International Journal of Educational Research and Management Technology
ISSN: 2545-5893(Print) 2545-5877 (Online)
Volume 3, Number 3, September 2018
http://www.casirmediapublishing.com

USERS SATISFACTION IN DRAWING STUDIOS FOR EFFECIVE ARCHITECTURAL TEACHING AND LEARNING

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ABSTRACT
Drawing studios are very crucial to the performance of students of architecture. An evaluation of existing drawing studios could foster their improvement and services and appropriate actions can be taken to restore or retain them to acceptable standards. Studios are currently faced with challenges as a result of learning space in tertiary institutions being detrimental, decayed and dilapidated infrastructural facilities due to lack of maintenance. Physical facilities in over 90 percent of the institutions of higher learning in Nigeria are in poor states. Spaces provided in tertiary institutions in Nigeria for most departments of architecture are grossly inadequate for lectures or practical works. Most drawing studios do not permit meaningful relations between lecturers and students. These conditions possess tremendous challenges to effective teaching and learning. This paper examines the relationship between the existing features in the drawing studios and users' satisfaction at the Federal Polytechnic, Ilaro. A questionnaire and checklist was used as a data collection instrument for the study. Data was analysed using the descriptive and the inferential statistic tools. The study revealed that users were not satisfied with the performance of the studios. The study recommends that more drawing studios with state of the art facilities should be provided and maintenance culture should be imbibed in Federal Polytechnic, Ilaro.
Keywords: *Performance, user satisfaction, teaching and learning, studios, educational system.*

INTRODUCTION
The primary function of a building is to provide occupants with safe, conducive, healthy, comfortable and secured indoor environment to carry out different kinds of activities ranging from work, study, leisure and family life to social interactions. The government has an imperative obligation to ensure that public buildings and facilities are well managed to maintain building sustainability for the ability of the building to successfully achieve the purpose for which it is designed. In line with this, educational buildings are designed to make use of spaces as tools for the transmission of knowledge and the promotion of learning capacity. Ibem, Akunnaya, Albert and Dolapo, (2013) argued that buildings are designed, planned, managed and constructed based on standards established by governments and professionals who have ample knowledge of users needs and expectations. El-Khawas, (2003) opined that tertiary institutions are in the business of transmitting knowledge and promoting learning capacity, which is achieved through the use of spaces provided by buildings as educational tools. The functional effectiveness and the physical condition of the buildings are very crucial for effective teaching and learning. Performance evaluation of educational buildings ensures that the effectiveness of buildings is maximized with respect to

cost and the occupants' satisfaction. (Heitor, 2005) however believes that successful educational building is determined by evaluating how the building performs, how the users are utilizing the spaces and how the design has promoted educational process.

Building Performance Evaluation (BPE) is the process of evaluating the performance of a building. It involves the assessment of buildings after their completion and occupation and it is the evaluation of the extent to which a given building has met its design goals for resource consumption and occupants' satisfaction. It evaluates how well buildings match users' needs, and identifies ways to improve building design, performance and fitness for purpose (Watson, 2003). As described by Baird (2001), Building Performance Evaluation is a broad term for a variety of general programmes and procedures as well as specific techniques for the evaluation of existing buildings and facilities. It involves systematic evaluation of opinions about buildings in use, from the perception of those who use them. It is one of the strategic implementation of analysis on building sustainability after occupancy. In the current situation where people are concerned about sustainable environment, building occupants seek to obtain comfort and efficiency in their office; occupants demand to have priority in terms of comfort to utilize the facilities and services, as they must be fit for purpose of the users.

Okebukola (2002) affirmed that there is pressure on the existing facilities in tertiary institutions due to overpopulation of students. This is inadequate for effective teaching and learning and poses tremendous challenges to the educational system in terms of building infrastructure, funding and environmental concerns. There are no feedback mechanisms inthe design and management of buildings in educational institutions in Nigeria. Most learning space in tertiary institutions in Nigeria are detrimental with decayed and dilapidated infrastructural facilities. This seriously undermines the goals and objectives of National Policy on Education. The reason for this state of affairs according to Ojogwuand Alutu(2009) are inadequate funding from the government lack of maintenance culture and explosion in students' enrolment.

Ojogwu and Alutu (2009) further state that physical facilities in over 90 percent of the institutions of higher learning in Nigeria are poor. Spaces provided for most departments are grossly inadequate for lectures or practical's, especially when it comes to design and drawing courses. It is appalling to note that some lecturers have no offices, studio rooms space are small and do not permit meaningful relations between lecturers and students. This is to show that physical facilities have significant impact on educational effectiveness. This aim of this study is to determine the extent to which drawing studios in tertiary

institutions in Nigeria are satisfactory to its occupants/users (staff and students) with a view to developing appropriate guidelines for redesigning to satisfy functional requirements in educational buildings. It is therefore important to evaluate if the buildingsare functioning according to its intended purpose during its life cycle. The fact remains that education in Nigeria is the shared responsibility of the federal, state and local governments. The Federal Ministry of Education plays a dominant role in regulating the sector, engaging in policy formulation and ensuring quality control. However, the federal government is more directly involved with tertiary education than it is with primary and secondary tiers, which is largely the responsibility of local and state governments respectively. One wonders then, why the decay in funding tertiary education across the country.

STATEMENT OF THE PROBLEM

The continuous neglect of higher education facilities is a worrisome situation, especially matters relating to environmental and engineering programmes of study. In the context of this paper, our primary focus is on drawing studios in our polytechnics. Most drawing studios are in appalling states, yet teaching and learning must take place. It is pertinent therefore, to take a deep look into the issues relating to appalling states of these studios, and suggesting the best possible solutions thereof.

EDUCATIONAL SYSTEMS IN NIGERIA

According to Nigeria's National Policy on Education (2004), basic education covers education given to children 3-15 years of age, which includes pre-primary programmes (ages three to five), and nine years of formal (compulsory) schooling consisting of six years of primary and three years of junior secondary, three years of senior secondary education in either an academic or a technical stream. Continuing education options are provided through vocational and technical schools.

The tertiary sector consists of a university sector and a non-university sector. The latter is composed of polytechnics, monotechnics and colleges of education. The tertiary sector as a whole offers opportunities for undergraduate, graduate, vocational and technical education. Currently, there are 117 federal, state and private universities accredited in Nigeria as degree-granting institutions

TERTIARY EDUCATION

There are 117 universities, 36 federal, 36 state and 45 private universities in Nigeria. The National Universities Commission (NUC) is the government umbrella organization that oversees the administration of higher education in Nigeria. The federal universities, teaching hospitals and colleges are under its purview. State governments have responsibility for the administration and

financing of the state universities. The NUC approves and accredits all university programmes. In addition to universities; there are 59 federal and state polytechnics, colleges and several privately owned polytechnics, monotechnics and colleges of education across the country. These were established to train technical, mid-level manpower and teachers.

POLYTECHNIC EDUCATION

Olubodun et al (2015) believe that polytechnic education has emerged as one of the most effective human resource development strategies that Nigeria needs to embrace in order to train and modernize her technical workforce for rapid industrialization and national development. It has been an integral part of national development strategies in many societies because of the impact on human resource development, productivity, and economic growth. Despite its proven contribution, Nigeria does not seem to give polytechnic education the attention it deserves; and that appears to be one of the reasons for the rising unemployment and poverty in the society. Dike, (2009) also posits that Nigeria is terribly lagging behind in preparing its labour force for the 21st century economy. No nation would make any meaningful socioeconomic stride without well-equipped technical and vocational institutions. The United Nations Educational Scientific and Cultural Organization (UNESCO) has noted that revitalizing this important sector is among the ways to improve economic opportunities for the youths. The National Board for Technical Education (NBTE) and the polytechnic teachers in this area should take up the campaign for more funds for technical and vocational education and to launder its image.

Challenges of Polytechnic Education in Nigeria

Education is the bedrock of development but unfortunately, polytechnic education in Nigeria is faced with problems. According to Ukachukwu and Ukachukwu (2006), Yaba polytechnic being the first Polytechnic with the mandate to provide training for professionals with great attention devoted to practical and manipulative skills in Engineering, Agriculture, and the likes. Polytechnic education has had to struggle for identity, recognition and relevance. Some of the problems facing the polytechnic sector include:

i. **Poor/Inadequate Funding:** This is one of the problems facing the polytechnic system in Nigeria. Since the new National Policy on Education was adopted for use, more polytechnics and allied institutions have been established and yet, the level of commitment on the part of the government to making these institutions work effectively has been rather on the low side (Fajemirokun, 1999). Despite the fact that the government of Nigeria carries the primary responsibility of funding education through allocation or in form of taxes like the Education Trust Fund (ETF), the

government has not provided enough funds from its annual budgetary allocation to run schools efficiently (Adegbenro, 2007).

ii. **Inadequate/ Poor State of Physical Infrastructure:** Apart from the inadequate funding mentioned above, inadequate facilities are also a challenge to polytechnic education in Nigeria. The state of physical infrastructure of buildings in the tertiary institution is poor. This can affect the overall performance of the institutions. Sufficient physical infrastructural facilities promote academic achievement and strengthen the overall institutional performance. Unattractive, old and dilapidated school buildings, cracked design studio walls and floors, lack of furniture and lack of first aid facilities affect academic achievement negatively. Buildings and other infrastructures are dilapidated due to lack of maintenance. In spite of the accreditation exercise as stated by Fajemirokun (1999) by National Board for Technical Education (NBTE) which is the controlling body of the polytechnic education, the sector is still lagging behind either in terms of having up-to –date machines or adequate number of the machine. The machines could be obsolete in some cases. Most polytechnics have been plagued with lack of adequate research facilities and enabling environment, inadequate staff and staff welfare programmes among others. These problems may not be unconnected with inadequate and irregular funding. Funding has been a major factor against the development of technology education (Ayua, 2006). Without adequate funding the studios cannot be equipped and maintenance or replacement of damaged equipment cannot be done when necessary.

iii. **Over Population:** The recent expansion in students' intake has put immense pressure on the available facilities in the tertiary institutions. The buildings are over stretched due tooverpopulation of the students and the available facilities are poorly maintained.

iv. **Progression Ceiling on Polytechnic Education:** While University graduates could aspire to any heights, the same does not apply to polytechnic graduates. This situation has generated disharmony among the University and Polytechnic graduates. According to (Ojewale, 2008) there is disparity on salary scale and position of responsibility in government ministries and parastatals between the university and the polytechnic graduates. Such discrimination is unhealthy for a developing country like Nigeria that is still in search for technological advancement. The low societal value placed on polytechnic education has made students for science and technology to rush to university for more "honourable programmes and certificates"

ARCHITECTURAL EDUCATION IN NIGERIA

In the words of Olubodun and Jolaoso (2015), Architectural education was introduced in Nigeria in 1947 with the establishment of Yaba College now Yaba College of Technology, Lagos State. It has experienced dramatic turn-around over a period of time since then. The next college of architecture, Nigerian College of Arts, Science and Technology located at Ibadan in 1952, was later relocated to Zaria, in the present Kaduna State in 1955. It was later to form the core faculty of the present day Ahmadu Bello University, (ABU), Zaria in 1962. During this period, only diplomas in Architecture were awarded to students. The diploma being awarded qualified the students upon graduation to be exempted from parts I and II of RIBA (Royal Institute of British Architects) Professional examinations; but only to sit for the final leg before being certified registered architects. In a nutshell, the Nigerian architectural education was tailored after the British education and to a larger extent in line with the curriculum of our colonial masters.

Adegbile (2012) further explained that the link with RIBA was maintained till 1968, when the course programme was again restructured into two-tier, with the offer of the Bachelors Science (B.Sc.) and Master of Science (M.Sc.) degrees in architecture. The University of Nigeria, Nsukka was established in 1962, thereby making it to be the second university offering architecture in the country. In 1970, the University of Lagos, Akoka, Lagos established the department of architecture, thereby making it the third university to offer the programme. Presently, the number of Departments of Architecture in Nigeria has increased tremendously and this is a plus to the profession.

Table 1: ND and HND Awarding Schools of Architecture in Nigeria as at 2016

S/N	NAME OF INSTITUTION	STATE	YEAR ESTABLISHED	GEO-POLITICAL ZONE
1	Federal Polytechnic, Bida	Niger	1977	North Central
2	Federal Polytechnic, Nassarawa	Nassarawa	1983	North Central
3	Nassarawa State Polytechnic, Lafia	Nassarawa	2000	North Central
4	Federal Polytechnic, Idah	Kogi	1977	North Central
5	Kogi State Polytechnic, Lokoja	Kogi	1992	North Central
6	Federal Polytechnic, Offa	Kwara	1992	North Central
7	Kwara State Polytechnic, Ilorin	Kwara	1972	North Central
8	Rufus Giwa Polytechnic, Ondo	Ondo	1979	South West
9	Federal Polytechnic, Ilaro	Ogun	1979	South West
10	Moshood Abiola Polytechnic	Ogun	1980	South West
11	Mai Idris Alooma Polytechnic, Geidam	Yobe	2002	North East
12	Federal Polytechnic, Mubi	Adamawa	1979	North East
13	Institute of Management Technology, Enugu	Enugu	1976	South East
14	Abia State Polytechnic, Abia	Abia	1994	South East
15	Federal Polytechnic, Nekede, Owerri	Imo	1978	South East
16	Federal Polytechnic, Oko	Anambra	1979	South East

17	Auchi Polytechnic	Edo	1973	South South
18	Kaduna Polytechnic	Kaduna	1956	North West
19	Nuhu Bamali Polytechnic, Zaria	Kaduna	1989	North West
20	Abdu Gusau Polytechnic	Zamfara	1995	North West
21	Waziri Umar Federal Polytechnic,	Kebbi	1976	North West
22	Federal Polytechnic, Kaura Namoda	Zamfara	1983	North West
23	Hassan Usman Katsina Polytechnic	Katsina	1983	North West
24	Osun State Polytechnic, Iree	Osun	1992	South West
25	The Polytechnic, Ibadan	Oyo	1970	South West
26	Lagos State Polytechnic	Lagos	1977	South West
27	Yaba College of Technology	Lagos	1947	South West
28	Ogun State Institute of Technology	Ogun	2005	South West
29	Akwa Ibom Polytechnic	Akwa Ibom	1991	South South
30	Akanu Ibiam Federal Polytechnic	Ebonyi	1981	South South

Source: Authors' Field Work, 2015

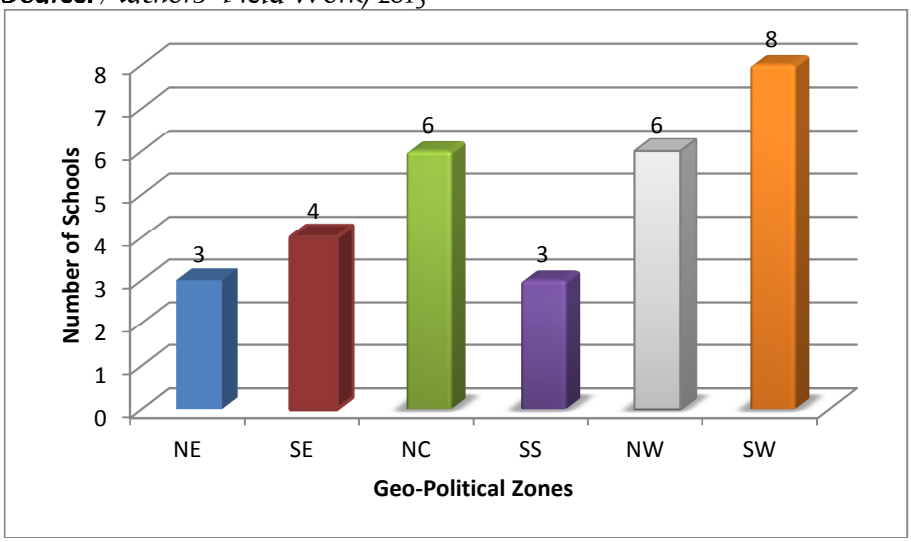

Figure 1: Schools of Architecture in Polytechnics in each Geo-political Zones in Nigeria.
Source: Authors' Field Work, 2015

The Architectural Design Studio

The design studio is usually a large room, which is equipped with drawing tables and chairs, which enables students to work on projects (plates 1-5). The design of a studio differs from the traditional teaching classroom. The nature of lectures in the studio is more in the form of presentations, which seeks to explain the nature of a project. Students learn design skills in the studio space; this makes the use of the studio for architecture education crucial and the design studio a specialized form of learning space. These learning spaces must be designed to be flexible in their use in order that different groups can use them simultaneously. Interaction amongst students brings about valuable learning, the design of these spaces must include various areas where students can consult, interact and socialize (Deasy

and Lasswell 1989; Chism, 2006). It has been observed that room temperature; air quality, glare, noise, lighting, seats comfort and possibilities of arrangement have influence on the standard of teaching and learning (Obeidat, Asem and Al-share, 2012). Other issues that need to be considered when designing these learning spaces are functionality, the flow between spaces and the connections of the people using the spaces. Also to be considered are the sizes of the group using the space, the involvement of the staff and students who will be using the space, structural aspects a well as the physiological and psychological aspects (Temple, 2007). It is important to have input from the intended end users of the design space during the design process (Sanoff, 1993).


Plates1 and 2: Typical Architecture Drawing Studios, Federal Polytechnic, Ilaro
Source: Authors' field work, 2015


Plates 3 and 4: Typical Architecture Drawing Studios, Obafemi Awolowo University, Ile Ife. Source: Authors' field work, 2015
Note the type(s) of openings for natural lighting and ventilation in these studios. How do we achieve maximum satisfaction in these?

Plate 5: Typical Overcrowded Architecture Drawing Studio, Federal Polytechnic, Ilaro
Source: Authors' field work, 2015

THE CONCEPT OF USER'S SATISFACTION

The key element of user's satisfaction is dependent on the nature of the relationship between the users and the service providers. The quality of service is an important indicator of user's satisfaction, which implies that the higher the quality of service rendered, the higher the level of satisfaction (Hoq and Amin, 2009). This necessitates the importance for regular assessment of user's satisfaction. Satisfaction is the result of the difference between the expected and the perceived performance. It occurs when product or service is better than expected which implies that a performance that does not meet up with the expected, results in dissatisfaction (Iyanka, Suzana and Sanja, 2002).

According to Aking bohungbe and Akinluyi, (2012), the performance concept is central and borne out of the assumption that a building is designed and built to support and enhance the goals of the occupants and serve as a springboard that enhance the standard of living within any given building. Salleh, (2005) opined that satisfaction is a positive experience that is expressed by occupants when the building meets their expectation for available facilities, services and neighbourhood facilities. Users are the people using the services of a project or scheme at a particular point in time (Cullen, 2005). Thus, it can be deduced that users' satisfaction is a positive experience expressed by the occupants / users presently using the services, facilities and commodities.

FACTORS THAT INFLUENCE USER SATISFACTION

The factors that influence users' satisfaction are identified as follows:

(a) Personal Needs: Every user of a service has a set of major personal needs they expect the service to address. These needs vary from person to person and from service to service. This implies that service providers must have a clear understanding of the needs of the users in order to render an appropriate service.

(b) Previous experience: Previous experience of a user for a service will influence their expectations for such services in the future.

(c) Inter-personal communication: User satisfaction can be influenced by communications from sources other than the service provider itself like the family, friends, media and colleagues.

(d) Explicit Service Communication: The statement from staff, leaflet and other publication influences user's satisfaction.

(e) Implicit service Communication: factors that affect the physical appearance of building for instance renovation works may lead the users to expect other services aspects to be of higher quality.

REASONS FOR ASSESSMENT OF USERS SATISFACTION

The major reason for assessing user's satisfaction is to obtain a more complete understanding of users' needs and for the improvement of the services rendered in other to provide a better user experience. According to Bevan (2008), assessing user's satisfaction is necessary for the purpose of comparison between products or to assess if the usability requirements have been met. He also emphasized that assessing user's satisfaction is vital in identifying the problem of usability in order to obtain better understanding of users' needs to refine requirements. It also plays a major role in quality and the improvement of productivity activities. It ensures that the users requirements are met and to be able to set objectives and comply with them. It also provides standards for establishing comparisons highlight quality problems and determine areas of priority attention. Finally, it provides feedback for driving the improvement effort.

CONCLUSION

From the foregoing, this paper concludes that most of the drawing studios in Nigerian higher institutions are not adequately equipped for the task they are expected to perform. This is as a result of inadequacies in lighting, sizes, and a host of others. The design studio classroom environment is a sole environment that is designed to facilitate the design and architectural education. The studio is the most usable environment in the discipline of architecture. The users (staff and students) spend much of their time in the studios for both the theoretical and practical teaching and learning processes are carried out in such an environment. Demirbas and Demirkan, (2000) indicated the importance of having a designated

design studio workstations. They further stressed on the importance of the workstations to be offered for all levels of design students. It has been established that the physical classroom environmental features have direct impact on students and instructors satisfaction hence, they should be carefully considered.

RECOMMENDATIONS

This paper believes that nation building is a collective responsibility, so efforts must be made to harness the expertise and skills of all citizens. It therefore recommends among other things that;

- The government should provide increased funding for studio equipment in our polytechnics
- Drawing studios should be designed in such a way that there are adequate work spaces for both staff and students, as well as room for staff to move around while interacting with students on individual basis.
- The studio furniture should be flexible, movable, adjustable and suitable to support teaching / learning methods and pleasant working conditions.
- . The storage spaces should be enough for all the design students. The studio should be made functional and comfortable for the users.
- Lighting and temperature are very crucial features of the design studio classroom and should be taken care of from the design stage.

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