

Statistical Analysis of Environmental Factors Influencing Students' Academic Learning in Secondary Schools in the Face of Education in Imo State. A Case Of Owerri Municipal Council.

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Abstract

Education is generally valued for reasons of private and social returns. It is a function of effective teaching and learning with study. This study was aimed at establishing the environmental factors influencing academic learning of secondary school students in Owerri Municipal Council of Imo State. The researchers were guided with research objectives of ascertaining the influence of home, school and peer environmental factors on academic learning of students in secondary schools. Three research questions and two hypotheses were addressed to guide the study. The study is a descriptive and inferential design using a sample of 240 students from 6 government owned secondary schools in the Municipal council which were purposively selected. A questionnaire of 4-point Likert scale called SEFAL subdivided into 3 sections of environmental factors and comprising 29 items was used for data collection. The research questions and hypotheses were answered and tested using mean rating scores and Z-test statistic respectively. It was found that the factors generally and negatively influence the academic learning of students. In the light of the findings and implications, recommendations were made to help parents, schools and the government in the empowerment of academic learning of students.

Keywords: *Environmental factors; Academic learning; Influence; Free Education*

Introduction

Good education does not come by chance. It is a function of effective teaching and learning with study. It enhances the growth and development of a nation and so there has been an increasing demand for good education but its standard seems to be declining, hence our educational system is now living in its former glory (Ejili, 2002).

The introduction of neighbourhood or day schools in the late 70's in Imo state and the recent declaration of free education in the state by governor Rochas Okorocha in 2012 gave rise to mass enrolment of students and consequent implosion in the secondary schools. The system made it possible for students to attend schools from their respective homes; hence many students seem not to be keen in hard work as a means of achieving academic performance and success.

Unfortunately some of the students study in un-conducive environments both at home and in school. Rivilin (1961) noted that the home often has a marked influence on the student's motivation for learning and on his ability to profit from his influence at school. The

environment and personal characteristics of learners also play an important role in their academic success (Farooq et al, 2011). The school and home therefore are expected to provide help and support to students for their academic performance.

It has been stressed that students are motivated to work on activities and learn new information and skills when their environments are rich in interesting activities that arouse their curiosity and offer moderate challenges (Schunk et al, 2008). Although education is key to which the child's environmental situation greatly impacts educational goals and progress yet some factors can make the difference between a child's success and failure. Such environmental factors which influence the child's academic learning are briefly discussed in this study under home environment, peer relationship/interaction and school environment.

i. Home Environment

The home environment affects the academic learning of students in a great way. The home is supposed to create an environment that would enhance academic success for their children. The academic performance of students heavily depends upon the involvement of parents in their children's academic activities. In this study some home environmental factors are discussed which include parent – child relationship; and parents' academic background.

Parent child relationship is a very important home environmental factor that influences the child's learning and performance. Parents who are responsive to their children's needs and at the same time use an authoritative approach can create a positive impact on success. An authoritative approach includes parenting in a style that is firm yet warm (Loop, 2013).

On the other hand, family financial status can be a contributing factor in a negative development and academic outcome though in the area and period of this study, it is not seen as a major and serious factor. This is because the population for this study was said to be enjoying a "free education" at the time of this study. Though children from low income homes and large family size may suffer from educational delays and learning disabilities than children from higher and low family size homes. Farooq, Chaudhry, Shafiq and Berhanu (2011) posited that socioeconomic status has positive effect on the academic performance of students because the basic needs of students remain unfulfilled and causes environmental deficiencies.

Parents educational attainment is sometimes relative to that of their children and as a result, there may not be much encouragement and motivation on their children. Most parents do not create opportunities in supervising their children's school activities nor give them exercises at home. Educated parents can better communicate with their children regarding the school work, activities and information being taught at school (Farooq et al, 2011)

ii. Peer Relationship/Interaction

Peer – to – peer interactions have been a significant stimulant and factor within and outside the school environment towards their achievement. Students' peer interactions within their environment multiplies with an increasing roles a student plays as he interacts with others.

For teenagers, a peer group is composed of individuals who are approximately of the same age or in the same class. The child's peer group influences his/her social and academic development. Such influences come not only from their peers but also from their parents, teachers and all close to him/her in contact.

Again, a child's interactions with the social media can greatly impact on the child's ability to learn and achieve success. Technological factors can be double-

edged actors because some of the media items and sources can result in a positive educational outcome while others can rob one of vital academic pursuits. The control of social media around a child's environment can contribute to the child's overall academic performance. The uncontrolled and rampant use of social media by school children even while in class as well as at home when they should settle for private studies influences negatively. Some parents encourage that as they often allow their children receive and place calls to their peers.

iii. School Environment

The school plays a very important role in the academic learning of the student. School environment here means the extent to which the school settings promote students' well being which includes academic learning. The school plant/facilities or structure can even affect the students. Students' attitudes are shaped to some extent by the facilities through which they are mediated (Ferreira 1995).

Quality of such plants or environment is often related to outcomes which may eventually relate to higher academic learning and achievement. Good and adequate facilities appear to be important preconditions for students' learning.

Decaying environmental conditions of building or facilities such as poor lighting, dilapidated buildings have been discovered to be affecting the students learning (Cash, 1993). Overcrowding of schools as a result of "every child must go to school (free education)" system in Imo state affect students' learning. This pose a serious problem in many schools especially where accommodations are limited. Studies showed that students in such schools perform significantly lower than students in underutilized schools (Burnett, 1995).

Problem

Environment actually influences children's academic process in primary schools but it must be noted that secondary school students react differently and directly to environmental involvement to their academics. The background to this study seems to indicated that students' environment determines to a large extent their academic performances.

Based on the poor academic performances of students in the state in recent times (WAEC, 2013) the researchers were stimulated to investigate the effect of environment on the academic learning of students in Imo state in the face of the free education using Owerri Municipal Council as a test case.

Purpose

The study surveyed the influence of environmental factors on the academic learning of secondary school students in the face of free education in the state. Specifically, the motives underlying the study are as follows:

1. To ascertain if the home environment generally influence the academic learning of the students.
2. To ascertain if in the face of free education students can still be positively affected academically.
3. To examine the effect of regular interactions with social media and peer relationship on the academic learning of the students in Imo state
4. To examine if school environment has an influence on the academic learning of students in Imo state.

The study is considered very significant in the sense that it will serve the following needs.

- To provide empirical evidence and guide to schools, students and homes on the nature of environmental factors and their effect on the academic learning process of the students. This will help both parents and the school to properly guide the children in their education.
- To provide a guideline for the school for proper academic counseling of the students. The study would also offer reference for further researchers that might investigate the same related variables.

Research Questions

To guide the study the following research questions were addressed.

1. To what extent do home factors affect students' academic learning?
2. To what extent does school environment affect the students learning?
3. To what extent do social media interactions and peer relationship affect students' academic learning significantly?

Research Hypotheses

The following research hypotheses were formulated to test the data collected.

1. There is no significant difference in the influence of students' academic learning between home and school environmental factors ($P < 0.05$).
2. There is no significant difference in the influence of students' academic learning between home environmental factors and peer relationship/interaction factors ($P < 0.05$)

Methodology

Design

The design is a descriptive and inferential study in which a scale designed to obtain data from the students on the effect of environmental factors on their academic learning called SEFAL was used. The obtained scores were used to test and investigate the effect of environment on the students' academic learning.

Population

All the students of government owned secondary schools in Owerri Municipal Council of Imo state of Nigeria constituted the target population of this study. Owerri Municipal Council is a local government council at the capital city of the state with a population of 64,455 (NPC, 2006) and six (6) state government secondary schools. The population for this study is made up of students from different states in Nigeria whose parents and guardians reside in and around the Municipal council. The rapid population growth placed a lot of pressure on the services such as in education.

Sample and Sampling Techniques

The six government owned secondary schools in the council were selected for this study. For the purpose of scoring the responses, 240 students with 40 students from each of the secondary schools were selected to respond to the instrument. The 40 students from each school were made up of the (10) each from Junior Secondary Three (JS 3) to Senior Secondary Three (SS 1 - SS 3) who were considered to give mature and more accurate responses to the items. The selections of the students were purposive.

Instrument

A questionnaire of 4-point Likert scale called "Scale of Environmental Factors on Academic Learning" SEFAL with 29 items was developed and validated by the researchers

with two other experts in Measurement and Evaluation. The scale was regarded as very appropriate for what it intended to measure. The instrument was made up of three sections of Home, Peer and School environmental factors that may affect in some ways the academic learning of students in school.

The 29 items were rated Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD) and weighted 4, 3, 2 and 1 respectively. Section A was Home Environmental factors (9 items); Section B was Peer Relationship/Interaction factors (9) items and Section C was School Environmental factors (11 items). The SEFAL has a reliability coefficient of 0.72 obtained through a test-retest method and using 50 students' responses from schools in another local government area of the state.

Administration of Instrument

The instrument was administered to each of the 240 students from the sampled schools personally by the researchers attaining to two schools. The instruments were administered and completed ones collected the same day.

Method of Data Analysis

The responses of the 240 students on the SEFAL were analyzed and weighted to obtain the mean for each of the items. The mean of means for the factors was also obtained. The three research questions were answered using frequency distribution table, mean rating scores while the two hypotheses were tested using Z-test statistic. The expected mean of each item is 2.5. This implies that mean rated (mean of means) greater than 2.5 is regarded as a significant factor to influence the academic learning.

On the other hand the factors are deemed not significant where the calculated Z-statistic is less than the critical or table value which implies no difference in the effect of the factors.

Results**Table 1****Frequencies of responses on home environmental factors for Research Question One**

| Home Environmental Factors | S/N of Item | Item | SA | A | D | SD | Total Responses | Total wtd | \bar{x} |
|----------------------------|-------------|--|-----|----|----|----|-----------------|-----------|-----------|
| | | | | | | | | | |
| Parent-Child | 1 | Parents are often harsh at children's school needs request | 102 | 87 | 34 | 17 | 240 | 754 | 3.14 |
| Relationship | 2 | Parents do not discuss school issues with children | 127 | 77 | 23 | 13 | 240 | 798 | 3.33 |
| | 3 | Regularly engaged with home chores & errands | 90 | 98 | 38 | 14 | 240 | 744 | 3.1 |
| | 4 | Stop children from school at slightest disobedience | 62 | 50 | 76 | 42 | 240 | 592 | 2.47 |
| | 5 | Inadequate time for private studying | 89 | 83 | 50 | 18 | 240 | 723 | 3.01 |
| Parents' | 6 | Do not give their children home work | 75 | 86 | 45 | 33 | 240 | 681 | 2.84 |
| Academic | 7 | Don't regularly supervise children's school works | 98 | 96 | 22 | 24 | 240 | 748 | 3.12 |
| background | 8 | Don't discuss children's career regularly with them | 72 | 80 | 37 | 51 | 240 | 653 | 2.72 |
| | 9 | No older educated siblings to help on school activities | 19 | 53 | 78 | 90 | 240 | 481 | 2 |
| Sum of means | | | | | | | | | 25.73 |
| mean of means | | | | | | | | | 2.86 |

Since the mean of means (2.86) is greater than the expected mean (2.5) it implies the Home Environmental factors are significant in influencing the academic learning of the students.

Table 2
Frequencies of responses on school environmental factors for Research Question Two

| S/N of Item | Item | SA | A | D | SD | Total Responses | Total wtd | |
|-------------|---|-----|-----|-----|-----|-----------------|-----------|-----------|
| | | | | | | | $\sum fx$ | \bar{x} |
| 1 | School located within daily travel distance | 40 | 81 | 99 | 20 | 240 | 621 | 2.59 |
| 2 | No boarding facilities | 136 | 89 | 15 | - | 240 | 841 | 3.5 |
| 3 | No reading materials from govt. to students | 82 | 112 | 15 | 31 | 240 | 726 | 3.03 |
| 4 | Much noise from neighbouring stores and vehicular movements | 70 | 93 | 69 | 8 | 240 | 705 | 2.94 |
| 5 | Much of compound works | 56 | 88 | 67 | 29 | 240 | 651 | 2.71 |
| 6 | Disturbances from cult members | 41 | 63 | 94 | 42 | 240 | 583 | 2.43 |
| 7 | Unbearable bullying from senior students and prefects | 82 | 47 | 49 | 62 | 240 | 629 | 2.62 |
| 8 | Provision of school materials by govt. to schools | 36 | 27 | 68 | 109 | 240 | 470 | 1.96 |
| 9 | No perimeter fencing of school | 65 | 39 | 103 | 33 | 240 | 616 | 2.57 |
| 10 | Inadequate classrooms | 61 | 59 | 97 | 23 | 240 | 638 | 2.66 |
| 11 | Inadequate sporting equipment | 67 | 56 | 81 | 36 | 240 | 634 | 2.64 |
| | Sum of means | | | | | | | 29.65 |
| | Mean of means | | | | | | | 2.7 |

The mean of means (2.70) of the school environmental factors is greater than the expected mean (2.50) showing a general influence of the factors on the academic learning of the students.

Table 3
Frequencies of responses on social media interactions and peer relationship for Research Question Three.

| Peer Environmental Factors | S/N of Item | Item | SA | A | D | SD | Total Responses | Total wtd | \bar{x} |
|----------------------------|-------------|--|-----|----|----|----|-----------------|-----------|-----------|
| | | | | | | | | | |
| Social Media Interactions | 1 | Regularly watch TV movies & football | 97 | 69 | 47 | 17 | 240 | 706 | 2.94 |
| | 2 | Regularly engage in internet chats & browsing with phone | 120 | 86 | 21 | 13 | 240 | 793 | 3.3 |
| | 3 | Spend much time on social activities | 69 | 86 | 45 | 40 | 240 | 664 | 2.77 |
| | 4 | Go to school with phone | 91 | 82 | 37 | 30 | 240 | 714 | 2.98 |
| | 5 | Watch movies & listen to music with phones | 64 | 86 | 53 | 37 | 240 | 657 | 2.74 |
| Peer Relationship | 6 | Always hang out with peers at home and school | 82 | 96 | 36 | 26 | 240 | 714 | 2.98 |
| Relationship | 7 | Male/Female friends visit home regularly | 70 | 92 | 37 | 41 | 240 | 671 | 2.8 |
| | 8 | Regularly interact with friends on social network | 113 | 70 | 27 | 30 | 240 | 746 | 3.11 |
| | 9 | Often discuss football and other issues at home & school | 103 | 87 | 38 | 12 | 240 | 761 | 3.17 |
| Sum of means | | | | | | | | | 26.79 |
| Mean of means | | | | | | | | | 2.98 |

The mean of means (2.98) is greater than the expected mean (2.50) an indication that peer relationship/interaction factors influence academic learning of students.

Table 4

Summary table for Z-test of home and school environmental factors for Hypothesis One.

| Factors | n | \bar{x} | μ | SD | Standard Error | Z_{cal} | Z_{tab} | discussion |
|----------------|-----|-----------|-------|------|----------------|-----------|-----------|----------------|
| Home factors | 240 | 2.86 | 2.5 | 1.05 | 0.09 | 1.78 | 1.96 | H_0 Accepted |
| School factors | 240 | 2.7 | 2.5 | 1.3 | | | | |

Table 4 shows that $Z_{cal} < Z_{tab}$. This implies that the null hypothesis is accepted, hence both home and school environmental factors influence students' academic learning

Table 5

Summary table for Z-test on home and peer relationship/interaction factors for Hypothesis Three.

| Factors | n | \bar{x} | μ | SD | Standard Error | Z_{cal} | Z_{tab} | discussion |
|--------------|-----|-----------|-------|------|----------------|-----------|-----------|-------------------------|
| Home factors | 240 | 2.86 | 2.5 | 1.05 | 0.09 | -1.33 | 1.96 | H ₀ Accepted |
| Peer factors | 240 | 2.98 | 2.5 | 1.01 | | | | |

Table 5 shows that $Z_{cal} (-1.33) < Z_{tab} (1.96)$. This indicates that both the Home and Peer factors influence the students' learning.

Discussion

The findings of the results show that factors under investigation influence students' academic learning in spite of the free education granted to the indigenes of the state at the period of this study.

Table 1 shows the responses of students on home environmental factors on their academic learning. It was found that the mean rating score for the factors (2.86) is greater than the expected mean of 2.5, an indication of the influence on students' learning. On the other hand, Table 2 shows that the mean rating score of students on school environmental factors (2.70) is also greater than the expected mean. Tables 1 and 2 are corroborated by test of hypothesis 1 (Table 4). The results supported the works of Rivilin (1961) which noted that home has a marked influence on the students' motivation for learning and Ferreira (1995) which asserted that students' attitudes are shaped to some extent by the facilities which the students are mediated. The data showed that government provides inadequate materials (and sometimes none) to schools nor maintain the available ones.

This therefore leads to decaying of environmental conditions of the available facilities such as building and furniture. The result supported Cash (1993) that decay of school facilities affects students' learning which in turn may result to over-population of schools especially the schools with limited accommodations.

Tables 3 shows the result on social media interactions and students' peer relationship and students' academic learning. The mean rating score (2.98) is greater than expected mean; indicating influence of the factors on academic learning. Both factors were discussed under peer environment. The result lends credence to Kirk (1999) who stated that any amount of time a child spends with his/her friends (peer) can influence the child substantially. A child's interactions with his/her social media can greatly impact both positively and negatively on the child's ability to learn and achieve success.

The results also supports Schunk (2008), Loop (2013) who opined that student's environments are rich in interesting activities that arouse their curiosity and then offer moderate changes and Farooq et al (2011) who asserted that environment and personal characteristics of the learners play important roles in their academic success.

The results and findings truly show that in spite of free education if certain factors in the children's environment are not properly controlled students academic learning can be influenced significantly.

The results of table 3 also agreed with the result of table 5 on home and peer environmental factors.

Recommendations and Conclusions

From the foregoing and in the light of the results and implications the following recommendations are made:

1. Parents should be actively involved in the control of home environment to improve the academic learning of their children. This should be done by creating a cordial parents-child relationship to enable the children confide in parents of their problems
2. Parents should, from time to time, supervise their children's school activities at home and endeavour to keep them busy regularly with exercises at home. In addition to this, parents should endeavour to know who their children's friends are, check regularly their rate of visitations on either side. They should often check the excesses of using mobile telephones to avoid or reduce cyber crimes and the kind of movies they watch in their homes.
3. There is the general need for the government to address the decline of school plant/facilities by provision of funds and learning materials for the improvement of educational system.
4. The school should provide necessary guidance services for the students. The implementations of these recommendations and more will adequately control and improve environmental factors for the academic learning of students. In spite of the free education if the environmental factors are not properly and adequately controlled, the students academic learning, and in turn success, will be affected.

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