Maintenance requirements of students’ residential facility in higher educational institution (HEI) in Nigeria

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Abstract. Hostel accommodation is very crucial to the performance of students’ in any higher educational institution (HEI). It is against this background that this study appraised students’ maintenance requirements in the hall of residence on the facility provided for Higher Educational Institution (HEI) using Covenant University Ota, a leading private University in Nigeria, as a case study. Structured Questionnaires were distributed through systematic random sampling techniques to 198 respondents, to collect data on their maintenance requirements from the maintenance management unit. The result of the study indicates that most maintenance request by the student in HEI facility is majorly on floor and wall, reading tables and chairs, together with lockers and door locks. The study found out that acknowledgment of maintenance request by maintenance personnel was prompt but the actual repairs take time. The studies further showed that vandalism, lack of user’s specification and use of substandard material during replacement were some of the significant factors causing damage to facilities in HEIs. The study concluded that to meet maintenance requirements of students’ in HEI hostels, the facility provided should be maintainable, serviceable, and replaceable within the hall of residence and a maintenance operations manual should be provided for maintenance personnel to develop a maintenance standard in meeting the students’ immediate maintenance requirements.

Keywords: Higher Educational Institutions; Maintenance; Facility; Hostel building.

1. Introduction
The need for maintenance of facilities arises where a number of defects that could endanger its existence and that of users are discovered after the assessment [1]. Maintenance as defined by [1], [2] is a process of keeping facility to an acceptable standard in order to sustain its value. Ahuja and Khamba [3] opined that maintenance is services undertaken to protect, preserve and enhance building function and its facility. Although, maintaining a structure helps to preserve all the components and its auxiliaries structure to its original status, owners of these structures are usually unwilling to spend on their built asset in order to sustain its condition because of the cost implication involved [4], [5], and [6]. Okolie [7] stated that essential physical facilities represent a sustainable percentage of higher educational institutions assets. Both public and private institutions in particular therefore take advantage of this and invested more on essential physical facilities for their institutions, knowing fully well that there is stiff competition amongst them to attract more students [8]. However, times have changed: maintenance of these physical educational facilities is mainly based on physical inspections.
and managed on corrective maintenance system. Lateef [9] opined that Maintenance management of HEI facilities should be aimed towards new ideas and better thinking for the resource available to be well utilized. Oluwummi [10] in their study, they observe that, in Nigeria, the 36 states including Abuja (FCT) have at least a federal and or state university, polytechnic, and college of education within their domain. In addition, the phenomenal growth in the number of applicants seeking for quality education every year to have access to quality higher education has led to the rapid development of new HEI, including private owned HEI. In spite of this growths, the admission demand for HEI still far outstrips its supply [7]. This is because over the years the existing HEI have had to double their intake without a commensurable expansion of their facility, including residential buildings. In most developing countries, facilities especially residential needs in HEI largely dependent on the public institution's provider approach [11]. In Nigeria, liberalization of the higher educational system, provide leverage for private ownership of university which makes individuals and religious organizations became increasingly interested in establishing HEI as a result of the apparent failure of the public institution's provider approach in higher education [12]. Marmolejo [13] in his study identified expanding facilities and aging as one of the determinants of academic and research performance of HEI's in the developed economy. Therefore, this study is aimed in assessing requirements of students in HEI towards the preservation of its building and all its auxiliary facilities and services in its original state or upgrade it to the currently accepted standard in other to meet the maintenance requirements of students' residing within the HEI residential facilities in Nigeria.

2. Literature Review

Higher Education facilities as any other physical facility deteriorate with age and at various rates. The rate of deterioration depends on the materials used; respond to a maintenance request, exposure to environmental conditions, construction methods and usage. The HEI facilities are essential facilities that help to provide suitable administration of the primary functions of the institutions, of acquiring academic knowledge that develops human capital and knowledge [14]. Emetarom [15] and Adebeye [16] in their study, described HEI facilities as the physical structure that aid learning, teaching and providing a residential comfort for its users. Akinradewo [17] and Asiyai [18] maintained that quality and standard of HEI depend largely on the provision of suitable residency, standard management of its facilities, and adequacy. Owuamanam [19] and Owoeye [20] stated that deterioration and lack of maintenance of these HEI's educational facilities will spell doom for teachers and students in their academic pursuit. Maintaining HEI building, through preventive measure especially its residential facilities make sense for academic productivity [21]. However, the study of [22] showed that in HEI facilities there appears to be no visible preventive maintenance culture based on the conditions of existing HEI building. Lavy [23] reported that maintenance managers of HEI facilities face planning challenges on existing buildings to meet both residential and educational purposes. Adewunmi [24] observed that in HEI the management of its facilities has been focused on securing optimum investment returns on its facility. Clark [25] opined that most management of HEI uses their facilities to achieve economic goals as against meeting the need of the end users. Amusan [26] noted that inconsistency in the maintenance of HEI facilities has many negative consequences on the academic output of users of this facility. When the maintenance requests of HEI facilities are not well managed, they constitute health hazards to its occupants [2]. Amaratunga [27] stated that effective HEI facility with stable maintenance arrangement will increase the value of the HEI structures and makes it more enjoyable to occupiers. Ab Wahab [2] further opined that neglect of maintenance especially maintenance request from users of HEI facilities could lead to safety hazard which could result in being legally liable for any injuries. Lateef [9] observed that inappropriate maintenance service in HEI student residential facilities is a fundamental serious issue. Ikediashi [28] stated that the key challenge to HEI student residential facilities is poor funding, lack of usage guide, problem proper regulation, lack of good maintenance management, and use of substandard maintenance replacing material. Onyeneye [29] and Adegbite [30] both evaluated factors that affect HEI facilities the result from their
survey found that overcrowding is the major factor that put pressure on available facilities within HEI.

Asiabaka [31] observed that in maintaining HEI facilities there is no stable comprehensive facility inventory that could provide a standard method in establishing an information base on the components of new or existing facilities. In maintaining HEI facilities [32] submitted that result-oriented practice proactive maintenance system, is least adopted in most HEI’s in the maintenance management response to facility maintenance request, most of the maintenance management response to maintenance request of occupants of HEI's is based on a reactive maintenance system. Ogunbayo [33] opined that HEI facilities in respective of its construction design and method, deteriorate with age as a result of vandalism and poor maintenance. Ogundipe [34] and Ogunbayo [35] asserted that maintenance personnel in higher educational facilities lack training on good knowledge of safety policies development and workable hazard management system within the axis of their duties especially in the area of responding to maintenance request of users of this facility.

3. Research Methodology

In carrying out this study to achieve its objective, a systematic random sampling technique was adopted because this is more direct and tends to evenly cover all the elements of the study. To ensure the reliability of the data, 210 structured questionnaires were administered to students residing within the final year’s student hall of residences because of their experience and knowledge garnered over the years on available facilities within the HEI in the study area. 110 questionnaires were administered in the male hostel, while 100 questionnaires were administered in the female hostel. In all, 198 copies of the administered questionnaires were retrieved which represents 94.3% of the total questionnaire, sufficient for the aim of the study in achieving the evaluation of the maintenance requirements of students’ on facilities provided in the HEI within the study area.

![Figure 1. Age of respondents in HEI students’ residence](image)

Figure 1 shows that 8.59% (17) of students were between the age of 15-20, and 70.20% (139) of the students are between the ages of 21-25 and lastly only 21.21% (42) of the student are between the ages of 26-30.
Figure 2. Gender of respondents in HEI students’ residential facility

Figure 2 above, indicate that 51.52% (102) of the students that fill the questionnaires are male while 48.48% (96) of the students involved are female.

Figure 3. Number of occupants in HEI students’ rooms

Figure 3 shows that 74.75% (148) of the students are two in their rooms, 19.19% (38) of the students are three in their rooms, 6.06% (12) of the students are four in their rooms.
Table 4 appraised facility that often required maintenance within the HEI facilities in the study area. Out of the HEI facility sampled, the result shows that floor and wall, reading table and chairs together with lockers and door locks as the highest result with 17.68% (30) each as facility that often required maintenance, which is followed by electrical installations and fitting 10.10% (20), painting and other aesthetic10.10% (20), while they were both followed closely in descending order by water installation 9.60% (19), toilet and waste bin 7.07% (14), bunks and matrasses roof and ceiling 2.53% (05) with lowest response. The result indicates that most maintenance request on HEI facility is majorly on floor and wall, reading tables and chairs, together with lockers and door locks this is because of pressure on its usage by the student during their study activities.

Figure 4. Facilities that often required maintenance in HEI student residence

Figure 5. Action taken on HEI students’ residence facility that requires maintenance
Figure 5 appraise action taken by students’ on HEI facilities that required maintenance, out of 198 respondent sampled ,the result indicate that 83.84% (166) of the respondents report to maintenance personnel while 14.14% (28) fix the facilities through self-help and 2.02% (4) state that they ignore maintenance request on facility that needs attention. In all about 95% of the respondent takes time to either take actions towards reporting damage facility to maintenance personnel or take time to first fix the facility through self-help.

![Bar chart showing maintenance response](image)

**Figure 6.** Response to maintenance request on Facility within HEI students’ residence

Figure 6 investigated maintenance personnel response to maintenance request on facility within HEI student resident, the result shows that 13.64% (27) of the respondents state that the maintenance personnel inspect and fixed the damage facility immediately, 51.01% (101) of the respondents state that the maintenance personnel inspect and fix within one week, while 33.83% (67) said maintenance personnel inspect and fix more than a week, and 1.52% (3) said the maintenance personnel inspect and neglect maintenance request on facility within the HEI in the study area. The result shows that maintenance personnel response to maintenance request is not adequate.

![Bar chart showing material quality](image)

**Figure 7.** Quality of material used for HEI residence Facilities
Figure 7 appraised the quality of repairs and maintenance of Facilities within HEI students’ residence. Respondents that accounted for 25.25% (50) said that repairs that were carried out were of high quality, 56.06% (111) said that the repairs were of average quality, while 12.12% (24) state that the repairs were of low quality and 6.57% (13) state that the maintenance personnel reused damaged facility component for repairs on HEI facility with the study area. In all, the result indicated that the repairs and maintenance carried out on requested damaged facility, deviated from a standard quality required of maintenance activities.

| Frequency Type | Percentage | Frequency |
|----------------|------------|-----------|
| weekly         | 2.53       | 5         |
| monthly        | 25.76      | 51        |
| Quarterly      | 9.09       | 18        |
| Yearly         | 62.62      | 124       |

**Figure 8.** Major maintenance periods on facilities within HEI students’ residence

Figure 8 looked into different stages at which major maintenance and repairs were carried out on facilities within HEI Students’ residence. The result shows that responses from respondent that covered 2.53% (05) revealed that major maintenance repairs were carried out within a week, 25.76% (51) of the responses shows that major maintenance repairs were carried out within a month, while 9.09% (18) agreed that major maintenance repairs were carried out quarterly and 62.62% (124) affirm that major maintenance repairs were carried out yearly. In summary, the result clearly shows that major maintenance repairs are carried out periodically on annual bases.
Figure 9 examined factors that led to maintenance request on HEI residential facilities.

Figure 9. Factors that led to maintenance request on HEI residential facilities

| Percentage  | Vandalism | Deterioration due to age | Environmental factor | Usage of substandard material | Lack of users guide |
|-------------|----------|--------------------------|----------------------|------------------------------|---------------------|
| 31.31%      | 62       | 28.28%                   | 4.55                 | 28.28%                       | 7.58%               |

4. Findings and Discussions

The study examined maintenance requirements of students’ residential facility in higher educational institution (HEI), in an attempt to bridge the gap between maintenance request of the occupants and maintenance unit response on maintenance requirement within the HEI students’ residential facilities. The result of the study shows that majority of resident in the HEI students' residential facility sampled were final year students. The study also found out that the distribution of occupant with the rooms of the HEI students’ residential facilities is on the average of 2-3 occupants per room, this arrangement help to reduce pressure on the HEI students’ residential facilities. The findings of this study further shows that most maintenance request of student in the HEI facility is on floor and wall, reading tables and chairs, together with lockers and door locks this is because of pressure on its usage by the student during their study activities. According to this study, HEI students' residential facilities that require maintenance were always reported to the maintenance unit through the maintenance personnel assigned to each of the facility. The result of this study shows that there was a shortage of manpower and this affects response time in carrying out maintenance activities required within the HEI students' residence facilities. Maintenance materials required for repairs must be of high quality to maintain the consistency and shape of the facility. Based on the finding of this study, the material used for repairs and replacement of a damaged component of the HEI students' residence was of average quality, and it does not meet standard required of maintenance materials. The finding of this study based on the result obtained shows that major maintenance repairs on the HEI students’ residence facilities were carried out on an annual basis. Finally, the result of the study shows that the reasons why maintenance request is on the high side in the HEI students' residential facilities is due largely to vandalism, usage of substandard material and deterioration due to the age of components that make up the HEI students’ residence facilities.
5. Conclusion and Recommendation

This study accessed the maintenance requirements of student residential facility in higher educational institutions (HEI’s) in Nigeria. In this regard, the study indicated that to avoid failure of HEI students’ residential facilities, future maintenance request sent to maintenance personnel should be inspected and fixed immediately to avoid further deterioration to the damaged component of the HEI facility using high-quality materials. Maintenance personnel should always be trained and retrained for them to better understand material selection for maintenance process, procedures and execution. Furthermore, the maintenance system within HEI students’ residential facility should be based on a planned (preventive base) maintenance arrangement to avoid deterioration and constant maintenance request in order to reduce the cost of maintenance. In meeting the maintenance requirements of occupant residing in student residential facility in higher educational institutions (HEI), maintenance unit of HEI needs a good and reliable information system which is required for prediction, comparison, knowledge or instruction to enable the maintenance unit function effectively. The study concluded that to meet maintenance requirements of students’ in HEI hostels, the facility provided should be maintainable, serviceable, and replaceable within the hall of residence and a maintenance operations manual should be provided for maintenance personnel to develop a maintenance standard in meeting the students’ immediate maintenance requirements.

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