

MANAGEMENT AND MAINTENANCE OF SCHOOL BUILDINGS IN SECONDARY SCHOOLS IN DELTA STATE, NIGERIA

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Abstract

The purpose of the study is to investigate the strategies used in terms of managing and maintaining the school buildings in order to achieve the goals of the school system. The population of the study was the entire 665 secondary schools -374 public and 291 private secondary school buildings in Delta State. The sample for the study was 20% of the total number of the public and private schools. This includes 71 public and 65 private selected through stratified random sampling. The instrument used was a questionnaire and data collected were analyzed using simple percentages, and z-test inferential statistics. The research findings revealed that the management of the school buildings was principal based, the public school principals' performance in the use of the management strategies discussed was below average with a percentage of 38%, while the private secondary school principals had 62% in their performance. The maintenance strategies used in the public secondary schools was only 31% of the strategies discussed while the private secondary schools used 69% of the strategies. Based on the findings, it was recommended, that government should make adequate budgetary allocation for education and funds should flow to the schools for the management and maintenance of school buildings and that guidelines be given to school principals.

Keywords: Management, Maintenance, School Buildings, Secondary Schools, Nigeria.

Introduction

School buildings are essential component of the active process that occurs in the teaching and learning situation. Teachers and learners do not just need any type of buildings, what they need for appropriate teaching and learning are buildings that are high utility and value. However, a careful observation of the public and private school buildings in Delta State today reveals that there are areas of problem in the management and maintenance of school buildings in both public and private schools. Many factors are responsible for the deplorable state of school buildings in the state. Butterfield (1999) observed that most school buildings problems are not all a function of geographical or socio-economic factors but are instead related to maintenance staffing levels, training and management practices. Lending credence to Butterfield's observation is the opinion of Gould (2005) which stated that maintaining them, and with proper planning the enemy can be defeated. It is only a matter of practices.

In the planning of school plants in Nigeria, economy and efficiency of building materials must be taken into consideration. If these considerations are ignored, there is the probability that the effectiveness of management of physical plant will be limited. Economic consideration is a pointer to the provision of suitable facilities at low cost. This is often backed by efficient designs of school buildings. Sometimes, economy in school consideration has been confused with cheapness or miserliness. According to Froberg (1968), "Economy in construction includes long-range cost of operation and maintenance as well as initial cost". When cheap materials are utilized in school construction, such building normally require considerable maintenance and tends to attract long-range expenditure which would not have been incurred if high quality materials, probably more costly, and requiring little maintenance had been selected and used. A cheap building is most likely to deteriorate more rapidly than a costly one. There is little doubt that the management of the maintenance of an old building is more task demanding than a new one. Any school building is said to be "operational" as soon as the academic and non-academic activities of students, teachers, administrator and non-teaching staff begin. It is as a result of these activities that the aging process of the school buildings actually starts.

However, the usefulness of adequate school building for effective teaching and learning and indeed the implementation of any curriculum can not be over emphasized. At present it appears that the various levels of government have either shifted emphasis or neglected the development of the education sector especially in the area of the management and maintenance of school buildings. However, it should be noted that the quality of our education input and output depends to a large extent on the quality and quantity of the buildings at the disposal of both teachers and learners. This means that the availability, adequacy, management and maintenance of school buildings in schools are very crucial to the attainment of educational goals and objectives.

The value placed on the existing school facilities reflect on the management, whether they are well, fairly or poorly managed to meet required needs. Good management practices on school buildings could create and maintain a physical environment that can support the need of the academic programme, staff, students and other users. The continual rise in student enrolment has made school buildings inadequate to accommodate students' population. The Federal Republic of Nigeria (1999) stated in the National Policy on education that a ratio of one teacher to 40 students should be maintained in a classroom, but today the same classroom accommodates from 60 to 150 students. This of course leads to the problem of overuse and consequently to the deplorable state of the state school buildings. It is common to get to schools and find out that the floors of buildings are cracked and broken, walls are cracked and falling apart, the ceiling boards broken or no windows at all, and dilapidated and abandoned buildings are common in our secondary schools today (Nwadiani, 1992).

Statement of the Problem

The school building is an important instrument in bringing about effectiveness in the teaching and learning process. The National Policy on Education (1998), emphasized that the school buildings, where teaching and learning take place within the content of the policy must be available, adequate and functional to enable learners attain the goals of the policy. This study has become necessary and imperative because of different complaints and observations on the deplorable state of school buildings in the public and private secondary schools in Delta state. Students have shown that there are lots of inadequacies in the provision and

utilization of school buildings and other facilities for instruction (Nwadiani, 2000). Ogonor and Sanni (2001) attributed the present state of school buildings in the public and private secondary schools in terms of management and maintenance to what they called 'general delete mentality' of the public to regard public property as nobody's property, therefore it does not have to be maintained. They also found from their studies that while the private proprietors most often took precaution to maintain school buildings so that they do not deteriorate fast, administrators of public schools feel that 'they are mere passers by' in the schools.

School administrators over the years have continually complained of lack of funds to maintain school buildings. Maintenance of school buildings requires the active involvement of the school authorities, but unfortunately it appears that they are indifferent towards ensuring that school buildings are well maintained. To some extent it shows that the school administrators are knowledgeable in their roles in the aspect of the management and maintenance of school buildings.

Management and maintenance of school buildings are vital to our system. The importance of the school building to the achievement of the educational goals is obvious, yet it is one of the most ill-managed and haphazardly handled areas of schools facilities. The problem this study addressed is to find out whether there are adequate buildings in the public and private secondary schools, and how the available ones are being managed and maintained. The pertinent questions that arise to address the objectives of this study are therefore; what are the management strategies employed by school administrators in managing and maintaining the school buildings in the public and private secondary schools? Who are the people involved in the maintenance activities of school buildings in the public and private secondary schools? What difference exists between the management strategies of the public and private school administrators in managing and maintaining school buildings?

Research Questions

The following research questions were posed in the study.

- 1 What management strategies do school administrators employ in managing school buildings in public and private secondary schools?
- 2 What maintenance strategies do school administrators employ in managing school building in public and private school secondary schools?
- 3 Is there any significant difference between the management strategies of public and private school administrators in managing school buildings?
- 4 Is there any significant difference between the maintenance strategies of public and private school administrators in maintaining school buildings?

Methodology

Research Design

The study is a descriptive survey which investigated the various aspects of the problem studied. Descriptive surveys collect and analyse information in natural setting or environment.

The Population

The target population included a total number of 374 public secondary schools and 291 private secondary schools respectively making a total of 665 schools.

Sample and Sampling Techniques

The sample was selected from the 374 public and 291 private secondary schools through cluster sampling. This was based on senatorial districts and local government areas in Delta State. A simple random sample of 20% from the total number of public and private secondary schools was used. The sample for the study covered school buildings in the selected schools. This gave a total of 71 schools out of the 374 public secondary schools and 65 out of 291 private secondary schools in Delta State as presented in table 1.

Table 1: Size of Secondary Schools Sampled in Delta State according to Senatorial Districts

SENATORIAL DISTRICTS	TOTAL NO. OF LGA	TOTAL NO. OF SCHOOLS.		NO. SAMPLED		% Sampled
		Public	Private	Public	Private	
Delta North	9	143	91	28	19	20
Delta Central	8	135	170	26	38	20
Delta South	9	96	30	17	8	20
	25	374	291	71	65	

Instrumentation

A questionnaire titled management and maintenance of school building questionnaire (MMSBQ) was designed and constructed by the researcher. The constructed questionnaire had four (3) main sections.

Section A contains the respondent background information on name and address of schools, local government and senatorial district the school was located, type of school, day or boarding school, location of school ó urban or rural, ownership and average number of students per class.

Section B was on the management of school buildings. Here 16 items were generated and the focus was on the use and problems of management of school building designed in four point scale of Strongly Agreed, Agreed, Disagreed and Strongly Disagreed.

Section C focused on maintenance of school buildings, questions were on renovation, care of school building and sources of funds for maintenance of school buildings, using 18 items, designed in a 4 point scale of Strongly Agreed, Agreed, Disagreed and Strongly Disagreed to analyse the maintenance strategies used.

Validity of Instrument

The researcher in ensuring the validity of the instruments subjected the items to screening by experts in the Department of Educational Administration and Policy Studies, Delta State University, Abraka. Their suggestions, comments, criticisms and remarks were used to validate and improve the contents of the instruments.

Reliability of the Instrument

The reliability of the instrument was established using split half technique. The questionnaire was administered once to a sample of 20 secondary school principals from the public and private schools outside the study area. Their responses were collated and analysed on the basis of even and odd number items. The paired even and odd number item scores were collated using Pearson r statistics. A coefficient of 0.942 was gotten for section B and 0.954 for section C of the questionnaire. Both coefficient were stepped up using Spearman Brown Prophecy formula $r_2 = 2r_1 / 1 + r_1$ which raised the coefficient of reliability to 0.97 for sections B

and C. These high positive reliability coefficients were indications or evidence of the reliability of the constructed questionnaire.

Administration of the Instruments

The instruments were administered to 150 school principals. This was done with the help of six ó research assistant after being trained. Two assistants were utilized in each senatorial district. This was necessary because of time factor for the research and the stress involved in personally travelling round the 3 senatorial districts of the state.

Method of Data Analysis

The percentage of the number of respondents on each item was worked out and this was used to describe the state of school buildings reflecting the different research questions. Consequently, simple percentages and frequency counts were used. An inferential statistics, Z ó test was used to test the difference in management and maintenance strategies of public and private school administrators.

Presentation of Results and Discussion

This section dwells on answering the research questions

Research Question 1: What management strategies do school administrators employ in managing school buildings in public and private secondary schools?

Table 2: Management Strategies in Managing School Buildings

S/N	Management Strategies	Schools					
		Public		Private		Total	
		N	%	N	%	N	%
1.	Maximum use of available buildings	42	31.2	64	47.1	106	78
2.	Specific usage of buildings	19	14.1	60	44.1	79	58
3.	Matching studentsø population with available buildings	45	33.1	62	46.1	107	78.6
4.	Ensuring comfortable and secure classrooms	33	24.3	51	37.5	84	61.8
5.	Assigning buildings to staff / student supervisors	34	25	34	25	68	50
6.	Staff / student enlightenment	28	21.1	64	47	92	68
7.	Disciplinary measures	34	25	24	17.6	58	43
8.	External supervision	9	6.6	39	28.7	48	35.3
9.	Motivation / Reward	6	4.4	16	11.8	22	16
	Total	250	38%	414	62%	664	

Table 2 revealed the management strategies used in the public and private secondary schools. The analysis showed that the nine management strategies expected to be used in the schools were poorly used, especially in the public schools. Only 38% of the public schools used some of the strategies outlined while 68% of the private schools used the same strategies.

The strategy of maximum use of available buildings was used by 31% public school administrators and 47% private school administrators. Specific usage of school building was used by 14% public school administrators and 44% private school administrators. Matching students' population with available building was used by 33% public school administrators and 46% private school administrators.

Ensuring comfortable and secure classroom was used by 24% public school administrators and 37.5% private school administrators. Assigning buildings to staff / students enlightenment was used by 21% public school administrators and 47% of private school administrators. Disciplinary measures were used by 25% of public school administrators and 17.6% public schools and 28.7% private schools. Motivation / Reward was used by 4.4% public school administrators and 11.8% private school administrators.

Though all the strategies were poorly used in all the schools whether public or private, the public secondary school administrators recorded the highest rate of poor performance. This may be further confirming the findings from the research on management and maintenance of school facilities carried out by Ogonor and Sanni (2001). They stated that; most school administrators were un-knowledgeable in the management of school facilities, the general delete mentality of the public to regard public property as nobody's property affected the schools and also that the public school administrators saw themselves as mere passers by in the schools.

Research Question 2: What maintenance strategies do school administrators employ in managing school buildings in public and private secondary school?

Table 3: Response on Maintenance Strategies

S/N	Maintenance Strategies	Schools					
		Public		Private		Total	
		N	%	N	%	N	%
1.	Assigning buildings to staff / student supervisors	36	26.5	29	21.3	65	48
2.	External inspection / involvement	4	3	63	46	67	49
3.	Maintenance funding	3	2.2	7	5.2	10	7.4
4.	Employment of full time maintenance staff	7	5.2	2.2	16.1	29	21.3
5.	Maintenance planning	17	12.5	16	12	33	24.5
6.	Motivation / Rewards	3	2.2	2	1.5	5	3.7
7.	Renovation / Repairs	8	6	35	26	43	32
	Total	78	31%	178	69%	252	

Table 3 revealed the maintenance strategies used in the public and private secondary schools. The analysis showed that the seven maintenance strategies expected to be used in the schools were poorly used especially in the public secondary schools. Only 31% of the maintenance strategies were used in the public secondary school, while 69% were used in the private secondary schools.

The strategies of assigning buildings to staff / student supervisors were used by 26.5% of public school administrators while 21.3% private school administrators used same.

External inspection / involvement was used by 3% public school administrators and 46% private school administrators. Maintenance funding was practiced in 2.2% public schools and 5.2% private schools.

Employment of fulltime maintenance staff was practiced in 5.2% public schools and 16.1% private schools. Maintenance planning was practiced in 12.5% public schools and 12% private secondary schools. Motivation / Reward were practiced in 2.2% public secondary schools and 1.5% private secondary schools. Renovation / Repairs were practiced in 6% public secondary schools and 26% private secondary schools.

1. All the public secondary schools performed below average in the use of the maintenance strategies discussed.
2. Private secondary school administrators performed fairly better than the public school administrators in the use of the same strategies, public had 31% while private had 69% level of performance.

Research Question 3: Is there any significant difference between management strategies used in public and private secondary schools in Delta State?

Table 4: Responses on Differences on Management Strategies

Z ó test Analysis of Management Strategies used in Public and Private Secondary Schools in Delta State.

Type of School	N	Mean	S.D	Z – Calculated	Z - Critical
Public	71	17.259	38.451	0.192	1.96
Private	65	18.593	41.631		

The analysis and discussion of research question 3 was based on the data in the above table.

There were nine (9) management strategies looked into in this study. Maximum use of available school buildings, specific use of school buildings for subjects they were designed for, matching students population with available space, provision of comfortable and secure classrooms, assigning school building to staff / students supervisors, staff / students enlightenment campaigns on use of school buildings, disciplinary measures, external supervision and the use of motivation / rewards.

From the data presented in table 4 above the mean score from the management strategies used in the public secondary schools was 17.259 with a standard deviation of 38.451, while the mean score for the private secondary schools was 18.593 with a standard deviation of 41.631. The calculated z-test value was 0.192, while the critical z-test value at 0.05 levels of significance was 1.96. The calculated z-test value was lower than the critical z-test value at 0.05 levels of significance. This meant that there was no significant difference between the management strategies of the public and private school administrators in managing school buildings.

Research Question 4: Is there any significant difference in maintenance strategies used in public and private secondary schools in Delta State?

Table 5: Differences in Maintenance Strategies

Z-test Analysis of Maintenance Strategies used in Public and Private Secondary Schools in Delta State.

Type of School	N	Mean	S.D	Z – Calculated	Z - Critical
Public	71	36.155	5.719	12.583	1.96
Private	65	47.631	4.830		

The data presented in table 5 above was used to analyse and discuss research question 4.

In this study, 136 secondary schools were studied, 71 were public while 65 were private. Analyzing the responses of the respondents, 71 respondents from the public secondary schools had a mean score of 36.155 with a standard deviation of 5.719, while the 65 respondents from the private secondary schools had a mean score of 47.631 with a standard deviation of 4.830. The calculated z-test value was 12.583 while the critical value of 1.96 at 0.05 levels of significance. This revealed that there was a significant difference in maintenance strategies of public and private secondary school administrators.

From the foregoing analysis one can conclude that generally both the public and private secondary schools were not doing enough as far as maintenance of school buildings was concerned, the seven maintenance strategies studied in this research work were to guide effective maintenance work in the secondary schools. Since the strategies were not widely practiced, the state of secondary school buildings has remained poor in Delta State. This is a reflection of the lack of maintenance culture which is ravaging the country whether in the public or private sector.

Discussion of Results

Maintenance of School Buildings

The opinion of Gregory et al (1983) should be noted and taken seriously here; they tried to look at the dimension of efficiency and effectiveness in strategic management, that most school principals concentrate their efforts on the efficiency of their functional performance in examination while neglecting the management of the overall operations of school buildings that lead to effectiveness. By working so hard at doing things right, they do not consider whether they are working on the right things. The analysis of data in table 5 showed the maintenance strategies used in the public secondary schools in Delta State.

Seven maintenance strategies were analysed, out of which, one was widely used, and that was assigning buildings to staff and students supervisors. Majority of the schools have the practice of appointing teachers as supervisors of classroom buildings and some students especially class prefects assisting the teachers. For instance you can have supervisors for J. S. S. 1 building, J. S. S. 2 and J. S. S. 3 buildings. The question that comes to mind is what these supervisors do with students who misuse the buildings since it was revealed that disciplinary measures were not used in most schools.

The analysis of the strategy of external inspection and involvement of ministry of education officials and community members was not practiced in schools as far as maintenance of school buildings was concerned. In the past, community member were included in maintenance of schools in their communities but today it is no longer so, probably because the ministry of education and the government generally are no longer encouraging such support. This could be supported by the opinion of Poster (1976) that there was a decline

Nakpodia, E. D. _ Management and Maintenance of school Buildings in Secondary Schools in Delta State, Nigeria in the community's involvement in the development of schools because in most parts of the country the community has become unconcerned with its secondary schools because of lack of encouragement from school authorities. Musaaazi (1982) also stated that education is an activity that includes the cooperation of teachers, parents, children and the community as a whole. It was also stated in National Policy on Education (Federal Republic of Nigeria, 2004) that the communities are also to encourage meaningful contribution to the development of schools in their communities.

In addition, Gould (2005) opined that neglect is the worst enemy of school buildings and the budget for maintaining them, and that with proper planning the enemy can be defeated since it is a matter of priorities. The above statement has brought out two major strategies in maintaining school buildings, which are maintenance funding and maintenance planning which will lead to a third; employment of maintenance staff. These maintenance strategies were analysed and unfortunately were so neglected in the public secondary schools.

It was revealed that funds were not released to the public secondary schools, but if maintenance of school buildings is to be practiced, there must be available and adequate funds. Arubayi and Ogbodo (1994) stated that school buildings are likely to last several years when maintenance culture is adopted. This is supported by Okereke (1998) who opined that there should be an annual allotment of 1.5 to 2 percent of the facility cost for maintenance activities, proper planning and employment of full time maintenance staff who are well trained to maintain school buildings. This will help school buildings last long and provide a good, comfortable and healthy environment for teaching and learning.

In addition, the research findings of Smedge and Norback Commission on Ventilation in Earthman (2004) also revealed that the condition of a building affects the health and performance of students. The lack of maintenance activities in the public schools in Delta State should call for serious consideration by all stake holders in the education industry.

It is necessary to note here that in Delta State, there are private secondary schools that are approved by the ministry of education and many that are not approved because they did not meet certain standards. The researcher is considering the private secondary schools that are government approved. In the public secondary schools, only one maintenance strategy was widely used, but three out of the seven maintenance strategies analysed were used in the private secondary schools.

In the private secondary schools proprietors visit the schools for occasional supervision which result in the use of the third strategy of planning for maintenance activities on school buildings. The above trend in the private secondary schools had been explained by the opinion of Ogonor and Sanni (2001) already stated above, that private school proprietors took immediate action towards the maintenance of school facilities. Very few private secondary schools had full time maintenance staff, majority call in experts to carry out any repairs when necessary. The availability of funds was also a common problem but Gould (2005) already stated, if proper planning is done, the limited funds can achieve so much.

The findings of this study on the availability, adequacy, management and maintenance of school buildings in the public and private secondary schools in Delta State give credence to Adedeji's (1987) description of schools of today as lacking virtually everything both human (personnel) and material (buildings) resources that make for a conducive environment for learning. By implication, the inability of school administrators to employ and effectively use the management and maintenance strategies already outlined will be difficult to overcome due to perhaps a number of socio-economic and administrative constraints.

Comparative Analysis of Management and Maintenance of School Buildings

The analysis of management and maintenance of school buildings in secondary schools as in table 4 revealed the difference between the management strategies used in the public and private secondary schools. The calculated z-test value was 0.192 while the critical value was 1.96 at 0.05 levels of significance. This also revealed that there was no significant difference between the management strategies used in the public and private secondary schools.

Also, table 5 revealed the difference in maintenance strategies used in public and private secondary schools. The calculated z-test value was 12.283 while the critical value was 1.96 at 0.05 levels of significance. The also revealed that there was significant difference between the maintenance strategies used in the public and private secondary schools.

Findings

The study revealed that:

- The types of school buildings in public and private secondary schools were about the same, for there was no significant difference between them. Most public and private secondary schools used only one laboratory for Biology, Chemistry and Physics. Only 52 schools representing 38.2% were adequate and had separated laboratories for Biology, Chemistry, Physics and Chemistry.
- Most public secondary schools especially those in urban areas had between 50-150 students in one classroom that was designed to accommodate 40 students. This is against the regulation as stated in the National Policy on Education (Federal Republic of Nigeria, 2004), thereby revealing that classrooms were overcrowded. Though some of the private secondary schools had smaller classroom space, they were not overcrowded because they had between 15-40 students in such classrooms
- Most of classrooms were not comfortable and secure in terms of locks, available doors and windows which could be as a result of over crowding the classrooms.
- Most schools, public and private, assign buildings to staff and students to supervise.
- There was no proper planning for maintenance activities. Maintenance staffs were not employed on full time basis.
- There was no laid down guidelines to guide school heads on maintenance activities of any sort.

Conclusion

Based on the findings of the study the following conclusion was drawn; it could be predicted that the effective application of the management and maintenance strategies by school administrators in managing school buildings could be an anti-dote to the problem of deplorable state of secondary school buildings. In other words, improving the state of school buildings should be treated with utmost concern and priority.

In addition, lack of finance is a major factor militating against adequate school buildings in Delta State. If educational planners could make provision for maintenance funds, the facility cost could be set aside annually for maintenance fund, the perennial problem of lack of finance for maintenance activities will be completely wiped out.

Ministry officials have no standard against which to carry out inspection. The present condition of school buildings no doubt must have led to the lack of interest in students on their school work and the researcher believes that the inadequate school buildings and the lack

Nakpodia, E. D. _ Management and Maintenance of school Buildings in Secondary Schools in Delta State, Nigeria of effective management and maintenance strategies are the major problem of examination malpractice. And until this problem of availability, adequacy management and maintenance of school building is properly addressed, the problem of truancy, ineffective teaching and learning because of lack of enthusiasm on the part of teachers and students, and examination malpractices will continue to be on the increase and the standard of education will keep falling.

Recommendation

The following recommendations were made in the study:

- There should be guidelines for school principals on how to manage and maintain school buildings.
- Regular and periodic workshops should be held for school principals with interactive section between them, educational planners and ministry official.
- There should be employment of full time maintenance staff in schools.
- Government should make adequate budgetary allocation for education and funds should flow to the schools for management and maintenance of school buildings.

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