

Influence of Environment on Academic Performance of Senior Secondary School Biology Students in Owerri Municipal Council of Imo State

**Nwachukwu, C. U. ¹, Onwukwe, E.O.³, Evans-Kemka, C.I.¹Azorji, J.N.², & Ngumah,
M.O.¹**

¹Biology Department, Alvan Ikoku Federal University of Education Owerri Imo State, Nigeria.

²Department of Biological Sciences, Hezekiah University Umudi, Imo State, Nigeria

³Integrated Science Department, Alvan Ikoku Federal University of Education, Owerri,
Imo State, Nigeria.

Corresponding author: Nwachukwu, C.U., Email: chibuikenwachukwu55@gmail.com

doi: <https://doi.org/10.37745/ijeld.2013/vol12n72334>

Published September 23, 2024

Citation: Nwachukwu, C. U., Onwukwe, E.O., Evans-Kemka, C.I., Azorji, J.N., and Ngumah, M.O. (2024) Influence of Environment on Academic Performance of Senior Secondary School Biology Students in Owerri Municipal Council of Imo State, *International Journal of Education, Learning and Development*, Vol. 12, No.7, pp.23-34

Abstract: *The influence of environment in which students generally and specifically science students study on their academic performance is the main concern of this study. Biology, both as a subject and a discipline is a natural environment friendly endeavour. The environment of its study by students is very crucial. The objectives of the study included examining the influence of school location, security of school environment, home background of the students and cleanliness of the school on secondary school student's performance in Biology. The sample size was six hundred and thirty-five (635) students (10% of the population) selected from five secondary schools out of the ten public schools. From the results, it was that concluded all the environmental factors considered in the study influenced the academic performance of Biology students in Owerri Municipal. It is recommended that all stakeholders in biology education of students should encourage and facilitate stronger partnerships between schools and home to ensure that everyone participates actively in and support students' academic endeavors in biology through ensuring a healthy and secure school environment.*

Keywords: school environment, academic, senior secondary, biology students, Owerri, Imo state

INTRODUCTION

It is a known and widely accepted fact that environmental influence has always contributed positively or negatively to the success or failure of students in school. The success or failure in academic achievement does not always depend entirely on the intellectual endowment of the students but also on a number of other variables.

Over a period of time, it has been observed that students who are exposed to the same lesson by the same teachers are likely to perform differently when they are evaluated (Fulton, 2017). Within and outside the school environment students are faced with some factors that influence their academic performance such as; location of the school, availability of instructional materials, parental predisposition to education (Osuafor and Okonkwo, 2014) etc. Environment according to Oxford Advanced Learner's Dictionary (2008) is the natural conditions like land, air and water in which people, animals and plants live and interact. Environment plays a major role in the life of every individual whether students, teachers, employer or employee. Environment can be physical or psychological.

Physical environment deals with material aspects such as infrastructure, availability of resource facilities. The psychological environment includes the home, school, community, and significantly other people in our lives such as parents, siblings and peers. Lewin (2018) has used the term 'lifespace' for explaining psychological environment. The Psychological environment enables us to understand the personality of an individual.

The environment plays a very remarkable role in the life of every individual and the educational aspect it has affected. Environmental influence in the context of this study and by its definition includes everything surrounding the learners 'studying ability that are directly or indirectly controlled or determined by the learner. Furthermore, if a close observation is made about how certain influence on our environment affect education one will not only be forced to believe the negative trend but accept

the fact that there is need to accord a second thought at the interplay between environmental influence and students academic performance in most of our core subjects including biology. The school environment refers to both living and non living factors within the school that influence the teaching and learning process (Falemu & Akinwumi (2017).The components of the school environment include classroom, laboratory, library, teacher's quality, mutual relationship between students and teachers, a healthy and attractive school environment make for conducive learning and promotes students' pride in their school,(Mgbodile, 2014).

Nwizu,(2013)opines that the environment in which the learner acquired knowledge has a great influence on the cognitive achievement of the learner. It has also been generally agreed that the quality of learning is markedly influenced by environmental and organizational

factors. It is believed that a well-planned school will increase expected outcome of education that will facilitate good social, political and economic emancipation, effective teaching and learning process and academic performance of students(Ajao,2011).

In this study, location of the school, accessibility, school cleanliness, security and class size are some factors within the school environment that were found to have influence on the process of teaching and learning hence the school location remains an important area that should be studied and considered in establishing new schools to enhance students academic performance(Ajayi,2011,Okereke and Onwukwe, 2011).

The home environment means the family background of the students; this includes all the human and material resources present at the home that influence the students' education and living, such as the parent's level of education, their occupation, socio-economic status and socializing facilities available in the house. Studies show that these are crucial when looking at influences on students' academic environment, (Onwukwe, Anyanwu and Agommuoh, 2017). Historically, examination of the influence of home environment on developmental outcomes have focused on distal variables as the primary measures of home experience, such as the family income, parents educational level, parents occupational status, parents' involvement in school their children's activities as well as parenting styles, (Ogbemudia and Aiasa, 2013, Orlu, 2013, Dzever, 2015, Byoung-Suk and Christopher, 2015).

Biology, being a branch of natural science that deals with the study of living organism, including their structures, functioning, evolution, distribution and interrelationship, has been defined by many authors including, Magna, (2019) in stating that biology is the study of many varieties of lives. According to the Nigerian National Policy on Education(FRN,2013), learning of biology will provide the students with suitable laboratory and field skills and functional scientific attitudes. This is why the study of Biology should be widely researched.

Falemu and Akinu(2017) examined the influence of school and home environment on the academic performance of biology students in secondary schools in Ikere Local government Area of Ekiti State in Nigeria. The major findings of their study revealed that students perform better in schools located in serene environment because serenity of the school environment enhances concentration and fosters students understanding in Biology class.

On the home based factors, literature review indicated that parents who always check students school work at home Encourage such students to learn at home because they receive guidance in doing their home work. Parents' social and economic status are also part of students' home backgrounds that influence academic performance of students. Onwukwe, Anyanwu and Agommuoh (2017) studied influence of parents' socio-economic status on academic achievements of secondary in Owerri Imo state, Nigeria. In their study, they came to the conclusion that students from different socio-economic backgrounds achieved differently when taught by the same teachers and in the same environment.

In the same vein, Orlu(2020) carried out a research on the influence of environment factors on the academic performance of students in Port Harcourt Local Government Area of Rivers State. The study concluded that schools should be cited in areas that are not noisy, school should try to maintain their schools facilities and teachers should relate well to all students no matter their background in other to enhance the academic performance of the students. The study suggests the need for a holistic approach, considering the interplay between the school and home environment and to effectively support the academic performance of secondary school biology students.

Considering the powerful influence that environment has on the student and its importance as a primary influence on the aspiration of the students, it could be argued that academic performance of the students could be enhanced or hindered depending on the environment the students come from. It appears that many people have not yet recognized that environment has a great impact on student's academic performance. Based on this information above, this study will critically look at the influence of environment on the academic performance of students in secondary schools. The goal of this study is to critically examine and analyze the influence of environment on the academic performance of biology students of senior secondary schools in Owerri Municipal of Imo State Specifically, the study focused on the following objectives;

1. To examine the influence of school location on academic performance of biology students in Owerri Municipal Local Government Area of Imo State.
2. To determine the influence of school security on academic performance of secondary school biology students in Owerri Municipal of Imo State.
3. To find out the influence of home background of the student on academic performance of Biology students in Owerri Municipal of Imo State.
4. To ascertain the influence of cleanliness of the school on the academic performance of secondary school Biology students in Owerri Municipal of Imo State.

The following research questions are structured to guide the study.

1. What role does school location play on the academic performance of biology students in Owerri Municipal Local Government Area of Imo State?.
2. What is the influence of school security on academic performance of secondary school biology students in Owerri Municipal of Imo State?.
3. What is the influence of home background of the student on academic performance of Biology students in Owerri Municipal of Imo State?.
4. What is the influence of cleanliness of the school on the academic performance of secondary school Biology students in Owerri Municipal of Imo State?.

METHODOLOGY

The study was a descriptive survey research. The population of the study consisted of Six Thousand Three Hundred and Forty Seven (6,347) senior secondary school biology students in Owerri Municipal Council of Imo State. The study concentrated on ten Government secondary schools in Owerri Municipal .Secondary Educational Management Board,(2022) provided relevant information to guide this study. Simple random sampling techniques was used to select 635 students from five secondary schools representing 10% of the population.

The instrument used for this study was self -structured questionnaire captioned,“ Influence of Environment on Academic Performance of Senior Secondary School Biology Students Questionnaire” (IEAPSSBSQ). The questionnaire was structured using the four likert scale points which is Very High Extent(VHE), High Extent (HE),Low Extent (LE) and Very Low Extent (VLE). The instrument was subjected to face and content validation using lecturers from Department of Measurement and Evaluation Alvan Ikoku Federal University of Education.

The instrument was tested for reliability using test-retest method within an interval of two weeks. 20 copies of the questionnaire were distributed to Biology students in Owerri North Local Government which is not part of the study population but had similar characteristics. Two weeks later, fresh copies of the same questionnaire were re-administered to the same respondents. The two test results were correlated using Pearson product Moment Co-Efficient index of 0.76.

The copies of the questionnaire were administered to the Biology students in the secondary schools in Owerri Municipal Council in Imo State and were collected at the same spot. Data collected from the respondents was tabulated and the scores were recorded. Responses were analyzed using the statistical mean of 2.5. Mean score of 2.5and above was regarded as accepted while responses receiving mean score less than 2.5wererejected.

Results

RESEARCH QUESTION ONE. What is the influence of school location on academic performance of biology students in Owerri Municipal Local Government Area of Imo State.

Table 1 Responses on the Role School Location play on academic performance of biology students in Owerri Municipal.

S/N	ITEM	VHE	HE	VLE	LE	Total	Mean	Remark
1	The noisy location of our school makes me to understand Biology Lessons	11 44	60 180	100 200	200 200	371 624	1.68	Rejected
2	The non-accessibility of my school early (e.g., transportation, distance) influences my academic performance In biology.	20 80	50 150	51 102	250 250	371 582	1.56	Rejected
3	Schools located in urban areas tend to perform better in biology Examination than small schools in rural areas	11 44	60 120	100 200	200 200	371 564	1.52	Rejected
4	The serenity of the school Environment enhances	240 960	70 210	40 80	21 21	371 1271	3.4	Accepted

concentration and fosters students understanding in Biology.

Cumulativemean $1.68+1.56+1.52+3.4$

$\frac{=8.16}{4}$

4

$=2.04$

Research Question Two: What is the influence of school security on academic performance of secondary school biology students in Owerri Municipal of Imo State

Table 2 Responses on influence of school security on academic performance of senior secondary school biology students in Owerri Municipal of Imo State

S/N	ITEM	VHE	HE	VLE	LE	Total	Mean	Remark
5	School environment without CCTV, light can cause insecurity and poor Academic performance	21 84	70 210	100 200	200 200	371 694	1.8	Rejected
6	As a result of the schools insecure environment, students become afraid, feel insecure, miss certain lessons which ultimately affects them during their examinations.	210 840	80 240	60 120	21 21	371 1221	3.2	Accepted
7	Cult and violent activities in school disrupt school activities leading to poor academic performance	200 800	60 180	51 102	60 60	371 1142	3.0	Accepted
8	Parents confrontation of teachers in and outside the school as a result of teachers meting out corporal punishment to the students affects teachers overall output.	250 1000	50 150	51 102	20 20	371 1272	3.4	Accepted

$$\text{Cumulative mean} = \frac{1.8+3.2+3.0+3.4}{4} = \frac{11.4}{4} = 2.85$$

Research Question Three: To what extent do home background of students influence academic performance of senior secondary school biology students in Owerri Municipal of Imo State?

Table 3 Responses on the influence of home background on the academic performance of senior secondary school Biology students in Owerri Municipal Imo State.

S/N	ITEM	VHE	HE	VLE	LE	Total	Mean	Remark
9	Parentaleducationalbackgroundisnotaffectorthat influencesastudent'sacademicperformancein Biology	11 44	60 180	100 200	200 200	371 624	1.6	Rejected
10	The content levels of discussion that take place between parents and children cannot influence their Academic performance in biology	21 84	60 180	80 160	210 210	371 634	1.7	Rejected
11	Being a member of monogamy or polygamous family can influence students academic performance in Biology	250 1000	50 150	51 102	20 20	371 1272	3.4	Accepted

$$\text{Cumulative mean } \frac{1.6 + 1.7 + 3.4 + 3.3}{4} = \frac{10}{4} = 2.5$$

Research Question Four: What is the influence of cleanliness of the school on the academic performance of secondary school Biology students in Owerri Municipal of Imo State?.

Table 4 Responses on the influence of school cleanliness on the academic performance of senior secondary school Biology students in Owerri Municipal Imo State.

S/N	ITEM	VHE	HE	VLE	LE	Total	Mean	Remark
13	Cleanliness has a great contribution in the development of a child's mind, it brings confidence and feeling of competence, which impacts Academic performance.	210 840	80 240	60 120	21 21	371 1221	3.2	Accepted
14	Effective teaching and learning can easily be attributed to a clean environment and thus enhance learner's learning ability.	250 1000	50 150	51 102	20 20	371 1272	3.4	Accepted
15	School without good toilet will increase academic performance	11 44	60 180	100 200	200 200	371 624	1.6	Rejected
16	Providing cleaning materials such as tissues, disinfectant wipes, hand sanitizer among others is expected	240 960	70 210	40 80	21 21	371 1271	3.4	Accepted

$$\text{Cumulative mean } \frac{3.2 + 3.4 + 1.6 + 3.4}{4} = \frac{11.6}{4} = 2.9$$

DISCUSSION OF FINDINGS

School location:

The findings from research question one showed the extent to which school location influence academic performance of Biology students in Owerri Municipal Council of Imo State. The result shows that school location determines the extent in which students can learn. This is in line with (Barbarian, 2018) who noted that schools located in low economic status communities are often under-resourced and this affects teaching and learning process and that schools located in noisy areas influence academic performance of students negatively.

Serenity of the school environment no doubt enhances concentration and fosters students understanding

in Biology. In a similar study, Onwukwe and Okereke (2011) also concluded that students from urban schools achieved higher mean scores in organic chemistry than those from rural schools when taught with the same method buttressing the fact and finding of the present study that school location is a crucial factor in students' academic achievement generally.

Security of secondary environment:

Findings from this study revealed that insecurity of school environments significantly affects the academic performance of secondary school students. In this line, Glew et al. (2015) suggested that improving students' behavior and academic performance will generally require changing school environment. The result also showed that the following are factors that could constitute insecurity of the school environment which affect academic performance: cult and violent activities which disrupt school activities as well as kidnapping, students, parents confrontation of teachers in school and outside as a result of teachers meting out corporal punishment to the students. According to Lehr (2014), the noble goals of education can never be achieved in a vacuum. They would be achieved in a conducive and peaceful school environment and if there is a feeling of insecurity within and outside the school environment both teachers and students are likely to be afraid and this may inhibit academic performance of the students. In addition, a situation where parents confront teachers in school will affect academic support which students are expected to receive from their teachers. Other findings of the study showed that as a result of the school environment students are afraid and feel insecure, skip school, miss certain lessons which affect them during their examinations. Besides, they lose interest in school and academic activities which leads to truancy as well as boys leaving school to take up trading while girls drop out and settle for married life because they feel insecure within their school environment. This finding lends credence to the finding of Ojukwu and Nwanma (2015) who reported that as a result of insecurity of the school environment that sometimes female staff and students complain of being raped or impregnated leading to their being dropped out of school. Findings also reveal a significant difference between insecurity of school environment between secondary schools located in urban and rural areas. Urban secondary school students feel more insecure than students in schools located in the rural areas. This finding is not surprising because in Nigeria crimes and insecurity are more pronounced in the urban areas than in the rural areas.

Home Background of Students:

The findings on research question 3 shows that the home background has a powerful influence on the academic performance of students. Findings indicated that the parental education background, content and level of discussion that take place between parents and their children, family type (monogamy and polygamy) and the occupation of the parents; positively influences the student academic performance. These findings tallies with (Robinson, 2014) who reveal that the more the parent is educationally equipped, the more a child succeeds and he will likely go on succeeding. He stressed that parents who have received primary and extended education will more likely have good standard of living and their children will be well equipped academically. Another study by Ahmad (2013) stated that a parent with an educational background would be in good position to be second teachers to their child. And even to guide and counsel the child in the best way to perform well in education

and also necessary materials needed by the child.

Cleanliness of the school environment:

This finding reveals that cleanliness is a contributory factor to teaching and learning in schools. This finding corroborates the works of Ogbeba, & Muluku. (2015) as well as Kiplagat & Mokaya (2016) who opined that cleanliness contributes to the academic performances. Suffice to state that the clean or unclean state of the teaching and learning environment contributes positively or negatively to teaching and learning activities. Further findings based on the responses of respondents suggest that the clean state of the available convenience in the school also has effect on teaching and learning activities. The responses of respondents with regards to research question indicated that respondents accepted that effective teaching and learning can easily be attributed to a clean environment and thus enhance learner's learning ability. Also Adeyemo(2015) stated that when you are clean you most likely have an acceptable behaviour. Unclean, untidy classroom and school environment can be very disturbing detrimental to school learners learning experience, an unclean school can be a breeding ground for germs and illness. When learners are constantly getting sick, that means more time out of school and this will affect learner performance sickness absenteeism can be extremely detrimental to learner performance.

CONCLUSION

Based on the outcome of the data analysis above it can be concluded that the environment of both school and home influences the academic performance of Biology students in Owerri Municipal. The school environment plays a vital role in determining how students perform or respond to circumstances and situations around them. Beyond speculation, a desirable performance of students in biology requires a professionally trained, experienced and dedicated teacher to create a positive learning environment for his or her students to strive. Moreover, the location of the school, the security of school environment and the cleanliness of the school must be accorded proper attention in order to stimulate student's interest and maintain concentration. This will lead to effective understanding of Biology concept and thus causing high performance in Biology. From the findings of the study, it can be concluded that the home background of the students influences their academic performance. The school location, the security of the school and the cleanliness of the school go a long way in influencing the academic performance of students.

Recommendations

Based on the findings, the researchers make the following recommendations:

1. Prior to building a new school, the location, size of site, access road and noiseless environment and should be considered to enhance suitability of the environment for learning.
2. Stake holders in science education and especially, biology education should encourage and

facilitate stronger partnerships between schools and homes to ensure that parents and guardians actively participate in and support their children's academic endeavors in biology education.

3. Cleanliness should be ensured within the classrooms, school premises, restrooms, among others. The rest rooms can be kept clean by allowing learners and teachers to use the same place. In this regard, teachers will do all in their power to ensure that the restrooms are kept clean, unlike when there are separate rest rooms, teachers may feel less concern about the cleanliness of the restroom of their learners. In this regard also, activities of learners around the restroom can be monitored.

4. Based on the findings of this study, efforts should be made by schools as well as stake holders in education to ensure that school environments are fenced and protected to ward off intruders from the school premises so that students can have a sense of security which will allow them to concentrate and improve on their academic performance.

REFERENCES

- Ahmen, H. (2013). *Beyond the Health Room*. Washington DC: Council of Chief State School Officers, Resource Centre on Educational Equity.
- Ajao, O. (2011) The relationship of school absenteeism with body mass index, academic achievement and socioeconomic status among fourth-grade children. *Journal of School Health*, 81, 417-423.
- Ajayi, P. (2011) and Luchukwu, O. (2000) *Hints on teaching practice and general principles of education*. Lagos, OSKO Associates
- Barbarin, T. (2018) *The puzzle of boys' educational decline: are view of the evidence*. Issue analysis, No. 9, Centre for Independence studies, Sydney.
- Byoung-Suk, K. & Christopher, D.E. (2015) *Landscape performance research: school environment and students' performance*. Landscape Performance Research. Posted June 19th, Available: <https://lafoundation.org/news-events/blog/archives/2012/page/6>.
- Dzever, L.T. (2015). *Impact of Home Environment Factors On Academic Performance of Senior Secondary School Students In Garki Area District, Abuja –Nigeria*. *Bulgarian Journal of Science and Education Policy (BJSEP)*, Volume 9, Number 1
- Falemu, F.A, & Akinwumi, I.O. (2017) *Influence of school and home environment on the academic performance of biology students in Ikere Local Government Area of Ekiti State*. *International Journal of Academic Research* Vol. 7. Issue 2. April 2020.
- FRN (2004), *National Policy on Education* Lagos State NERDC
- Fulton, K. (2017). *Learning in a digital age: Insights into the issues*. Milken exchange on educational technology. Santa Monica, California Milken family foundation.
- Glew, G.M., Fan, M.Y., Katon, W., Revera, F.P., & Kernic, M.A. (2015) *Bullying, Psychosocial adjustment and academic Performance in elementary school*. *Archives of Pediatric and Adolescent Medicine*, 159, 1026 –1031
- Kiplagat, H., Khamasi, J., Jelimo, J. & Mokaya, (2016) *A Students' Perspective on the Impact of Cleanliness of University Facilities on Academic Achievement: A Case of a Public University in Kenya*. *African*

Journal of Education Science and Technology, Vol.3,No.3,93-99.

- Lehr, C.A. (2014). Positive School Climate; Information for Education. National Association of School Psychologists. Retrieved on 26/7/2015 from <http://www.nasponline.org/.../school-climate-hopds>
- Magna, L.N. (2019), A History of the Life Science Revised and Expanded. Lagos C.R.CPress133-144
- Mgbodile, T.O. (2014). Fundamentals in educational administration. Enugu: Magnet Business Enterprises
minute/2017/10-tips-clean-classroom.
- Nwizu, B.O. (2013). Environmental influence on academic performance of secondary school students in PortHarcourt Local Government Area of Rivers State. Journal of Economics and Sustainable Development.3(2),14-.
- Ogbeba, J.A. & Muluku. I. (2015) An Influence of Clean School Environment and Standard Classroom size facilities on Students' Achievement in Biology in Gwagwalada Area Council of Fct-Abuja. Case Studies Journal, Vol.1, 21-26.
- Ogbemudia, M. I. & Aiasa, M. V. (2013). Influence of home environment on theacademicperformanceofprimaryfivepupils'inEnglishLanguageinOrhionmwon Local Government Area of Edo State. Merit Res. J. of Ed. andRev.,1(5),120–125.
- Ojukwu, M.O. and Nwanna, A.C. (2015).Influence of Insecurity of School Environment on the Behaviour of Secondary School Students in Isiala-Ngwa North and South Local Government Area of Abia State, Nigeria. International Journal of Education and literacy studies vol 3,No 4,49-55.
- Okereke, C.and Onwukwe, E. (2011). Influence of Gender, School Location and Use of Play-Simulation on School Achievement in Chemistry. JORIND (9)1 June, 2011, 381-387. ISSN 1596-8303. www.transcampus.org/journals. www.ajol.info/journals/jorind,
- Onwukwe, E., Anyanwu, E.and Agommuoh, P. (2017). Influence Of Parents' Socio-Economic Status On Academic Achievements Of Secondary School Students In Owerri Imo State Nigeria, IOSR Journal of Research & Method in Education (IOSR-JRME) e-ISSN: 2320–7388,p-ISSN: 2320–737X Volume 7, Issue 2 Ver. III (Mar. - Apr. 2017), PP 42-47 www.iosrjournals.org
- Orlu, C. (2013) Environmental influence on the academic performance of secondaryschoolstudentsinPortHarcourtLocalGovernmentAreaofRiverState.Journalof economic and sustainable development,2013:4(12):34-38.
- Robinson, K. and Harris, A. L. (2004) The Broken compass. Cambridge, M.A Havard UniversityPress.
- Osuafor, A. & Okonkwo I. (2014). Influence of Family Background on Academic Achievement of Secondary School Biology Students in Anambra State. An International Multidisciplinary Journal, Ethiopia Vol. 7(3), Serial No.156-167.
- The Oxford Advanced Learner's Dictionary (2018). University Press(OUP)

International Journal of Education, Learning and Development

Vol. 12, No.7, pp.23-34, 2024

Print ISSN: 2054-6297(Print)

Online ISSN: 2054-6300 (Online)

Website: <https://www.eajournals.org/>

Publication of the European Centre for Research Training and Development-UK