School plants are the skeleton of the school. According to the assertion of Okeke (2013), as skeleton is to the body, so is school plant necessary for the realization of result-oriented teaching and learning in schools. Allagoa (2017) defined school plant as a consciously designed and controlled environment for promoting teaching and learning activities within the school.

Eboatu and Agogbua (2018) saw school plant as the space interpretation of the school curriculum. They maintained that curriculum cannot be implemented if the physical facilities required for teaching and learning are not available. Thus, without school plant, the school cannot exist to this end, it then becomes necessary to ensure that school plant is provided, planned, maintained and utilized to facilitate the effectiveness of students' academic performance/achievement.

To Abah (2016), school plant can be categorized in various sub-groups namely: (a) the school landscape: comprising of trees, grasses, lawns, hedges and accompanying paths; (b) utilities such as electricity pipe-borne water/borehole and transport facilities; (c) educational equipment comprising computers, chalk, chalkboard, charts, graph maps, burettes, pipettes, test tubes, thermometers, weighing balances, glass jars, globes etc.; (d) security facilities such as walls, gates, alarm system, phones, visitors book, bells etc.; (e) office equipment like cupboards, generator, typewriter/laptops, photocopying machines, fans, air conditioners and others; (f) sports facilities in form of footballs, table tennis, basket ball, court/pitch; (g) classroom/educational equipment such as chairs, desks, tables, chalkboards, dusters, wash hand basins, hand towels, marker/pen, ruler, chalk, teaching/learning aids, nature-coner; (h) buildings like classrooms, administrative blocks, library, laboratories, workshops, kitchen, dining hall/refectory, assembly hall, clinics/first aid block, rest rooms, toilets, hostels, store, staffrooms, and (i) play grounds which includes football, volleyball, basketball, badminton, tennis court, swing side ground etc.

School plant management is the process of planning, organizing, coordinating and controlling material and physical resources for effective teaching and learning processes in schools. Effective management of school plant is vital because the success of any educational programme depends largely on handling of school facilities in terms of planning for provision, maintenance, utilization and monitoring of usage of available plants. Principals of schools as chief executives must possess good school plant management strategies to

be able to give effective leadership. Management involves provision of funds and instructional materials and ensuring their utilization for the realization of educational goals and objectives.

Management in its classical sense is seen by Onye (2019) as being in charge or being in control. Aptly put, Anyaogu (2016) defines management as the art of getting things done through people. Principals' school plant management strategies encompass all activities undertaken by the school authorities to keep facilities in the school ready and providing enabling environment for staff and students to work effectively. Succinctly, Amanchukwu and Ololube (2015) stated that the head of the school must work with staff and students to encourage the imbibing of positive school plant management culture.

For effective management to be achieved, the right operational and maintenance activities must be carried out on school plants using professional knowledge, skills and expertise when needed. School plant maintenance as opined by Uko (2015) entails those activities done on facilities to keep them in their best condition of efficiency through repair services and replacement. The common sights in our secondary schools today are broken chairs, doors, windows, dirty toilets, dilapidated school building, obsolete facilities, broken down and unfixed equipment. There is therefore, a dire need for effective management strategies of facilities in order for schools to achieve the numerous benefits that accrued from procuring proper keeping and utilization of school plants.

School plant management strategies involves synergy between provision of school plant; utilization of school plant, maintenance of school plant and inspection. Execution of educational programmes demands that school plant should be provided if success is to be achieved. Khan and Igbal (2012) maintained that excellent school plant are basic ingredient for good education programmes and basic to achieving set targets as well as achieving the literacy rate of a country. Evidence abound that even the best instructor in the digital era had a difficult time trying to instruct in an environment not conducive for learning. This poses a number of problems such as low retention capacity, inconveniences/restlessness in settling down; low moral; distraction of attention; poor concentration, aggressiveness; among others. On the usefulness of school plant management, Udosen (2012) enumerated some obvious advantages of effective school plant management which include improved student academic performance, high test scores, regular attendance to school, positive students' attitude to learning, good behaviour in the

classroom, teaching and learning more effective for teachers, and learning more engaging and interesting for the students.

The research findings of Eboatu and Agogbua (2018) reveals that adequacy of school plants has significant positive relationships with science students' academic performance. They further posit that the unsatisfactory performance often experienced in schools could be attributed to lack of basic infrastructure. Academic achievement or academic performance is the extent to which a student has attained his or her short or long educational goals, and which can be measured by some of assessment technique. The achievement/performance of students is a learning outcome which include the knowledge, the skills, and experiences acquired in both classroom, field and laboratory practices (Morgan, 2010). Jimoh (2014) corroborates that academic achievement is the level of success attained by a student in school subjects. In other words, it is the degree of success in general or specific area of study. To Eze-Nwosu and Nworgu (2013), academic performance is commonly measured using classroom exercise, assignment, continuous assessment as well as internal and external examinations. It is used to indicate students' level of success in a particular test previously exposed to and it can also be used as indices for determining students' ability to effectively undertake another task. In consonance, Ezeudu and Obi (2013) see academic achievement as a situation where any individual or group of individuals have the capacity and ability to become reference points because of the standards the individuals have set in the field of education. It is a result-oriented construct that encapsulates the extent of performance in a desired task. To them, when an individual performance of any given task is desirable in education, then there exists academic achievement.

This study is theoretically guided by Resource Dependency Theory and System Theory. Resource dependency theory propounded by Pfeffer and Salancik (1978) emphasized that organizations depend on resources; resources are basis of power; these resources ultimately originate from an organisation's environment. This theory states that organizations depend on multidimensional resources, social resources, critical resources (organization must have to function), and physical resources. The present study adopted the theories because the school system is a social organization that also depends on various resources to survive. There is no worthwhile education system that can ignore healthy and functional school facilities which are essential to the effective realization of its educational goals. Relating this to the school

system, it could be construed that schools cannot survive without school plant (resources).

Empirically, the study of Wordu and Obele (2019) revealed that school plants are basic necessities in educational system and their provision improves teachers teaching skills and students' academic performance. In the same vein, Allagoa's (2017) study reveals that effective strategies/practice in management of school plants in public secondary schools in Rivers State are very low and faced with challenges. The findings invariably affected the students' external examination performances.

A visit to any public secondary school in Imo State Nigeria reveals the extent to which educational institutions have decayed. School plants are in a terrible shape and over used without proper management or replacement. There have been public outcries about the poor academic performance of students in internal and external examinations coupled with dilapidated nature of the schools. The poor performance has made it difficult for majority of students to gain admission into higher institutions of learning in recent times. It is clear that various intertwined factors could be responsible for this poor students' academic performance. Takwate (2018) revealed that poor planning, poor funding and poor school plant handling are severe in schools and these affect students' academic performance. The problem of this study posed as a question is: what is the relationship between school plant provision, the maintenance, their utilization and students' academic performance in Owerri Education zone of Imo State?

The purpose of this study therefore was to ascertain:

- School plant provisions for improved students' academic performance in schools.
- School plant utilization for improved students' academic performance/achievement in secondary schools.

To guide this study, two research questions and two null hypotheses were posed and formulated respectively.

The following research questions are posed:

What are the principals' school plant provisions for improved students' academic performance in secondary schools?

What are the principals' school plant utilization strategies for improved students' academic performance in secondary schools?

Two hypotheses are formulated:

H₀₁: There is no significant difference between the male and female teachers on principals' school plant provisions for improved students' academic performance in secondary schools.

H₀₂: There is no significant difference between male and female teachers on principals' school plant utilization strategies for improved students' academic performance in secondary schools.

Method

The study adopted a descriptive survey design. Two research questions were posed and two null hypotheses formulated to guide the study. From a population of 2,927 teachers from secondary schools in Owerri education zone, a sample size of 292 respondents (106 male and 186 female teachers) were drawn using stratified random sampling technique. A researcher constructed instrument titled: Principals' School Plant Management Strategies Scale (PSPMSS) was utilized to elicit information from the respondents. The instrument has 20 items in two clusters, prepared along four-points rating scale of: Strongly Agreed (SA); Agreed (A); Disagreed (D) and Strongly Disagreed (SD) with their corresponding 4 points, 3 points, 2 points and 1 point respectively. The instrument was duly validated by two specialists in Educational Management and Planning as well as one specialist in Educational Measurement and Evaluation from Imo State University, Owerri. A test-retest method was used to ascertain a reliability co-efficient of 0.87 using Cronbach alpha statistics. The researcher with the help of three trained research assistants used direct approach for data collection. Copies of the rating scales administered were successfully retrieved. Mean and standard deviation were used for answering the research questions and z-test for testing the null hypotheses at 0.05 level of significance. Any mean rating of 2.50 and above indicates agreement while mean rating below 2.50 indicates disagreement.

Results**Table 1: Mean and standard deviation scores of teachers on principals' provision for improved students' academic performance.**

S/N	Item Statement	N	X	SD	Decision
<i>School plant provision.</i>		292			
<i>The principal of my school</i>					
1.	Ensures that standby generators are provided		2.10	.96	Disagreed
2.	Makes sure that laboratories are equipped		2.08	.99	Disagreed
3.	Ensures that libraries are equipped with books		2.05	.90	Disagreed
4.	Ensures that ICT learning centre/tools are provided		1.88	0.75	Disagreed
5.	Ensures that school environment is spacious		2.42	.85	Disagreed
6.	School enrolment is considered when planning for school plant		2.31	.83	Disagreed
7.	Often develops action plan to get sufficient supply of facilities for our school from the government		3.18	.88	Agreed
8.	Gives a list of needed school plant in the school to PTAs (Parents Teachers Association) PTAs and Alumni		2.98	.89	Agreed
9.	Advices the secondary education management board on the needed areas for school plant installation		2.77	.84	Agreed
10.	Engages the stakeholders to come and survey the needed facilities in school		3.01	.88	Agreed
Grand mean average			2.48		

Table 1 indicates the mean ratings of teachers on principals' school plant provisions for improved students' academic performance in Owerri education zone. The analysis from the table reveals that items 1, 2, 3, 4, 5, 6 were disagreed on by the teachers since their mean scores were below the criterion mean score of 2.50. While items 7, 8, 9, 10 were agreed on since their mean scores were above 2.50. The grand mean score of 2.48 buttressed the analysis which showed that the principals' school plant provision for improved students' academic performance is not adequate.

Table 2: z-test analysis on the significant difference between the mean ratings of male and female teachers on their principals' school plant provisions.

Gender/ Respondent	N	X	SD	df	z-cal	z-tab	Decision
Male	106	2.92	0.32				
				290			
Female	186	2.81	0.33		1.45	1.96	Accept Ho

Table 2 gave the grand mean scores and standard deviation of 106 male teachers as 2.92 and 0.32 while the grand mean score and standard deviation of 186 female teachers are 2.81 and 0.33 respectively. When the z-test calculation was applied at 5% level of significance, the outcome was z-cal 1.45 while the z-tab was 1.96 at 290 degree of freedom. The z-test calculated was less than the z-test tabulated which led to the acceptance of the null hypothesis and concluding that there is no significant difference between the mean rating scores of male and female teachers on their principals' school plant provisions for improved students' academic performance.

Table 3: Principals’ school plant utilization strategies for improved students’ academic performance

S/N	Item Statement	X	SD	Remarks
11.	Maps out school premises and draw maintenance schedule	1.92	0.25	Disagreed
12.	Ensures effective use of school laboratory and replaces any damaged ones	1.83	0.30	Disagreed
13.	Uses school plant to conduct holidays extra-mural lessons for the exam class students.	2.02	0.32	Disagreed
14.	Make sure that students engage in practical work with available school plant	2.94	0.31	Agreed
15.	Gives query to staff or student for any destruction of facilities	2.72	0.30	Agreed
16.	Utilized direct labour where applicable in the operation of school plant	3.17	0.39	Agreed
17.	Ensures that a responsible team is appointed to take care of utilization of school facilities.	2.63	0.41	Agreed
18.	Ensures that room utilization suits the number of exam students per class	2.97	0.29	Agreed
9.	Considers the capacity of the space when storing other facilities to avoid sudden crack and destruction	2.88	0.29	Agreed
10.	Spearheads enlightenment campaigns on proper utilization of school plant	3.30	0.38	Agreed
Grand mean		2.64		Agreed

Table 3 shows the mean rating scores of teachers on principals’ school plant utilization strategies for improved students’ academic performance in secondary schools. The result indicated that items 1, 2, and 3 recorded scores below the criterion mean score of 2.50, while items 4, 5, 6, 7, 8, 9 and 10 had mean scores above the criterion mean score of 2.50. The analysis was buttressed with the average mean score of 2.64 which led to the conclusion

that principals' school plant utilization strategies for improved students' academic performance is adequate.

Table 4: z-test of significant difference between male and female teachers on principals' school plant utilization for improved students' academic performance

Respondents	N	X	SD	df	z-cal	z-tab	Decision
Male Teachers	106	2.47	0.34				
				290			
Female Teachers	186	2.48	0.35		0.25	1.96	Accept Ho

Table 4 gave the grand mean score and standard deviation of 106 male teachers as 2.47 and 0.34 respectively, while that of the mean scores and standard deviations of 186 female teachers stood at 2.48 and 0.35 respectively. Applying the z-test at 0.05 level of significance, the outcome of z-cal was 0.25 while z-tab was 1.96 at 290 degree of freedom. Hence the z-test calculated is less than the z-test tabulated. This led to the acceptance of the hypothesis and concluding that there is no significant difference between the mean rating scores of male and female teachers on the principals' school plant utilization for improved students' academic performance in secondary schools in Owerri education zone of Imo State.

Discussion

The findings of the study revealed that the principals' school plant provisions for improved students' academic performance are inadequate. The inadequacy of principals' school plant provisions is evidenced from the teachers' grand mean score of 2.48 which was below the criterion decision mean of 2.50. Hence the respondents maintained that the laboratories were not equipped, no stand-by generator, ICT centre/learning tools not provided, school enrolment not a match to the school plant provided among others. The finding is in agreement with Ojeje and Adodo (2017) finding which revealed that most of the schools did not have adequate school buildings to carry the educational programmes projected; on physical education equipment and supplies, only whistles were available in most schools studied. In consonance, Allagoa's (2017) research study indicated that provision and management of school plant in public secondary schools in Rivers State were very low and faced with challenges. It was also found out that there was no significant difference between the mean rating scores of male and female teachers on principals'

school plant provisions for students' improved performance/achievement. This is in conformity with Wordu and Obele's (2019) findings which revealed that a significant relationship existed between school plant provision and academic performance of students in secondary schools. Thus, their provision improved teachers' teaching skills and students' academic performance.

The finding further revealed that the principals' school plant utilization strategies for improved students' academic performance in Imo State, Nigeria, was positive. The principals' positive school plant utilization strategies were shown through the respondents' grand mean average rating score of 2.64 which was above the criterion decision mean of 2.50. Hence, the respondents maintained that their principals engaged students with the available school plant; queried students or staff for any destruction of facilities, utilized direct labour in the operation of school plant where applicable, among others. In consonance with this finding, Takwate (2018) revealed a significant positive relationship between school plant utilization and students' academic performance in Adamawa State, Nigeria. Corroborating to this, Eboatu and Agobua's (2018) research finding revealed that principals of secondary school used rules and regulations to operate school plant, assigned teachers to carry out routine plant operational activities in the school and used students to cater for the cleanliness of the school. The possible explanation for agreement between the two studies may be the fact that the two studies were conducted in Nigeria and in the same year. Similarly, Jimbo (2014) research results showed that educational equipment, buildings and playgrounds had individual significant influence on students' academic performance in schools. Interaction effect among components of the school plant contributed most to students' academic performance.

Conclusion

The study concluded that the inadequate school plant provisions in secondary schools negatively affect the improvement of students' academic performance in secondary schools. The positive and significant utilization of school plant in schools improved students' academic performance and school achievement. Utilization of school plant makes for better understanding, retention, improved teaching and learning delivery, reduces absenteeism and motivates educational activities.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. The principals, teachers and students should intensify the utilization of school plant as it improves academic performance of students.
2. Provisions of school plant in totality should be provided in quality and quantity.
3. The government in place should stop paying lip service to provisions of school facilities.
4. Budgetary allocations to education/schools should be increased, released and utilized.
5. All stakeholders in education (parents, PTAs, alumni, age grades in the community etc.) should support the schools financially, physically and materially, because education for all is a responsibility of all.

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