ASSESSMENT OF THE INFLUENCE OF ON-CAMPUS HOUSING QUALITY AND FACILITIES ON STUDENTS' ACADEMIC PERFORMANCE AT THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE, NIGERIA

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Abstract. The management of federal universities in Nigeria has not taken the issue of students' housing provision as a priority. Hence, demand for on-campus housing accommodations far exceeds the supply and this resulted in the majority of the students living in private residences characterised by poor facilities. This study, therefore, assessed the housing quality and facilities in the undergraduate student's hostels at the Federal University of Technology, Akure, Nigeria to investigate its suitability for learning and research. A simple random sampling technique was used for the study. Data were collated from both primary and secondary sources. The data collected were analysed using frequency tables and weighted mean scores for estimating the Housing Quality Indices (HQI) according to a 5-point Likert scale. The academic performance of the occupants before and after moving to the university hostel was equally investigated using a regression analysis to test if a relationship exists among the housing quality, the quality of facilities provided and the academic performances of the students. The result revealed a positive relationship between the academic performance of the students and the quality of housing facilities. A comprehensive maintenance programme of the students' accommodation within the university campus is recommended for higher academic performance. The study contributes to the body of knowledge in academic performance of students, developing and managing students' accommodation quality at higher education institutions.

Keywords: *Academic performance; Housing; Facilities; Housing quality; On-campus housing; University.*

INTRODUCTION

Historically, University has its origin from the Medieval Cities of Paris and Oxford around 1200 AD (Bender, 1988). University education attracts staff and students of various ethnic and socio-cultural backgrounds all over the world for learning and research. In the early years of university education, provisions were not made for students to live inside the university campuses, rather they lived among the local community within the vicinity of the university (Caldenby, 1994).

In the process of time, the scenario changed when the owners of the universities realised that students' housing was part of students' social life.

In Nigeria, soon after the country got the independence in 1960, there was a dire need to establish more universities to train manpower for the development of the new nation. This brought about the establishment of several universities such as Ahmadu Bello University, Zaria in 1962, University of Lagos, 1962, University of Benin, 1970, etc. In each of these universities, all the students were accommodated in campus, but this could not be sustained as the population of students went beyond the number of accommodation provided in the campuses. As a result of the upsurge in the students' population, those who could not secure on-campus housing had no choice than to live in the privately-owned accommodation outside the university premises.

The availability and affordability of quality housing in developing countries such as Nigeria is very worrisome and poses a great concern and burden to the state and individual members of the society. Therefore, there is a need for urgent attention to the development of quality housing in the country to meet the sustainable development goal of decent accommodation for all in 2030. However, this concern is primarily because the influence that quality residential housing has on the performance and productivity of occupants is enormous. Hence, Morris, Winter, and Murphy (1988) noted that a person's home played a key role in influencing his/her productive capacity. It, therefore, suggests that the living place of a man is central to his daily life and is responsible for the increase or decrease of his productivity and performance.

Quality housing unit or accommodation is essential to everybody, including students, because it is where a man retreats after going through the stress brought upon them by the demands of daily living (Ebie, 2009). The issue of availability of quality housing has formed part of major discussions in national and global summits such as the 1992 Rio-de Janeiro Summit on Environment and Development, the 1996 Habitat Summit at Istanbul, 2002 World Summit in Johannesburg and the 2002 La Havana Summit, etc. According to Jacobs (2002), quality housing is a key element for determining and ensuring a dynamic society. The study further notes that the absence of quality in a house leads to many health complications such as respiratory diseases and severe infections. It may also result in stress and depression. On the other hand, Kuh *et al.* (2006) discovered that quality housing significantly affected the self-esteem and psychology of the occupant which also would have impact on the performance and productivity of the occupant. Ebong (1983) stated that quality residential housing was evidenced by indoor environmental quality usually determined by many factors such as daylighting, ventilation (air quality), damp conditions, as well as the condition of sanitary and drainage systems.

The need for efficient and conducive students' housing facilities at higher education institutions cannot be overemphasised because students need to maintain a sound state of mind in a decent living environment to excel in their academic endeavors. Hence, students' academic performance is directly related to their housing situation (Aluko and Ola 2011). Observation shows that students' academic performance in Nigeria is declining and this unfortunate situation is attributed to

the conditions of the houses they reside in, both within and outside the campuses. The situation of students' housing in Nigeria as well as in other developing countries is poor (Centre for Global Education, 2002). There is a sharp contrast compared to developed countries, such as the UK, the USA, Canada, etc. In these countries, sufficient attention is given to the provision of quality on-campus accommodation to meet students' accommodation needs. The houses are equipped with sufficient and functional state-of-the-art facilities, they are situated in a well-defined environment, and contain facilities that satisfy the UN's minimum recommendations for quality housing.

This study aims at assessing the influence of the quality of accommodation as provided on the academic performance of the resident students of the Federal University of Technology, Akure Nigeria. Quality housing is arguably one of the basic needs of a man. Housing, according to Ebie (2009), used to be ranked second after food using man's hierarchy of needs. However, now it is ranked first and is the most important right of all humans. Hanmer, Booth and Love (2000) observed that qualitative housing involved the provision of services that could bring about sustainable growth and development through improved environmental conditions and good livelihood.

Performance assessment in all areas of endeavour has been a topic of serious discussion. The performance of an individual can be measured based on the outcome/result of his or her job performance; self-satisfaction, achievements and other factors (Hofstede, 1984). Various studies, including Aluko and Ola (2011), Owolabi (2015), Adeleye, Akinpelu and Azeez (2018), have examined different aspects of performance, including student performance, economic performance, organisational performance, and societal performance. Only very few studies have examined students' academic performance in relation to housing quality. Studies have shown that much work has not been undertaken in the area of housing facilities that influence the performance of students (Hunley, 2006). Some of the past studies on student's housing performance include Foubert, Tepper and Morrison (1998) in the United States of America and Khozaei, Ayub, Hassan, and Khozaei (2010) in Malaysia. Other similar studies include Kaya and Erkip (2001) who evaluated the satisfaction of students' housing quality in Turkey. Similarly, Hassanain (2008) examined the housing quality in terms of thermal, technical, and functional performances. However, Amole (2009) examined the features of halls of students' residences in Nigerian universities that would match the levels of housing satisfaction among students. On the other hand, Dahlan *et al.* (2009) adopted a narrow focus on specific aspects of student housing satisfaction that affected their performance, namely, visual comfort, thermal comfort, etc. Again, Khozaei *et al.* (2010) investigated the relationship between students' satisfaction and sense of attachment to a particular housing type. Most previous studies did not address a broad spectrum of the influence of housing quality/facilities on students' academic performance. For this reason the present study takes a holistic approach to examine the influence of housing quality on students' academic performance at the Federal University of Technology, Akure, Nigeria.

Studies have shown that in the environments of higher education institutions as we have them today the desire of students to live in decent on-campus housing fitted

with adequate facilities has significantly increased (Najib and Yusof, 2009; Khozaei, Ayub, Hassan, and Khozaei, 2010). Susilawati (2001) noted that providing modern facilities in students' housing was essential to meet their needs and to ensure good academic performance. Past studies have identified some specific housing features that influence the productivity and satisfaction of occupants. Olujimi and Bello (2009) stated that the availability of bathroom, study room, kitchen and other essential features were seen as the necessities in on-campus housing. On the other hand, Schenke (2008) highlights the high premium placed on the internet connectivity, either through network connection or Wi-Fi, in the students' halls of residence. In the opinion of Torres-Antonini and Park (2008), facilities that are used jointly such as laundry rooms, kitchens area, common study room, etc. are essential for the overall development of students. Similarly, Abramson (2009) identified amenities such as parking spaces, mini markets, clinics, coffee shops, and banks, etc. as essential things that should be provided in students' on-campus housing to enhance their academic performance. Given the narrow focus of these studies as seen above, another study is imminent to investigate the influence of housing quality on students' academic performance.

The main question addressed in this study is: How can accommodation facilities influence students' academic performance? The main aim of the study is to investigate the relationship between students' housing quality and the overall academic performance, while the specific objectives are to analyse the condition of facilities provided in the students' hall of residence in the study area, and to determine the influence of facilities as provided in the halls of residence on the students' academic performance.

The outcomes of this study will help educational policy makers and management in identifying strategic educational facilities to focus in order to actualise their overall aim.

The Study Area

The choice of Federal University of Technology, Akure (FUTA) is perfect for a study like this, given that the University has a reasonable number of on-campus accommodations situated within the premises of the University for students' occupation; facilities of diverse nature and quality are available for use by students; there are students of different academic programmes and levels at the University. Moreover, the University has a high concentration of both male and female students from different cultural and religious backgrounds residing in the University hostels. Given that the University aspires to be a world-class university, a study of this nature becomes important to enable the University and all stakeholders particularly those concerned with students' housing to understand the existing students' housing conditions at the university, thereby ensuring the achievement of the University goal through improving and sustaining students' academic performance.

Significance of the Study

Providing quality on-campus residential houses in a cuisine environment for students is an important motivating factor to encourage them to live comfortably and perform creditably in their studies. Hence, Amole (2009) stated that satisfaction with on-campus students' housing was an important indicator in measuring the quality of students' living environments and their academic performance. However, other studies examined higher education institutions in Nigeria, and they include Mbano, Alaka and Ewulum, (2012), Mbano, Alaka and Okeoma (2012), Deji-Folutile and Oketola (2014), Oluwunmi, Akinjare and Izobo (2012). None of these studies focused on the influence of housing quality on students' performance. This study, therefore, contributes to knowledge by expanding a study on satisfaction of students' housing as examined by Oluwunmi, Akinjare and Izobo (2012) to include the influence of housing quality on students' academic performance. The results also provide insights for academic quality assurance managers and facility managers at the universities. This study will further enable universities to improve their services and offer better on-campus housing facilities in years to come. The results will also help the management team to develop strong strategic policies that will provide world-class students in the 21st century.

1. LITERATURE REVIEW

Housing is one of the most important human needs and rights. Ebie (2009) argues that it is the most fundamental need of a man. It proves the level of importance people attach to housing. Agbola and Oladoja (1998) states that residential housing includes a combination of characteristics that provide a unique home for a person or persons within a neighbourhood in the form of single-family detached units, duplexes, row-houses, mansion apartments, cottage courts, walkup apartments, etc. Ndubueze (2001) opines that housing units provide a place where a man retreats to rest from the stress of the daily activities and commune with family members. United Nations (2003) noted that housing went beyond having a roof over one's head but included several other ancillary services and utilities such as water, electricity, road, etc. Brkanic (2017) observed that there were several numbers of defined criteria for assessing housing quality, and four groups of assessment criteria were identified: apartment unit quality, apartment building quality, neighbourhood quality, and social and economic criteria. The study further stated that the defined criteria could be divided according to the different scales of the assessed spaces (apartment unit, building, and neighbourhood), and according to the method of assessment (quantitative or qualitative).

The housing situation in Nigeria like in other developing nations is characterised by numerous inadequacies, which are quantitative and qualitative. Oladapo (2006) in a study on housing quality observed that the quality of houses in urban and semi-urban places was unevenly distributed and the available few were affordable only to the insignificant percentage of the population who were either politicians or elites in the society. Ezeigwe (2015) identified failure on the part of government and agencies to implement the housing policies, high building cost,

corruption on the part of stakeholders, staff and student population increase and unavailability of land both in public and private universities in Nigeria. Ebong (1983) and Onibokun (1990) also agreed that residential housing should possess some basic quality characteristics to guarantee attraction to prospective users and enhance utilisation for the achievement of the predetermined goals for which they were provided. Such characteristics according to the studies include good housing design, adequate ventilation, proper lighting, good drainage channel system, regular sanitation, security, not overcrowded, adequate water supply, and good road accessibility.

Meng and Hall (2006) in a study on residential housing quality assessment and measurement stated that housing quality connoted the level of occupants' acceptability of dwelling units and the surrounding environment which included the design outlook and functionality of structures, nature of materials used, space utilisation, utilities and services provided in the units. Okewole and Aribigbola (2006) corroborated this assertion in a study on innovations and sustainability in housing policy conception and implementation in Nigeria by observing that housing quality was assessed using factors such as the physical condition of a house, internal and external facilities and services available in a house and other features that make living in an environment conducive. Therefore, it can be deduced from the studies that housing quality is measured by the amount of satisfaction in terms of health, enjoyment and living standards of users.

However, Danes and Morris (1986) in a study on housing status, housing expenditures and satisfaction with housing quality found the ceiling on housing quality assessment. The study found that this ceiling in turn influenced users' satisfaction and concluded that once a user reached the highest level of satisfaction, they derived little additional satisfaction from a further increase in quality variables. Hence, Morris, Winter and Murphy (1988) in a study on housing adjustment, satisfaction and quality considerations stated that "high quality of facilities and services in large dwellings produces high level of housing satisfaction". Thus, it can be inferred from the studies that the level of housing quality is directly related to the amount of satisfaction derived from the occupants. Where the housing unit or domain can satisfy the occupants' needs to a reasonable level, it is believed that such a domain is of reasonable quality. If, on the other hand, the domain fails to satisfy the occupants' needs and aspirations, such a dwelling can be said to be of low quality.

Drawing from the above assertions, Park (1988) found a relationship between the income level of a family and their level of satisfaction with their accommodation units. The study revealed that the level of income of a family determined the quality of the dwelling unit needed. Specific parameters were identified by researchers as indicators to look out for in determining quality housing. Adriannse (2007) in agreement with Kellekci and Berköz (2006) noted that housing satisfaction was one of the key instruments indicating the quality of housing. Longman (2003) defined satisfaction as "a feeling of happiness or pleasure achieved or got from the use of a property". Neilson (2004) identified five criteria that a quality dwelling must meet, and they include compliance with acceptable standards; free from dilapidation; energy efficient; healthy; safe, secure and modern functional facilities.

Similarly, Hanmer *et al.* (2000) observed that qualitative housing connotes the provision of housing services for sustainable economic and social growth through better environmental conditions and livelihood. Meng and Hall (2006) also identified four criteria for identifying quality housing, namely: objective, scientific, management and socio-cultural criteria. Each of the criteria has its specific considerations that govern the selection of quality indicators. The effects of on-campus housing conditions on student's performance in most cases are usually indirect. As such, the housing conditions usually act on the health and psychology of the students which would eventually have a grave impact on their academic performance. According to the World Health Organization Guideline for Healthy Housing (1988), deficient housing affects occupants' physical health in three major ways. It facilitates the transmission of communicable diseases; it interferes with the physiological needs of the occupants and its design or construction causes injury to the occupant. This was re-emphasised by the Chartered Institute of Environmental Health (2008) and the UK House of Parliament (2011) which stated that "poor housing condition is associated with Cardiovascular diseases, Respiratory diseases; Depression and anxiety, Rheumatoid arthritis, Nausea and Diarrhoea, Infections, Allergic symptoms, Hypothermia, Physical injury from accidents and Food poisoning, etc." This condition explains why there is poor output of workers and students at some universities when compared to others. Similarly, Agbo, Envuladu, Adah, and Zoakah (2012) noted that certain health conditions such as Cholera, Typhoid, Diarrhoea, Viral Hepatitis, Dysenteries, Hookworm, Guinea worm diseases, and other infections could be contacted as a result of poor state of facilities in a house.

Studies have shown that there is an increase in demand for modern on-campus housing in today's environment of higher education institutions due to a high number of students who enroll yearly (Najib and Yusuf, 2009; Khozaei, Hassan and Khozaei, 2010). In the same vein, Sharma (2012) reveals that an estimated figure of about 160 % increase in students' enrollment into tertiary education has been recorded globally.

Scholars have contended that occupants' perception of living and/or working environment defines the quality of their individual lives (Andrews and Whitney cited in Ogu, 2002). There are shreds of evidence in the literature that show that the academic performance of occupants of on-campus housing is influenced by an array of subjectively and objectively perceived housing conditions (Theodori, 2001). Onibokun (1990) observed that the habitability of a house by human beings was not only influenced by the engineering configuration of the house, but also by some social-cultural and environmental characteristics within the eco-system. The study noted that the house was only one variable among the factors that determined students' relative performance.

Furthermore, it is important to note that housing is not restricted to the individual's dwelling unit. Rather, it is a combination of the entire physical and social-economic components that make up the housing system (Francescato, Weidemman and Anderson 1989). The occupant's performance is also influenced by numerous components in the housing system. Some specific factors that have been found to have highly influenced occupant's performance, including students,

generally include the age of a house (Varady and Preiser, 1998; Varady *et al.* 2001), physical characteristics of a house and facilities that are available (Yeh, 1972), satisfaction with management services (Varady and Carrozza, 2000), social interaction and relationship with neighbours (Varady and Preiser, 1998), residential mobility, as well as closeness to the workplace (Morshidi, Abdul Fatah, Abdul Rashid, Alip, Halim and Usman, 1970; Yeh, 1972).

2. METHODOLOGY

The research methodology adopted for this study was through the collection of primary data from the undergraduate residents of the Federal University of Technology, Akure, Nigeria. Secondary data were collected from peer-reviewed journals and the university library. The available literature on the quality of students' hostels in the study area revealed that the nine (9) hostels in the study area had different degrees of quality characteristics. The information further revealed that all the nine (9) undergraduate hostels were accommodating 2387 undergraduate students (FUTA students Affairs Division, 2019). These hostels include Akindeko hostel (male), Main Jibowu hostel (female), Jibowu Annex 1 (female), Jibowu Annex 2 (female), Jibowu Annex 3 (female), Jadesola hostel (female), Peter Adeniyi hostel (male), FUTA SCOOP hostel (female) and MKO Abiola hostel (male). The sample frame for the study was 2387 undergraduate students that were allocated bed spaces. The study purposely selected 180 students (20 from each hostel) for the sample using a simple random technique. The reason for making an equal selection of 20 students from each hostel was because it was assumed that the general characteristics of the populations of the hostels were similar. Conducting the survey, the interval of one (1) every five (5) rooms in each of the hostels was selected. Students in their first year of study were excluded from participating in the study because they had not obtained a cumulative grade point average (CGPA) as at the time of the study.

Legal occupants were targets of questionnaire administration in each of the sampled hostels. Information collected from them was on their length of stay in the hostel, their level of study, their opinion on the quality and conditions of facilities provided in their halls of residence, their academic performance before and during their stay in the university hostel. In all, 180 questionnaires were administered, out of which 147 representing 81.7 % were valid and worthy for analysis in this study (This is shown in Table 2). This placed a non-response rate at 18.3 % of the targeted respondents who were either not available or refused to supply information related to issues of their academic performance. Data collected were analysed using Weighted Mean Score (WMS), frequency distribution and regression analysis. The quality of the housing units was assessed using a Housing Quality Index as identified by Goodman (1978).

Table 1. The List of Undergraduate Hostels in FUTA with their Location and Population

S/No	Name of Hostel	Gender	Location	Population
1	Main Jibowu hall	Female	Obanla	570
2	Jibowu Annex 1	Female	Obanla	108
3	Jibowu Annex 2	Female	Obanla	80
4	Jibowu Annex 3	Female	Obanla	80
5	MKO Abiola hall	Male	Obanla	300
6	Peter Adeniyi hall	Male	Obanla	184
7	Jadesola hall	Female	Obanla	229
8	FUTA SCOOP	Female	Obanla	200
9	Gabriel Akindeko hall	Male	Obakekere	636
				Total = 2387

Field survey, 2020

3. RESULTS AND DISCUSSION

3.1. Questionnaire Distribution

The data collated for this study comprises the primary data which were collated in the field with the use of questionnaires administered to the undergraduate students occupying hostels of the Federal University of Technology, Akure. The distribution and retrieval of the questionnaires are as shown below.

Table 2. The Number of Questionnaires Administered and Retrieved

Respondent	Number distributed	Number retrieved	Percentage
Occupants (students)	180	147	81.7

Field survey, 2020

From the total number of 180 questionnaires administered, 147 were retrieved, representing 81.7 %. It shows a good response from the respondents.

3.2. Analysis of Questionnaires

Table 3. The Percentage and Frequency Distribution of the Retrieved Questionnaires

Hostels	Frequency	Percent
Jibow Annex 3	11	7.5
Jibow Annex 2	18	12.24
Jibow Annex 1	17	11.56
Adeniyi	20	13.61
FUTASCOOP	12	8.16
Jadesola	17	11.56
Abiola	17	11.56
Akindeko	20	13.61

Main Jibowu	14	9.52
Total	147	100.0

Field survey, 2020

The table above shows a total number of nine (9) hostels with various rates of responses. All the responses were found valid and thus suitable for analysis. It shows a very good rate of response as it enables access to a wide range of data, thus resulting in fair research findings.

3.3. Analysis of the Quality of Hostel Facilities

Table 4 shows respondents' perception of the condition of the hostel facilities.

Table 4. Respondents' Evaluation of the Condition of the Hostel Facilities

S/No	Facility	VB 1	B 2	F 3	G 4	VG 5	WMV	Ranking of the WMVs
1	Security	13	17	51	47	19	3.2857	4 th
2	Power	1	3	17	46	79	4.3630	1 st
3	Water	5	11	44	57	30	3.6531	2 nd
4	Refuse	13	19	44	53	17	3.2877	3 rd
5	Drainage	25	29	48	30	15	2.8707	5 th
6	Sewage Management	29	28	44	35	9	2.7724	6 th
7	Recreational Facility	53	34	34	21	2	2.2014	7 th
8	First service	58	34	30	23	1	2.1438	8 th

Note: 1 = VB = Very Bad, 2 = B = Bad, 3 = F = Fair, 4 = G = Good, 5 = VG = Very Good
Field Survey, 2020

Table 4 shows the analysis of the respondents' perception of various hostel facilities in the undergraduate hostels at the Federal University of Technology, Akure. The researcher tried to investigate the Housing Quality Index (HQI) of the undergraduate hostel facilities to estimate their impact on the overall academic performance of the occupants (students). Data were collated via questionnaires and a 5-point Likert scale was used. Weighted Mean Value (WMV) was employed by the researcher to estimate the current quality index of the hostel facility. From the analysis, the lowest-ranked facilities included first aid, recreational facilities and drainage services with the weighted mean values of 2.1438, 2.2014, 2.7724 and 2.8707, respectively. These 4 facilities fell within the range of 2.0, i.e., 4 facilities were of bad condition. The security service, water supply and refuse management were all found to be of fair condition with weighted mean values of 3.2857, 3.6531 and 3.2877, respectively. Power supply was ranked first among the investigated facilities with a weighted mean value of **4.3630**, i.e., power supply in the undergraduate hostels was very good. The overall Housing Quality Index of the undergraduate hostels, which is the mean of the summation of the weighted mean values of the facilities considered, was **3.07**. However, it is just an average figure

and thus not good enough to lead to serious improvement on the occupants' academic performance.

3.4. Analysis of the Quality of the Building Elements in the Hostels

Table 5 shows the respondents' perception of housing elements.

Table 5. The Respondents' Perception of Building Elements

S/No	Building elements	Rating and weighted values					MWV	Ranking of building elements
		VB	B	F	G	VG		
		1	2	3	4	5		
1	Roof	22	54	39	15	15	3.3655	7 th
2	Wall	24	54	50	11	8	3.5102	3 rd
3	Floor	4	10	56	53	24	3.5646	2 nd
4	Door	13	22	55	48	9	3.1224	10 th
5	Window	14	23	62	33	14	3.0685	12 th
6	Painting	19	25	62	32	6	2.8681	13 th
7	Staircase	6	10	28	37	17	3.5000	4 th
8	Toilets	57	40	26	15	7	2.1379	16 th
9	Bathrooms	42	38	44	16	7	2.3741	15 th
10	Ceiling	12	9	54	53	18	3.3836	5 th
11	Ventilation	9	18	47	56	17	3.3673	6 th
12	Lighting	5	16	45	53	27	3.5548	1 st
13	Common Room	11	18	61	45	12	3.1973	9 th
14	Reading Room	9	25	55	33	10	3.0758	11 th
15	Population in room	14	22	38	49	23	3.3082	8 th
16	Noise level	43	32	45	18	6	2.3889	14 th

Total WMV = 49.79

MEAN OF Σ WMV = 49.79/16 = 3.11

Note: 1 = VB = Very Bad, 2 = B = Bad, 3 = F = Fair, 4 = G = Good, 5 = VG = Very Good
Field survey, 2020

Table 5 shows the analysis of the occupants' perception of the quality of the housing elements in the undergraduate hostels at the Federal University of Technology, Akure.

Core building elements of the hostels were investigated in the study to assess their current condition in terms of quality. The bathrooms, toilets, noise levels (acoustic) and the paintings on the buildings were found to be in bad condition based on their weighted mean values as shown in the table above. On the other hand, lighting in the hostels, floor, walls, staircases, ceilings, ventilation, roof, the rooms size, condition of common rooms, doors, reading rooms and windows were all found to be of fair quality. The lighting in the hostels was found to have the highest weighted mean value of 3.5548 (a fair value), while the toilets were found to be of lowest quality with a weighted mean value of 2.1379.

The overall Housing Quality Index of the hostels, which is the mean of the summation of the weighted mean values of the hostels, was estimated to be 3.11.

The result of this study showed that the quality of the building elements in the undergraduate hostels was fair and might have a weak influence on the academic performance of the students.

3.5. Analysis of the Academic Performance of the Occupants of the University Hostels

Table 6 shows the frequency and percentage of occupants' Cumulative Grade Point Average (CGPA) **before** moving to the university hostel.

Table 6. The Frequency of Occupants' Cumulative Grade Point Average **before** Moving to the University Hostel

CGPA	Frequency	Percent
4.5–5.0	21	15.6
3.5–4.49	60	44.4
2.5–3.49	53	39.3
1.0–2.49	1	0.7
Total	135	100

Field Survey, 2020

Table 7 shows the frequency of occupants' Cumulative Grade Point Average **after** moving to the university hostel.

Table 7. The Frequency of Occupants' Cumulative Grade Point Average **after** Moving to the University Hostel

CGPA	Frequency	Percent
4.5–5.0	31	22
3.5–4.9	66	46.8
2.5–3.49	44	31.2
1.0–2.49	–	0.0
Total	141	100

Field survey, 2020

Based on the analysis of the academic performance of the occupants of the undergraduate hostels in Tables 6 and 7, it was discovered that out of 147 students with valid data analysed, 135 of the respondents revealed their CGPA before moving to the on-campus hostels. Out of these numbers, none had a CGPA below 1.0; however, one student was in Third Class grade with a CGPA that ranged from 1.0 to 2.49 representing 0.7 %. Furthermore, 53 students were observed to be in Second Class (2.2) grade with CGPAs between 2.50 to 3.49 representing 39.3 %, 60 students were in Second Class Upper (2.1) grade with CGPAs of 3.50 to 4.49 representing 44.4 %. In a similar vein, 21 students were in the First Class division before moving to the hostel with CGPAs of 4.50 to 5.00 (15.6 %).

Looking at their current CGPAs after spending at least a session in the on-campus hostels, it was found that none had a CGPA below 1.0; none was in the Third Class with a CGPA between 1.0 to 2.49 representing 0 %. Furthermore, 44

students were observed to be in Second Class Lower (2.2) with CGPAs between 2.50 to 3.49 representing 31.2 %, 66 students moved to Second Class Upper (2.1) with CGPAs of 3.50 to 4.49 representing 46.8 %, while 31 students were in the First Class division with CGPAs of 4.50 to 5.00 (22 %). The analysis revealed that there was a positive influence on occupants' academic performance arising from the quality of the housing and the facilities in the undergraduate hostel of the university. This is essentially attributed to the good quality of power supply at the university as well as fair housing quality indices as revealed in the study.

3.6. Regression Analysis of the Influence of Housing Quality on the Academic Performance of the Occupants of the Hostel

Table 8 shows the model summary of the regression analysis.

Table 8. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.377 ^a	0.142	-0.054	0.67240

- a. Predictors: (Constant), Noise level, Wall, Common Room, Staircase, Ventilation, Population in the room, Reading Room, Lighting, Toilets, roof, Painting, Floor, Window, Ceiling, Door, Bathrooms
Field survey, 2020

Table 9 shows the coefficient table of the analysis.

Table 9. Coefficients

Model	Unstandardised coefficients		Standardised coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	3.108	0.572		5.432	0.000
Roof	0.089	0.087	0.160	1.020	0.311
Wall	0.018	0.131	0.027	0.139	0.890
Floor	-0.082	0.140	-0.110	-0.585	0.560
Door	-0.029	0.120	-0.046	-0.238	0.812
Window	-0.090	0.107	-0.157	-0.842	0.403
Painting	0.021	0.096	0.034	0.221	0.826
Staircase	-0.013	0.077	-0.022	-0.170	0.866
Toilets	0.151	0.128	0.270	0.179	0.242
Bathrooms	-0.065	0.126	-0.116	-0.517	0.606
Ceiling	0.021	0.114	0.033	0.182	0.856
Ventilation	0.016	0.090	0.024	0.176	0.861
Lighting	-0.129	0.106	-0.186	-1.213	0.229
Common Room	-0.104	0.101	-0.133	-1.032	0.305
Reading Room	-0.091	0.096	-0.126	-0.941	0.350
Population in room	-0.001	0.077	-0.002	-0.017	0.986
Noise level	0.009	0.071	0.015	0.121	0.904

- a. Dependent Variable: Current CGPA
Field survey, 2020

The table above shows the regression output of occupants' current CGPA against the building elements. The regression coefficients show the relationship between a dependent variable and independent variables. Beta coefficients show the amounts by which a unit change in the quality of building elements would bring to the CGPA of occupants. The variables with positive values imply a positive impact while those with negative values connote a negative correlation.

The analysis above thus implies that there is a weak relationship between the housing quality indices and the students' academic performance.

Table 10 shows the residuals of the analysis

Table 10. Residual Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted value	1.3849	2.5427	2.0345	0.24704	87
Residual	-1.33189	1.35644	0.00000	0.60663	87
Std. Predicted value	-2.629	2.057	0.000	1.000	87
Std. Residual	-1.981	2.017	0.000	0.902	87

a. Dependent Variable: Current CGPA
Field survey, 2020

In the regression analysis presented in the tables above, the regression coefficient was used to establish the relationship between the qualities of the variables constituting the building elements and the Cumulative Grade Point Average (CGPA) of occupants of the on-campus hostels.

The coefficient of regression R showed that $r = 0.377$, $p \leq 0.05$. This regression demonstrates that there is a relationship between the quality of the on-campus hostels and the CGPA of the occupants of the hostels. The variable (R Squared = 0.142) shows that a 14.2 % change in the housing quality will bring a unit change in the CGPA of the occupants. This implies that there is a weak relationship between the quality of building elements and the academic performance of the students.

4. FINDINGS

Based on the analysis of the data collated, the major findings as deduced from the results are summarized below.

The assessment of the Housing Quality Indices of the on-campus hostels showed that the quality of the hostels was fair with the weighted mean value of the hostels being **3.11**.

In a similar vein, the quality index of the hostel facilities was deduced to be **3.07**. This was estimated via the weighted mean value of the facilities in the nine undergraduate on-campus hostels investigated.

Furthermore, the academic performance of the occupants was assessed based on the current and past academic performance before and after moving to the on-campus hostels. The study revealed that 15.6 % of the occupants were in the First Class before moving to the university hostel, while 44.4 % were in the Second Class

Upper, 39.3 % were in the Second Class Lower, while 0.7 % were in the Third Class grades. The study further revealed that 44 students representing 31.2 % were observed to be in the Second Class Lower division with CGPAs between 2.50 to 3.49; 66 students representing 46.8 % moved to the Second Class Upper division with CGPAs of 3.50 to 4.49, while 31 students representing 22 % were in the First Class division with CGPAs of 4.50 to 5.00.

The regression analysis was carried out to find out the relationship between housing quality, quality of hostel facilities and academic performance of the students of on-campus hostels. The deduction showed that there was a positive relationship between the academic performance of the occupants, the housing quality and the quality of housing facilities, but the quality of facilities was more influential on the occupants' academic performance than the quality of housing elements.

There was a noticeable improvement in the performance of the occupants after spending at least a session in the hostel as the number of first-class students rose to 22 %, Second Class Upper increased to 46.8 %, those in Second Class Lower reduced to 31.2 % while there was no sampled occupant in the on-campus hostel that had a CGPA of less than 2.49.

The major factor contributing to this improvement in the academic performance of the students residing in the on-campus hostels was adequacy of power supply, which was rated "good", the highest ranking among all building elements as well as among the hostel facilities reviewed with a weighted mean value of **4.3630**. This is rational and quite understandable because most students depend on the availability of power supply for reading, research, assignments and all related activities that contribute to their academic success.

5. RECOMMENDATIONS

1. This study has revealed that the quality of the facilities in the on-campus housing is not of the best standard to promote high academic excellence; therefore, the government in collaboration with the universities should carry out a comprehensive renovation of the hostels to meet the minimum standard for habitable living as set by the United Nations.

2. Introduction of a strategic management maintenance programmes for the on-campus students' housing will help preserve the quality of buildings and facilities. To this end, certified estate managers should be engaged in the management and maintenance of the on-campus hostel buildings and facilities.

3. Universities should partner with private investors and charity organisations to build more on-campus hostels with adequate facilities to accommodate more students in the campus. This will contribute to the academic improvement of the students and at the same time enhance the university ranking and national development in the long run.

CONCLUSION

This study has assessed the current housing quality indices of university hostel facilities and the building elements at the Federal University Akure, Nigeria. It has also investigated the academic performance of the undergraduate students' before moving to the on-campus hostels and their performance after at least a session in the on-campus housing to deduce the impact of on-campus housing quality on their academic performance.

The study has adopted the regression analysis to test the impact of the hostel conditions and the quality of facilities on the academic performance of the occupants. The deduction has shown that a relationship exists between the academic performance of the occupants, the housing quality and the quality of housing facilities, but the quality of facilities in the houses is more influential on the students' academic performance than the quality of the housing elements.

Therefore, every effort should be made by the university authority and other relevant stakeholders such as the federal government, private organisations etc. to ensure the provision of sufficient and quality on-campus housing with efficient management programmes for a radical academic improvement of students at the university.

Data Availability Statement

All data, models, and code generated or used during the study appear in the submitted article.

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