

## **ENVIRONMENTAL VARIABLES AND STUDENTS' QUALITY LEARNING OUTCOMES IN PUBLIC SECONDARY SCHOOLS IN RIVERS STATE, NIGERIA**

**\*Chinwe Patience Ihuoma**

**Abaa Angela Ebere**

Department of Educational Foundations, Faculty of Education, National Open University of Nigeria, Abuja

*\*cihuoma@noun.edu.ng*

The study investigated how environmental variables affect the quality of students' learning outcomes in secondary schools in Rivers State, Nigeria. Three research questions and three hypotheses guided the study. A correlational research design was adopted. The population comprised 6,956 teachers in all the 278 public secondary schools in Rivers State. A sample of 801 teachers, which represents 12 % of the population, was randomly selected. Two self-designed instruments titled: "Environmental Variables Questionnaire (EVQ)" and "Students' Quality Learning Outcomes Questionnaire (SQLOQ)" were used for data collection. The instruments were structured after the modified Likert four-point rating scales. Face and content validity were implemented. The Cronbach's Alpha method was used to establish internal consistency of 0.79 for EVQ and 0.83 for SQLOQ respectively. Research questions 1 and 2 were answered using simple regression while research question 3 was answered using multiple regression. Hypotheses 1 and 2 were tested with a t-test associated with simple regression at 0.05 alpha level while hypothesis 3 was tested using ANOVA associated with multiple regression. The findings of the study revealed, among others, that environmental variables significantly predicted students' quality learning outcomes in public secondary schools in Rivers State. Based on the findings, it was recommended that parents and guardians should be actively involved with School Management in their children's academic progress to enable them to know their academic performance and where they can assist in ensuring quality learning outcomes.

**Keywords:** *Environmental variables, students, quality learning outcomes*

### **INTRODUCTION**

The success of any education depends on several salient variables such as the teacher, demographic variables of the learners, learning environment, availability of learning equipment, school physical facilities, parental involvement, and sound educational policies, among others. A learning environment determines to a large extent the learning outcomes for both the learners and their teachers. Environmental psychologists, like Lyon (2005), Cameron (2010) and Evans (2004) believe that children are shaped or reshaped according to the factors operating in the environment they are brought up. Eric (2005) emphasizes that the environment is of paramount importance in shaping and reshaping a child's intellectual

ability. According to Nsa, Offiong, Udo and Ikot (2014), human beings have unlimited capacity to learn but may be limited to behavioural patterns and facilities that their immediate environment offers. Ibanga (2008) insists that the environment has effects on students' academic performance. This is why it is necessary for adults – principals, teachers, and even parents - to ensure that a child's environment does not influence him negatively at any time. Learners need a safe, healthy, and stimulating environment to learn effectively.

Environment as defined by Bello in Thomas and Amaechi (2019), is the aggregate of all the external conditions and influences that affect the life and development of an individual. Similarly, Tope (2012) views the environment as a system within which living organisms interact with the physical elements. Obong (2009) opines that the environment includes facilities, people and material resources that can make a system function effectively. Hoy and Miskel (2008) classified a child's environment into two: internal and external. The internal is the home, while the external is the school. Both internal and external environments are very important in a child's learning because they affect the inputs, internal structures and processes, as well as the output. Lawrence and Vimala (2012) observed that there is a psychological relationship between the nature of environments and the people within such environments. Hence, home and school environments can hardly operate in isolation in a child's development.

Home or family environment is a place where one lives permanently, especially as a member of a family or household. Family is the first social environment a child finds himself in and it is his first primary agent of socialization. Omeh (2010) emphasized that the home environment has more chances of increasing or decreasing the intellectual achievement of the child. The family's central role is socializing and educating the child about the norms and social values of society, which will qualify him to be a functional and acceptable member not only to the immediate family but also to society at large. The home environment in this context, therefore, refers to all the conditions and circumstances in the family which can influence the child physically, intellectually, and emotionally. In a study that was conducted by Aliyu (2016), it was discovered that there was a significant relationship between a child's family socio-status and his academic achievement. Anene (2005) and Epstein (2004) observed that family size, hunger, and distractions from home chores and peers can affect the quality of the learning outcome of a child. In the same vein, Driessen, Smit and Sleggers (2005) discovered in the study that the size of the family determines to a great extent the relative amount of physical attention and time that each child gets from his parents.

Family environmental variables include family socioeconomic status, housing condition, and availability of learning facilities and reading materials. Family factors, such as unsatisfactory housing conditions with noise pollution may have a serious effect on the educational achievement of a child. Aliyu (2016) noted that families that are large in number and lack sufficient amenities due to poor economic conditions could distract the interest and attention of the learner. Evans (2004) posits that children from lower-income families have fewer stable homes, less monitoring of their school work, less overall supervision of social activities, and greater exposure to environmental toxins and violence. Anene (2005) also reveal that factors like parental discipline, involvement, education, and occupation, among others, determine the quality of learning a child acquires in the home environment.

The school environment, on the other hand, comprises the physical characteristics of a school. Every school exists in an environment that is subjected to dynamic changes caused by social, psychological and economic factors. Mudassir and Abubakar (2015) posit that a favourable school environment provides the necessary stimuli for learning experiences. In

recognition of this fact, the Federal Republic of Nigeria (2014), stipulates in her National Policy on Education that learning environments should be adequately equipped to enhance the academic performance of students. Thus, it is the sole responsibility of the school administrators to ensure that they provide conducive learning environments for the students, as well as the teachers. It is important to note that many variables contribute to the either high or low academic performance of students in the school. Learners spend most of their time in school, and the school environment influences their academic performance through the curriculum, teaching techniques, and interpersonal relationships between students and their teachers (Jeynes, 2003). Ayeni, Omotayo and Olugbuyi (2017) discovered in their study that class size is one of the environmental variables that can determine students' achievement in Biology. Hence, the environment in which the students learn plays a major role in their learning outcomes.

Schools are open systems and depend on exchanges with environmental elements or variables to survive. According to Nsa et al. (2014), school environmental variables that affect teaching and learning include science and computer laboratories, library facilities, classroom facilities, workshop facilities, farmlands, and playgrounds, among others. Asia (2009) asserts that the availability of resources and facilities in each school environment influences the teaching, learning and performance of both the teachers and the students. The school environment is the sum of both human and material resources that the learners interact with. These include students, teachers, workshop attendants, administrators, non-teaching staff, and all facilities available in the school setting which may influence learning and academic performance. Mudassir and Abubakar (2015) observed that a supportive and favourable school environment enriched with modern learning facilities, and a favourable climate makes students more comfortable, and more focused on their academic activities. Arubayi (2007) observes that the school environment has a broad influence on students' learning and growth, including a significant aspect of their social, emotional, and ethical development. Thus, when students find their school environment supportive and caring, they are less likely to become involved in substance abuse, violence, and other anti-social behaviours.

Nsa et al. (2014) also found in their study that there is a significant relationship between school environmental variables and students' academic performance in Agricultural Science. Daniel and Felix (2014) examined the impact of the school environment and peer influence on the students' academic performance in terms of the level of psychological impact they have on learners, and discovered that environment can have a positive or negative effect on peers. Thus, the school environment is a major factor in determining a child's learning outcome, and what he becomes in life.

## **PROBLEM STATEMENT**

It has been widely acknowledged that a learner's environment plays a major role in his educational achievement. Students have too many environmental variables to contend with. It would seem that most of the public secondary schools in Nigeria and particularly in Rivers State do not have conducive and stimulating learning environments that will stir up expected learning outcomes in learners. The learning environments appear not to be in safe and healthy conditions. Most of the classrooms are overcrowded and there are insufficient chairs and desks. They also lack proper ventilation resulting in hot temperatures. The school environments most often are polluted by noise, making teaching and learning a difficult task for both the learners and their teachers. The inadequacies of such physical resources as

laboratories, workshops, and libraries, among others, seem to translate to students' poor academic results.

Moreover, many students are also faced with environmental factors at home too. They battle with house chores, inadequate learning facilities to do their homework, malnutrition, lack of reinforcement of topics taught in school, distractions emanating from noise, and many others. These environmental variables can lead to higher levels of frustration, with consequent poor academic performance. These students are not safe in their social environment either. Most of them face some pressure from their peers and their school work. More worrisome is the continuous occurrence of poor academic performance of students both in internal and external examinations. These developments bother the researchers so much. It is therefore exigent to find out the environmental variables responsible for poor learning outcomes in the educational system, especially in the secondary education system and nip them in the bud. Hence, the problem of this study borders on establishing the relationship between environmental variables and students' quality learning outcomes in public secondary schools in Rivers State.

### **AIM AND OBJECTIVES OF STUDY**

This study aimed to establish the extent environmental variables jointly and independently predicts quality learning outcomes in public secondary schools in Rivers State. Specifically, the study sought to:

1. Examine the extent family environmental variables independently predict students' quality learning outcomes in public secondary schools in Rivers State;
2. Find out the extent school environmental variables independently predict students' quality learning outcomes in public secondary schools in Rivers State; and
3. Determine the extent environmental variables jointly predict students' quality learning outcomes in public secondary schools in Rivers State.

### **Research Questions**

The following research questions were posed to guide the study:

1. To what extent do family environmental variables independently predict students' quality learning outcomes in secondary schools in Rivers State?
2. To what extent do school environmental variables independently predict students' quality learning outcomes in secondary schools in Rivers State?
3. To what extent do environmental variables jointly predict students' quality learning outcomes in secondary schools in Rivers State?

### **Hypotheses**

To answer the research question, the following null hypotheses were formulated and tested at 0.05 alpha level:

- H<sub>01</sub>:** There is no significant difference between family environmental variables and students' quality learning outcomes in public secondary schools in Rivers State. (For Question 1)
- H<sub>02</sub>:** There is no significant difference between school environmental variables and students' quality learning outcomes in public secondary schools in Rivers State. (For Question 2)
- H<sub>03</sub>:** There is no significant difference between family environmental variables in motivating students for quality learning outcomes. (For Question 3)

## **METHODOLOGY**

The study adopted a correlational research design. The population consisted of the teachers in all the 278 public secondary schools in Rivers State. A sample of 801 teachers, which represents 11.5 % of the population, was drawn using the proportionate stratified random sampling technique. This was done by dividing the subjects into sub-groups/ strata based on gender and educational attainment. Each subgroup was randomly sampled using a probability sampling method with ballot papers. Two self-designed instruments titled: “Environmental Variables Questionnaire (EVQ)” and “Students’ Quality Learning Outcomes Questionnaire (SQLOQ)” were used for data collection. The instruments were in two sections – A and B. Section A consisted of the demographic factors while Section B contained 20 items on Environmental Variables and 15 items on Students’ Quality Learning Outcomes respectively. It was structured after the modified Likert four-point rating scales of Strongly Agree (4 points), Agree (3 points), Disagree (2 points) and Strongly Disagree (1 point). To ensure face and content validities, the instruments were vetted by experts in Guidance and Counselling and Measurement and Evaluation. Their corrections were affected in the final version of the instrument that was used. The reliability of the instrument was established using the test-retest method. The instrument was administered to secondary school students in another local government area twice, with two weeks intervals. The data collected was subjected to Cronbach’s Alpha statistical method and a reliability index of 0.79 for EVQ and 0.83 for SQLOQ was established.

The questionnaires were administered by the researchers after due permission was sought and obtained from the appropriate authorities. The data collected were analyzed using appropriate statistics. Research questions 1 and 2 were answered using simple regression while research question 3 was answered using multiple regression. Hypotheses 1 and 2 were tested with a t-test associated with simple regression at 0.05 alpha level while hypothesis 3 was tested using ANOVA associated with multiple regression.

## **RESULTS**

**Research Question One:** To what extent do family environmental variables independently predict students’ quality learning outcomes in public secondary schools in Rivers State?

**Table 1: Simple Regression on the Extent Family Environmental Variables Predict Students’ Quality Learning Outcomes in Secondary Schools in Rivers State**

Model	R	R Square	Adjusted Square	R	Std. The error in the Estimate
1	.207 <sup>a</sup>	.043	.040		1.42850

a. Predictors: (Constant), Family Environmental Variables

Table 1 revealed that the regression coefficient (R) is .207 while the coefficient of determinism was 4% (.4×100). By implication, family environmental variables independently predict students’ quality learning outcomes in secondary schools in Rivers State by 4%.

**Research Question Two:** To what extent do school environmental variables independently predict students’ quality learning outcomes in public secondary schools in Rivers State?

**Table 2: Simple Regression on the Extent School Environmental Variables Predict Students’ Quality Learning Outcomes in Secondary Schools in Rivers State**

Model	R	R Square	Adjusted Square	R Std. The error of the Estimate
1	.608 <sup>a</sup>	.370	.368	1.15909

a. Predictors: (Constant), School Environmental Variables

Table 2 revealed that the regression coefficient (R) is .608 while the coefficient of determinism was 37% (.37×100). By implication, school environmental variables independently predict students’ quality learning outcomes in public secondary schools in Rivers State by 37%.

**Research Question Three:** To what extent do environmental variables jointly predict students’ quality learning outcomes in public secondary schools in Rivers State?

**Table 3: Multiple Regression on the Joint Prediction of Environmental Variables on Students’ Quality Learning Outcomes in public Secondary Schools in Rivers State**

Model	R	R Square	Adjusted Square	R Std. The error of the Estimate
1	.610 <sup>a</sup>	.372	.368	1.15924

a. Predictors: (Constant), School Environmental Variables Family Environmental Variables

Table 3 revealed that the regression coefficient (R) is .610 while the coefficient of determinism was 37% (.37×100). By implication, environmental variables jointly predict students’ quality learning outcomes in secondary schools in Rivers State by 37%.

**Hypothesis One:** Family environmental variables do not significantly independently predict students’ quality learning outcomes in public secondary schools in Rivers State.

**Table 4: t-test Associated with Simple Regression on the Extent Family Environmental Variables Predict Students’ Quality Learning Outcomes in public Secondary Schools in Rivers State**

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	42.450	1.529		27.756	.000
	Family Environmental Variables	-.151	.042	-.207	3.603	.000

a. Dependent Variable: Students’ Quality Learning Outcomes

Table 4 revealed that the t-test value associated with simple regression was given as 3.603 with a probability level of 0.00 less than the alpha level of 0.05. Therefore, the null hypothesis was rejected. By implication, family environmental variables significantly predict students’ quality learning outcomes in public secondary schools in Rivers State.

**Hypothesis Two:** School environmental variables do not significantly independently predict students’ quality learning outcomes in public secondary schools in Rivers State.

**Table 5: t-test Associated with Simple Regression on the Extent School Environmental Variables Predict Students’ Quality Learning Outcomes in public Secondary Schools in Rivers State**

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	16.634	1.561		10.655	.000
	School Environmental Variables	.552	.042	.608	13.026	.000

a. Dependent Variable: Students’ Quality Learning Outcomes

Table 5 revealed that the t-test value associated with simple regression was given as 13.026 with a probability level of 0.00 less than the alpha level of 0.05. Therefore, the null hypothesis was rejected. By implication, school environmental variables significantly predict students’ quality learning outcomes in public secondary schools in Rivers State.

**Hypothesis Three:** Environmental variables do not significantly jointly predict students' quality learning outcomes in public secondary schools in Rivers State.

**Table 6: ANOVA Associated with Multiple Regression on the Extent Environmental Variables Jointly Predict Students' Quality Learning Outcomes in Public Secondary Schools in Rivers State**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	229.200	2	114.600	85.278	.000 <sup>a</sup>
	Residual	387.027	800	1.344		
	Total	616.227	802			

a. Predictors: (Constant), Family Environmental Variables School Environmental Variables

b. Dependent Variable: Students' Quality Learning Outcomes

Table 6 revealed that the degrees of freedom are 2 and 800. The table also showed that the F ratio value 85.278 was significant at a probability value of 0.00 when subjected to an alpha level of 0.05. Therefore, the null hypothesis was rejected. By implication, environmental variables jointly significantly predicted students' quality learning outcomes in public secondary schools in Rivers State.

**DISCUSSION**

One of the major findings of the study revealed that family environmental variables significantly predict students' quality learning outcomes in public secondary schools in Rivers State. This agrees with Epstein (2004); Driessen, Smit and Sleggers (2005), who discovered in their various studies that family size, hunger, distractions from home, chores and peers can affect the quality of learning outcome of a child. The finding is also in line with Aliyu (2016), who found out that there is a significant relationship between a child's family socioeconomic status and his academic achievement. The finding corroborated with Drummond and Stipek (2004), who observed that family factors, such as unsatisfactory housing conditions with noise pollution, and lack of sufficient amenities due to the poor economic condition could distract a learner and so hurt his or her learning outcomes. Hence, the environment in which one grows plays a major role in his or her learning outcomes. In corroborating this finding, Arubayi (2007) observed that the school environment has a broad influence on students' learning and growth, including a significant aspect of their social, emotional and ethical development. This finding is also in consonance with Mudassir and Abubakar (2015), who found that a supportive and favourable school environment enriched with modern learning facilities, and a favourable climate makes students more comfortable, and more focused on their academic activities. It also agrees with Nsa et al. (2014), who found in their study that there is a significant relationship between school environmental variables and students' academic performance in Agricultural Science. Thus, when students



find their school environment supportive and caring, they are less likely to indulge in disruptive behaviours and focus more on their school work.

It was also discovered that environmental variables jointly significantly predicted students' quality learning outcomes in public secondary schools in Rivers State. This finding is in line with Ayeni, Omotayo and Olugbuyi (2017), who discovered in their study that environmental variables are determinants of students' academic achievement. It is also in agreement with Asiyai (2009), who observed that the availability of resources and facilities in each environment be it home or school, influences students' learning outcomes. The finding also agrees with Lawrence and Vimala (2012), who observed that there is a psychological relationship between the nature of environments and the people within such environments. Corroborating this fact, Daniel and Felix (2014) examined the impact of the school environment and peer influence on students' academic performance in terms of the level of psychological impact they have on learners and discovered that environment can have a positive or negative effect on peers. Thus, the environment is a major factor in determining a child's learning outcome, and what he becomes in life.

## **CONCLUSION AND RECOMMENDATIONS**

From the findings of this study, it was concluded that environmental variables significantly predict students' quality learning outcomes in public secondary schools in Rivers State. The home environment where the students come from has a lot of influence on their learning outcomes. On the other hand, the school environment where the learners spend the greater part of their time daily also contributes majorly to shaping and reshaping their characters, and developing their intellectual abilities. Supportive and favourable school environments enriched with adequate learning facilities, and a favourable climate make students concentrate on their academic activities; thereby, resulting in high academic performance. Hence, the conclusion is that environmental variables are determinants of students' quality learning outcomes in public secondary schools in Rivers State.

Based on the conclusion of this study, the following recommendations were made such as members of the family should take into cognizance the fact that a child's learning starts from the family environment, and strive to create a conducive learning atmosphere for them at home.

School administrators should create and promote supportive and favourable learning environments that are enriched with adequate learning facilities to ensure quality learning outcomes among students. Parents and guardians should be actively involved with school management in their children's or wards' academic progress to enable them to know their academic performance and where they can assist in ensuring quality learning outcomes for the students.

## **REFERENCES**

- Aliyu, L. B. (2005). Parental status influence and achievement orientation of high school seniors. *Sociology of Education, 48 (1), 91-110.*
- Anene, G. U. (2005). Home environment and the academic performance of a child. *Journal of Home Economics Research, 6 (1), 99-100.*
- Arubayi, E. (2007). Correlates selected extrinsic variables with students' academic performance in Science. *OSU Journal of Educational Studies, 1 (1), 23-29.*

- Arul, L. A. S. (2012). School environment and academic performance of standard six students. *Journal of Educational and Industrial Studies in the World, 2 (3), 22-35.*
- Asiyai, R. I. (2009). Assessing school facilities in public secondary schools. *Urban Education, 28 (1), 6-29.*
- Ayeni, M. F., Omotayo, K. A. & Olugbuyi, P. O. (2017). Environmental variables as determinants of students' achievement in Biology in secondary schools in South West Nigeria. *International Interdisciplinary Journal of Scientific Research, 3 (1), 75-79.*
- Cameron, P. L. (2010). Achievement motivation, educational attainment, cycles of disadvantage and social competence. *Journal of Educational Psychology, 6 (1), 1-12.*
- Daniel, K. K. & Felix, K. (2014). The impact of school environment and peer influence on students' academic performance in Vihige County, Kenya, *International Journal of Humanities and Social Science, 4 (5), 36-42.*
- Driessen, G., Smit, F. & Sleggers, P. (2005). Parental involvement and educational achievement. *British Educational Research Journal, 31, 509-532.*
- Drummond, K. V. & Stipek, D. (2004). Low income parents' belief about their roles in children's academic learning. *The Elementary School Journal, 10 (3), 197-213.*
- Epstein, J. (2004). Family involvement with children's education. *School Community Journal, 4(1), 36 – 37.*
- Eric, S. (2005). The role of supportive school environment in promoting success. *Journal of Educational and Industrial Studies in the World, 2 (3), 112-121.*
- Evans, G. W. (2004). The environment of childhood poverty. *American Psychologist, 5 (9), 79-92.*
- Federal Republic of Nigeria (2014). *National Policy on Education*. Yaba-Lagos: NERDC Press.
- Ibanga, B. P. (2008). *Environmental psychology*. Enugu: Jonnie Ventures.
- Jeynes, W. H. (2003). A Meta-analysis: The effects of parental involvement on minority children's academic achievement. *Education and Urban Society, 2(3), 5-10.*
- Kamau, O. M. (2013). *Hints on teaching practice and general principles of education*. Lagos: Osko Associates.
- Karemera, D., Reuben, L.J. & Sillah, M. R. (2013). The effects of academic environment and background characteristics on students' satisfaction and performance: The case of South Carolina State University's School of Business. *Journal of Environmental Psychology, 4 (20), 91-97.*
- Lawrence, A. S. A. & Vimala, A. (2012). School environment and academic achievement of standard IX students. *Journal of Educational and Instructional Studies in the World, 2 (3), 210-215.*
- Lyon, F. (2012). *The psychology of interpersonal relations*. New York: John Willey.
- Minow, M. O. (2013). Home and school environmental factors associated with students' high achievement in mathematics. *Journal of the Science Teachers' Association of Nigeria, 36 (1-2), 37-42.*
- Mudassir, I. U. & Abubakar, N. (2015). Material education and children's academic achievement during middle childhood. *Journal of Developmental Psychology, 4 (3), 497-512.*
- Nsa, S. D., Offiong, A. A., Udo, M., F. & Ikot, A. S. (2014). School environmental variables and students' academic performance in Agricultural Science. *International Journal of Business and Social Science, 5 (8), 163-167.*
- Obong, L. B. (2009). *Understanding the environment: Concepts, principles and applications*. Calabar: Penile Publisher.
- Omeh, G. U. (2010). *Fundamental of educational planning*. Mushin, Lagos: M.CoDEX Nigeria LTD.

- Orlu, C. (2013). Environmental influence on the academic performance of secondary school students in Port Harcourt Local Government Area of River State. *Journal of Economic and Sustainable Development, 4 (12), 84-97.*
- Sunday, A. A. (2012). The relationship among school environment, student approaches to learning and their academic achievement in physics in senior secondary schools. *International Journal of Educational Research & Technology, 3 (1), 29-35.*
- Thomas, C. G. & Amaechi, O. J. (2019). Influence of school environment on students' academic performance in Technical Colleges in Rivers State. *International Journal of New Technology and Research (IJNTR), 5 (3), 40-48.*
- Tope, O. (2012). Influence of school environment on the academic performance of secondary school students in Lagos State. *Journal of Education, Sciences, Humanities and Management, 5 (3), 25-30.*
- Zahyah, H. & Faruk, N. (2016). Relationship between demographic factors and academic achievement. Paris: Pergon Press.