

Effects of Environmental Variables on Students' Academic Performance in Basic Science in Ekiti State

Thomas Olabode Abe, (Ph.D)

Counseling Psychology Department,
College of Education,

Bamidele Olumilua University of Education Science and Technology Ikere

Ojo Emmanuel Oludare (Ph.D)

Department of Physics, Bamidele Olumilua University of Education Science and Technology
Ikere

doi: <https://doi.org/10.37745/ijeld.2013/vol12n53242>

Published May 27, 2024

Citation: Abe T.O. and Oludare O.E. (2024) Effects of Environmental Variables On Students' Academic Performance in Basic Science in Ekiti State, *International Journal of Education, Learning and Development*, Vol. 12, No.5, pp.32-42

ABSTRACT: *This study investigates the effect of environmental variables on students' academic performance in basic science in junior Secondary School in three Senatorial district of Ekiti state Nigeria. This is a descriptive study of a survey type. A Sample of 600 students was randomly selected, in which 200 students were selected from each senatorial district, while 10 schools were purposely selected from each senatorial district with 20 students per school which implied that the total 600 schools were selected from all the schools in the state for the study, therefore the target population comprises 141 junior secondary school in Ekiti state. The researcher distinctly designed 20 item questionnaires as an instrument for the study in which it was used to elicit response from the students to gather information to answer general question and hypothesis, while t-test statistic and, analysis of variance (ANOVA) were used to test the hypothesis at 0.5 level of significant. The result of the analysis show that: there were no significant differences existed between: the impact of school environment on academic performance of male and female student, between the impact of school location on academic performance in basic science, between the impact of school facilities on academic performance of student in basic sciences of different age group, therefore all the six (6) hypothesis are upheld at 0.5 level of significant. Hence the study recommends that the government and the private proprietors of schools should create enabling environment for the effectively academic activities in the junior secondary school to enhance better performance in basic science.*

KEYWORDS: environmental variables, students, academic performance, basic science

INTRODUCTION

According to Byoung-suk and Christopher (2012), Learners need safe, healthy and inspiring environment in which to educate and learn. During the school hours, students can spend 6 to 8 hours in the school where environs play a critical role in adolescent improvement. This condition requires careful planning and designing to optimize experiences that support education, health and stewardship. Therefore, the school environment is mostly importance in shaping and reshaping intellectual ability of a learner. However, helpful and encouraging school environs augmented with enough learning facilities and good climate makes students more comfy, more focused on their academic activities that resulted in high academic performance. The forces of the environs start influencing progress and development of the individual right from the womb of his mother. A suitable and acceptable environment is very necessary for a productive learning of the child. A complimentary school environment offers the necessary stimulus for learning experiences. The children spend most of their time in school, and this school environment is exerting impact on performance through curricular, teaching technique and relationship.

However, educational institutions are closely connected with society as a whole. They are the temple of knowledge and mediator of social variation and transformation. The universal condition of our schools, colleges and universities are a problem of great concern to the nation. It plays a major role in the growth of the disposition of students. As the students use most of their time at school, the school environment is vastly accountable to induce high values into them. Student being the strength of every nation need hale and hearty surroundings that upkeep them to come out in flying colour. The duty of teacher is very essential in any teaching exercise especially since his/her direct involvement can range from complete control over what is learned to insignificant intervention. Teacher is the orator of all knowledge which students acquire in class (Selim & Shrigley, 1983).

The school environment has wider impact on students' learning and growth, including a considerable area of their social, emotional and ethical improvement. When students find their school environs helpful and loving, they are less likely to become involved in substance misuse, sadism and other problem behaviour. These terms are used interchangeably here to refer to students' sense of being in a close, respectful relationship with peers and adult at school. When Students see their school as a loving community, such students become more enthusiastic, encouraged, and concentrate in their learning. Mainly, when students' have access or connected with teachers and the perceptions of such student is that teacher's care about them which motivate their commitment (Eric, 2005).

Schools location has a considerable sway on the academic performance of students. The uneven distribution of resources, poor school mapping, facilities, lack of qualified teachers, not willing to perform their duties in the villages, not having good road, bad communication, and carefree attitude of some communities to school among others are some of the agents that contributed to a

wide gap between rural and urban secondary schools. Schools cited in village areas always have shortage or lack of qualified teachers. The reason had been that, teachers don't want them transferred or accepting employment in the rural areas that's facing challenges of social amenities. The students in urban areas had better academic performance than their rural counterpart. In other word, students in urban area have a very advantage of favourable learning environment that enhance their academic achievement (Owoeye & Philius, 2011).

The location of the school affects students' performance. For example, when a school is sited in a market area or in the heart of a city where activities disrupt the teaching and learning of students. One will not expect such students in this location to perform well mentally. Noise. More so, the school structure like building and the interactions between teachers and students are also influence students' performance (Orlu, 2013). Research show that there was no disparity in performance between teachers who had degree holder or diploma, suggesting that teacher qualification did not lead to increased students' academic achievement (Anita et al., 2013).

Environmental factors of schools and peer influence in term of the level of psychological impact they have on learners. Twenty-one public secondary schools confirm that school environment have a strong influence on students' academic performance. The school as an institution of learning which also act as a second home for learners has been found to have a strong relationship with students' academic performance. Therefore, Government should provide a conducive learning environment where students are free to consult teacher when need arise. They should also supply adequate education facilities that can stimulate students interest and to inspire them to work hard. It is opine that a cordial closeness between the head teacher and students make environment favourable to learning as discussions encouraged, and learners are listened. The head teacher can counsel the learner on how to achieve their set-goal in life and their academic work. In this kind of environment, everybody is essential in the decision-making process, and students are well-organized and have constructive academic attitude (Danial& Felix, 2014)

In addition, family factors also contribute immensely to the academic performance of students. To mention few factors like; parental educational background, parent-earnings, parent-exposure, strength of the family size, parent-belief, sex differentiation, occupation etc. Never less, the influences of others factors like intellectual and bodily disabilities can cause students poor academic performance in basic science. Most of subjects taught in junior secondary school have some factors, which affects their assimilation by students and Basic science is no exception. Students come from different home and as a result have different challenges to contend with (Adeyemo, 2010)

Haroon (1999) asserts that the school facilities have an effect not only on student's educational learning experience but on the well-being of the learner and instructors. Adeboyeje (1994) and Ayodele (2004) assert that the availability of adequate school buildings, classrooms, home background, emotional intelligent, laboratories and other facilities are crucial in the race to realize any educational goals and objectives. It improves the effectiveness in the determination of the worth of a school, it energizes the association between schools and community and usefulness as

cultural civic, recreational and youth centre. Moyer (1995), states that the features of school building design and element have been confirmed to have assessable control upon students' learning and their performance in schools.

Difficulty is an active negative state of event preventing someone to attaining the set goal. In this study one of the recent problems in junior secondary school in three senatorial district of Ekiti state is environmental variable of the learner's. The roles of environmental variables are very vital in student academic performance in basic science. They remain a central point and draw attention, stir up interest and endorse a desire to learn, complement description and give accurate impression concept for the learners, illustrate relationship, make learners to have self-esteem, learner get stimulated with conducive environment. The issue of concern in this study is the effect of environmental variables on general academic performance of students in basic science in three senatorial district of Ekiti state.

Research Hypotheses

The following hypotheses were tested at 0.05 level significance

- H0₁: There is no significant difference between the impacts of school environment on academic performance of male and female students.
- H0₂: There is no significant difference between the impacts of school location on academic performance of Basic Science students.
- H0₃: There is no significant difference between the impacts of school facility on academic Performance of Basic Science students.

METHODOLOGY

The study adopted descriptive survey research questionnaire where qualitative data were gathered. The questionnaire will be used to gather information from students on the effect of environmental variable on their academic performance in basic science. The questionnaire helps the researcher to elicit data to assess current practices for improvement. The sample for this study comprises total number of six hundred (600) respondents which were randomly selected from ten (10) junior secondary schools in each three senatorial district of Ekiti State. Twenty (20) respondents were randomly selected from each of the selected junior secondary schools in each senatorial district of Ekiti state. For the purpose of this study and the population ten (10) public secondary schools will be randomly selected out of 141 public secondary school in three senatorial district of Ekiti state.

The ten (10) schools involved in the study were visited personally by the researcher for administration of the questionnaires. The mechanism used for this research is a structured questionnaire tagged Environmental Variables and Students' Academic Performance (EVSAP). The questionnaires were divided into 2 sections; section A and section B which related to students' academic performances in secondary schools. Sections A contain the Bio-data of the respondents while Section B contains the items on the questionnaire and response items related to students' academic performance and their variable such as, school location, environmental variable, school

facilities, e.t.c which the respondents are to rate themselves. The researcher seeks the permission of the principal of selected junior secondary school concerned, if the principal grant researcher permission to go ahead with his research then questionnaire will administered to the respondent in each of the ten (10) sampled schools by the researcher and retrieved back on the spot.

Analyses of the data for this study were done using appropriate statistical tool. The statistical tool for the analysis of the data collected is the measure of central tendency and inferential statistics using variance and Chi-square analysis and it will be used to test the hypotheses at $\alpha = 0.05$ level of significance.

RESULT AND DISCUSSION

Table 1: Effect of school environment on students' academic performance

S/N	ITEM	SA	A	D	SD	RMK
1.	I am interested in schooling in my environment	132 (22.0)	333 (55.5)	87 (14.5)	48 (8.0)	A
2.	My environment facilitate learning	123 (20.5)	327 (54.5)	117 (19.5)	33 (5.5)	A
3.	My teachers are interested in teaching in this environment	189 (31.5)	294 (49.0)	75 (12.5)	42 (7.0)	A
4.	The environmental variables within my school serve as determinant to my level of performance	117 (19.5)	273 (45.5)	159 (26.5)	51 (8.5)	A
5.	My environment attached more importance to my studies	120 (20.0)	273 (45.5)	144 (24.0)	63 (10.5)	A
6.	My school environment affect my academic performance	129 (21.5)	198 (33.0)	195 (32.5)	78 (13.0)	A
7.	My school environment encourage high level of academic performance	135 (22.5)	237 (39.5)	162 (27.0)	66 (11.0)	A

Table 1 shows the effect of school environment on students' academic performance of basic science students in junior secondary schools in three senatorial district of Ekiti State. The table revealed that 465 (77.5%) respondents agreed that they are interested in schooling in their environment while 135 (22.5%) respondents held a contrary opinion. In item 2, 420 (70.0%) respondents agreed that their environment facilitate learning while 180 (30.0%) disagreed. In item 3, 483 (80.5%) students held the view that their teachers are interested in teaching in this environment while 117 (19.5%) respondents held a contrary view. In item 4, 390 (65.0%)

respondents agreed that the environmental variables within their school serve as determinant to their level of performance while 210 (35.0%) respondents disagreed. In item 5, 393 (65.5%) respondents held the view that their environment attached more importance to their studies while 207 (34.5%) respondents held a divergent opinion. In item 6, 327 (54.5%) respondents agreed that the school environment affect their academic performance while 273 (45.5%) respondents disagreed. And lastly, in item 7, 372 (62.0%) respondents agreed that their school environment encourage high level of academic performance while 228 (38.0%) disagreed.

Table 2: Influence of school location on students' academic performance

S/N	ITEM	SA	A	D	SD	REMARK
1.	My school is located in an urban area	87 (14.5)	165 (27.5)	210 (35.0)	138 (23.0)	D
2.	My school is located in a rural area	150 (25.0)	243 (40.5)	144 (24.0)	63 (10.5)	A
3.	I think rural area are the best places suitable for learning	132 (22.0)	174 (29.0)	204 (34.0)	90 (15.0)	D
4.	I prefer being educated in urban area than rural area	201 (33.5)	228 (38.0)	126 (21.0)	45 (7.5)	A
5.	I am satisfied with my academic performance inspite the location of my school	135 (22.5)	237 (39.5)	171 (28.5)	57 (9.5)	A
6.	Good teachers can only be found in schools located in urban areas	84 (14.0)	159 (26.5)	231 (38.5)	126 (21.0)	D
7.	Most teachers always prefer to work in schools located in urban area	147 (24.5)	273 (45.5)	111 (18.5)	96 (11.5)	A

Note: numbers in brackets indicate percentages

Table 2 shows the effect of school location on students' academic performance of basic science students in junior secondary schools in three senatorial district of Ekiti State. The table revealed that 252 (42.0%) respondents agreed that their school is located in an urban area while 384 (58.0%) respondents help a contrary opinion. In item 2, 393 (65.5%) respondents agreed that their school is located in a rural area while 207 (34.5%) disagreed. In item 3, 306 (51.0%) students held the view that rural area are the best places suitable for learning while 294 (49.0%) respondents held a contrary view. In item 4, 429 (71.5%) respondents agreed that they prefer being educated in urban area than rural area while 171 (28.5%) respondents disagreed. In item 5, 372 (62.0%) respondents held the view that they are satisfied with my academic performance inspite the location of their school while 228 (38.0%) respondents held a divergent opinion. In item 6, 243 (40.5%) respondents agreed that good teachers can only be found in schools located in urban areas while

357 (59.5%) respondents disagreed. And lastly, in item 7, 420 (70.0%) respondents agreed that most teachers always prefer to work in schools located in urban area while 180 (40.0%) disagreed.

Table 3: Influence of school facility on students' academic performance in basic science

S/N	ITEM	SA	A	D	SD	REMARK
1.	My school have enough teaching materials to aid learning	81 (13.5)	219 (36.5)	171 (28.5)	129 (21.5)	A
2.	There are enough facilities in my school that serve as major factors that increase academic performance	183 (30.5)	234 (39.0)	132 (22.0)	51 (8.5)	A
3.	The teaching materials are in line with subject matter	147 (24.5)	273 (45.5)	126 (21.0)	54 (9.0)	A
4.	The entertainment center in the locality affect my academic performance	84 (14.0)	183 (30.5)	288 (48.0)	45 (7.5)	D
5.	Teachers are able to discharge their duties effectively without teaching aids	108 (18.0)	198 (33.0)	222 (37.0)	72 (12.0)	D
6.	Without teaching materials, teachers can perform effectively	150 (25.0)	222 (37.0)	141 (23.5)	87 (14.5)	A

Note: numbers in brackets indicate percentages

Table 3 shows the effect of school location on students' academic performance of basic science students in junior secondary schools in three senatorial district of Ekiti State. The table revealed that 300 (50.0%) respondents agreed that their school have enough teaching materials to aid learning while 300 (50.0%) respondents help a contrary opinion. In item 2, 417 (69.5%) respondents agreed that there are enough facilities in my school that serve as major factors that increase academic performance while 183 (30.5%) disagreed. In item 3, 420 (70.0%) students held the view that the teaching materials are in line with subject matter while 180 (30.0%) respondents held a contrary view. In item 4, 267 (44.5%) respondents agreed that the entertainment centre in the locality affect my academic performance while 333 (55.5%) respondents disagreed. In item 5, 306 (51.0%) respondents held the view that teachers are able to discharge their duties effectively without teaching aids while 294 (49.0%) respondents held a divergent opinion. And lastly, in item 6, 372 (62.0%) respondents agreed that without teaching materials, teachers can perform effectively while 228 (38.0%) respondents disagreed.

Test of Hypotheses

Hypothesis 1: There is no significant difference between the impact of school environment on academic performance of male and female students.

Table 4: t-test analysis of responses

Variable	N	Mean	SD	Df	t _{cal.}	t _{tab.}	Decision
Male	252	1.95	0.93	198	1.94	1.96	Not significant
Female	348	2.18	0.73				

P < 0.05 significance level

Table 4 shows the result of analysis of the response of students on the impact of school environment on academic performance. The chemistry Table revealed that mean rating for male students (1.95) was less than the mean rating for female students (2.18) with a mean difference of (0.23). The t-test revealed that t-calculated (1.94) was less than the critical t-value (1.96) at the 0.05 significance level. Hence, the null hypothesis was upheld. This means that there is no significant difference between the impact of school environment on academic performance of male and female students.

Hypothesis 2: There is no significant difference between the impacts of school location on academic performance of basic science students.

Table 5: t-test analysis of responses

Variable	N	Mean	SD	Df	t _{cal.}	t _{tab.}	Decision
Urban	228	2.00	0.88	198	1.14	1.96	Not significant
Rural	372	2.14	0.79				

P < 0.05 significance level

Table 5 shows the result of analysis of the response of students on the impacts of school location on academic performance of basic science students. The chemistry Table revealed that mean rating for urban students (2.00) was less than the mean rating for rural students (2.14) with a mean difference of (0.14). The t-test revealed that t-calculated (1.14) was less than the critical t-value (1.96) at the 0.05 significance level. Hence, the null hypothesis was upheld. This means that there is no significant difference between the impacts of school location on academic performance of basic science students.

Hypothesis 3: There is no considerable difference between the effects of school facility on academic performance of basic science students in different classes.

Table 6: ANOVA of students' responses

	Sum of squares	Df	Mean square	F _{cal}	F _{tab}	Sig.	Decision
Between Groups	4.198	2	2.009	2.29	3.03	0.104	NS
Within Groups	180.422	597	0.916				
Total	184.620	599					

$p < 0.05$ level of significance. NS = Not Significant

The result of the analysis in table 6 shows the differences in the responses of students of different classes. The analysis of variance revealed that F_{cal} (2.29) was less than F_{tab} (3.03) at $p < 0.05$ level of significance. This means that there is no significant difference between the effects of school facility on academic performance of basic science students in different classes. Hence, the null hypothesis was upheld.

CONCLUSION

It can be concluded that:

- 1) There is no considerable relationship between the school location and students academic performance in basic science in junior secondary schools in Ekiti state senatorial district.
- 2) There is no considerable relationship between the school facility and students academic performance in basic science in junior secondary schools in Ekiti state senatorial district.

Recommendations

The study recommended that the government and the private proprietors of schools should create enabling environment for the effectively academic activities in the junior secondary school to enhance better performance in basic science.

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International Journal of Education, Learning and Development

Vol. 12, No.5, pp.32-42, 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

Science Achievement and Attitude of Young Egyptian Students. *Journal of Research in Science Teaching*, 20, 213-224.