

Assessment of School Plant Maintenance Practices in Renovated Public Secondary Schools in Edo State

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Abstract. This study is an assessment of school plant maintenance practices in renovated public secondary schools in Edo state. Three research questions were raised to guide the study. Sixteen (16) schools across the three Senatorial districts of Edo State which constituted 20% of the 82 renovated schools from 2009 to 2017 were sampled for the study. A Questionnaire titled ‘School Plant Maintenance Practices Questionnaire’ (SPMPQ) was used to collect data from the sampled schools. The Mean and Standard deviation, Simple percentages and Frequency were used for analysis. The findings of the analysis revealed that the extent of observance of school plant maintenance in renovated public secondary schools in Edo State is high, the prevalent school maintenance practice is emergency maintenance practice and government do not provide maintenance funds. It was therefore recommended that, though the high rate of observance of maintenance practices was found to be high, these were more of repair maintenance practices. Preventive maintenance practices should be adopted by school heads; this way, a breakdown is prevented before they occur. To be able to do this, it was recommended that government should as a matter of policy, provide adequate funds for a holistic maintenance of school plant.

Keywords: Assessment, School Plant, Maintenance Practices, Renovated Public Secondary Schools

1. Introduction

Edo State government over the years has spent billions of naira renovating schools some of which were built in the 50s and 60s. Since 2009, massive renovation of public primary and secondary schools tagged ‘Red Roof Revolution’, commenced across

the State. The government has again selected 230 public schools for renovation in 2019 with a budget of six billion naira (Edo State Ministry of Education). They also plan to provide furniture and toilet facilities. The schools being renovated were originally meant for students whose number has multiplied over the years as a result of the Universal Basic Education launched in 1999 which is an offshoot of the Universal Primary Education introduced in the 50s. This increase has put a lot of pressure on school plant as the facilities have become overstretched without maintenance. Hence most public schools in Edo state are replete with dilapidated buildings and obsolete equipment, neglect and vandalization which could indicate poor or lack of maintenance plan. School plant should be properly maintained for its continuous existence and uninterrupted services. Therefore, maintenance as an ongoing process is always necessary in any school no-matter how well built, furnished and equipped. Laudable as the Edo State government’s efforts at renovation of public schools is, the need to ensure maintenance practices that will elongate the lifespan of the school plant as long as possible is paramount.

1.1 Problem of the Study

Despite the importance attached to school plant, the environment of most public schools in Nigeria is less desirable. This has led to the growing concern to the maintenance of school plants in public schools; it is common to see broken windows, chairs, collapsed ceilings, damaged roofs, cracked walls, broken furniture and faded paints even in schools shortly after undergoing renovation with billions of naira expended. This pathetic situation has become a major concern to stakeholders in the system. Could this be due to the extent of observance of school plant

maintenance practice in public schools by school administrators? Could it be due to the school plant maintenance practice adopted? Do school administrators receive funding for maintenance? These questions form the basis for the study on school plant maintenance practice, particularly in renovated public secondary schools in Edo State.

1.2 Purpose of the Study

The main purpose of the study is to assess school plant maintenance practices in renovated public secondary schools in Edo State.

1.3 Research Questions

- What is the extent of observance of school plant maintenance practices in renovated public secondary schools in Edo State?
- What is the prevalent school plant maintenance practice observed in renovated public secondary schools in Edo State?
- Do Principals receive maintenance funds from government in renovated public secondary schools in Edo State?

2. Literature Review

Odigwe and Eluwa (2013) asserts that the decline in the education performance of students in secondary schools in African nations is evident from cross sectional studies, and this steady decline has being traced to the growing concern about adequate provision, maintenance and management of the school plant. School plant refers to everything within the school premises which include the site, buildings, equipment such as machines, laboratory equipment and so on. Ajayi (2007) and Yusuf (2008) in Amanchukwu and Ololube (2015) expanded this description of school plant as comprising the machinery which in turn includes machines and tools used in the workshop in addition to duplicating machines. They also include school site which is the building, equipment, furniture, vehicles, electrical fittings, water supply infrastructure, playgrounds, lawns, and so on as part of the school plant. Odor (1995) also describes school plant as the space and physical resources which the school administrator and his reference groups harness, allocate, utilize and maintain for the purpose of effective school administration. Onwurah (2004) also defines school plant as the school building, the playground, equipment and other material resources provided in the school to facilitate effective teaching and learning operation. Summarily, school plant involves all the

material resources in the school that facilitate teaching and learning.

School plant maintenance requires a continuing effort at ensuring that facilities such as furniture, playground, laboratories, library and school infrastructure remain in good condition and lasts the entire life circle of the facility. Many building materials, furniture and equipment may not last too long and may require upkeep maintenance and inevitable replacement to defer building obsolescence. Unfortunately, managing school plant have historically received much less attention than facility planning. This view was earlier articulated by Manga, Aliyu and Garba (2013) who cited the basic problems affecting school plant maintenance in Africa to include inadequate finance, poor supervision, inadequate tools, negligence and maintenance culture. In maintaining the school plant, attention must be paid not only to the structure but to the wellbeing of the learners.

It is the statutory responsibility of school administrators to ensure that the school plant is maintained to ensure a conducive teaching and learning environment and to justify the huge resources expended by government in renovating schools with dilapidated structure. The provision and maintenance of physical facilities are the primary responsibility of the Government who should provide maintenance funds and the school leadership whose role it is to expend the funds in maintenance activities. Principals must be fully concerned with the physical environment and other facilities around the school; dilapidated buildings, leaking roofs, abandoned projects, over-grown trees and lawns, dingy and dark buildings all of which have demoralising effects on people, especially the adolescents (Ekundayo 2010). Heads of school must therefore put in place strategies to ensure that School plant maintenance practices are observed as a culture in the school. School plant maintenance practices include ensuring availability of working tools necessary for maintenance, regular inspection to detect damaged building, equipment, furniture and so on, regular supervision to ensure that school maintenance are executed on daily basis based on clear schedule of duty allocated to guide staff with job descriptions of maintenance activity stating what they should do and how they should do it, promptly providing finance to purchase maintenance tools and to pay for labour that will be employed to carryout maintenance, enlightenment programme to educate staff on the need to embrace maintenance culture among others. Onwurah (2004) also suggests maintenance practices for effective management of

the school plant to include regular inspection of school plant so as to detect defects and effect repairs or replacement. All staff of the school should be involved since they are direct users of these facilities. They should identify and report defective facilities to the school administrators to ensure prompt repairs. He also advised that proper arrangement should be made by the school administrator to keep the school compound well swept daily, grass-lawns and hedges should be constantly trimmed.

The maintenance options open to school administrators in school plant maintenance include: preventive maintenance, emergency maintenance, remedial maintenance, adhoc maintenance and no-maintenance at all as the case may be (Ogunu 2002, Dilworth 2003 and Onwurah 2007). Preventive maintenance is planned to prevent a breakdown of the system or one of its components. It allows an equipment and building remain in its original state and is carried out before they malfunction. This option is taken where there is periodic inspection and servicing of school facilities and equipment to avoid breakdown. What is common to school plant in Nigeria is that it is allowed to deteriorate until there is total breakdown because there is lack of maintenance culture in the system. Emergency maintenance option on the other hand takes place where the school plants are repaired only when the need arises. Here servicemen are called in when an equipment is out of use; this is prevalent in Nigeria. Remedial maintenance option is embarked on when school plants are repaired before breakdown has occurred. According to Ogunu (2002), adhoc maintenance option takes place where a substantial sum of money is budgeted to finance unplanned maintenance activities while no-maintenance option occurs when school administrators neglect school plant maintenance because the maintenance cost responsibility is not well defined between the school and management board. Another important type of maintenance is recurring maintenance. Here, an equipment is maintained on a daily basis. This is tied to the operationality of the equipment. For instance, daily maintenance of a photocopier, computer and so on.

For schools as well as for all types of facilities, preventive maintenance is a pragmatic way to ensure that facilities and equipment are serviced regularly to protect against new deficiencies in order to greatly extend the useful life of the structure. Corrective maintenance is also necessary in order to address observed deficiencies; this way, a breakdown is prevented before they occur (Odigwe and Eluwa, 2013). The result of a study carried out by Ogonor and Sanni (2001) on adequacy of maintenance by school personnel revealed that while school

personnel were adjudged to be very adequate (66%) in carrying out routine checks to detect faults, they were perceived to be non-responsive to the need to effect repairs on the detected faulty facility (12%). This need necessitated Onwurah (2004)'s position that school plant maintenance entail repairs and replacement of school buildings and equipment in order to keep them in as near their original conditions as possible. It appears that this is not peculiar to public schools in Nigeria; in a study carried out by Tabbasi (2014) in Malaysia, it was revealed that most of the school buildings do not possess their own school plant management practices and they lack preventive or planned maintenance culture. Libraries and laboratories are generally in poor condition in many schools (Otu 2002, Jagaba 2004) whereas school plant maintenance is a very critical input in the provision of quality education.

This study is hinged on the Social System theory which views schools as a social system that have input-process-output circle. Inputs being financial, human (teachers, school managers, students and support staff) and material resources (buildings, furniture and other infrastructure). These inputs are processed and transformed to produce desired results or outputs. The implication of this theory to this study is that the provision and maintenance of physical inputs will create a teaching and learning environment that will produce well-trained students.

3. Methodology

The study adopted descriptive survey design. The population of the study comprised all the 82 renovated public secondary schools from 2009 to 2017 (Edo South; 37, Edo Central; 13 and Edo North; 32) in the three Senatorial district of Edo State. Twenty percent (20%) of the schools was randomly selected constituting 16 schools (Edo South; 7, Edo Central; 3 and Edo North; 6). A Questionnaire titled 'School Plant Maintenance Practices Questionnaire' (SPMPQ) was used to collect data from the selected principals in the sampled schools. The instrument was validated by a senior lecturer in the Department of Educational management, University of Benin. Responses to the instrument were weighed on a four point Likert scale which was later collapsed into two scales of low and high to answer research question 2; items with mean score from 1.0 – 2.49 is regarded as low while 2.50 – 4.00 is high. A Reliability coefficient of 94% of the instrument was obtained after administering the instrument to renovated private schools in Edo State using the Test-re-Test method at an interval of two weeks. The Mean and Standard deviation, Simple percentages and Frequency were used for analysis.

4. Presentation of Result

Research Questions 1: What is the extent of observance of school plant maintenance practice in renovated public secondary schools in Edo State?

Table1: Descriptive Statistics of the extent of observance of school plant maintenance practice in renovated public secondary schools in Edo State

S/N	Items	N	Sum	Mean	Std.dev	Test mean	Remarks
1	Cleaning of school ground/environment	16	62.00	3.88	.341	2.5	H
2	Filling up of potholes on school ground as they occur	16	55.00	3.44	.814	2.5	H
3	Cutting of unwanted grass/weed	16	62.00	3.88	.342	2.5	H
4	Scrubbing floors and furniture	16	46.00	2.88	1.26	2.5	H
5	Fixing of broken chairs and windows as they occur	16	41.00	2.56	.963	2.5	H
6	Replacing electrical appliances when they expire	16	30.00	1.88	1.025	2.5	L
7	Fixing electrical sockets and lamp holders in bad condition	16	28.00	1.75	1.065	2.5	L
8	Repairing fans/airconditioners when faults develops	16	28.00	1.75	1.000	2.5	L
9	Servicing the generator to ensure that it is in good working condition	16	23.00	1.44	.814	2.5	L
10	Servicing equipments such as photocopy/machines,/refrigerators, computers, TV, video machines etc	16	20.00	1.25	.683	2.5	L
11	Cutting and trimming trees/flowers for safety from snakes, reptiles, mosquitoes etc	16	59.00	3.69	.793	2.5	H
12	Disposing off refuse and sewage	16	58.00	3.63	.885	2.5	H
13	Clearing blocked gutters	16	52.00	3.25	.856	2.5	H
14	Flushing and washing latrines/toilets/floors/wash hand basin	16	41.00	2.56	1.315	2.5	H
15	Treating/toilets/latrines/floors/wash hand basin with insecticide	16	34.00	2.13	1.088	2.5	H
16	Mending fences to prevent illegal outlet	16	45.00	2.81	1.276	2.5	H
17	Manning the school gate to check movement of persons and vehicles	16	51.00	3.19	1.223	2.5	H
18	Lubricating machines and machineries for effective use	16	25.00	1.56	.814	2.5	L
19	Keeping laboratory/workshop equipment in top condition	16	37.00	2.31	1.138	2.5	H
20	Checking safety devices like fire extinguishers to ensure that they are in good working condition	16	25.00	1.56	.964	2.5	L
21	Keeping water supply infrastructure like tap. Pipe, borehole, water tanks in good condition	16	31.00	1.94	1.124	2.5	L
22	Reporting defective equipment	16	39.00	2.44	1.365	2.5	H
23	Availability of cleaning tools	16	40.00	2.50	1.095	2.5	H
24	Supervising personnel in charge of maintenance	16	41.00	2.56	1.209	2.5	H
25	Inspecting the school plant for defect.	16	29.00	1.81	1.109	2.5	L
Average		16	39.23	2.45	.513	2.50	L

H= high, L= Low

Table 2 shows the descriptive data with respect to the extent of observance of school plant maintenance practices. Total schools sampled (N) is sixteen (16) and twenty five (25) items were raised. From the 25 items, responses showed that sixteen (16) items were highly observed school plant maintenance practices while nine (9) recorded low observance. The composite yielded average values are of =39.23, mean=2.45 and standard deviation=.513. Though, with a general mean value of 2.45 which is less than the theoretical mean of 2.50, it can be said that the extent of observance of school plant maintenance is low, item by item analysis shows however indicates that, with 16 schools rated as high and 9 schools rated as low, the extent of observance of school plant maintenance practices in renovated public secondary schools in Edo State is high.

Research Questions 2: What is the prevalent school plant maintenance practice observed in renovated public secondary schools in Edo State?

Table 2: Descriptive Statistics of school plant maintenance practices observed in Renovated Public secondary Schools in Edo State

S/N	Maintenance Practices	Responses	
		Freq	%
1	Preventive	06	37.6
2	Emergency	08	50.0
3	Remedial	00	00
4	Recurring	02	12.4
Total		16	100.0

Table 2 shows the school plant maintenance practices in renovated public secondary schools in Edo State. From the table, 37.6% of the sampled schools carry out preventive maintenance practice, 50%; emergency maintenance, 0%; remedial maintenance and 12.4%; recurring maintenance. From this analysis, emergency maintenance with 50% is the prevalent maintenance practice in renovated public secondary schools in Edo State.

Research Question 3: Do Principals receive maintenance funds from government in renovated public secondary schools in Edo State?

Table3: Descriptive Statistics of receipt of funds for school plant maintenance in renovated public secondary schools in Edo State

S/N	Item	Frequency	Percent %	Cumulative Percent	Remarks
1	Do you receive school maintenance funds?	No 15	93.8	93.8	No
		Yes 1	6.2	100.0	
Total		16	100		

Table 2 shows that, out of the sixteen (16) schools that responded to the item on receipt of maintenance funds, one (01) School affirmed receipt while fifteen (15) Schools indicated no receipt. Therefore, it can be concluded that renovated public schools in Edo State are not given maintenance funds.

5. Discussion of Results

Results of the finding revealed that though generally, the extent of observance of school plant maintenance in renovated public secondary schools in Edo State is low with the mean value of 2.45 which is less than the theoretical mean of 2.50, item by item analysis showed that, more maintenance practices (16) were observed while fewer practices (09) were not observed. The result of this study is at variance with the result of a study carried out by Ogonor and Sanni (2001) on adequacy of maintenance by school personnel which revealed that school personnel were adjudged to be very adequate (66%) in carrying out routine checks to detect faults though low in repairs on the detected faulty facility (12%). This study revealed the opposite as observance of routine checks was lower (9) while observance of repairs was higher (16). The study also supports Onwurah (2004)'s position that school plant maintenance entail repairs and replacement of school buildings and equipment in order to keep them in as near their original conditions as possible. Hence observance of school plant maintenance in Edo State renovated public

secondary schools is more of repairs than checking for faulty facilities.

The result on the finding on the prevalent school plant maintenance practice observed in renovated public secondary schools in Edo State which revealed emergency maintenance (50%) as against preventive maintenance practice (37.6%), remedial maintenance (0%) and recurring maintenance (12.4%) is not surprising as the earlier result revealed high observance of repair maintenance practices whereas, Odigwe and Eluwa (2013) had earlier posited that for schools as well as for all types of facilities, preventive maintenance is a pragmatic way to ensure that facilities and equipment are serviced regularly to protect against new deficiencies in order to greatly extend the useful life of the structure.

On receipt of maintenance funds from government in renovated public secondary schools in Edo State, findings revealed that 15 of the 16 sampled schools received no maintenance funds. The question arising from this finding is; where do they get the funds expended on repairs? Perhaps as suggested by Ekundayo (2010), that it is the responsibility of Heads of school to put in place strategies to ensure that School plant maintenance practices are observed as a culture in the school by ensuring availability of working tools necessary for maintenance and promptly providing the finance to purchase maintenance tools and to pay for labour that will be

employed to carryout maintenance among others and not necessarily waiting for government, the schools have devised strategies to raise funds for school maintenance. This finding further collaborates that of Manga, Aliyu and Garba (2013) who cited the basic problems affecting school plant maintenance in Africa to include inadequate finance, poor supervision, inadequate tools, negligence and maintenance culture.

6. Conclusion

In view of the findings of the study, it could be concluded that the extent of observance of school plant maintenance in renovated public secondary schools in Edo State is high because they observe more of the repair practices as against preventive practice which implies that they do little or nothing about dilapidating facilities till it goes bad, then repair. Consequently, the prevalent school maintenance practice is emergency maintenance practice rather than the preventive practice. The reason for this prevalent practice is because schools do not receive maintenance funds. Hence whatever funds the school is able to source is expended on sundry repairs which appear cheaper in the short term than preventive and remedial maintenance practices. This way, school plant is managed till it runs aground and becomes irreparable or requires huge and unavailable funds to fix.

7. Recommendations

- Schools should observe more of preventive maintenance practice. This way, a breakdown is prevented before they occur. As the saying goes, 'Prevention is better than cure'
- Government through the Ministry of education, should as a matter of policy, set aside funds for maintenance of public schools so that school heads would have adequate resources for a holistic maintenance of facilities instead of adhoc repairs.

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