

Assessing Users' Perceptions of the Current Maintenance Disorder of Public Secondary School in Ogun, Nigeria

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Abstract

The challenges facing public schools are multifaceted and include: teachers dissatisfaction, non-commitment of educators, chronic absenteeism by educators, low morale, poor work ethics by educators, late coming of both educators and learners, overcrowding in classes, lack of technical resources and many more. A cursory investigation of public secondary school buildings in Ado-Odo/Ota L.G.A shows its deplorable conditions of structural, aesthetical and decorative disrepair. Therefore the paper focused on examining users "perception of the present deplorable physical condition and neglect of public secondary school. The study engaged the use of quantitative method of analysis, employing the use of questionnaire administered randomly and distributed face-to-face to targeted despondences". The result of findings revealed performance/productivity of building users depends largely on working and learning condition of building. The outcomes of the research would help policy makers, facilities maintenance experts and professionals alike to device a policy for regular maintenance of public building in other to enhance performance and increase productivity amongst users.

Keywords

Users' Perceptions, Measuring Perceptions, Maintenance, Maintenance Condition, Public Secondary School

1. Introduction

Much can be done at the design stage to reduce the rate of subsequent maintenance works. According to [1] all elements of a building deteriorate at a greater or lesser rate depending on materials, methods of construction, age and environmental conditions. Neglect of maintenance, in most buildings, results to rapidly increasing deterioration of the fabric and finishes of a building accompanied by harmful effects on the contents and occupants. Some building owners most often try to keep maintenance expenditure to a minimum, ignoring the adverse long-term effects of such a practice. Maintenance has become a principal issue in the life of public buildings. The importance attached to public secondary schools, in the society, requires that maintenance issues be considered at all times. Maintenance plays a major role in the performance of public secondary schools. Public buildings are assets developed by government and used by the people. [2] noted that continuous neglect of the assets of educational institutions is not only storing potential enormous bill for the future, but is also seriously affecting the quality of work and achievement of many learners. The primary objective of building maintenance is to preserve buildings in their initial functional, structural and aesthetic state [3]. This is to ensure that such a facility continues to remain in such state and retain its investment value over a long period of time. Buildings are generally required to provide safe and conducive environment for the performance of various human activities. [4] observed that the ability of a building, to provide the required environment for a particular activity, is a measure of its functionality. Therefore, as the components of a building begin to deteriorate, it becomes necessary to take some measures to ensure that the desired characteristics of that facility, which provide safety and convenience, are retained through adequate maintenance. Many buildings have obsolete mechanical and electrical systems, as well as problems with roofing, asbestos, disability accessibility, safety, fire code compliance, and high operational costs [5]. Series of investigation have been carried out on factors responsible for the poor maintenance of public secondary school buildings in Nigeria.

Public buildings are prone to defects due to their permanent and lengthy usage. All elements of buildings deteriorate at a greater or lesser rate dependent on materials and method of construction, environmental conditions and the use of the buildings [1], Neglect of maintenance has accumulative results with swiftly increasing deterioration of fabric and finishes of a building conveyed by harmful effects on the contents and occupants. Building maintenance is the most economical way of keeping the building and equipment in their best form of normal use, to preserve the building design and to retain the construction and all building components without minding the maintenance type [6].

Maintenance of public school buildings is a complex task that is even more difficult with taking decisions and to prioritize which aspects to be maintained. Maintenance work is can only be minimized by good design and proper workmanship carried out by skilled experts or competent craftsmen using suitable

codes of installation, requisite building materials and methods. This is achievable if maintenance policy and strategy is put in place for the school building maintenance. Therefore, the maintenance policies and strategies of buildings must improve overtime. It ensures the most economical way to keep the building and equipment in the best of form for normal use, given the original design and materials. It is against this background and the need to stimulate the users perceptions to maintenance issues in public secondary school, was carried out in this study.

2. Study Location

The study was carried out in Ogun State, Southwest Nigeria. It lies between latitude 6°20' and 7°80' North of the Equator and on longitude 3°00' and 4°00' East of the Greenwich Meridian. The location chosen for this study is Ado-odo/Ota Local Government Area (LGAs) located in the Ogun State Nigeria. Forty-Seven Public Secondary Schools are located in the study area.

2.1. Concept of Users' Perception of Public Buildings

A finished building should perform its functions in the manner that will ensure satisfaction to its occupants. Generally, regular maintenance programmes are conducted after the building has been occupied to ensure that it functions well at all times. By execution of maintenance programmes, the occupants can use and utilize the facilities as the provision of facilities supports the business operations by the building occupants. The building facilities and services must be fit for the users' purpose. The user is defined as the client or customer receiving facilities maintenance services. However the questions are what is the user perceptions impact within a workplace environment in terms of functionality and productivity? And how does facilities maintenance strategically apply to user perceptions through effective service delivery? Perceptions of services provided by facilities maintenance play an important role in users' overall experience of the facility. Research has suggested that perceptions may be more significant, and therefore more relevant than reality [7]. User perceptions are critical element of achieving strategic facilities maintenance. Users ensure that organizational learning and growth can be implemented and integrated into core objectives by effectively reacting to change and perform a fundamental dimension to contemporary facilities maintenance performance measurement systems [8]. Argues that users' expectations and theoretical concept of what makes a good school building do not match up. In practice, it is contrary to traditional planning, which on the whole requires teachers and students, as users of the buildings, to adapt to given environments [9]. Users recognised that significant changes must be implemented to the physical learning environment to better support users' needs. Pedagogical and physical structures need to be modified so as to respond to the challenges posed by changes in schools' operational culture. In order for a school to develop into a dynamic physical learning environment, there needs to be a

behavioural change in relation to planning and producing spatial solutions. Change impossible without input from teachers and students (*i.e.* the main school users). School should provide quality environment for students; this will facilitate important skills acquisition for society. The choice of equipment is important, versatile, resistant, durable and easy to repair. User-based innovative processes should be at the heart of designing the physical learning environment of tomorrow's schools. This process should take into account the global needs of students, teachers, school administrators and the community, while respecting the environment. A judicious selection of products and services that minimises negative environmental impacts will be of benefit to all.

2.2. Theories of Perceptions

The sensory perception of items in the physical world is usually by human subjects. Traditionally, there are three general theories which includes, direct realism, representative theory (or representative realism) and idealism [10]. Of these three traditional positions, the idealist option is likely to strike us, initially, as just absurd. This is not merely because it is an affront to common sense' an outright rejection of something which we ordinarily take for granted. It is because it seems that our end, the very concept of the physical world requires it to be something external to, and ontologically independent of, the human mind. Object perception is important for the everyday activities of recognition, planning, and motor action. These tasks require the visual system to obtain geometrical information about the shapes of objects, their spatial layout, and their material properties. The human visual system is extraordinarily competent at extracting necessary geometrical information. Navigation, judgments of collision and reaching rely on knowledge of spatial relationships between objects, and between the viewer and object surfaces. Shape-based recognition and actions such as grasping require information about the internal shapes and boundaries of objects. Extracting information about the material and is also important for daily visual function. Image features such as colour, texture, and shading depend on the material receptivity and roughness of a surface. Distinguishing different materials is useful for object detection as well as for judging avoidances such as edibility and grasp ability. Perception is closely related to attitudes [11]. Perception is the process by which organisms interpret and organize sensation to produce a meaningful experience of the world [12]. In other words, a person is confronted with stimuli. The person interprets the stimuli into something meaningful to him or she based on prior experiences. However, what an individual interprets or perceives may be substantially different from reality. The perception process follows four stages: stimulation, registration, organization, and interpretation. A person's awareness and acceptance of the stimuli play an important role in the perception process. Receptiveness to the stimuli is highly selective and may be limited by a person's existing beliefs, attitude, motivation, and personality [13]. Individuals will select the stimuli that satisfy their immediate needs (perceptual

vigilance) and may disregard stimuli that may cause psychological anxiety (perceptual defense).

2.3. Public School Building Maintenance Management

The maintenance management of academic buildings presents quite different challenges as compared to other public buildings like offices [14]. Despite the significance of maintenance management, most public organizations still consider building maintenance and building maintenance management as a burden rather than as value added strategies. Maintenance management is not usually regarded as part of the top management function or duties but as an operational function. Even though the government allocations to maintenance of academic buildings are limited, however, there is no effective and efficient management of the limited resources, which are a result of the methods used. Cost (incur in long time), Time (period of intervention) Value-based Predictive Preventive Corrective [15]. Maintenance allocation is subject to government intervention. The public schools depend on their annual budgets for maintenance and where maintenance is in excess of the allocated budget, which is, however, often the case, the public schools will have to apply for more funding from the government. However, these additional funds could take months or years before they get to the schools. In which case, maintenance can at best be managed correctively or at best be condition-based. However, buildings are procured or occupied to solve some technical problems, as identified by the users or clients. The function of a building is to provide a conducive space that is suitable for the activity to be carried out within that space, and the design of a building is a technical solution to the functional requirement of the space [16]. Building users are the entity or group of individuals or organization, who are interested in the adequate functioning of the building. They are affected by the performance of the building and the building is also affected by the activities of the users. The users have the potential and capability to take action or a decision if their value system is not adequately met. It is the correct functioning of the building that the users desire, not the physical condition of the building. To the extent that the building is capable of allowing the user to perform their function, the building can be said to be valuable. The buildings can be said to be adding value to the activities taking place inside or around it. Of what significance is a classroom that is not conducive to student learning? Thus, there is a need for alternative maintenance management for a building that is based on the principle of value. Value involves the amount of resources associated with how effectively and efficiently a function/ and service meets the users' or customers' expectation [17] and perceptions. The more you meet the user's expectations (measured in terms of quality, speed, reliability, safety and function, comfort, cost and so on) and perception at less cost, the more value is delivered to the users. The more the users' maintenance performance and expectations are achieved (effectively) with fewer resources (efficiently), the higher the value added to maintenance service. According to [18], buildings can still be used even if the fabrics deteriorate signifi-

cantly and the ultimate essence of building management is about the building fitness for users' purpose. Considering the condition of the building as the main reason for initiating maintenance activities is to accept maintenance as a burden that has no value to add to the building. Thus, public school buildings ought to be maintained if they fail to support and provide a conducive environment for learning, teaching and conducting researches and innovations. It is only in this way that the limited resource will be maximized. Moreover, there must be a provision for a long-term plan for maintenance, and a special or dedicated financial provision must be made for future maintenance services. The public secondary school must also have balance sheets that provide information on the condition and performance of the buildings as well as previous maintenance records. In addition, maintenance schedules should be addressed. This is very critical in maintenance management, particularly for the public secondary buildings with the diverse backgrounds. The issue of when to maintain the public secondary buildings requires proper planning and organization, so as not to disrupt and disturb classes and other learning and teaching activities. For example, while places like the library, classrooms and workshops could be maintained in the evening, night or weekend, the hostels, can be maintained during the day when most the students are attending classes, or in the library. Another issue that makes the public secondary buildings peculiar is the nature of the students, and female students in particular, with expectations about the performance of the buildings. This is very pertinent, as building users have a substantial influence on maintenance services as compared to new built [19]. The fact that some maintenance works cannot be executed at a particular time because of the user's requirements is another complex issue that needs proper planning.

3. Research Methodology

The study focuses on users'-perceptions of the prevailing deterioration level of public secondary school buildings in Ado-Odo/Ota Local Government Area (LGAs), Ogun State Nigeria. The target respondents were the academic and non-academic staff of public secondary school. This study employs a quantitative data collection technique, namely, walkthrough observation survey and questionnaire. Each School consists of several classroom blocks, library, computer room and laboratory. A majority of the buildings are designed to accommodate many students. A random sample of 400 was drawn from the staff population. These respondents represent 40% of the population. However, only 307 responses were useful for further analysis. Using a simple random cluster sampling procedure, the respondents were selected from every public secondary school in the study area. This sampling method was chosen according to methods used by [20] and [21], because the respondents are already naturally clustered into groups (*i.e.* according to schools). The survey forms were distributed face-to-face to the targeted respondents in the study area. The questionnaires consist of two sections. Section 1 consists of 15 profile questions and Section 2 includes 57 items addressing staff satisfaction with school facilities. A 4-point

Likert scale, ranging from 1—Strongly Dissatisfied to 4—Strongly Satisfied was used, with no neutral choice so that respondents were forced to show a preference in their answers. A reliability analysis was conducted for the scaled answers in Section 2. According to [22], and [23], their satisfaction scale shows good internal consistency, with a reported Cronbach's alpha coefficient ranging from 0.53 - 0.85. Likewise, in the current study, the Cronbach's alpha coefficient ranges between 0.80 and 0.90. The results show that the scale can be considered reliable given our sample, which measured the same school condition satisfaction concept.

4. Results and Discussion

The findings and results for the study are well discussed descriptive tables and robusted narratives' and in-depth interpretation.

4.1. Negative Effects of Present Condition of Buildings on Teaching & Learning (EFTEL)

The performance of the users of building can sometimes be influenced by the condition of the buildings. The condition of working or learning environment may affect the productivity of staff as well as the academic performance of students. It was important to investigate this in the study.

Table 1 showed that 82.4% of the respondents from the school users perceived that the condition of the buildings affected their teaching and learning while 17.3% were of opinion that the condition of buildings did not affect their work or the students learning process. It can therefore be assumed that the building users desire better conditions of buildings which can be attained if maintenance of school buildings is improved upon. There is an indication that the staff and students would work and learn better if the buildings are in better conditions.

4.2. Most Deteriorated Academic Building in the Public Secondary Schools (OLDEST)

Deterioration level in the buildings will always be different; this may be as a result of the usage of the buildings. Some school buildings are usually put into use more than the others. The study investigated the academic buildings that were mostly deteriorated in the schools so as to advise that maintenance priority should be given to such a building as shown in **Table 2**.

From **Table 2**, it is evident that there is a disparity in the deterioration level of academic buildings. The result showed a breakdown of the most deteriorated buildings on the schools sampled. It can be seen from the result that 77.9% of the respondents revealed that classroom blocks were the most deteriorated buildings in most secondary schools in Ado-Odo/Ota L.G.A, 8.8% indicated the laboratory and 7.5% indicated the library was the most deteriorated in their own school. Lastly, 5.9% of the respondent indicated computer rooms as the most deteriorated buildings. Based on the result present here, it can be inferred that

Table 1. Negative effects of present condition of buildings on teaching and learning.

Negative Effect	Frequency	Valid Percent
Yes	253	82.4
No	54	17.6
Total	307	100.0

Source: Izobo-Martins, (2014).

Table 2. The mostly deteriorated academic building.

Most Deteriorated Academic Building	Frequency	Valid Percent
Classroom	239	77.9
Library	23	7.5
computer room	18	5.9
Laboratories	27	8.8
Total	307	100.0

Source: Izobo-Martins, (2014).

classroom blocks were the most deteriorated buildings because it was indicated by the highest number of respondents. However, most of the schools did not have enough and befitting classrooms. Some of the classrooms in the schools were also observed to be over populated as attested to by the respondents. In fact, some students were seen sitting on the window sill during classes, during the fieldwork.

4.3. Availability of Maintenance Officers in Public Secondary Schools (MTOFF)

Findings show that there was no provision for a maintenance body for the public secondary schools by the State or local government. For effective maintenance, each school should be having a maintenance officer who is a professional in the building industry. The result of the investigation is shown in **Table 3**.

The data in **Table 3** revealed that 72% of the respondents indicated that there was no maintenance committee in the school while 28% claimed that they have maintenance committees in their own schools. This result an indication that there was no maintenance officer in most of the public secondary schools studied and particulars the secondary school buildings' maintenance works were carried out by the Principal and Vice-Principals in these schools.

4.4. Deterioration Factors from Users Perception (DTFACT)

The extent of defects and deterioration in public secondary school buildings would be easy to measure by the users, since they are the regular occupants of those buildings. The information on the factors influencing the defects can be measured. These factors that were responsible for the deterioration of the school buildings are presented in **Table 4**.

Table 3. Availability of maintenance officer in public secondary schools.

Provision of Maintenance Officer	Frequency	Valid Percent
Yes	86	28.0
No	221	72.0
Total	307	100.0

Source: Izobo-Martins, (2014).

Table 4. Deterioration factors from users' perception.

Deterioration Factors	Frequency	Valid Percent
Natural deterioration due to age	51	16.6
Insufficient fund for maintenance	145	47.2
Attitude of users and misuse of facilities	22	7.2
Over population and insufficient funding	89	29.0
Total	307	100.0

Source: Izobo-Martins, (2014).

Among the respondents, 47.2% opined that the buildings were highly deteriorating as a result of insufficient funds for maintenance; 29% of the respondents attributed the deterioration factors of the school buildings, as to insufficient fund for maintenance by the government and over population respectively. The response gathered from the building users indicated that some factors were causing the high deterioration. A closer discussion with some of the Principals during the observation survey showed that the school maintenance managers were given a hundred Naira/per student, per term.

4.5. Maintenance of the Academic Buildings in Public Secondary Schools (MTACBL)

Building defects are usually the outcome of failure or lack of maintenance. An accurate cause of a building defect and the form of its appearance must be understood before accurate remedies can be applied. The level of maintenance of the school buildings were investigated and result presented in **Table 5**.

From the result, 127 (41.4%) respondents indicated that the buildings were properly maintained, while 180 (58.6%) respondents claimed the buildings were not adequate/improperly maintained. The result revealed that the highest proportion of respondents who claimed that their buildings were adequately maintained were those who had maintenance committee. From the results, there is also an indication that schools in the major towns were better maintained than those in less urbanized areas. There was also an indication that the schools maintenance need to be improved upon.

5. Conclusion

Result has revealed that it is not so much of maintenance rather it is the management of maintenance process that should be carefully examined. The conventional maintenance management is the process of planning, organizing, di-

recting and controlling a client’s resources for a short time [24]. The major thrust of the conventional process is cost saving to the client and because the user is not the object of maintenance management. This leads to poor service delivery, poor user satisfaction and increase in maintenance build-up. To continue to base maintenance on physical inspection cannot deliver value for the stakeholders and will continue to encourage poor service deliveries. However, this does not demean usefulness of the condition survey, but its results should be treated with caution. Maintenance initiation should be based on business front and these issues are on-going. The deficiencies on the existing procedures suggest that a research model (as shown in **Figure 1**) could be appropriate for

Table 5. Maintenance of public secondary school buildings.

Good Maintenance	Frequency	Valid Percent
Yes	127	41.4
No	180	58.6
Total	307	100.0

Source: Izobo-Martins, (2014).

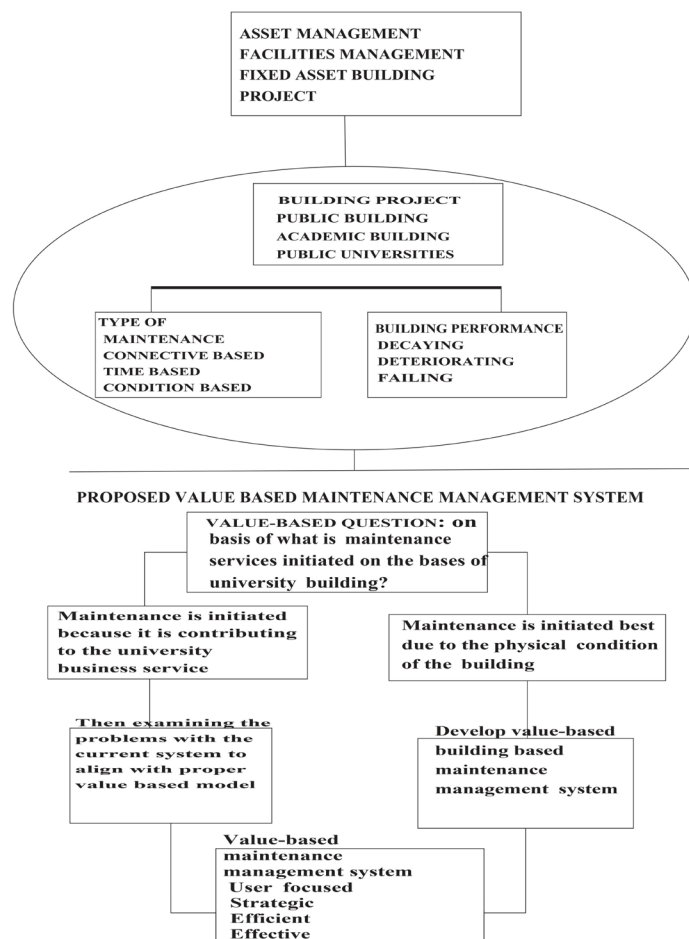


Figure 1. Research model for maintenance management for public secondary school. Source: [25].

further research. The model suggests that the value-based maintenance management model is efficient, effective and strategic, and unlike the existing procedures, the value-based.

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