

Post-Occupancy Evaluation Of Female Students' Hostel At Waziri Umaru Federal Polytechnic, Birnin Kebbi, North-West Nigeria

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Abstract: This paper reports on a post-occupancy evaluation carried out on the only female students' hostel at Waziri Umaru Federal Polytechnic, Birnin Kebbi, in North-west Nigeria. The researchers aimed to assess the performance of the building, which has been occupied for nearly two decades. They pursued this by measuring occupants' satisfaction with identified variables like accessibility and circulation, occupation density, cleaning and maintenance of the hostel, space performance, and proximity to essential facilities in the institution. The academics collected data via interviews and structured questionnaires administered randomly to occupants on every floor and wing of the hostel. The authors analyzed the data obtained and calculated the Relative Satisfaction Indexes (RSI) for respondents on both floors of the building. Results show that the performance of the hostel is less than satisfactory in respect of most variables examined.

Keywords: students' housing, residential satisfaction, occupation density, post-occupancy, services.

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I. Introduction

Students, especially those in tertiary institutions, require suitable accommodation in a serene environment for proper assimilation of what they have been taught¹. The number of students pursuing and obtaining admission into universities continues to rise every year². The rising profile of student enrolment in universities is creating the challenge for a rather dynamic system to accommodate them, while not compromising on the level of comfort². The case with polytechnics in Nigeria is not different. For example, facilities provided in Lagos state polytechnic, Ikorodu campus, for most departments are inadequate for lectures and practical classes, while some lecturers do not even have offices³. The condition of facilities in a learning environment determines the performance of both the teacher and the student³. The prioritization of students' housing has been stressed. This is because the quality of on-campus accommodation provided by institutions of higher learning has been linked with their prospects of attracting candidates for enrolment^{4,5}.

The Need for Post Occupancy Evaluation

Post occupancy evaluation (POE) is a tool with which facility managers can identify and evaluate the behavior of a building⁶. POE is fast becoming an instrument used by experts for the diagnosis of buildings and facilities for the purpose of obtaining information useful in the management of the building⁷. Information collected from POE also guides the design of new and related buildings^{6,7}.

Assessment of the quality and performance of buildings is a growing practice and common in the developed world⁸.

Evaluation and feedback are the foundations for the continuous improvement in building procurement sought by the Higher Education sector. Post-occupancy evaluation is a way of providing feedback throughout a building's useful life, from initial concept through to Occupation. Information from POE reports can be used for informing future projects, whether it is on the process of delivery or technical performance of the building⁹.

Satisfaction, however, is a multi-dimensional construct with both objective and subjective variables as predictors¹⁰.

More considerable attention should go to review and evaluation of building performance in-use. This is because the operational phase of building occupancy and use contributes the most to pollution and whole life-

cycle costs¹¹. If a post-occupancy evaluation is not carried out on buildings in use, there exists a possibility of repeating mistakes made in those buildings in new constructions¹².

This study, therefore, set out to evaluate the performance of the female students' hostel at Waziri Umaru Federal Polytechnic, Birnin Kebbi, by measuring occupants' satisfaction with various components, facilities, and services provided in the hostel.

The Study Area

The study evaluated a 128-bed female students hostel constructed and christened MaimunaAdamuAleiro female hostel in Waziri Umaru Federal Polytechnic, Birnin Kebbi. It remains the only on-campus residential facility for female students of the institution. The hostel building is a framed building constructed from masonry units and comprising of two floors. Birnin Kebbi, the host community of Waziri Umaru Federal Polytechnic, is the capital city of Kebbi state in North-West Nigeria.

II. Research Methodology

The study population is MaimunaAdamuAleiro female hostel in Waziri Umaru Federal Polytechnic, Birnin Kebbi. The approach to the study is the descriptive survey method. Both qualitative and quantitative data were generated following the survey. The authors distributed questionnaires randomly to a minimum of two occupants in every hostel room on both floors of the building. The researchers retrieved eighty-two questionnaires. The closed-ended questionnaires elicited primary data. The questionnaires had two sections. The first section sought the demography of the respondents, including college in the institution and room location (ground floor or upper floor), while the second sought to know the level of satisfaction of the respondents with conditions and provisions in the hostel through eight satisfaction criteria viz.:

- i. Assessment of space performance and user's experience
- ii. Assessment of accessibility and circulation
- iii. Assessment of level of satisfaction with facilities and services
- iv. Performance of building envelope
- v. Occupation density
- vi. Cleaning and maintenance
- vii. Security and privacy
- viii. Proximity to essential facilities.^{8, 13}

Each satisfaction criteria had between one and twelve subjects of inquiry where respondents were required to score on the Likert scale of 1 to 5 (where 1=Very dissatisfied, 2=Dissatisfied, 3=Neither dissatisfied nor satisfied, 4=Satisfied and 5= Very satisfied), their levels of satisfaction with each subject of inquiry in all the above-mentioned criteria. The authors analyzed the data obtained from the survey by the Relative Satisfaction Index (RSI) viz.:

$$RSI = \frac{1n_1 + 2n_2 + 3n_3 + 4n_4 + 5n_5}{A \times N} \times 100$$

Where RSI = Relative Satisfaction Index, n_1 is the number of subjects of inquiry with strongly dissatisfied, n_2 is the number of subjects of inquiry with dissatisfied, n_3 is the number of subjects of inquiry with neither satisfied nor dissatisfied, n_4 is the number of subjects of inquiry with satisfied, n_5 is the number of subjects of inquiry with strongly satisfied, N = total number of respondents and A = highest weight (5 in this case)¹⁴.

The researchers calculated overall satisfaction levels of the various satisfaction criteria based on their Mean Aggregate RSI viz.:

$$Mean\ Aggregate\ RSI = \frac{\sum RSI}{N}$$

Where $\sum RSI$ = Cumulative Relative Satisfaction Index for the particular criterion and N = number of subjects of inquiry considered under the particular satisfaction criterion¹⁴. The interpretations of the mean RSI values are presented in the table below:

Table no 1: Shows the interpretation of the mean RSI values.

RSI Score (%)	Satisfaction Level
1 – 20	Very dissatisfied
21 – 40	Dissatisfied
41 – 60	Neither dissatisfied nor satisfied
61 – 80	Satisfied
81 – 100	Very satisfied

Source: Ojo and Oloruntoba (2012) in ¹⁴

III. Results

Occupants on the ground floor were mostly dissatisfied with the hostel. The performance of the kitchen drew the least RSI of 21.08%. The location of staircases equals the width of stairs and drew the highest RSI of 58.38%. The satisfaction criterion of accessibility and circulation was the only variable that received an above-average score. In this case, occupants were neither satisfied nor dissatisfied.

Table no 2: Shows Occupants' Level of Satisfaction with Conditions and Provisions on the Ground Floor of the Hostel

	Subject of inquiry	RSI (%)	Ranking	Mean Aggregate RSI (%)
Satisfaction Criteria				
Space Performance and User's experience	Natural ventilation of the room	35.13	4 th	40.36
	The natural lighting of the room	45.41	3 rd	
	Artificial ventilation of the room	52.97	1 st	
	Artificial lighting of the room	50.27	2 nd	
	Arrangement of room furniture	32.97	5 th	
	Nearness of conveniences	25.41	6 th	
Accessibility and Circulation	Accessibility for persons with disability	27.43	7 th	50.56
	Location of staircases	58.38	1 st	
	Location of lobbies and corridors	55.14	3 rd	
	Width of corridors and lobbies	51.35	5 th	
	Width of stairs	58.38	1 st	
	Height of risers	50.81	6 th	
	Depth of treads	52.43	4 th	
Facilities and services	Water supply in the building	29.03	2 nd	26.29
	Effectiveness of wireless internet facility	27.03	3 rd	
	Adequacy of hand held fire extinguishers	22.16	9 th	
	Alternative power supply	22.16	9 th	
	Vehicle parking facilities	23.78	8 th	
	Kitchen facilities	21.08		
	Laundry facilities	26.49	5 th	
	Toilet facilities	26.49	5 th	
	Bathroom facilities	27.03	3 rd	
	Salons and beauty parlours provided	24.86	7 th	
Convenience store provided	41.08	1 st		
Performance of building envelope	Effectiveness of roof, doors and windows in keeping out the weather	32.97	1 st	32.97
Occupation density	Number of students sharing the room	32.43	2 nd	28.05
	Number of students sharing the kitchen	24.32	4 th	
	Number of students sharing the bathroom	23.78	5 th	
	Number of students sharing the toilet	23.24	6 th	
	Number of students sharing the laundry	27.78	3 rd	
	Number of students sharing the reception/waiting room	36.76	1 st	
Cleaning and Maintenance	Frequency of cleaning of the room	55.56	1 st	31.54
	Thoroughness in the cleaning of the room	45.71	2 nd	
	Frequency of cleaning of the corridors and lobbies surrounding room	34.44	3 rd	
	Thoroughness in cleaning of the corridors and lobbies surrounding room	32.78	4 th	
	Frequency of cleaning of furniture and objects in room	27.78	6 th	
	Frequency of cleaning of toilets	27.22	8 th	
	Frequency of cleaning of bathroom	27.78	6 th	
	Frequency of cleaning of kitchen	30.56	5 th	
	Frequency of cleaning of laundry	25.56	10 th	
	Frequency of watering of trees, flowers and lawns in and around hostel	21.67	12 th	
	Maintenance of lawn	22.22	11 th	
Immediacy of repair of replacement of faulty or damaged fittings/fixtures	27.22	8 th		
Security and Privacy	Security in hostel	47.65	1 st	41.40
	Privacy in hostel	35.15	2 nd	
Proximity to essential facilities	Proximity to school central library	20.57	6 th	25.90
	Proximity to classroom	24.57	4 th	
	Proximity to school clinic	25.14	2 nd	
	Proximity to faith facility	37.71	1 st	
	Proximity to the school sports facility	25.14	2 nd	
	Proximity to school entrepreneurship development center	22.29	5 th	

Respondents on the upper floor of the hostel block, however, indicated marginally higher satisfaction with the performance of the hostel facility as well as its services. The least RSI, in this case, was 25.45% noted for satisfaction with the frequency of watering of trees, flowers and lawns in and around hostel while the highest was 63.18% indicated for satisfaction with the width of stairs.

Table no 3:Shows Occupants' Level of Satisfaction with Conditions and Provisions on the Upper Floor of the Hostel

	Subjects of inquiry	RSI (%)	Ranking	Mean Aggregate RSI (%)
Satisfaction Criteria				
Space Performance and User's experience	Natural ventilation of the room	45.33	4 th	47.75
	Natural lighting of the room	54.01	2 nd	
	Artificial ventilation of the room	44.55	5 th	
	Artificial lighting of the room	53.33	3 rd	
	Arrangement of room furniture	59.05	1 st	
	Nearness of conveniences	30.22	6 th	
Accessibility and Circulation	Accessibility for persons with disability	50.00	7 th	57.78
	Location of staircases	57.27	5 th	
	Location of lobbies and corridors	54.67	6 th	
	Width of corridors and lobbies	59.56	2 nd	
	Width of stairs	63.18	1 st	
	Height of risers	59.00	4 th	
	Depth of treads	59.49	3 rd	
Facilities and services	Water supply in the building	45.78	1 st	32.50
	Effectiveness of wireless internet facility	31.11	6 th	
	Adequacy of hand held fire extinguishers	31.82	5 th	
	Alternative power supply	37.21	2 nd	
	Vehicle parking facilities	32.89	4 th	
	Kitchen facilities	28.44	10 th	
	Laundry facilities	29.33	9 th	
	Toilet facilities	30.67	7 th	
	Bathroom facilities	30.23	8 th	
	Salons and beauty parlours provided	26.67	11 th	
Convenience store provided	33.33	3 rd		
Performance of building envelope	Effectiveness of roof, doors and windows in keeping out the weather	40.95	1 st	40.95
Occupation density	Number of students sharing the room	32.44	6 th	32.53
	Number of students sharing the kitchen	32.73	5 th	
	Number of students sharing the bathroom	32.89	3 rd	
	Number of students sharing the toilet	32.89	3 rd	
	Number of students sharing the laundry	33.78	2 nd	
	Number of students sharing the reception/waiting room	36.44	1 st	
Cleaning and Maintenance	Frequency of cleaning of the room	46.36	1 st	36.64
	Thoroughness in the cleaning of the room	44.09	4 th	
	Frequency of cleaning of the corridors and lobbies surrounding room	45.12	3 rd	
	Thoroughness in cleaning of the corridors and lobbies surrounding room	40.00	5 th	
	Frequency of cleaning of furniture and objects in room	46.05	2 nd	
	Frequency of cleaning of toilets	36.74	6 th	
	Frequency of cleaning of bathroom	34.55	7 th	
	Frequency of cleaning of kitchen	32.73	8 th	
	Frequency of cleaning of laundry	28.64	11 th	
	Frequency of watering of trees, flowers and lawns in and around hostel	25.45	12	
	Maintenance of lawn	30.91	9 th	
Security and Privacy	Security in hostel	53.02	1 st	47.46
	Privacy in hostel	41.90	2 nd	
Proximity to essential facilities	Proximity to school central library	33.18	4 th	33.94
	Proximity to classroom	35.45	2 nd	
	Proximity to school clinic	34.09	3 rd	
	Proximity to faith facility	40.00	1 st	
	Proximity to school sports facility	31.16	5 th	
	Proximity to school entrepreneurship development centre	29.77	6 th	

IV. Discussion

Ventilation and lighting are crucial in hostel facilities; however respondents on the ground floor of the hostel are dissatisfied with natural ventilation of their rooms. On both floors, they were neither satisfied nor dissatisfied with artificial provisions for lighting and ventilation.

Furthermore, results show that occupants were neither satisfied nor dissatisfied with provisions for accessibility and circulation.

As for facilities and services, respondents on the ground floor were dissatisfied with facilities and services such as water supply, internet facilities, handheld fire extinguishers, alternative power supply, vehicle parking facilities, kitchen, laundry, toilet and bathroom facilities as well as salon and beauty parlor. They were however, neither satisfied nor dissatisfied with the convenience store provided. On the upper floor however, respondents were neither satisfied nor dissatisfied with water supply in the building and dissatisfied with internet facilities, handheld fire extinguishers, alternative power supply, vehicle parking facilities, kitchen, laundry, toilet, and bathroom facilities as well as salon and beauty parlor. The results also show a below-average performance of the building envelope, particularly in keeping out the weather. Findings show that occupants are dissatisfied with the density of occupation of the hostel. On cleaning and maintenance of the hostel, results show that the occupants are mostly dissatisfied with the thoroughness and frequency of the cleaning done.

Also, results show that occupants on the upper floor feel more secure and enjoy more privacy than those on the ground floor. In any case, they are neither satisfied nor dissatisfied. The hostel building has no perimeter fence, thus compromising its security and privacy, particularly on the ground floor.

The hostel building stands aloof in a corner of the Polytechnic, and results show the dissatisfaction of respondents with its proximity to essential facilities on campus.

Table no. 4:Shows Summary of Total Satisfaction Level of Occupants on the Ground Floor.

	Satisfaction Criteria	Mean Aggregate RSI (%)	Ranking	Response
SN				
1	Space performance and User experience	40.36 (Approx. 40)	3 rd	Dissatisfied
2	Accessibility and Circulation	50.56	1 st	Neither Satisfied nor Dissatisfied
3	Facilities and Services	26.29	7 th	Dissatisfied
4	Performance of Building Envelope	32.97	4 th	Dissatisfied
5	Occupation Density	28.05	6 th	Dissatisfied
6	Cleaning and Maintenance	31.54	5 th	Dissatisfied
7	Security and Privacy	41.40	2 nd	Neither Satisfied nor Dissatisfied
8	Proximity to Essential Facilities	25.90	8 th	Dissatisfied

The Summary of Total Satisfaction Level of Occupants on the Upper Floor shows a slight improvement on that of occupants on the ground floor. The best-reported satisfaction criterion is the same for both stories.

Table no. 5: Shows Summary of Total Satisfaction Level of Occupants on the Upper Floor.

	Satisfaction Criteria	Mean Aggregate RSI (%)	Ranking	Response
SN				
1	Space performance and User experience	47.75	2 nd	Neither Satisfied nor Dissatisfied
2	Accessibility and Circulation	57.78	1 st	Neither Satisfied nor Dissatisfied
3	Facilities and Services	32.50	8 th	Dissatisfied
4	Performance of Building Envelope	40.95 (Approx. 41)	4 th	Neither Satisfied nor Dissatisfied
5	Occupation Density	32.53	7 th	Dissatisfied
6	Cleaning and Maintenance	36.64	5 th	Dissatisfied
7	Security and Privacy	47.46	3 rd	Neither Satisfied nor Dissatisfied
8	Proximity to Essential Facilities	33.94	6 th	Dissatisfied

v. Conclusion

The research set out to evaluate the performance of the on-campus accommodations for female students of Waziri Umaru Federal Polytechnic, Birnin Kebbi. The researchers measured students' satisfaction with the hostel building, its components, facilities, and services (dubbed in this paper 'satisfaction criteria') rendered in the hostel. These satisfaction criteria, which were measured, also included proximity of hostel to essential buildings in the institution.

The study found that the students expressed dissatisfaction with most of the criteria measured, thus showing that the performance of the hostel is not satisfactory.

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