

Post-Occupancy Evaluation of Architecture Design Studio Facilities of Abubakar Tafawa Balewa University Bauchi

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Abstract. Architecture design studios are becoming significant resources for students to gain applied and theoretical knowledge that can be transformed with creativity into design solutions. The study is a post-occupancy evaluation of the Architectural design studio of Abubakar Tafawa Balewa University Bauchi to identify the descriptive levels of the study's variables using mean and ranking. A total number of 377 questionnaires were administered. The data collected were analyzed, and the findings revealed that facilities were provided, with visual comfort more adequate than all other components, and respondents derived most satisfied with it. A significant recommendation for further studies is to determine the inferential value to establish a statistical effect among variables.

Keywords: post occupancy evaluation; architecture design studio facilities, ATBU Bauchi; Nigeria.

INTRODUCTION

Architecture design studios are becoming significant resources for students to gain applied and theoretical knowledge that could be transformed with creativity into design solutions [17]. Likewise, they also serve as a resource for developing and upgrading the level of practical knowledge, primarily computer-based drafting among programs like architecture, architectural engineering, and planning. Institutions worldwide have become progressively more conscious of assessing their educational facilities for architectural design.

Recently, several studies have focused on exploring the role of the architectural design studio to prove its value as a significant resource to academic institutions. And as a result, several schools of architecture or the built environment are endeavouring now on means to education and different lifestyles needs of their students [5]. Previous studies on the performance appraisal of educational facilities have indicated that the comfort of architectural design space is a

significant aspect to be considered and maintained for the success of the architectural education process [5]. As such, an academic institution aims to provide design studio spaces that are comfortable and conducive to collaborative learning. The core of the architecture curriculum has always been based on the design studio model, which focuses on education by doing, and all processes and procedures of problem-solving are transmitted through lecture and critique sessions [11].

Architectural graphics and design courses are introductory courses in architectural education [5]. The design studio in architectural education is one of the renowned and most commonly used spaces for developing, evaluating and exhibiting a collection of art and design works [5]. Its environment serves as a learning centre and a multifactor social setting. Students enrolled in design courses usually work in these spaces during their free time and schedule class hours [4]. Author [15] described the studio as "a physical space as a site for teaching and learning experiences, and to interactive culture between the

student and staff developed within this physical space ". It is also a combination of home and workplace [3].

The architecture studio facility can be seen as a system carrying a lot of oxygenated and deoxygenated blood for the student architect. This means that it gives life to the work of the student architect. Therefore it should be equipped with state-of-the-art facilities that make it very inviting and accommodating at all times [6]. The Architecture student then becomes easily attached both emotionally and physically to the studio and so connects with abstract ideas, transferring such ideas into designs, models, projects, auto-cad, e.t.c with the help of digital tools and physics, putting such ideas into a capital construction that would have been inconceivable twenty years ago [12].

An ideal architecture studio is a hot desk situation where anyone can sit anywhere and move desks as they please. In other words, it must be flexible and well-structured, where students are given options with some order [2]. All studios have drawing boards, storage, and high-speed wireless broadband for students to access with their laptops [6]. Little research on performance appraisal of education facilities indicates the provisions of facilities and their adequacy as an architecture education process [10]. While the studio environment has been painted as an ideal education setting [1, 12], few studies touch on the physical environment of the studio and the associated social dynamics that result from the point of view of architecture students [1].

Post occupancy evaluation. Post Occupancy Evaluation studies can be seen as a process of determining and tackling problems that were not detected at the design stage, ignored during construction but observed when the facility is in occupation [8]. Thus it is a process that is concerned with increasing environmental performance. According to [7], post-occupancy evaluation is an efficient and practical means of building evaluation where the construction is completed, and the occupancy process is in progress. The approach, therefore, hubs on the building occupants and their needs in light of the design decisions made in the past and viewing the resulting performance of such a building or facility [13]. Post occupancy evaluation approach has been considered a helpful tool with which designers scrutinize the built environment and learn from their own experience. The post-occupancy evalu-

ation approach combines research and design, providing a knowledge base for plans [2].

The purpose of the study is to evaluate the architectural design studio facilities provided, facilities adequacy, and students' satisfaction to identify the descriptive levels of the study's variables.

METHODOLOGY

The study employed a descriptive survey using a well-structured questionnaire on a five-point rating scale, administered to 377 users of the architectural design studio of ATBU Bauchi randomly selected. The data collected were analyzed using descriptive statistics (mean and ranking).

RESULTS AND DISCUSSION

Demographic Characteristics show in Figure 1–2.

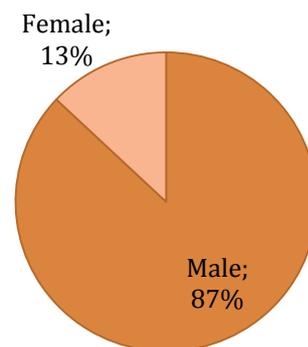


Figure 1 – Respondents' Gender Distribution

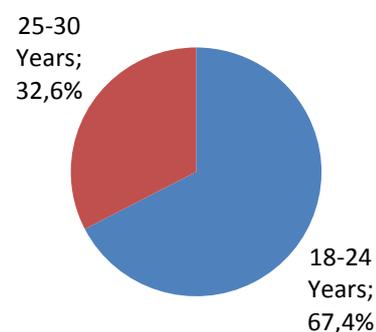


Figure 2 – Respondents' Age Distribution

The gender distribution of the respondents shows that 87 % are male while 13 % of the respondents are female. Thus, most of the students are male.

The age range of the respondents indicates that more than half (67.4 %) are within 18-24 years, and the remaining 32.6 % fall within the margin of 25-30 years.

Major Types of Facilities Provided at the Architecture Design Studio of ATBU, Bauchi. Table 1 shows the different types of facilities, numbering eight. The visible light with a mean score of 4.45 was ranked first, while fire safety ranked sixth had a mean score of 3.25.

Table 1 – Descriptive statistics for major types of facilities provided

Facilities provided	Mean	Standard Deviation	Remarks
Visual light	4.45	.705	1
Thermal comfort	3.86	1.105	2
Acoustic comfort	3.67	1.218	3
Interior finishes	3.48	1.061	4
Brainstorming space	3.27	1.248	5
Fire safety	3.25	1.184	6
Cubicle layout	3.18	.985	7
Building support services	3.15	1.319	8

The observation made under visual (lighting) comfort in this study agrees with the study of [9], which indicated that the provision of a suitable lighting level could positively impact the health and performance of occupants. Authors [14, 16] show that a well-designed ventilation system in space provides quality indoor air, which improves the performance and productivity of the occupants, which hitherto agrees with the observations made about thermal (heat) comfort. Acoustic comfort was observed to be poor as sound or noise quickly travels in and out of the studio.

Level of Adequacy of Facilities Provided in the Study Area. Table 2 shows the indicators involved in measuring the adequacy of facilities provided in the studio. The mean values are obtained along with standard deviation and remarks. The findings revealed that visual (light) comfort ranked highest, with a mean score of 4.21. Thermal (heat) comfort was adequately provided as its mean score was 3.54 and ranked second. Acoustic (sound) comfort, fire safety, interior finishes, and cubicle layout mean scores of 3.36, 3.27, 3.53, and 3.17, respectively. Also, brainstorming space (3.12) and building support services (2.96)

both have mean scores above the minimum adequacy index of 1.50 as compared to the work of [10]. This infers that the facilities provided in the architecture design studio are adequate, agreeing with the study of [10], where the identified facilities recorded a mean score of 2.79, 2.64, 2.29, 2.58, 2.23, 2.05, 2.38 and 2.12, respectively.

Table 2 – Adequacy of the types of facilities provided

No	Facilities Provided	Mean	Standard Deviation	Remarks
1	Visual Comfort	4.21	.881	1
2	Thermal comfort	3.54	1.139	2
6	Interior finishes	3.53	1.061	3
3	Acoustic comfort	3.36	1.218	4
4	Fire safety	3.27	1.184	5
5	Cubicle layout	3.17	.985	6
7	Brainstorming space	3.12	1.248	7
8	Building support services	2.96	1.319	8

Level of Students' Satisfaction with Facilities Provided. Table 3 shows the satisfaction index; thus, visual comfort with a satisfaction index of 4.21 ranked highest at 3.71, while building support services ranked eighth, having a mean value of 2.96.

Table 3 – Descriptive statistics for students' satisfaction

No	Facilities Provided	Mean	Standard Deviation	Remarks
1	Visual Comfort	4.19	.830	1
2	Thermal comfort	3.71	.962	2
3	Acoustic comfort	3.67	1.018	3
6	Interior finishes	3.43	1.103	4
5	Cubicle layout	3.25	1.159	5
4	Fire safety	3.22	1.233	6
7	Brainstorming space	3.02	1.208	7
8	Building support services	2.90	1.304	8

CONCLUSIONS

Design studios consist of spaces where students frequently use and appreciate spending time. Each student should be able to exercise some level of control over their own "learning" experience at the studio beyond being merely physical spaces where education is provided. This control

entails being able to modify physical comfort components according to personal inclinations.

The study identified the types of facilities provided in the area, equating them to global standards. The facility provided with the highest adequacy index of 4.21 is visual (light) comfort. Students

expressed more satisfaction with visible (light) condolence than other components, and building support services had the lowest satisfaction level. Future research should look into establishing a statistical effect among the study variables.

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