
Educational Facility Planning and Academic Performance of Secondary School Students in Imo State

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ABSTRACT

The study sought to assess the impact of educational facility planning on academic performance of secondary school students in Imo State. Expost-Facto research design was adopted for the study. The research area was Imo State. The population of the study comprised all the teachers and students in public Secondary Schools in Imo state. The researcher adopted stratified sampling method to select the respondents. To this end, the total of (183) respondent was used as sample for the study. Two research instruments namely, "EDUCATIONAL FACILITY PLANNING QUESTIONNAIRE" (EFPO) and STUDENTS ACHIEVEMENT TEST" (SAT) was developed by the researcher for the collection of data for the study and for the purpose of testing the stated hypotheses. The reliability study was conducted with the use of thirty (30) respondents from secondary schools that were not part of the main work. Cronbach's Alpha technique was used to determine the reliability coefficient of the instrument in other to find out whether it was reliable or not. The data was analyzed using appropriate statistical techniques. For research question descriptive statistics was used to answer it while independent t-test analysis was used to test the hypothesis at 0.05 alpha level. The study concluded that there is significant influence of proper library and laboratory facilities planning on academic performance of secondary school students in Imo State. It was therefore important to emphasize that at every stage of planning, from the initial stage of making decisions to evaluations, there is need to harness the advice of experts, from policy analyst to architects. This will enhance efficiency.

KEY WORDS: **Educational Facility Planning, Library Facilities, Laboratory Facilities Academic Performance**

Introduction

Education, in any nation, is believed to be veritable machinery for the development of a country. In Nigeria, education has been considered to be the cornerstone for development. It forms the basis for literacy, skill acquisition, technological advancement and ability to harness human and material resources towards the achievement of societal goal (FRN, 2013). According to Probe (2010), planning of educational facilities have been observed to be a potent factor to quantitative education. They involve the provision of framework to help teachers guide the students on proper learning. According to Carroll, (2015), school facilities provide a framework within which teachers can guide students in their learning. School facilities refer to both the physical and material resources available to the students and teachers in the school that will facilitate learning. These include instructional spaces, recreational facilities, toilet facilities,

libraries, laboratories and other material resources provided in the school for effective teaching and learning operations (Onuorah, 2014). Facilities in education are essential resources required for effective operation and maintenance of standard in our educational system. They constitute the tools that are necessary to facilitate and stimulate educational programmes. According to Samuel (2012), learning can occur through one's interaction with one's environment. Environment here refers to facilities that are available to facilitate students learning outcome. It includes buildings, equipment, materials, books, audio-visual, software and hardware of educational technology; so also, size of classroom, sitting position and arrangement, availability of tables, chairs, chalkboards, shelves on which instruments for practical are arranged. Jolliffe (2010) asserts that facilities constitute a strategic factor in organizational functioning. This is so because they determine to a very large extent the smooth functioning of any social organization or system including education. He further stated that their availability, adequacy and relevance influence efficiency and high productivity. In his words, Farrant (2009) opined that the wealth of a nation or society could determine the quality of education in that land; emphasizing that a society that is wealthy will establish good schools with quality teachers, learning infrastructure that with such students may learn with ease thus bringing about good academic achievement. Plans for Educational facilities are needed to develop cognitive areas of knowledge, abilities and skills that are necessary for academic achievement. Moreover, the development of the affective and psychomotor domain is also facilitated by the presence of necessary and relevant school facilities. It is a truism that no academic performance can be achieved without school planning facilities.

Statement of the problem

Many schools in Nigeria today do not have certain school facilities that can make teaching and learning to be easier and enjoyable to both the teachers and the students especially the business studies students. Lack of proper and good planning towards the development of school result to inadequate provision or non-provision of the school facilities, especially, the laboratories and the libraries which are the main school facilities that aid teaching and learning, for example, due to lack of school planning and inadequate equipment, teachers in the science fields find it difficult to experiment and carryout practical teaching in the school, and the resultant effect is that most science students fail their science related subjects in the external and internal examinations. Therefore, this study seeks to assess the impact of educational facility planning on academic performance of secondary school students in Imo State.

Purpose of the Study

The major purpose of this study was to examine the impact of educational facility planning on academic performance of secondary school students in Imo State. Specially, the study sought to:

1. Examine the influence of proper library facilities planning on academic performance of secondary school students in Imo State.
2. Find out the influence of proper laboratory facilities planning on academic performance of secondary school students in Imo State.

Research questions

1. How does proper library facility planning affect the academic performance of secondary school students in Imo State?
2. How does proper laboratory facility planning influence academic performance of secondary school students in Imo State?

Formulation of Hypotheses

Ho₁: There is no significant influence of proper library facilities planning on academic performance of secondary school students in Imo State

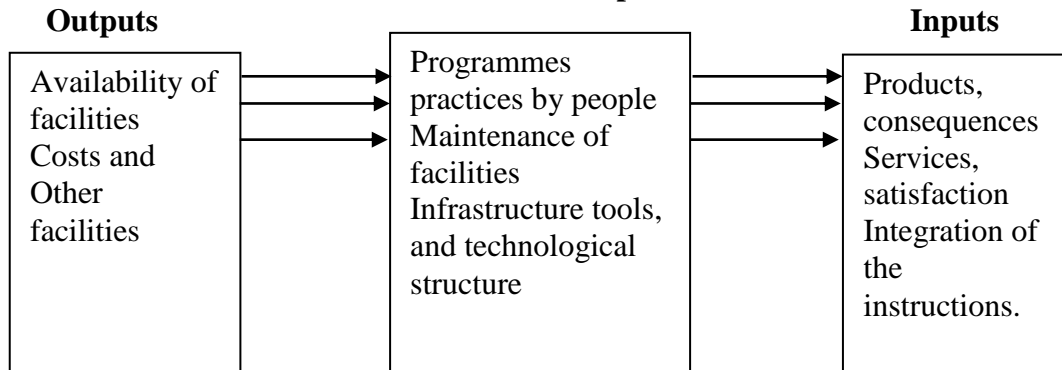
Ho₂: There is no significant influence of proper laboratory facilities planning on academic performance of secondary school students in Imo State.

Theoretical Framework

System Theory by Von Bertalffy (1956)

The basis of this research work can be traced and related to the system theory. A system is a sum total of parts working independently interdependently to achieve required results or outcomes based on needs (Ovwigbo, 1991). This implies that a collection of people, resources, concepts and procedures intended to perform some identifiable function or to achieve a goal. A system is made up of input, transformation process, and output; meanwhile, these are surrounded by an environment. The environment of the system is made up of several elements that is outside the system. In essence they are not input output processes, but have influence on the goals and thus the operation of the system.

**Fig .1: System and its Environment
Transformation process**



Source adopted Ovwigbo (1999) cited in Musa (2014)

System theory is often analyzed in terms of their effectiveness and efficiency. The system effectiveness refers to the extent to which goals are achieved in the school environment. Therefore, effectiveness is considered to measure the degree of goals attainment of the school of learning. While efficiency refers to how the activities of a school could be conducted to minimize waste of resources for the purpose of attaining the objectives. Efficiency therefore, aims at minimizing cost and measure how well facilities are being utilized for maintenance of available facilities. This is dependent on ratio of output to input. The system theory considers a school as a social system which survival depends on the systems’ ability to maintain the relative consistency of its processes and the relationship within and outside the systems. The ability to maintain the relative consistency of its processes and the relationship within and outside the system reflects in successful academic achievement. The process involves a model of energetic input-output system with energetic returns.

The implication of this theory to the study is that the influence of educational facilities on students' academic achievement hold a very important position in any school (especially secondary schools), this provides and allows smooth planning, directing, organizing, staffing and controlling within the school. The main aim of school facilities is to ensure that students as well as teachers are comfortable to teach and learn in order to achieve a great performance. Students, academic and non-academic staffs operate the school facilities in order to produce effective and accurate product to the society at large. If these facilities are lacking in a school, it might impede the teaching and learning process, hence affecting academic achievement.

Conceptual Review

Concept of Educational Facility Planning

The term educational facilities refer to the school buildings such as classrooms, assembly halls, libraries, laboratories, workshop and instructional materials provided in the school for effective teaching and learning operations. Oguntimehin, & Adeyemi, (2004), considers educational facilities as synonymous with school facilities which includes the school site, the buildings, the playgrounds, the equipment and other material resources provided in the school for effective teaching and learning operations. School facilities can be defined as comprising of location, weather, lighting, ventilation, floor space per pupil, health, and safety conditions, play areas, cafeteria and library.

Educational facility planning is a process to determine the educational needs of a school district and facilities needed to support those educational needs both now and in the future. According to Onwurah, (2004), school facility planning is the process of identifying, selecting, acquiring a suitable site for the school and erecting appropriable physical structures that will help in meeting the educational needs of the students. To Aworant, & Kasali, (2007), school facility planning is a comprehensive process that begins with the identification of educational needs and ends in the completed buildings and facilities to house educational programmes. Facility planning is a process that involves identifying and providing the teaching and learning facility needs that will optimally support the changing educational programmes both currently and in the future. Facility planning activities include feasibility studies, master planning, site selection, needs assessment, and project costing. Othman (2013) provides a much more comprehensive list of educational facilities and grouped them into two viz:

1) *School building*: These are tangible structures, which serves as shelter for educational activities. They include among others, classrooms, laboratories, workshops, teachers common rooms/offices, toilets, rest rooms, reading rooms, dispensaries, libraries, hostels/dormitories, dining halls, assembly hall, and staff quarters.

2) *Equipment*: School equipment refers to facilities or outputs such as machine and tools, which ease the operation of academic activities. Various equipment's are required in:

- a) *Classrooms*: For example, desks, chairs, blackboards, cupboards, shelves, dusting dusters, wash hand basins, napkins, teaching aids.
- b) *Laboratories*: For example, physics, chemistry, biology, agricultural science, languages, geography.
- c) *Workshop*: For example, woodwork, metal works machineries, electrical/electronics, business studies.

- d) *Sports/games*: For example, football, table tennis, volley ball, net ball, hockey, tourniquet, Short put, high jump stands/crossbars, javelin, hurdles, trophies, jersey, bells, notice boards, electric generator, typewriters, photosetting machines, computers.

School facilities have been defined by Ani (2007) as the location of the school buildings, the equipment in the school and other material resources provided in the school for the purpose of enhancing teaching and learning processes. To him, school facilities include the fixed and mobile structures and materials in the school such as the classroom buildings, laboratories and laboratory equipment, the school furniture, the chalkboards, tools and machines, the chalk, audio and visual aids. School facilities can also be taken to mean the site where the school programmes and activities take place or the environment where the school curriculum is implemented.

Importance of School Facilities Planning

The importance of school facilities planning has been highlighted by many educational administrators and planners. The importance attached to it as a vehicle for effective planning, teaching and learning cannot be over emphasized as Saiyida in Sidhu (2012), was quoted as saying a school or a college is a vital and life-giving environment to the extent that it brings into the life of its students an abiding love and appreciation for all that is best and most significant in national and human life. Kocheny (2012) asserts that as school heads and their academic staff plan and think together about the present and future needs of school facilities as vital factor that can contribute to the enrolment of students in the school. He further observes that through adequate planning of school facilities, they can determine the type of instructional materials teacher would need for effective instructions and whether the available classroom are adequate for the anticipated number of students.

Mgbodile (2010) stressing the need of Planning for school facilities, observed that the physical appearance and general condition of school physical facilities are the striking basis upon which many parents and friends of any educational institutions may make their initial judgments about the quality of what goes on in the school. In short, the physical facilities play a major role in determining the type of relationship between the school and the community. This is because parents and pupils make their judgments and take their decisions on whether to associate themselves with a particular school after a careful evaluation and consideration of the facilities in the school. Ani (2007) while supporting the above statement opined that if the quality and quantity of physical facilities attracts the admiration of a parent, the conviction of the parent will be that since the quality and quantity of facilities is of such level, the quality of the staff and school programme will be of high standard.

Library Facilities Planning and Academic Achievement of Students

Planning for a well-stocked School library is very essential to learning. School library play important role as a set for cheering improvement, interest, and difficulty solving. School library is a medium for literacy and reading and for instruction and scaffolding investigation learning. Alabi and Sani (2013) in their definition of a library, assumes it to be an instrument of self-education, a means of knowledge and factual information delivery, a center of intellectual recreations and a beacon of enlightenment that provides accumulated preserved knowledge of civilization which consequently enriches one's mental vision. Furthermore, Agbo (2015) defined the school library as that library attached or found in the pre-tertiary institutions such as nursery,

primary and secondary schools with the mission of contributing to the intellectual development of pupils and students. These libraries are seen as learning laboratories whose equipment includes books, magazines, newspapers, filmstrips, tapes, slides, recordings, transparencies, art painting and other types of teaching and learning materials (Oguntimehin & Adeyemi, 2004). Consequently, planning for these equipment's are necessary for educational purposes and development.

Ogbonna & Eze (2015) observed that school libraries serve as a medium of education (teaching and learning), as well as play a similar role in the curriculum enhancement and development of these schools. These school libraries are also regarded as the science or language laboratories. Also, adequate and good planning for the establishment of school libraries in the educational institutions such as secondary schools are very important to the life-wire and foundational upbringing of the children as well as instilling in them lifelong learning (Fabunmi, 2010). Planning for library facility in school makes the teaching-learning process more effective and advanced. The main objectives of library are the availability of all the materials for both students and teachers. According to the National Educational Policy (NEP), every Ministry, State requires to make Planning for the availability of finances to the institution to aid the establishment of libraries in all educational institution and also to prepare and train librarians and library assistants. School library play pivotal role in any educational system and give supports and guidance to the readers.

Waldman (2003) concludes that majority of the students visit school libraries for purposes related to academic enhancement. Students reading habit can be traced to childhood days when an individual starts to communicate with books and humans alike (Mbise, 2005). Students with poor reading habit would not likely read even in the school Library, even if they are forced to do so.

Laboratory Facilities Planning and Academic Achievement of Student

Planning for laboratory facilities expedite effective teaching and learning in school laboratories (Jaiyeoba & Atanda, 2005). Timilehin (2010) posited that laboratory facilities are those things which enable a skillful science teacher to achieve a level of instructional effectiveness that far exceed what is possible when they are not provided. Ardo (2004) defines school laboratory as an instructional facility for helping pupils to learn what science is and how scientists work. Akano & Nma (2003) defined Laboratory Facility Planning as a process of facilitating a place where people engage themselves in human enterprise to examine and explain natural phenomena.

Laboratory planning have been found to be a primary vehicle for promoting formal reasoning, skills and students' understanding, thereby enhancing the desired learning outcomes in students (Ogunleye, 2009). Proeter (2005) agreed to the view that laboratory planning is a process of setting up a room or building with specific equipment for doing scientific test of teaching science. According to Hornby (2005) laboratory is a room or building used for scientific research, experiment, testing. Laboratory is a place equipped for making tests or doing experimental work (Blood, Studdert & Gay, 2007). Laboratory is a place where scientific research and development is conducted and analysis performed (Britannica Concise Encyclopedia 1994–2010). Eya & Elechi (2011), sees laboratory as a room or building where scientific work or tests are carried on.

Laboratories planning have been found to be a primary vehicle for promoting formal reason skills and students understanding, and also a ladder for enhancing the desired outcome in students. The shortage of laboratory facilities could have serious implication on the quality of school output (Adeyemi, 2006). In order to ensure better performance from schools, there is need for planning in other to provide necessary facilities.

Ado (2003) further opined that it is very necessary that students manipulate materials and are equipped in the learning of biology through equipment; this will help them not only to acquire science process skills and new knowledge but also scientific attitude such as honesty, open-mindedness and cooperation as moralities of science and enhance understanding and retention of difficult concepts and procedures. Laboratory facilities give students some basic insight into scientific concepts and leave them with feeling of the reality of science which in turn improves their academic performance. Therefore, as the result from numerous researchers it is seen that laboratory facility planning is deemed necessary for enhancing student academic performance.

Empirical Study

Alabi & Sani (2013) carried out a study on the effect of library services on the educational development of secondary school students in Abia State, Nigeria. The study investigated the only government owned secondary school in Igbere Community of Bende Local Government Area of Abia State. The school was chosen on the basis of availability of school library. Students from Senior Secondary 1 to 3 were the respondents of this investigation. However, a sample size of 99 students out of a total population of 248 students representing 40% of the entire population, were randomly selected. A structured questionnaire was used to collect data. The study investigated the library services provided for the students, the extent of the students' use of the library services, the effects of the library service on the educational development of the students, the challenges facing library services as well as strategies to enhance library services to ensure the educational development of secondary school students. The paper through its findings concludes that libraries are the drivers of educational development through its numerous services. It therefore recommends the establishment of school library with up-to-date information resources and relevant services as a criterion for the approval of any secondary school programme in Abia State and Nigeria among other recommendations. With this, the educational sector of Nigeria stands to benefit immensely and not only that, there will be a reduction in emigration of Nigeria students as well as increase in Gross Domestic Product (GDP) of Nigeria.

Methodology

Expost- facto research design was adopted for the study. The research area was Imo State. The population of the study comprised all the teachers and students in public Secondary Schools in Imo state. The researcher adopted stratified sampling method to select the respondents. To this end the total of (183) respondent was used as sample for the study. Two research instruments namely, "EDUCATIONAL FACILITY PLANNING QUESTIONNAIRE" (EFPQ) and "STUDENTS' ACHIEVEMENT TEST" (SAT) was developed by the researcher for the collection of data for the study and for the purpose of testing the stated hypotheses. The reliability study was conducted with the use of thirty (30) respondents from secondary schools that were not part of the main work. Cronbach's Alpha technique was used to determine the reliability coefficient of the instrument in other to find out whether it is reliable or not. The data

was analyzed using appropriate statistical techniques. For research question descriptive statistics will be used to answer it while independent t-test analysis will be used to test the hypothesis at 0.05 alpha level.

Results and Discussion

Research Question One

The research question sought to find out how does proper library facility planning affect the academic performance of secondary school students in Imo State. To answer the question descriptive statistics was performed on the data as shown in table 1.

TABLE 1: Descriptive statistics of proper library facility planning affect the academic performance of secondary school students in Imo State

VARIABLE	N	\bar{X}	Mean Diff.
EFFECTIVE	124	58.86	22.64*
INEFFECTIVE	59	36.22	

*Remarkable Difference

Table 1 presents the descriptive statistics of proper library facility planning effect on the academic performance of secondary school students in Imo State. From the results it was observed that the students from schools that were identified with effective library planning performed remarkably better than their counterparts from school identified with ineffective library planning. This proves that effective library planning promotes good academic performance among secondary school students in Imo State.

Research Question Two

The research question sought to find out how does proper laboratory facility planning influence academic performance of secondary school students in Imo State. To answer the question descriptive statistics was performed on the data as shown in table 2.

TABLE 2: Descriptive statistics of proper laboratory facility planning influence academic performance of secondary school students in Imo State

VARIABLE	N	\bar{X}	Mean Diff.
EFFECTIVE	118	57.26	16.04*
INEFFECTIVE	65	41.22	

*Remarkable Difference

Table 2 presents the descriptive statistics of proper laboratory facility planning, influence on academic performance of secondary school students in Imo State. From the results it was observed that the students from schools that were identified with effective laboratory planning performed remarkably better than their counterparts from school identified with ineffective laboratory planning. This proves that effective laboratory planning promotes good academic performance among secondary school students in Imo State.

Hypothesis One

The null hypothesis states that there is no influence of proper library facilities planning on academic performance of secondary school students in Imo State. In order to test the hypothesis, Independent t-test analysis was used to analyze the data (see table 3).

TABLE 3: Independent t-test analysis of the influence of proper library facilities planning on academic performance of secondary school students in Imo State

Variable	N	\bar{X}	SD	t
Male	124	58.86	9.11	17.02*
Female	59	36.22	6.69	

***Significant at 0.05 level; df = 181; N= 183; critical t-value 1.96**

Table 3 presents the obtained t-test-value as 17.02. This value was tested for significance by comparing it with the critical t-value (1.96) at 0.05 level with 181 degree of freedom. The obtained t-value (17.02) was greater than the critical t-value (1.96). Hence, the result was significant. The result means that there is significant influence of proper library facilities planning on academic performance of secondary school students in Imo State.

Hypothesis Two

The null hypothesis states that there is no influence of proper laboratory facilities planning on academic performance of secondary school students in Imo State. In order to test the hypothesis, Independent t-test analysis was used to analyze the data (see table 4).

TABLE 4: Independent t-test analysis of the influence of proper laboratory facilities planning on academic performance of secondary school students in Imo State

Variable	N	\bar{X}	SD	t
Male	118	57.26	11.52	9.32*
Female	65	41.22	10.44	

***Significant at 0.05 level; df = 181; N= 183; critical t-value 1.96**

Table 4 presents the obtained t-test-value as 9.32. This value was tested for significance by comparing it with the critical t-value (1.96) at 0.05 level with 181 degree of freedom. The obtained t-value (9.32) was greater than the critical t-value (1.96). Hence, the result was significant. The result means that there is significant influence of proper laboratory facilities planning on academic performance of secondary school students in Imo State.

Discussion of the Findings

The result of the data analysis in table 3 was significant due to the fact that the obtained t-value (17.02) was greater than the critical t-value (1.96) at 0.05 level with 181 degree of freedom. The result implies that there is significant influence of proper library facilities planning on academic performance of secondary school students in Imo State. The result was in agreement with the research finding of Ogbonna & Eze (2015), who opined that school libraries serve as a medium of education (teaching and learning), as well as play a similar role in the curriculum enhancement and development of these schools. The significance of the result caused the null hypotheses to be rejected while the alternative one was accepted.

The result of the data analysis in table 4 was significant due to the fact that the obtained t-value (9.32) was greater than the critical t-value (1.96) at 0.05 level with 181 degree of freedom. The result implies that there is significant influence of proper laboratory facilities planning on academic performance of secondary school students in Imo State. The result was in agreement with the research finding of Ado (2003), who averred that laboratory facilities give students some basic insight into scientific concepts and leave them with feeling of the reality of science which in turn improves their academic performance. Therefore, it is seen that laboratory facility planning is deemed necessary for enhancing student academic performance. The significance of the result caused the null hypotheses to be rejected while the alternative one was accepted.

Conclusion

Based on the findings of the research work, it was deemed necessary to conclude that adequate and good planning for the establishment of school libraries and laboratories in the educational institutions such as secondary schools are very important to the life-wire and foundational upbringing of the children as well as instilling in them lifelong learning. It was also concluded

that there is significant influence of proper library and laboratory facilities planning on academic performance of secondary school students in Imo State.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. The government should ensure the availability of the school facilities and other plans that will ease learning in schools. These contributes to good academic performance as they enhance effective teaching-learning activities.
2. A well-stocked library must be guaranteed in educational system as it correlates with high academic performance and enhances good learning and achievement of high educational standard.
3. As a result of poor funding by government, most administrators have resorted to generating funds internally through education levies and development levies, but this certainly is not enough for facility procurement. Therefore, the government should assist by providing adequate funds for the development of educational facilities
4. It is important to emphasize that at every stage of planning, from the initial stage of making decisions to evaluations, there is need to harness the advice of experts, from policy analyst to architects. This will enhance efficiency.

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