Research Paper .

QUALITY OF SCHOOL FACILITY AND ACADEMIC SUCCESS AMONG SCIENCE-BASED STUDENTS IN ETI-OSA LOCAL GOVERNMENT AREA, LAGOS STATE, NIGERIA

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Abstract

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. This inadequate provision or the non-availability of school facilities in secondary schools has prompted related investigations. This study therefore examined the potency of school infrastructure on academic success among secondary school students in Eti-Osa LGA of Lagos State. Through a quantitative cross-sectional research design, relevant data was obtained. An appropriate was used for the study. A multistage sampling technique was used to select a sample size of 184 students from selected schools within the study area. A well-structured and standardized questionnaire was used to collect data for the study. *Data obtained from the field was input and coded in SPSS software. Both descriptive and inferential statistics were applied in providing suitable answers to the research questions of the study.* Participants' ages ranged from 13 years to 21 years. Results showed that the quality of the classroom [t(168)=-.825;p>.05] and library [t(168)=-1.000; p>.05] did not significantly influence academic success while the quality of laboratory [t(168)=3.869; p<.05] significantly influenced academic success. No significant gender difference was observed in academic success between male and female students [t(177)=-.955; p>.05]. It was recommended that school management should prioritize the construction of well-equipped laboratories for science based students in order to improve their academic performance.

Keywords: Academic success, School facility, Secondary school,

Introduction

Education for All (EFA) an enactment that holds educational institutions accountable in providing quality education and maintaining high academic achievements for all students in the country—appears to be almost unfeasible for many schools in Nigeria, which is highly challenged to meet EFA's requirements. Essential factors to consider in order to fully attain the provisions in this enactment include a curriculum that ensures student proficiency in taking standardized tests; and the adequate number of teachers who can effectively translate the curriculum into meaningful instructional practices. Nevertheless, an often-overlooked factor that influences knowledge and skills acquisition of learners is physical school facility. The school facility refers to the entire environment of the school or an organisation, it refers to both the physical and material resources available to the students and teachers in the school to facilitate the learning - teaching process. Hughes et al (2005) and Lyons (2010) opined that student performance and achievement is often implicated in the age, design, and condition of the school facility. Depending on the quality of its design and management, the facility can contribute to a sense of ownership, safety and security, personalization and control, privacy as well as sociality, and spaciousness or crowdedness.

The importance of school facilities or amenities in the development and growth of the educational sector cannot be overemphasized. 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 (Akomolafe & Adesua, 2016). Often times, there has been a constant outcry of the inadequate provision or non-provision of the school facilities, especially, the laboratories, the classrooms (buildings) and the libraries which are the main school facilities that aid teaching and learning, for example due to lack of necessary equipment in the school, 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. Due to lack of provision of libraries, and sufficient classrooms in the school, year after year, the academic performance of students both in arts and science courses continue to go down (Qaiser & Ishtiaq, 2014). This is because the teaching-learning process is not facilitated by the lack of school facilities for the better understanding by the students.

An effective school facility is responsive to the changing programs of educational delivery, and at a minimum should provide a physical environment that is comfortable, safe, secure, accessible, well illuminated, well ventilated, and aesthetically pleasing (Adewunmi, 2002). The school facility consists of not only the physical structure and the variety of building systems, such as mechanical, plumbing, electrical and power, telecommunications, security, and fire suppression systems. The facility also includes furnishings, materials and supplies, equipment and information technology, as well as various aspects of the building grounds, namely, athletic fields, playgrounds, areas for outdoor learning, and vehicular access and parking. The school facility is much more than a passive container of the educational process: it is, rather, an integral component of the conditions of learning. The layout and design of a facility contributes to the *place experience* of students, educators, and community members.

Many communities recognize that in addition to school facilities being cost effective, they should be more learner-centered, developmentally and age appropriate, safe, comfortable, accessible, flexible, diverse, and equitable. By location of new facilities in residential neighborhoods and partnering with other community-based organizations, schools are becoming true community centers. In addition, schools are taking advantage of educational resources in the community, as well as partnering with museums, zoos, libraries, and other public institutions and local businesses. Based on mounting evidence that smaller schools lead to improved social climate as well as better achievement, school leaders have begun to create smaller schools or have created schools within schools. Research indicates that smaller class size is a factor contributing to improved achievement. Learning settings are being designed to support individualized, self-directed learning and small informal group learning, in addition to traditional large-group instruction. Rather than lining up classrooms along a long corridor, instructional areas are being organized around central cores of shared instructional support.

Libraries and laboratories are also main areas of facilities identified in the school system or environment (Elaturoti, 2008). Popoola (2011) states that in terms of the availability of the libraries as one of the school facilities, a great many of secondary schools in Nigeria have no functional libraries, and where some libraries are found, there are no new or current books that are relevant to the current secondary school programmes. The importance and uses of the library cannot be under-rated. Libraries and books give great assistance to both the teachers and the learners, as it provides an avenue to update knowledge from older books. In terms of laboratories, Owate and Okpa (2013) claims that only few schools in Nigeria have science laboratories which are well equipped to carry out scientific experiments in courses such as biology, physics, and chemistry. Some other schools teach the three branches of science without laboratories in the hope that they would use other schools' laboratories during their examinations.

Learning, according to Lyons (2010), is a complex process that situates students' motivation and school's physical conditions into constant evaluation. These internal and external resources interrelate to achieve holistic learning within a learner. Educators should perceive each variable important in maintaining an uninterrupted flow of the process—there was no one variable that operated in isolation (Lyons, 2010). School facility must be equally viewed as an active contributor in this process. Thus, stakeholders must be aware of the different ways by which the conditions of the school facilities make or break the education of the students. Poor condition of school facilities brings about critical concerns on teachers' and students' general welfare. Consequently, it becomes imperative that the functions school facilities fulfill in in the student acquisition and learning of life-long knowledge and skill competencies should be taken into account by policy makers and administrators when designing a curriculum that provides equitable and efficient education.

Beyond the direct effects that poor facilities have on students' ability to learn, the combination of poor facilities, which create an uncomfortable and uninviting workplace for teachers, combined with frustrating behavior by students including poor concentration and hyperactivity, lethargy, or apathy, creates a stressful set of working conditions for teachers. It is possible that the aforementioned characteristics of school facilities have an effect upon the shortage of teachers. What is lacking in the body of research related to the effects of school facilities upon student performance and achievement is analysis of key characteristics such as lighting, ventilation, acoustics and temperature control in relation to measures of student performance. According to Bowers and Urick (2011), most studies have focused on single environmental media, neglecting the critical issue of interaction effects between day lighting, air quality, noise, thermal comfort, or other factors. It is possible that relationships exist between specific dimensions of school facilities and students' outcomes.

Research Questions

In line with the study objective, the following research questions are presented to guide the direction of the study

1 Does the quality of classroom facilities have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State?
2 Does the quality of library facilities have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State?
3 Does the quality of laboratory facilities have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State?
4 Do gender differences exist in the academic performance of secondary school students in Eti-Osa LGA of Lagos State?

The School Facility

School facilities refers to the physical facilities and learning resources that aid optimum teaching-learning conditions for both the student and the teacher, that is, the school buildings, classrooms, library, laboratories, toilet facilities, offices and other materials and infrastructures that would likely motivate students towards learning. Physical facilities are germane to effective learning and academic performance of students. In support of this, Onyebuenyi et al (2022) identified facilities as the main factor contributing to academic achievement in the school system; they include the school buildings, classroom, libraries, laboratories and recreational equipment among others. Other previous studies have also emphasized the importance of the availability of physical facilities. For instance, Ajayi and Ayodele (2011) emphasized that the availability of these resources are quite important to achieving effectiveness in instructional delivery and supervision in the school system. They further buttressed the fact that non-availability of basic facilities such as classrooms, office accommodation, workshops, sporting facilities, laboratories, library et cetera which is being experienced in secondary schools is a perfect reflection of what obtains in the university system. Adeyemi (2008) claimed that laboratories play a key role in the teaching and learning of science that is why Ajayi (2012), noted that these facilities have to be adequate and should be in good condition for schools to function properly.

School facilities are perhaps the most important fixture in communities across the nation. They are a symbol of the commitment of community members to what many consider to be the strongest need of society today, the education of our children. It is ironic that these symbols of the community are often allowed to fall into such a state of disrepair and neglect that they become unsafe to serve their original intended purpose. Schools in a district with a high percentage of students from low-income families and with a large minority enrollment are likely to be in the worst physical condition (21st Century School Fund, 2006). School administrators must assure that the school facility is as conducive to learning as possible, and make administrative decisions to best utilize educational funding that has not proportionally grown to meet the needs of school facilities (Akomolafe & Adesua, 2016). Numerous studies published in the last decade indicate that the school building in which a child attends school can positively or negatively affect his or her educational attainment (Stevenson, 2006). Among many policymakers and school officials, there is an assumption that learning can take place anywhere and that a good teacher can accomplish their task while "sitting on a log" (Guy, 2001, p.12). The enhancement of the physical characteristics of the learning space will improve the teacher's ability to teach and the student's ability to learn and will affect other characteristics of students such as health, attendance, and discipline (Bowers & Burkett, 1987). Stevenson (2006) adds, "If one school has modern, aesthetically pleasing school facilities, while another struggles with undersized classrooms and a poor physical environment, the playing field is not level" (p.14).

School administrators execute many tasks throughout the school year. In the quest to improve academic performance, principals and other educational leaders tend to focus on curriculum and pedagogy rather than the physical learning environment. However, Maiden and Foreman (1998) state that all school administrators should possess a basic understanding of facility assessment and use this knowledge to continually evaluate the condition of school buildings and its impact upon student success. The school principal is not the only individual who should be mindful of the role that facilities play in school success. Teachers, parents and students are encouraged to reflect upon the condition of their school facilities (Sanoff, 2001). Sanoff (2001) notes that school facility assessment can be simply determining the arrangement of classroom furniture, or a more complex identification of the mechanical, electrical and plumbing systems. Assessment can include various methods of data collection, including direct observation, interview and simulation (Friedman, Zimring & Zube, 1978). School facility assessment normally conjures up thoughts of designers, architects, engineers and other professionals trained specifically to evaluate buildings. However, a growing trend considers that the users of a building such as teachers, students and community members, are the most reliable people to assess school facilities (Sanoff, 2001). This involvement of building occupants helps to ensure that facility quality assessment is an ongoing process rather than one only done when design professionals visit the building (Lackney, 1999).

School facility assessment can focus on many factors of educational adequacy and excellence. Most obvious is an investigation of the environmental factors that impact academic performance and the delivery of curriculum

(Sanoff, 2001). However, schools are increasingly evaluating the safety and security of their campuses. Efforts to improve safety and security should consider facility systems as well as policies and preparedness. Vigue (2002) reports that a site survey which assess campus safety and security should address the school's perimeter integrity, internal access control and entryways. Facility assessment can determine the likelihood that building design may contribute to misbehavior and violence by examining sightline obstruction, door hardware security and space for student circulation (Reid, 2000). Facility assessments can often prove to be expensive and time-consuming. However, formative facility assessments can be executed by school administrators during the normal course of their job duties. Software and other assessment instruments have been developed to assist the layperson in determining facility condition (Oualline & Rabenaldt, 2002). Other technological advances, such as hand-held computers containing facility condition history, have made data access more efficient for building managers as they assess the physical environment (Bhimani & Pantaleo, 2001). Additionally, an extensive and accurate assessment of current facilities can assist in persuading elected officials and taxpayers to financially support improved and innovative construction (Rabenaldt, 2000).

Academic Success and School Facility

Often, academic success and academic performance are used interchangeably in research. Academic performance is the achievement of a person in an educational course. Academic success refers to a phenomenon that fuses academic performance, the outcome of learning objectives, persistence, procurement of desired competencies and skills, fulfilment, and performance after college (York, Gibson, & Rankin, 2015). Academic performance of students, as stated by Opoko, Oluwatayo, and Ezema, (2016), measures the degree to which a student has been able to attain the educational set-goal. Academic success is vital in achieving the objectives and knowledge during the learning process. Hence, the need to understand the various environmental factors affecting the academic performance (and thus, the academic success) of students. The learning environment, as defined by Zais (2011), simply is the extent to which school students promote the health and safety of students, which may include the academic environment, the physical plant, mental and physical health services and supports available and the adequacy and fairness of disciplinary procedures, as supported by the research of relevance. On the academic success of students, a significant amount of literature has been published. The review of the various literature on the academic success of students has led to the conclusion numerous factors affect the academic success of students. Qaiser and Ishtiaq (2014) assert that what plays a significant role in any activity and makes it more conducive, achievable, and successful is the physical environment. Many factors constitute the school facility including classroom environment, acoustic factor, visual factor, lighting factor, spatial factor, ventilation system, and facilities and teaching aids.

Many factors constitute the classroom environment: time factor, acoustic factor, visual factor, spatial factor, thermal factor and facilities. According to York, Gibson, & Rankin (2015), the spatial factor, which is classroom arrangement, seating positions and space management, in general, has a more significant impact on the students' level of understanding, and consequently, their academic performance, as it affects the core of teaching and learning – communication. It is suggested, hence, that the classroom environment should be equipped, well-organised and facilitated. Students' performance is also affected grossly by the spatial attributes and ambient attributes of the classroom which are influenced by the design, management, and, after that, maintenance of the same (Zheng, Burcin, & Laura, 2013). The conceptual framework for this study (in Figure 2.1) shows the hypothesized relationship between the independent and dependent variables. From the diagram, it can be observed that the independent variable in school facility which is evaluated based on three dimensions of classroom quality, library quality and laboratory quality. The dependent variable is students' academic performance. Each of the dimensions of school facility are hypothesized to have independent influence on academic performance of students. It is further hypothesized that that all of the dimensions will jointly influence academic performance of students.

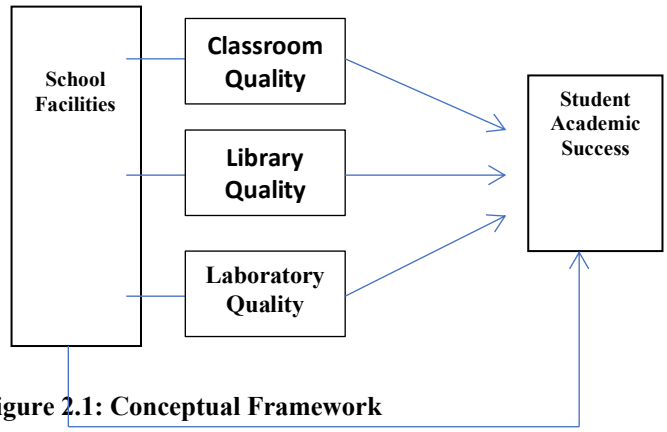

Figure 2.1: Conceptual Framework

Theoretical Framework

Walberg's theory of academic achievement posits that psychological characteristics of individual students and their immediate psychological environments influence educational outcomes (cognitive, behavioral, and attitudinal) (Reynolds & Walberg, 1992). Further, Walberg's research identified key variables that influence educational outcomes as: student ability/prior

achievement, motivation, age/developmental level, quantity of instruction, quality of instruction, learning environment, home environment, peer group, and exposure to mass media outside of school (Walberg, Fraser, & Welch, 1986). Among these variables, a school facility is situated within the learning environment. Researchers working on the assessment of learning environments have also developed and validated constructivist-based, personal forms of learning environment measures to tap students' individual, rather than collective perspectives of classroom life (Fraser, Fisher, & McRobbie, 1996; Rugutt, Ellett, Culross, 2003). Learning environment has often been studied for the purposes of ensuring maximum student achievement in his/her education endeavors. Further, learning is a highly individual process which occurs within a larger environment. Learning is thus mediated by an individual's interactions with and perceptions of the external environment (Maye, 1998; Oliver & McLoughlin, 2001).

With the use of technology in the teaching and learning environments, research has highlighted the benefits of web-based learning for students. Research studies indicate that the use of educational technology afford the learners greater anonymity and opportunities to practice a range of generic skills (for instance, management of self, others, task, information) (Howe, 1998; Oliver & McLoughlin, 2001). Further, through online technologies, learners can profit from an interactive and engaging environment with a range of learning scaffolds and supports thus enabling them to broaden and make sense of their experience (Hammond & Trapp, 2001; Krantz & Eagly, 1996). With computer resources, learners are provided with the opportunity to interface with computers on a regular basis. Indeed, library resources are largely retrievable online and students do not have to be in a physical location like a library facility to be able to access most research articles and technical research reports. With advanced computer technology and library online databases, retrieving research has been made much easier. Further, with computer resources, learners have a chance of improving their computer literacy, which can be considered a "critical filter" for the employment market of the future (Heinssen, Glass, & Knight, 1987).

Methods

Research Design and Setting

This study adopted a quantitative cross-sectional research design in which data was obtained via survey methods. The use of a cross-sectional design enabled the researcher to obtain data from a homogenous population, having varying attributes, at a specific point in time. This also enabled the researcher to make valid inferences about the phenomenon under study with respect to the target population. In this study, the independent variables are school facilities while the dependent variable is academic performance. The study was conducted in a selected public secondary schools in Eti-OsaLocal Government Area, Lagos State. Eti-OsaLGA. Eti-Osa LGA administers the council area as Ikoyi-Obalende LCDA, Eti-OsaEast and Iru Victoria Island LCDA. Within Eti-Osa are several important areas of Lagos State, including Lagos' Victoria Island. Before the Nigerian capital moved to Abuja, Eti-Osa LGA served alongside Lagos Island LGA as the seat of the national capital. There are more than a dozen public secondary schools situated in Eti-OsaLGA, from which the participating schools in this study was selected.

Population and Sampling

The target population for this study consisted of both male and female senior secondary school students in science-based classes within the selected institutions. A sample size of 184 participants was obtained for the study. A multistage sampling technique was used to select the participating secondary schools and participants for the study. The first stage involved the selection of five public secondary schools in Eti-Osa LGA of Lagos State. Purposive sampling was adopted in selecting the participating secondary schools based on criteria of proximodistal location, accessibility, cooperation from school management etc. The second stage involved stratified sampling techniques in which the participating classes were grouped into science-based stratum and art-based stratum. For this study, the focus was on the science based stratum; due to their eligibility in utilizing laboratory facilities as part of their learning requirements. The third stage involved simple random sampling techniques in which the researcher randomly selected one of the science-based classes (from the stratum) to participate in the study. This was achieved using the ballot technique. The fourth stage involved total enumeration sampling in which every member of the selected class participated in the study.

Instrument and Data Collection

A well-structured and standardized questionnaire was used to collect data for the study. The questionnaire consisted of 3 sections. The first and second sections of the questionnaire were completed by the students while the third section was completed by the class teacher. The first section comprised items that measured socio-demographic characteristics of the participants including age, sex, class etc. The second section of the questionnaire comprised items that evaluated the availability and quality of school facilities; with specific focus on classroom, library and laboratory facilities. The items in this section were developed from an extant review of related literature and instruments from previous studies. Then third section contained checkboxes for the class teacher to input the students' overall performance in their most recent examination. In order to measure the extent to which the survey instruments have been able to achieve their aims, the process of content validity will be employed by cross

examination and verification. The knowledge gained from other investigations, literature review, theoretical framework and research methods were used for an initial face validation while expert assessment from the project supervisor provided content validatation for the instrument. Consequently, a number of items in the questionnaire were subject to amendment. in measuring the reliability, a pilot study was carried out among a sample with similar charateristics to the study population. Outcomes from the pilot study were subjected to a split half reliability test in order to obtain the reliability coefficient for the instrument. Split half relaibility coefficiants of .78 and .71 were obtained for the study instrument.

The research was carried out and data was collected after the approval from the appropriate Research Ethical Review Committee. A letter of introduction was obtained from the researcher's department to 'whom it may concern' within the management of the participating secondary schools. The researcher sought the cooperation of the management in providing a contact person among the teaching staff to assist in providing the necessary information and guidance for the researcher. Having selected the participating class via appropriate sampling methods, the contact person also assisted in facilitating the data collection process by introducing the researcher to the class teacher who was directed to set up the class and organize the students for questionnaire distribution. The class teacher was also present (with a class register containing the students' results in their most recent examination) during the questionnaire distribution session. The questionnaires were distributed to all available members of the class. The students were informed by the researcher of the need to follow the instruction strictly and they were encouraged to respond accurately, honestly and promptly to the instruments. During the filling of the questionnaires, the students were told to write their names on the questionnaire with a pencil to allow for easy erasure of the names afterwards. After filling out the questionnaire, the students were told to submit the questionnaire to the class teacher, who then input the students' overall result (in percentage) from the register in the available column on the questionnaire. The student's name was then erased completely from the questionnaire. After the entire process, the questionnaires were retrieved from the class teacher by the researcher.

- **Ethical Considerations and Data Analysis**

The researchers conducted this study in an ethical way: First, before the study, the respondents were informed of their rights and those who participated in the study did so by their own free will. Principle of confidentiality on the identity of the respondents was upheld by making sure that the identities of the respondents were not revealed. Finally, the researcher ensured that no physical or psychological harm was inflicted on the respondents during the study. *Data obtained from the field was input and coded in a current version of the SPSS software. Both descriptive and inferential statistics were applied in the providing suitable answers to the research questions of the study. Specifically, percentage frequency distribution tables and t-test for independent measures were used as statistical techniques for the analyses.*

Results

Results obtained for this study were based on the data obtained from one hundred and eighty four (184) science students in five selected secondary schools, and analyzed using descriptive and inferential statistics. Results are presented in the following sections.

Demographic Characteristics

This section presents the frequency distribution of respondents across age, sex, class. Results are presented in the following table.

Table 1: Demographic frequency of Participants

		Frequency	Percent
Age (in years)	13.00	8	4.3
	14.00	40	21.7
	15.00	41	22.3
	16.00	48	26.1
	17.00	30	16.3
	18.00	10	5.4
	19.00	5	2.7
	20.00	1	.5
	21.00	1	.5
Gender	Male	70	38.0
	Female	114	62.0
Class	SS1	11	6.0
	SS2	96	52.2
	SS3	77	41.8
	Total	**184**	**100.0**

Results from Table 1 show that the participants' ages ranged from 13 years to 21 years. However, the majority (92.1%) of the participants were between ages 14 and 18 years. The age distribution presented in the Table is in tandem with the expected secondary school ages of Nigerian students which are usually within teenage years.

- **Research Question One**

Does the quality of classroom facilities have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State? This research question was tested using t-test for independent measures. Results are presented in Table 2

Table 2: Summary of t-test showing difference in academic performance across the quality of classroom facilities

	Classroom Quality	N	Mean	Std. Dev.	df	t	sig
Academic Performance	High	93	5.39	1.28	168	-.825	.409
	Low	77	5.56	1.42			

Results from Table 2 show that there is no significant difference in academic performance between students in high quality classrooms and their counterparts in low quality classrooms [t(168)=-.825;p>.05]. The results imply that classroom quality did not have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State.

Research Question Two

Does the quality of library facilities have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State? This research question was tested using t-test for independent measures. Results are presented in Table 3

Table 3: Summary of t-test showing difference in academic performance across the quality of library facilities

	Library Quality	N	Mean	Std. Dev.	df	t	sig
Academic Performance	High	101	5.32	1.21	168	-1.000	.319
	Low	70	5.53	1.56			

Results from Table 3 show that there is no significant difference in academic performance between students with access to high quality library and their counterparts with access to low quality library [t(168)=-1.000; p>.05]. The results imply that library quality did not have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State.

Research Question Three

Does the quality of laboratory facilities have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State? This research question was tested using t-test for independent measures. Results are presented in Table 4

Table 4: Summary of t-test showing difference in academic performance across the quality of laboratory facilities

	Laboratory Quality	N	Mean	Std. Dev.	Df	t	sig
Academic Performance	High	94	5.81	1.04	169	3.869	.000
	Low	77	5.04	1.53			

Results from Table 4 show that there is a significant difference in academic performance between students with access to high quality laboratory facility and their counterparts with access to low quality laboratory facility [t(168)=3.869; p<.05]. The results imply that laboratory quality has an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State; with the former performing better than the latter in their academics.

Research Question Four

Do gender differences exist in the academic performance of secondary school students in Eti-Osa LGA of Lagos State? This research question was tested using t-test for independent measures. Results are presented in Table 5

Table 5: Summary of t-test showing gender difference in academic performance

	Gender	N	Mean	Std. Dev.	df	t	sig
Academic Performance	Male	68	5.29	1.46	177	-.955	.341
	Female	111	5.49	1.31			

Results from Table 5 show that there is no significant difference in academic performance between male and female students [t(177)=-.955; p>.05]. The results imply that gender did not have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State.

Discussion of Findings

The first research question sought to examine the impact of classroom facilities on the academic performance of secondary school students in Eti-Osa LGA of Lagos State. Results obtained however showed that there was no significant difference in academic performance between students in high quality classrooms and their counterparts in low quality classrooms, implying that classroom quality did not have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State. While it may have been expected that better classroom conditions should yield better academic performance, the results obtained in this study may be justified by the fact that many students in Nigerian public schools have begun to adapt and cope effectively amidst the harsh realities of poorly structured classrooms. In fact, there are likely to be Nigerian students in many rural settings who have no knowledge of what a standard classroom ought to be. Thus, many students in Nigerian public secondary schools have been able to concentrate on course contents without allowing the supposed deficiencies in classroom quality affect their academic performance. These results are in contrast with outcomes of studies by Ajani and Akinyele (2014) and Zyngier (2014) where it was established that a significant relationship existed between classroom quality and student's performance. However, in support of this study, Owoeye and Olatunde-Yara (2011), found that classroom quality has no significant impact on academic performance.

The second research question aimed at understanding the impact of library facility quality on the academic performance of secondary school students in Eti-Osa LGA of Lagos State. Results obtained showed that there was no significant difference in academic performance between students with access to high quality library and their counterparts with access to low quality library. This implies that library quality did not have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State. While the library still remains a necessity for any secondary school, the library culture of many public secondary schools is gradually fading away. This is because many of these schools have inculcated measures that enable students excel without library facilities. For instance, it is now common practice for parents to be mandated to buy all the textbooks needed for the class curriculum of their children and wards. This singular act of providing all textbooks and resources for students has the potential of devaluing the impact of library access on academic performance, especially when the teachers judiciously rely on these specific textbooks throughout all the lessons in the subject. These results are contrary to some of the outcomes in the literature. For instance, research by Martin (2011) showed improvement in reading abilities of students at schools adequate library facilities. He stated that those students who were habitual of attending library, got more scores as compare to those who were fail to used school library; and Jato et al., (2014) noted that there was a body of research supporting the view that school libraries could have a positive impact on academic achievement. However, in support of the results obtained in this study, Lance (2012) suggested that the impact of the school library reduced as students moved through high school.

Then third research question sought to examine the impact of laboratory facilities on the academic performance of secondary school students in Eti-Osa LGA of Lagos State. The results showed that availability and quality of laboratory facilities had a positive impact on the academic performance of students as students with access to quality laboratory performed better than their counterparts without laboratory access. The significant impact of laboratory facility on academic performance stems from its inability to be replaced by other measures. Therefore, unlike the school libraries which can be rendered impotent by substituting it with buying students textbook, the laboratory cannot be substituted with other alternatives. These results are buttressed by Buhatwa (2014) who investigated the effect of laboratories in community secondary schools on students' performance in science subjects in Tanzania. The findings of the study revealed that, performance of science subject students have been affected by lack of practical lessons, and scarcity of laboratory facilities. Similarly, Dahar and Faize (2011) identified great deficiency in the availability and the use of science laboratories which affects the performance of students.

The fourth research question examined the existence of gender differences in the academic performance of secondary school students in Eti-Osa LGA of Lagos State. Results showed that there was no significant difference in academic performance between male and female students; implying that gender did not have an impact on the academic performance of secondary school students in Eti-Osa LGA of Lagos State. The result is justified by the fact that academic performance is not a gender based construct due to its cognitive elements which can be expressed in equal measure between boys and girls. Therefore, students who are exposed to the same learning content and teaching methods are more likely to report academic performances which do not reflect gender differences. This is a similar position held by many researchers (Adeyemi & Ajibade, 2011; Akinsola, 2007; Awofala, Adeneye & Nneji, 2011 & Amosun, 2011, Apata, 2011; Umukoro & Okurame, 2017; Atovigba et al, 2012, etc) who have pointed out that there is no significant gender difference in students' academic achievement and retention in various subjects while others (Talabi, Emiola & Ogunsakin 2003; Mustafa, Khan & Fabunmi, 2004; Rusillo & Arias, 2004) found significant difference with either the boys or the girls performing better.

Conclusion

The study set out to examine the impact of school facilities on the academic performance of secondary school students in Eti-Osa LGA of Lagos State. This was achieved through an empirical analysis of relevant data. Results obtained yielded insightful conclusions which have implications for policy formulation and implementation. For instance, it was concluded that facilities of libraries and a conducive classroom environment, which hitherto are important facilitators of academic performance, did not have an impact on the students' academic performance. This was attributed to the fact that Nigerian students are gradually adapting to the anomaly of functioning optimally or otherwise in deficient classroom environments and inaccessibility to libraries. While this in itself are indicators of high resilient and adaptive traits among Nigerian students, best practices of having a conducive classroom setting and access to libraries have their potent benefits and should therefore not be relegated. Further results however showed that these resilient and coping strategies could not surmount the challenges of learning without the aid of a practical science laboratory. It was observed that science based students who had access to well-equipped laboratories performed better than their counterparts without access to such facilities. This implies that the laboratory facility is an important facilitator of learning and cannot be substituted by improvised alternatives. Therefore, a well-equipped science

laboratory is an essential facility that must be established and maintained in all secondary schools in Nigeria. Finally, the fact that no gender difference in academic performance was established is a positive indication of how far the nation has been able to achieve girl-child education. The ability for girls to compete effectively with their male counterparts in Nigerian secondary schools is commendable and worthwhile for the human capital development of the nation.

Recommendations

Based on the outcomes of the study, the following recommendations are proposed.

- Principals should work hand in hand with parents, sponsors and other stakeholders in education to prioritize the provision of adequate laboratory facilities to ease the problems of inadequacy of laboratories in public secondary schools.
- Science teachers should be encouraged and motivated to use science laboratories more frequently. Science teachers should also be taken to workshops and in-service training to make them more competent in teaching sciences subjects theoretically and practically. This could trigger teachers' creativity and innovation in the use of laboratory equipment in teaching and learning process.
- Students should be given more opportunities to experience science by being exposed to more laboratory practicals which may enhance better performance in science subjects.
- The government should provide some laboratory equipment to schools to subsidize their costs and encourage the local chemical manufacturers to produce more affordable chemicals and laboratory equipment.

Limitations and Future Directions

There are some limitations to this study. As noted by researchers, a common concern of self-report data is social desirability (i.e., the bias in self-report data accounted for by respondents' desire to look good, which is because of the respondents' need for self-protection and social approval). Since the data for the study were collected using self-report questionnaires, the participants' responses may have been influenced by social desirability. This, in turn, might have affected the predictive power of some independent variables on the criterion variables. The research design of this study was cross sectional and it is thus enough to specifically infer a causal relationship. Undertaking research at one period in time can only reflect that period in time. Therefore, it would be interesting to replicate this study, with a longitudinal design, assessing individual student performance over time during different stages of academic development. The research only focused on students in secondary schools within Eti-Osa LGA in Lagos state; therefore the likelihood that the sample represents a good cross section from the national population of all secondary school students in the country is slim. Future research studies should make use of stratified random sampling to ensure satisfactory representation of different groups. The use of larger sampling might also provide increased confidence that study findings would be consistent across other (similar) groups. Further studies should be more diverse and have national coverage so that economic, cultural, ethnic and geographical differences can be highlighted. Despite these limitations, these findings contribute to our understanding of the important issue of school facilities in Nigerian secondary schools and highlight areas that deserve additional study.

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