

Infrastructural Facilities and Academic Performance of Students in Imo State University, Owerri

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ABSTRACT

This work focused on the infrastructural facilities and academic performance of students in Imo state university, Owerri. Relevant literatures were reviewed in line with the objectives of the study and hypotheses. Two theories were reviewed, but the work was anchored on the resource base theory. The researcher adopted the survey research design; the multi stage sampling technique was adopted. The primary and secondary sources of data collection technique was employed. The primary source include the questionnaire, while the secondary sources are: journals, text book, articles etc. Our data were presented using simple percentages and tables, while the hypotheses were tested using the chi-square statistical tool. It was found out that the availability of infrastructural facilities such as conducive class rooms, well equipped libraries and ICT facilities has enhanced improved academic performance. I recommend that school management should provide more infrastructures such as conducive class rooms, well equipped libraries etc in order to motivate the students to read, which could also lead to increase in students' academic performance

Keywords: Infrastructural facilities and academic performance of students

INTRODUCTION

Infrastructure is a key basic for effective teaching and learning in school, the goal of infrastructure is to increase attendance of students in school, enhance students' motivation and improve academic performance of students. Infrastructure includes, conducive learning environment, classroom, laboratories, halls, games equipment and sanitation facilities. It is in classroom that the day to day formal teaching and learning takes place, in the libraries, learners get the opportunity to conduct their own personal studies and carryout research. Infrastructure is therefore a very important component in ensuring successful education. There is actually a general belief that the condition of schools learning environment, especially infrastructure has an important impact on students' academic performance and effectiveness. The facilities that are needed to facilitate effective learning in an educational institution include adequate power and water supply, good communication system, improved transportation system, adequate class room ,libraries, laboratory as well as furniture item and sporting equipment, The provision of infrastructure has strong influence on the academic standard which is an index of quality assurance in the school for instance, Earthman [2002] reporting on California, revealed that comfortable classroom temperature and smaller classes enhance students effectiveness and provide opportunities for participating in discussions ,reduce disciplinary problems and thereby enhance better performance than students in schools with substandard building by several percentage points.

Education does not exist in a vacuum but in an environment with physical facilities and material resources that are used in teaching and learning. Educational facilities contribute directly to a great extent in the teaching and learning process in the educational system. These facilities and environment also portray the quality of the institution in terms of their staff or students, friendliness, safety and relevance. Poor physical

infrastructure is common feature in many educational institutions, most school are characterized by ramshackle infrastructure which have brought about poor learning process and negative impact on students educational performance. Education system in Nigeria has been in crisis for many years largely due to the fact that the sector is poorly funded, this has led to inadequate supply of learning materials and human resources being experienced in the system, inadequate qualified lecturers, high turnover rate of lecturers, shortage of classroom and poor remuneration of lecturers and a host of other problems abound in the education sector. The economic crisis experienced in Nigeria impacted on the education system and had played a major role in the decline of the quality of education offered in the country (Olabiyi and Abayomi 2017)

Therefore, this work wishes to look at how availability of infrastructure affects academic performance of students in Imo State University, Owerri.

The Challenging Problems of the Study

The importance of infrastructure in higher institution cannot be overemphasized and it is seen as a criterion that could help in boosting students' academic performance. But it seems enough infrastructure have not been put in place to ensure that student can read in conducive and serene environment. Inadequate classrooms in Imo State University seems to have made it increasingly difficult for students to learn, some of these students scramble for class room and even fight among themselves in order to ensure that they learn, this could also affect the academic performance of these students as most of them of have already exhausted their mental strength in fighting for class room.

Lack of conducive learning environment seems to be an issue in Imo State University as some of the class rooms are dilapidated; this could discourage the students from attending classes and could subsequently affect their academic performance. Lack of enough ICT facilities in Imo State University, seems to have led to decrease in academic performance of student as some students prefer reading from computer gadget to writing with their pen. Based on the foregoing, it is important to examine the extent to which infrastructural facilities affect academic performance of students in Imo State University, Owerri.

Aim of the Study

The objective of this study is to ascertain whether infrastructural facilities has any impact on students' academic performance

Overriding Significance of the study

- **Academic significance**

The academic significance of this work lies in the fact that it will go a long way in assisting researchers that are carrying out research in similar area. This work will also serve as veritable tools in the hands of academicians as it will go a long way in making them understand the importance of infrastructure especially in a school like Imo State University, Owerri

- **Practical significance**

Practically this work will be important to the management of Imo State University as it will go a long way in making them understand the good infrastructure could give the institution a good name both locally and internationally why she should release funds to build good and better infrastructure in the institution in order to enhance better performance of students in Imo State University

SOME CONTENDING LITERATURE AND THEORETICAL ISSUES ON INFRASTRUCTURAL FACILITIES AND ACADEMIC PERFORMANCE OF STUDENTS

Concept of infrastructure

Many scholars have contributed to the concept of infrastructure. According to Janssen, Jeremie and James (2017) buildings, classrooms, laboratories, and equipment are all education infrastructure. They posited that infrastructures are crucial elements of learning environments in schools and universities. For them, there is strong evidence that high-quality infrastructure facilitates better instruction, improves student outcomes, and reduces dropout rates, among other benefits. Education is the process for human resources development which takes place in an institution called school; it is influenced by a number of factors including infrastructural facilities (Educational) basic infrastructural and human resource; without these necessary facilities. Psychologically, learning process is bound to be poor (Adedun, 2019). In both developed and developing nations like Cameroon, the education is a very crucial process through which the individual's life chances are determined beyond the economic significance, education is viewed as a good in itself and indeed a basic human right with regards to the lower level of education (World Bank 1995). Education is an investment in human beings and a valuable resource for economic benefit of the country. The government all over the world committed themselves to the provision of education for all (EFA) at Dakar, Senegal in 2000 (UNESCO, 2003). Education does not exist in a vacuum but in an environment structured of physical facilities and material resources that are used in the teaching and learning. The specification given for the establishment, management and material resources in secondary school are stipulated in the laws and policies that govern the country's educational system. The goal of infrastructure system in secondary school seeks to increase school attendance of students, enhance staff motivation and to improve academic achievements of students (Alimi, 2017). There is a link between school architecture and its users, (students and teachers); Research has shown that well planned school with clean and safe learning environment are important for academic achievement (Cash 1993, Earthman and Lemaster 1996). Physical facilities play a key role in the attainment of school attended objectives and overall quality performance in national examination. Public schools are often characterized by lack of infrastructure facilities such as adequate classrooms, latrines and laboratories.

Ironically the introduction of free primary and secondary education has been touted as an accelerator of the afore mentioned problems. Since its inception in the year 2000, the abolition of school fees in the primary education has provided a significant improvement in educational opportunities for children and youths. Nearly 3.4 million children enrolled in primary education in 2009, compared to only 69% in 1991. The abolition of school fees in primary education in 2000 spurred some of this increase in total enrolment. Total secondary enrolment more than doubled in the past two decades, reaching nearly 1.3 million total students in these programs including overstretched facilities such as classrooms, latrines and overcrowding. It may be the fact that dilapidated crowded or uncomfortable school infrastructure leads to low morale among students, teachers and parents. Hence this leads to the drop in achievement when school facilities are inadequate (Fraizer, 1993). Ejionvem (2017) states that the physical infrastructure in secondary school were poor and would continue to adversely affect the contributions of secondary education to the Millennium Development Goals (MDGs). Educational facilities contribute directly to the teaching and learning process in the educational system. These facilities and environment also portray the quality of the institution in terms of their staff and students, friendliness, safety and relevance (Okoiye and Uche, 2004). In East Africa especially in Tanzania, poor physical infrastructure is a common feature in many educational institutions. Most schools are characterized by ramshackle infrastructures.

In addition, new programs and expanded intake have been suggested without matching development of the

physical infrastructure (Stephen, 2018).

In Cameroon, the condition in Buea create hurdles for children to get quality education and form barriers to school planning. Most teachers like students in Buea have told The Post that they encounter a lot of difficulties in the teaching and learning process. Rufus Lekunze, a history teacher in Bilingual Grammar School Molyko, said that the classes are overcrowded in such a way that it is difficult to discipline the students. In addition, Bryan Gwanmesia, a lower sixth student of Inter Comprehensive High School Buea reported that the school premises are too small that when he tries to read in school, he is disturbed by other students (Fru Rita Ngum, 2009, Cameroon Post line).

For him, the absence of these facilities cause institutional lapses militating against the teaching of courses in the country. The school is suffering from inadequate lecture hall, absence of departmental libraries, and inadequate access to internet, absence of hostel accommodation for the students and sports-facilities. These have salient effect on the students achievement. In the words of Effiong (2018) students environment of learning comprises of the classroom, well equipped laboratories and conducive environment is typical by the social interaction. He further opined that it is within these areas that the students conduct their academic pursuit which involves the developments of both cognitive and psychomotor abilities. For him, apart from problems posed by the inability of student to be proficient in learning, other problems may be traceable to internal and external influences. Olubunmi (2017) asserted that education does not exist in a vacuum but in an environment structure of physical facilities and material resources that are used in teaching and learning. The specifications given for the establishment, management and material resources in tertiary institutions are stipulated in the laws and policies that govern the country's education system. In the view of Ekpo (2017) school infrastructure is a key base for effective teaching and learning in schools. The goal of school infrastructure in tertiary institutions is to increase school attendance of students, enhance staff motivation and improve academic achievements of students. Education, according to Coombs (1970), consists of two components, inputs and outputs. Inputs consist of human and material resources and outputs are the goals and outcomes of the educational process. Both the input and output form a dynamic organic whole and if one wants to investigate and assess the educational system in order to improve its performance, effects of one component on the other must be examined. For him, availability of teaching and learning resources enhances the effectiveness of schools as these are basic things that can bring about good academic performance in the students. Maicibi (2003) opined that all institutions or organization are made up of human beings (workers) and other non-human resources. He further asserts that when the right quantity and quality of human resources is brought together, it can manipulate other resources towards realizing institutional goals and objectives. Consequently, every institution should strive to attract and retain the best of human resource. The economic austerity in recent times, coupled with the need for expansion of access to education, have combined to present educational planners worldwide with increasingly difficult choices in the allocation of available resources.

Concept of Academic Performance

Different scholars has commented on the issue of academic performance. For instance, Adewunmi (2018) views performance as the measurement of student's achievement across various academic subjects. For him, performance is typically measured using classroom performance, graduation rates and results from standardized tests. He further stated that student's performance is measured using grade point average (GPA), high school graduation rate, annual standardized tests and college entrance exams. In his words, a student's GPA is typically measured on a scale of zero to four with higher GPAs representing higher grades in the classroom. Ndu (2018) asserted that performance is directly linked to the student's attitude to their studies, their grades, which includes their cumulative grade point average, their ability to score high grades etc. In recent years, access to computers and the internet has generated interest in the provision of e-materials. Where the internet is unavailable, unreliable or unaffordable, the development of local school

networks and the provision of e-materials to schools on compact disks (CDs/ flash disks can support e-learning via school servers and networks. But e-based learning in many developing countries and transitional economies have proved to be very expensive. It is not surprising; therefore, that literacy has become a major problem in many countries when students and teachers have so little to read (The World Bank, 2001). The physical, material, human and financial resources invested in schools influence not only the education provided to students but also aspects of teachers and student motivation and consequently the educational outcomes. The quest to achieve Education for All (EFA) is fundamentally about ensuring that students' gain of the knowledge and skills they need to better their lives and to play a role in building more peaceful and equitable societies. As many societies strive to universalize basic education, they face the momentous challenge of providing conditions where genuine learning can take place for each learner for quality education (Maduka, 2018). According to Chimdindu (2018) high academic performance in the education sector reflects the attainment of educational goals, objectives, policies and projections, and therefore educational planners cannot be disassociated from the school's academic results. For him, It would be logical to use standardized students' assessments results as the basis for judging the utilization of educational resources (inputs), their transformation process (teaching and learning) to produce quality output (student) that meet the set standards and expectation of the society.

Conducive Environment and Students Academic performance

Scholars have commented on the issues of conducive environment, but much has not been done on how conducive environment could motivate students to learn. According to Oriaku (2018) creating a classroom community and culture remains a necessary aspect when fostering a safe learning environment. For him, students need to understand what they have in common with their fellow learners in the classroom. It is the teacher's job to create this community so all students will get along and celebrate one another's differences. Strong classroom communities can form in a variety of ways. Throughout daily activities the students should be part of a collaborative learning effort, sharing their strengths and encouraging each other. The teacher also may introduce a number of jobs or responsibilities students need to complete in order to maintain the physical classroom. This shows students that they need to count on one another, and it keeps students accountable for their own learning environment as well. Classroom jokes, traditions and pets are other ways to build a strong community. When students enjoy each other's company, they are more likely to be accepting and feel safe in the environment. Another important responsibility of the teacher is to develop a learning environment where students feel motivated to learn within the boundaries and expectations of a safe classroom. By modeling and encouraging a safe environment and purposeful rules, students feel motivated to do the right thing and help one another. It is important for teachers to put an emphasis on intrinsic motivation in the classroom to keep students interested and invested in their own learning goals. In addition, extrinsic motivators help students understand the expectations of the classroom and aid in their intrinsic motivation. These kinds of motivators include praise, positive reinforcement and rewards for exceptional behavior.

This being said, the teacher's management plan and expectations play a large role in the classroom community. Students cannot learn effectively in an environment where the facilitator has lost control. The teacher should make his or her expectations and consequences for classroom behavior very clear so students understand rules, boundaries and how to learn in a safe manner. When the teacher's management plan is fair, consistent and organized, the students understand what to expect and can make wise choices and take responsibility for their actions. Developing an engaging and positive learning environment for learners, especially in a particular course, is one of the most creative aspects of teaching. Typically, the focus is either on the physical learning environments (institutional) like lecture theaters, classrooms, or labs; or on different technologies that are used to develop online learning environments.

However, the learning environment is an expression that is a lot broader than these components. The term

comprises of:

- Learners' characteristics;
- Learning and teaching goals;
- Activities that support learning;
- Assessment strategies that drive and measure learning;
- A culture that directly infuses a learning environment.

Typically, social, physical, psychological or cultural factors involved in a learning environment deeply affect the learners' learning capabilities. If the learning atmosphere is not conducive to gaining new knowledge or skills, it will be hard for learners to remain engrossed or interested. For example, stress significantly affect the cognitive functioning. When you combine stress with learning processes, the negative thoughts outweighs the positive ones. Such learners find the learning environment more like a threat to their self-esteem than a platform to improve or learn new skills. To overcome this, the instructors hold the responsibility to incorporate an arsenal of strategies that would inoculate learners against the negative attitude by providing enough positive experiences. This integration of strategies in the learning/teaching approach will counteract the negative and help students in getting out of the negative spiral. When a learner feels appreciated, accepted and see him/her as an important and contributing part of a learning environment only then he/she can improve, learn with an open mind, accept and appreciate viewpoints and solve problems earnestly. Nevertheless, a learning environment is a great attribute to the success of the learner. It offers a positive ambiance to feel motivated and engaged. An ideal learning setting encourages the interaction with learners/instructors and eventually establishes a sense of support.

Infrastructure and Academic Performance of Students

According to Kunmi (2017) a good Infrastructure facility always supported the educational enterprise. Research had shown that clean and good air quality, good light, a small, comfortable, safe environment, building age and condition, quality of maintenance, temperature, and colour, could affect student health, safety as well as a sense of self and psychological state. Policymakers should be concerned about the relationship between school Infrastructure facilities and student learning and achievement, not only because of health, security, and psychological issues, but also because the failure to create and maintain optimum learning environments can undermine other efforts to reform education.

According to Seker (2019) there are many factors such as teacher behaviours, school rules, classroom environment, student's family, the student himself/herself, teaching process, exams taken and evaluation processes thought to be influential on attitudes towards school. Schools with better building conditions have up to 14 percent lower student suspension rates (Shaw, 2018). Substandard physical environments are strongly associated with truancy and other behaviour problems with students (Johnston, 2018). Lower student attendance led to lower scores on standardized Student achievement scores tend to decrease as the school building ages to as high as 9 percent, depending on maintenance factors, Studies indicate that student performance is improved by an even distribution of daylight, an expansive view, and limited glare and thermal heat gain. One study found 20 percent faster student progress on math and 26 percent faster progress in reading compared with students in classrooms with less exposure to daylight.

• Theoretical Framework

The Theoretical framework adopted for the present study is the resource dependency theory propounded by Pfeffer and Salancik (1978). The resource dependency theory is the study of how the external resources of organisations affect the behaviour of the organisation. Elkenberry and Klover, (2004) enumerated the basic features of resource dependency theory as follows:

- 1) That organisations depend on resources
- 2) These resources ultimately originate from an organisation's environment
- 3) The environment, to a considerable extent, contains other organizations

4) Resources are a basis of power Resource dependency theory by Pfeffer and Salancik, (1978) cited in Elkenberry and Klover, (2004) states that organizations depend on multidimensional resources: labour, capital, raw materials, etc. and that though organisations may not be able to come out with countervailing initiatives for all multiple resources, they must move through the principle of criticality and principle of scarcity. Critical resources are those resources that the organization must have to function. Mcdowl, (2018) opines that resource dependency theory views an organization in terms of its resource dependencies with other firms in the environment. He also stated that resources come in different forms and they are valued depending on their importance and availability, and they differ in terms of who has discretion and control over them. Explaining further, Mcdowl, (2018) pointed out that there are various types of resources that firms depend on, such as physical materials which might be actual materials that organizations build a product from. They could be technical such as information or knowledge, or social resources such as prestige or reputation that enables them to survive, all these resources differ depending on its importance. Resources dependency theory differs from a variety of factors due to their importance and availability. The present study adopted this theory because the school system is a social organization that also depends on various resources to survive. There is no worthwhile education system that can ignore healthy and functional school buildings which are essential to the effective realization of its educational goals. The Resources Dependency Theory emphasized the importance of resources to the organization's continual operation and survival. Relating this to the school system, it could be construed that schools cannot survive without resources as there would be no students, if schools cannot survive due to lack of resources; it could be hypothesized that the perceptions of government, policy makers and school administrators on resource dependency should clearly play a large part in their reactions in making rules and appropriating funds for specific educational programmes. The challenge to determine the extent to which they can and must respond to various demands of school programmes in respect of school buildings without potentially affecting the entire operation adversely. The adequate provision of school buildings for effective teaching and learning is based on a sound perception of the task to be done which is reflected in the exhibition of behavioural patterns by all stake holders. This will stimulate teachers and students to attain desired goals. If this is not done, both teachers and learners including school administrators face role strain that could lead to poor performance in the school system. The researchers believe that if all stakeholders in the school system consider school buildings as valuable assets that are critical o the achievement of educational goals of the society, provision of adequate school buildings and its utilization will be given priority.

RESEARCH METHODOLOGY

Scope of the study

The scope of this work is to study the infrastructural facilities such as conducive learning environment, ICT facilities, libraries, classrooms, as it affects students' academic performance in Imo State University, Owerri.

Research Design

The research design for this work is the survey research design. Survey research design means the investigation of the opinion, behaviour or other manifestations of a group by questioning them. The researcher adopted the survey research design because of its flexibility to permit the use of a variety of data collection techniques.

Population of the study

The population for this study comprised students of Imo State University, Owerri which is 16,000 students (Imo State University archive,2019). The researcher chose a sample of 390 respondents using the Taro Tamane formular.

Sample size

The sample size for this study was derived using the Taro Yamani formula to determine the valid sample from the population.

$$n = \frac{N}{1 + N(e)^2}$$

n = Sample Size

N = Population

1 = Constant

e = Acceptable margin of errors

$$n = \frac{16,000}{1 + 16,000(0.05)^2}$$

$$n = \frac{16,000}{1 + 16,000(0.0025)}$$

$$n = \frac{16,000}{16,601(0.0025)}$$

$$n = \frac{16,000}{41}$$

$$\Omega = 390$$

Therefore, the sample size for this study is 390.

Sampling technique

The researcher adopted multi-stage sampling techniques, In using the multi-stage technique, the researcher used both the simple random sampling technique and stratified sampling techniques.

In using the proportionate stratified sampling technique, the researcher distributed equal number of questionnaire to each faculty in Imo State University, Owerri irrespective of their size.

Techniques for data collection

The researcher used both the primary and secondary sources of data collection technique.

Primary Sources: The primary source of data that aided the possibility of this work is the questionnaire.

The questionnaire consist of two sections, section A and B. section A consist of the demographic data of respondents, while section B consists of questions, the respondents are to tick “SA” for strongly agree, “A” agreed, “D” for disagreed and “SD” for strongly agreed.

Secondary Data: Secondary data that aided the possibility of this work include, journals, articles, textbooks etc.

Technique for Data Analysis

Data were presented using percentages and tables, while the hypotheses were tested using the Chi-square (X^2) statistical tool.

DATA PRESENTATION, ANALYSIS/ INTERPRETATIONS AND DISCUSSION OF FINDINGS

Data Presentation

Table 1: Distribution of Questionnaire

S/N	Faculties	Questionnaire distributed	%	Questionnaire returned	%
1	Engineering	78	20	76	19.8
2	Social Sciences	78	20	78	20.4
3	Health Sciences	78	20	77	20.1
4	Education	78	20	78	20.4
5	Business Administration	78	20	74	19.3
	Total	390	100	383	100

Source: Field survey 2023

$$\% \text{ frequency distributed} = \frac{\text{No of questionnaire distributed} \times 100}{\text{Total questionnaire distributed}}$$

$$\% \text{ frequency returned} = \frac{\text{No of questionnaire returned} \times 100}{\text{Total questionnaire returned}}$$

The above table shows that 390 set of questionnaire was distributed among the 5 selected faculties in Imo State Universities, Owerri. The researcher was able to retrieve 383 questionnaire which eventually form the sample size for the study.

Demographic Characteristics of the Respondents

Table 2: Sex Distribution of the Respondents

Sex	No of Respondents	% of Respondents
Male	162	42.3
Female	221	57.7
Total	383	100

Source: Field survey 2023

Table 3: Age Distribution of the Respondents

Age	No of Respondents	% of Respondents
16-20	139	36.3
21-25	162	42.3
26-31	51	13.3
32-37	19	5
38-43	12	3.1
Total	383	100

Source: Field survey 2023

Table 4: Marital Status of the Respondents

Status	No of respondents	Percentage
Single	359	93.7
Married	24	6.3
Divorced	–	–
Separated	–	–
Total	383	100

Source: Field survey 2023

Table 5: Study Level of Respondents

Level	No of Respondents	Percentage
100	74	19.3
200	110	28.7
300	96	25.0
400	88	23
500	15	4.0
Total	383	100

Source: Field survey 2023

Table 6 Availability of infrastructural facilities

Item	Question	Availability	Non availability	Total sample	%
6	The school have enough seats that accommodate students during lectures	217 (56.7)	166 (43.3)	383	100

7	The departmental library is well equipped with relevant books	252 (65.8)	132 (34.2)	383	100
8	There are enough lecture hall to accommodate students for learning	203 (53)	180 (47)	383	100
9	The faculty library is well equipped with relevant book	205 (53.5)	178 (46.5)	383	100
10	The libraries have enough seat and reading desks	223 (58.2)	160 (41.8)	383	100

Source: Field survey 2023

Table 7: Responses showing perception of availability of infrastructural facilities and academic performance of student in Imo State

	Questions	SA	A	D	SD	Total sample	%
11	Availability of enough seat can enhance academic performance	125 (41.4)	110 (26.5)	97 (28.8)	51 (3.3)	383	100
12	Adequate provision of ICT can enhance academic performance	62 (28.8)	91 (29.8)	126 (33.2)	104 (28.1)	383	100
13	Conducive learning environment will aid proper learning process	80 (20.9)	121 (31.6)	101 (26.4)	81 (21.1)	383	100
14	Availability of lecture halls enhances academic performance	137 (35.8)	106 (27.7)	60 (15.7)	80 (20.9)	383	100

Source: Field survey 2023

Table 8: Chi-Square Analysis for availability of infrastructural facilities and students academic performance

Items	SA	A	D	SD	Total
6	101	116	63	103	383B1
7	108	95	110	70	383B2
9	88	117	119	59	383B3
Total	297A1	328A2	293A3	232A4	1,149

Source: Field survey 2023.

Computing formular for chi-square

$$X^2 = \sum \frac{(O_1 - E_1)^2}{E_1}$$

$$E_1 =$$

Where \sum = Summation

O = Observed values

E = Expected values

To obtain the expected frequencies

$$E = \frac{\text{Row total} \times \text{column}}{\text{Grand total}}$$

Grand total

$$\text{Cell A}_1 \quad \text{B}_1 \quad = \frac{297 \times 383}{1,149} = 99$$

$$\text{Cell A}_2 \quad \text{B}_1 \quad = \frac{328 \times 383}{1,149} = 109.3$$

$$\text{Cell A}_3 \quad \text{B}_1 \quad = \frac{293 \times 383}{1,149} = 97.6$$

$$\text{Cell A}_4 \quad \text{B}_1 \quad = \frac{232 \times 383}{1,149} = 77.3$$

$$\text{Cell A}_1 \quad \text{B}_2 \quad = \frac{297 \times 383}{1,149} = 99$$

$$\text{Cell A}_2 \quad \text{B}_2 \quad = \frac{328 \times 383}{1,149} = 109.3$$

$$\text{Cell A}_3 \quad \text{B}_2 \quad = \frac{293 \times 383}{1,149} = 97.6$$

$$\text{Cell A}_1 \quad \text{B}_3 \quad = \frac{297 \times 383}{1,149} = 99$$

$$\text{Cell A}_2 \quad \text{B}_3 \quad = \frac{328 \times 383}{1,149} = 109.3$$

$$\text{Cell A}_3 \quad \text{B}_3 \quad = \frac{293 \times 383}{1,149} = 97.6$$

Placing the observed and expected values in a tabular form, we have;

Table 9: Data for hypothesis testing

O	E	(O – E)	(O – E) ² /E
297	99	198	2
328	109.3	218.3	1.9
293	97.6	195.4	2
232	104	128	1.2
297	99	198	2
328	109.3	218.3	1.9
293	97.6	195.4	2
232	104	128	1.2
297	99	198	2
328	109.3	218.3	1.9
293	97.6	195.4	2
232	104	128	1.2
Total			21.3

Source: Field survey 2023

The table above is a 4 x 2 contingency table, hence the degree of freedom.

$$(df) = (C - 1) (R - 1)$$

$$(df) = (4 - 1) (2 - 1)$$

$$df = 3 \times 1 = 3$$

Thus, $df = 3$.

The table value of X^2 at a significance level of 0.05 and degree of 3 = 7.815. The calculated value of $X^2 = 21.3$. Since the calculated value of X^2 is greater than the table value of X^2 , we therefore accept the alternate hypothesis which states that there is a significant relationship between availability of infrastructural facilities and students' academic performance in Imo state university, Owerri.

Discussion of Findings

Based on the research carried out on academic performance in Imo state university, Owerri, we found that:

The availability of infrastructural facilities such as conducive class rooms, well equipped libraries and ICT facilities has enhanced improved academic performance. . This is in line with item 7 in table 6 were majority of respondents agreed that their departmental library is very equipped with relevant books. The study also revealed that improved ICT has led to student's academic performance. This is not in line with

Leuven (2018) that there is no evidence for a relationship between increased educational use of ICT and students' performance. Also, the finding is in line with item 12 in table 8 that students have been able to make good grades due to improved ICT in the school.

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

This work focused on the infrastructural facilities and academic performance of students in Imo state university, Owerri. Relevant literatures were reviewed in line with the objectives of the study and hypotheses. Two theories were reviewed, but the work was anchored on the resource base theory. The researcher adopted the survey research design; the multi stage sampling technique was adopted. The primary and secondary sources of data collection technique was employed. The primary source include the questionnaire, while the secondary sources are: journals, text book, articles etc. Two hypotheses were formulated and tested in the course of this work. Hypothesis one which states that there is a significant relationship between availability of infrastructural facilities and students academics performance in Imo state university, Owerri tested positive. Hypothesis two which states that there is a significant relationship between the ICT facilities and students' academic performance also tested positive.

Our data were presented using simple percentages and tables, while the hypotheses were tested using the chi-square statistical tool. We found out that The availability of infrastructural facilities such as conducive class rooms, well equipped libraries and ICT facilities has enhanced improved academic performance. This is in line with item 7 in table 4.6 were majority of respondents agreed that their departmental library is very equipped with relevant books.

The study also revealed that improved ICT has led to students' academic performance. This is not in line with Leuven (2018) that there is no evidence for a relationship between increased educational use of ICT and students' performance. Also, the finding is in line with item 14 in table 4.7 that students have been able to make good grades due to improved ICT in the school.

Conclusion

Based on the findings carried out, the researcher concludes that:

The availability of infrastructure such as conducive class rooms, well equipped libraries and ICT facilities has to a large extent enhanced improved academic performance, Also, improvement of ICT by the management of the University has brought about high students academic performance. This is because students are able to access the university wifi especially for the purpose of research and other academic activities.

Recommendation

Based on the finding carried out, the researcher recommend that:

The school management should provide more infrastructures such as conducive class rooms, well equipped libraries etc in order to motivate the students to read, which could also lead to increase in students' academic performance. The study also recommends that more ICT facilities should be built by the management of Imo state university, more Wi-Fi facilities should also be provided by the management of the university.

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