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Approaches for Maintenance of School Facilities in Secondary Schools in Africa: Implications for School Managers

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Abstract:

Physical facilities constitute a very critical input towards the provision of quality education in secondary schools in Africa. School administrators have the statutory responsibility of adopting preventive maintenance approaches to ensure the sustenance of a conducive teaching and learning environment. School plant maintenance activities should be comprehensive to touch on the maintenance of school buildings, furniture, playgrounds, laboratories, libraries and school infrastructure. Among the basic problems affecting school plant maintenance in Africa include lack of adequate finance, poor supervision, inadequate tools, negligence and poor maintenance culture. This paper recommended among others, that there should be provision of adequate working tools regular supervision and enlightenment programmes to inculcate maintenance culture in secondary schools in Africa.

Keywords: Maintenance approach, facilities, school managers, maintenance activities

1. Introduction

Schools directly or indirectly touch on the life of almost everyone in modern society, whether as a student, parent, teacher, employer or consumer of goods and services produced by school leavers. All over the world, schools are basically established to provide the quality of education that will ensure national transformation (Sani, 2007). Secondary schools in particular are expected to prepare students for useful living in society and for coping with the demand for higher education (Federal Republic of Nigeria, 2013). To make schools realize the goals for which they have been established, education has become a major undertaking of governments around the world. In African countries, secondary schools account for a substantial proportion of public and private expenditure as is evidenced by the financial, human and physical inputs provided to make it possible for secondary schools to realize the goal for which they have been established.

The theoretical framework of this paper is based on Social System Theory cited in Sani (2007:109). The theory views schools as social systems that have input - process - output cycles. Basic inputs in schools consist of financial, human and material resources. Human inputs comprise the students, teachers, school managers and supporting staff while physical inputs include buildings, grounds, furniture and infrastructure that make up the school plant. These inputs are processed and transformed to produce the desired results or outputs. The expectation in this theory is that the provision and maintenance of physical inputs in particular will create a conducive school environment for effective teaching and learning.

In spite of the great significance attached to the provision of school facilities, the school plant in many African secondary schools across the continent are poorly maintained. Taiwo (2000) noted that the physical environment in most secondary schools in African countries is literacy aggressive due to poor maintenance culture. Otu (2002) noted that it is very common to see secondary school classrooms with broken windows and doors, collapsed ceilings, damaged roofs, cracked walls, faded paints, broken furniture, nonfunctional equipment, electrical fittings and damaged infrastructures. Jagaba (2004) added that playgrounds, libraries and laboratory equipment are generally in poor condition in many secondary schools. The poor condition of school facilities tend to indicate that the quality of maintenance of school facilities is generally poor. This paper operationalizes school facilities maintenance as all the activity that are planned and executed to ensure that school facilities are constantly kept in good condition and all machines are functioning properly. In the light of this disturbing scenario therefore, this paper examines the importance, approaches, activities and problems of school plant maintenance in Africa.

2. Importance of School Plant Maintenance in Secondary Schools in Africa

When school facilities are provided, it is expected that they should be properly maintained in good condition if the facilities are to continue to serve the purpose for which they are provided. In this regard, several studies have been conducted to demonstrate the significance of school plant maintenance. For example, Lowe (1990) in his study on the interface between educational facilities and learning climate in elementary schools in Texas found that proper

maintenance of school facilities positively affected teachers' morale by giving them a sense of personal safety, renewed hope and commitment as well as the belief that the district cared about what went on in school buildings. He found that poorly maintained school facilities created a feeling of despair and frustration among teachers and students. It also resulted in higher rate of absenteeism, low morale and reduced job satisfaction. Edwards (1992) in his study of building conditions, parental involvement and students achievement in the District of Columbia public school system, found that students in school buildings that were in poor condition achieved 6% below student in school buildings that were maintained in excellent condition. He concluded that decaying school facilities damaged electrical fittings, inoperative heating and cooling systems affected the learning of students and morale of staff.

Cash (1993) examined the relationship between building condition and student achievement in small, rural Virginia High Schools. Students' scores on achievement test were 5% lower in school buildings with poorly maintained laboratories, libraries, workshops and classroom furniture. McGruffey (1992) investigated the impacts of school buildings age on school achievement in Georgia. He found that proper building maintenance was related to fewer disciplinary problems. He also found that building components that are necessary for effective teaching and learning are usually absent in poorly maintained school buildings, as such buildings lack functional fans, air conditioners, electric lighting and water supply. Bower and Burkett (1999) investigated the effect of maintenance of physical facilities on students' academic performance in Florida High Schools. He selected 50 schools across urban and rural areas, public and private schools and 1000 participants' respondent to a school plant maintenance questionnaire. Final year results of students in Biology, Chemistry, Physics were used to measure student achievement, using Pearson Correlation, at 0.05 alpha level, he found that there is a significant and positive relationship between the maintenance of classroom, equipment, electricity, water supply, playgrounds, landscaping and student academic performance in sciences with calculated values from .20 to .75.

A study on the relationship among school plant construction, utilization, maintenance and school effectiveness in Kebbi State secondary schools in Nigeria was conducted by Sani (2007). The study used a stratified sampling techniques to select 26 out of 41 secondary schools, deliberate sampling for all the principals and proportionate sampling technique to select 587 out of 350 in the selected schools. The study used a combination of WAEC Results Analysis Format, Observation inventories and Questionnaire to generate both quantitative and qualitative data. The researcher applied Multiple Regression and Pearson Correlation coefficient to test hypotheses. The study found that there was a significant, positive and high relationship between school plant maintenance and student academic performance, student conduct and school community relationship with calculate r-values of .99, .98 and .98, respectively. The study agrees with Oyediji (1998) maintained that there is a positive relationship between the quality of maintenance and the level of functionality of school plant. He identified the significance of school plant maintenance to include:

- School plant maintenance makes it possible to have a clean and healthy school environment.
- It ensures that school buildings and facilities are kept safe and well protected.
- It helps to preserve the aesthetic or beauty of the school environment.
- It ensures that school facilities are constantly functioning in good working condition.
- It helps to slow down the rate of degradation of facilities and extends their life span.

Considering the immense value of maintenance of school facilities towards sustaining a conducive learning environment, principals of secondary schools in Africa should re-direct their energies to develop and apply effective school plant maintenance strategies.

3. Approaches to School Facilities Maintenance in Secondary Schools in Africa

School administrators at various points in time have used one type of maintenance approach of the other in order to ensure that facilities entrusted to their care are properly maintained. Ogunu (2000), Taiwo (2000) and Sani (2007) identified types of maintenance approaches as follows:

- **The Individual School Custodian Maintenance Approach:** Here maintenance is highly centralized and the school custodian ensures that maintenance tools are not only provided but that subordinate staff on daily basis execute maintenance duties. This approach could be effective where the custodian is dedicated to his duties. However, it could fail woefully, in cases of negligence of duty by the custodian especially where he is not penalised by the school head (Taiwo, 2000).
- **District Wide Maintenance Approach:** This is where there is a fully staffed maintenance department with an expert maintenance crew which handles different aspects of maintenance works. This approach is mostly used in tertiary institutions which have a works department. The approach is also used in some secondary schools as it has the advantage of using the principle of division of labour based on specialization and is also cost-effective (Taiwo, 2000).
- **Situational Maintenance Approach:** This depends on availability of funds that are usually generated by charging the public for their use of school facilities. The money is then used for the maintenance of facilities. Secondary schools could charge some money for the use of their halls, playgrounds, furniture, vehicles and other facilities by the community. Caution deposit is using charged to repair damaged facilities. Ogun, 2000)
- **Committee Maintenance Approach:** This centers on giving maintenance responsibility to a constituted works committee comprising of teachers, students and supporting staff. The committee is in charge of fund raising, receiving complaints on damaged facilities, organizing direct labour, collecting data and data on condition of school, plant. School administrators need to delegate authority and provide necessary support to enable the committee to function effectively. The approach also helps to ensure collective responsibility (Ogun, 2000)

- **Community Participatory Maintenance Approach:** This is where technical experts and professional brick layers, plumbers, carpenters, welders, mechanics and other members of the community form a committee jointly with the school to provide maintenance services. This approach helps to strengthen good relationship between the school and the community. It helps to take the advantage of using the services of various experts for quality maintenance of facilities in schools (Sani, 2000).
- **Emergency Maintenance Approach:** Action regarding school plant maintenance is taken only when there is an emergency situation or disaster. Maintenance is done haphazardly without a pre-determined plan. This approach has the fundamental weakness of being retro-active as it waits for serious maintenance problems to occur before action is taken to solve the problems. It is curative rather than preventive maintenance approach (Sani, 2000)
- **Ad-hoc Maintenance Approach:** This is where limited funds for maintenance are kept with an official of the Ministry or School Board to respond to maintenance needs of schools according to the gravity of their needs. Each school requests or demands for funds to tackle specific problems within the limits of the resources available for schools in a particular region, zone or local government.
- **Preventive Maintenance Approach:** This is a well-planned pro-active and systematic maintenance approach that constantly checks and takes preventive measures before problems will arise. This is regarded in this paper as the best maintenance approach.

4. School Plant Maintenance Activities in Secondary Schools in Africa

When huge sums of money have been used to construct schools and equip them with necessary physical facilities, it is naturally expected that such facilities will be properly maintained. It will be a regrettable if expensive school facilities provided with hard earned tax payers' money are allowed to decay and get vandalised without reasonable efforts being made to preserve and protect them. Sani (2002) the school manager has the statutory responsibility of ensuring that everything possible is done to keep the school plant in good functioning condition. The school head needs to enforce the following school plant maintenance activities:

- **Filling of pot holes:** Pot-holes in school should be filled up and injurious objects removed in playgrounds and other parts of the school environment.
- **Sweeping, Scrubbing and Repainting:** School buildings should also be swept floors and furniture scrubbed of dust on daily basis. The walls should be periodically repainted to give them a fresh new look. Leaking roofs and collapsed ceiling boards should be repaired. Cracked walls and broken floors need to be re-plastered. Broken doors and windows should be re-fixed;
- **Replacement, Repairs and Services:** Electrical bulbs and fluorescent tubes should be replaced when they expire. Also electrical sockets and lamp holders as well as the wiring should be kept in good condition. Electric generators need to be regularly serviced to keep them functional. Power lines and transformers in the school should be properly maintained. Fans and air conditioners should be repaired when faults develop so as to avoid electrical fires; In addition, electrical devices such as photocopiers, refrigerators, computers, televisions, video machines among others, should be kept in good condition.
- **Watering, Trimming and Beautification:** Trees, flowers and grasses that need watering should be regularly watered and trimmed. Unwanted grasses need to be weeded for beautification.
- **Waste Disposal, Washing and Flushing:** Refuse and sewage should be regularly disposed in order to maintain a healthy and clean school environment. Blockages in gutters should be regularly cleared. Pit latrines, toilet floors, toilet seats and wash hand basins as well as urinary should be regularly washed, flushed and treated with germicides. Soak ways and plumbing works should be kept in good condition to ensure that the Water Cistern toilets flush correctly and efficiently;
- **Security Services:** School plant security should be maintained at all time. The fence should be regularly checked to detect and seal illegal outlets. The school gate should be regularly manned, check movement of persons and vehicles especially those of visitors All school buildings should have burglary proofs on windows and doors. There should also be strong locks at the doors and keys kept at a secured place when buildings are locked. Security lights should also be placed at strategic points in the school and at sides of school buildings;
- **Servicing, Fueling and Lubrication:** Machines and other mechanical devices should be lubricated to make them run smoothly Vehicles should be regularly serviced and faulty spare parts and tyres changed when they expire. Laboratory and workshop equipment should always be kept in top condition. And safety devices such as fire extinguishers should always be checked to ensure that they are in good condition; Water supply infrastructure such as pipes, taps, wells, boreholes, tanks and other equipment should be kept in good condition and
- **Road network and walkways in the school** need to be beautified and kept in good condition for smooth traffic of vehicles aid pedestrian movements.

5. Problems of School Plant Maintenance in Secondary Schools in Africa

School plant maintenance is confronted with numerous challenges especially at post primary school levels in Africa. The challenges that could grossly erode the sustenance of maintenance culture were identified by Oyedeji (1998) Bower and Burkett (1999) to include the following:

- Lack of working tools necessary for the execution of maintenance operations;
- Lack of adequate finances to purchase maintenance tools and pay for the labour that needs to be employed to carry out maintenance activities in regular basis;

- Lack of regular inspection to detect damaged building equipment, furniture and other infrastructure for prompt repairs;
- Lack of regular supervision of staff to ensure that school plant maintenance activities are executed on daily basis and in accordance with staff schedules of duties;
- Lack of a clear schedule of maintenance duties and job descriptions to guide staff and what they should do, when to do it and when to do it;
- Lack of delegation of authority to or committee so they can actively participate in, the performance of maintenance operating this is mostly where school heads over centralized and monopolize authority to themselves;
- Lack of application of punitive measures against staff who are found wanting in the discharge of their maintenance operations.
- Lack of rewarding hardworking staff who show exceptional commitment on performance of school plant maintenance activities;
- Lack of adequate enlightenment programmes to educate staff on the deed to embrace maintenance culture.
- Lack of interest and enthusiasm by both school administrators and staff towards school plant maintenance.

6. Implications for School Managers

Schools managers include members of the schools board, members of school governing councils, heads of schools, heads of department and other officers shouldered with specific responsibilities for maintenance of school facilities. School managers are expected to design and enforce comprehensive school facilities, maintenance policies. They are expected also to reach out to the community, the government, and non-governmental organizations so as to support their effort at maintenance of school facilities and the creation of a conducive child friendly environment in secondary schools in Africa.

7. Recommendations

In order to entrench maintenance culture and ensure efficient performance of school plant maintenance activities, the following strategies are hereby recommended:

- Adequate tools should be provided to make it possible and easier to perform various tasks on school plant maintenance.
- There should be increased budgetary allocations so as to provide adequate finances to purchase necessary tools required for effective execution of maintenance operations and to pay for maintenance services of hired staff.
- School administrators need to prudently manage their limited funds and explore other sources of funding so as to ensure sustainable school facilities maintenance.
- There should be regular inspection of school facilities so as to detect damaged equipment, furniture or infrastructure for prompt repairs.
- There should be regular supervision of staff to ensure that they perform their school plant maintenance duties in line with their schedules of duties.
- There should be a clearly spelt out schedules of duties to guide staff in the discharge of their responsibilities
- The school head should delegate authority to staff and to committee that need to be in charge of ensuring the performance of school plant maintenance activities
- Staff who are deliberately negligent of their duties should be sanctioned and appropriately punished.
- Hardworking staff should be rewarded and commended for their diligence and commitment.
- Regular workshops, seminars and conferences should be organized to enlighten staff on the need for school plant maintenance culture.

8. Conclusion

School facilities constitute a very critical input for the maintenance of objectives of secondary education in Africa. There is a serious need to ensure that the school plant entrusted to school administrators is properly maintained to ensure a clean and conducive environment for effective teaching and learning. Both the government and stakeholders must join hands to ensure the sustenance of school plant maintenance operations in secondary schools in Africa.

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