

GEOSPATIAL PROXIMITY OF STUDENTS' HOMES TO SCHOOL IN RELATION TO ACADEMIC PERFORMANCE

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Abstract: The study examines the impact of pupil's proximity to school in relation to their academic performance. Structured questionnaire was developed and administered to the pupils to extract information on the pupils' home addresses while the performance of the pupils was obtained from their terminal examination. Google imagery, and the Global Positioning System (GPS) was used to establish the student home location which enabled the calculation of distances as a crow flies from the school to the pupils home location within the study area. The Pearson Product Moment Correlation was used to test the relationship between pupils' proximity to school and their academic performance. Giving a p value of .814 finding reveals that pupils distance to school does not determine their academic performance. Other factors such as lateness to school, family background, and family size could influence their academic performance. The study therefore recommends that researchers should pay attention on the other factors spelt out in order to ascertain the factors that contribute most to the academic performance of the children.

Keywords: Proximity, Academic, Performance, School, Pupils.

1. INTRODUCTION

The current trend of population growth in the study area alongside the rate of rural-urban migration has exerted much pressure on urban infrastructures. Land use changes have resulted in declining space availability for urban schools; this has made most school proprietors or governors to locate their schools at urban periphery thereby increasing the distance covered by school students daily. This direction of thought was as a result of the findings that rural youth lagged behind their urban counterparts in terms of educational aspirations. This was derived from the studies from the National Education Longitudinal Study examining the educational aspirations and access to urban and rural schools by post secondary students.

Globally, there is a call for universal primary education and an end to gender disparity in education especially among developing countries. This call is as a result of poor school attainment by children in developing countries. For instance, United Nation, (2008) presented that in 2006, 73 million of school age children were not enrolled in primary school, though this is an improvement on what was obtainable in 1999 where one hundred and three million children of school age were not enrolled in primary schools. This importantly still represents an offset from the millennium development goal of full primary school enrollment by 2015. The problem posed by this challenge is noticeable and more pronounced in the rural communities according to the United Nation in (2008) 25% of rural children and 16% of urban children are out of school globally.

This challenge of school dropout among children is one of the major factors affecting children's educational attainment in schools. School dropout among children is also induced by the inability of the child to cope or perform even at the availability of educational institution because schools generally are not accessible to many families in the rural areas and even urban peripheral. In most of the communities in the developing countries one or more schools are tied to the

presence of high population there by making children of areas of lower population travel long distances and sometimes walking as long as 10 kilometer to attend school (Aristiansana and Pratikomb, 2006). Adele, (2008), School attendance in these conditions will therefore require the investment in transportation and alternative housing strategies where children would have to stay with relatives' in order to curb the effect of distance on the children's academic performance (Jarafrey and Lahiri, 2005).

School location in an environment and atmosphere that will be conducive for effective teaching and learning is very paramount usually it is expected by parents and other adults that school choices to be made especially at the primary level is based on its proximity to the home. This pronounce in the locational strategy for schools by major companies and institution owned schools where this schools are located within the vicinity of the company or institutions to maintain minimal distances from home. This schools include among others are the university demonstration schools across the country, Ajaokuta steel primary school in Kogi state Alaja steel primary school Delta state and the NNPC school in Warri. In this instance the closeness of school to children's home was significantly considered in their establishment.

However, this was not the case with public schools across the country (Arubayi 2005) compared distances travelled to school by pupils and students in Edo and Delta states from his finding, he discover that the location of a sizable number of primary and secondary schools in both Edo and Delta states were far away from the residences of the pupils or pupils. This long distances travelled to school was seen as a major reason for high school dropout rate in primary and secondary school in Nigeria which also had some effects on the school attendance (Arubayi, 2005 ; Duze, 2005 Madumere, 1991).

Geographical proximity may have a dramatic effect on children academic participation, attendance and performance therefore, the distance travelled to school in educational planning should be a basic requirement for the approval and location to school to enhance children performance.

Therefore, in the implementation of the compulsory free education programme in Nigeria, many states were of the opinion and also stipulated that school should be located at not more than the 1 kilometer from residence of the communities to be served, hence schools were opened at almost every hamlet in the country despite this, it does appear that many Nigerian children still travel long distances to and from school (Duze, 2010). This trend may or may not affect the learning efficiency of the students hence this study examines the impact of children travel distances on learning.

Study Area:

The Study area is one of the 23 local governments of Rivers state, found in the south southern part of Nigeria, otherwise called the Niger Delta Region of Nigeria, located approximately between latitude $4^{\circ} 45''$ N through $4^{\circ} 56''$ N and longitude $6^{\circ} 52''$ E through $7^{\circ} 6''$ E. It has a general elevation of less than 15.24m above mean sea level (Oyegun & Adeyemo, 1999). It is bounded by Ikwerre LGA to the north, Port Harcourt LGA to the south, Oyiabo LGA to the east Emohua LGA to the west, as shown in figure 1 & 2

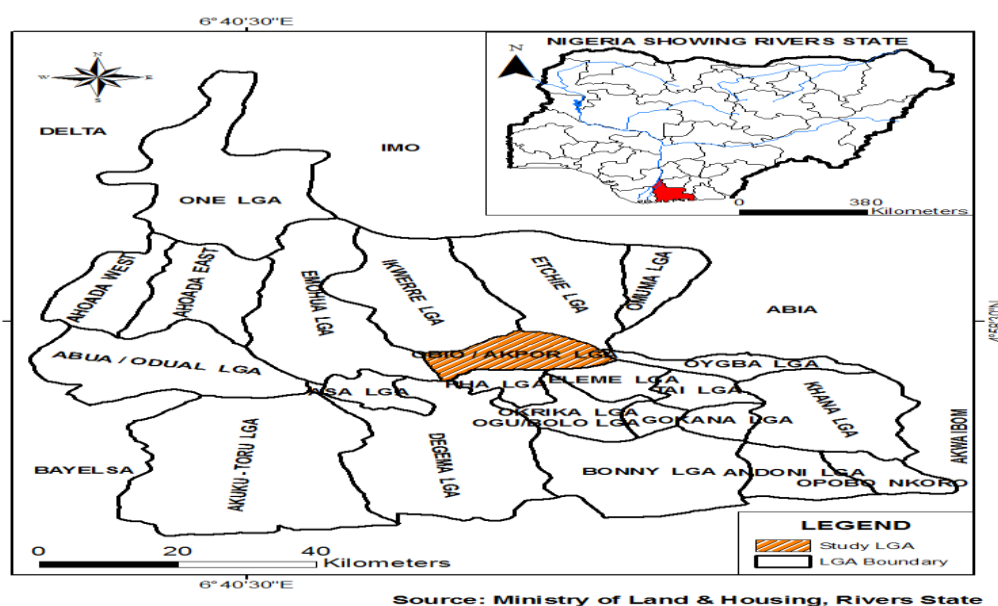


Figure 1: Rivers State showing study Local Government

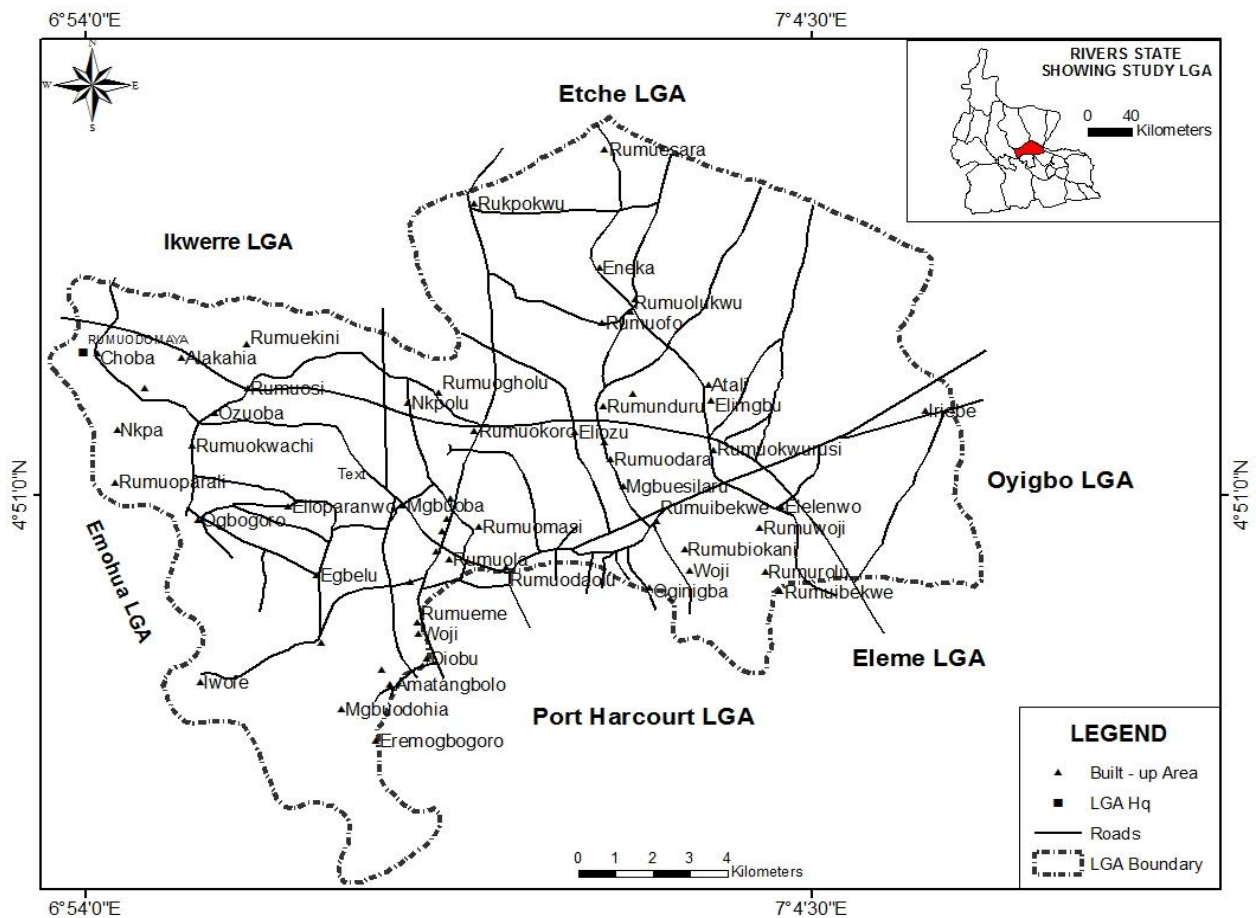


Figure 2: Obio Akpor LGA Showing Communities with insert Rivers State

The study shall comprise primary schools in all communities that make up Obio/Akpor Local Government Area. For the sake of having a manageable sample size, random sampling techniques was employed to select 10 percent of the 47 schools located in the study area. The pupils result card in a particular class for each school sampled was used alongside their actual home location derived from the use of questionnaire instrument to correlate their distances from school in relation to their performance. Obio-Akpor LGA has a population of 283,294 persons, made up of 145,326 males and 137,968 females (N.P.C, 2006). It is one of the major centres of economic activities in Nigeria, and a major city in the Niger Delta said to be the richest LGA in Rivers State. Consequent on rapid urbanization and the rising industrial and commercial growth of the city of Port Harcourt, more goods and services are being made available, thus the springing up of petrol filling stations, to meet up with the demand of the growing population arises. Obio-Akpor LGA was created on the 3rd of May, 1989 out of the Port Harcourt LGA of Rivers state by the then Military administration of President Ibrahim .B. Babangida. It is mainly constituted by the Ikwerre ethnic nationality and has its LGA headquarters at Rumuodumanya (Mamman, Oyebanji, & Petters, 2000).

Geography:

Rivers state, where Obio-Akpor is found, lies on the recent coastal plain of the Eastern Niger Delta. Its surface geology consists of fluvial sediments. This includes the recent sediments transported by the Niger River distribution and other rivers, such as Andoni River, Bonny River, and New Calabar River. These materials deposited as regolith over burden of 0-30m thickness are clays, peat, silts, sands and gravels. The depositional sequence exhibits massive continental sandstones overlaying an alternation of sandstones and clays of marginally marine origin, but eventually grading downwards into marine clays. Sands, by far, form the largest group of rock types in Rives state, while mud constitutes all the polluted brackish waters of the riverine areas. However, peat constitutes the various vegetal and animal remains that lie in bogs and shallow pits. The gravel and pebbles form the last unit of the subsurface rock type, and are usually found at the base of the river channels (Oyegun & Adeyemo, 1999).

Educational:

From the 1991 distribution of population and facilities among the LGAs of Rivers state, Obio-Akpor LGA totalled 16 Federal secondary schools (NPC, 1991). The Federal Government College (a secondary school) is found in Rumuokoro, Port Harcourt. Institutions of Higher learning include the following:

1. University of Port Harcourt, Choba, Port Harcourt.
2. Rivers State College of Arts and Science, Rumuola, Port Harcourt.
3. School of Health and Technology, Rumueme, Port Harcourt.
4. School of Nursing and Midwifery, Rumueme, Port Harcourt.
5. Rivers State College of Education, Rumuolumeni, Port Harcourt (Adeyemo, 2000).

Purpose of the Study:

The aim of the study is to access the impact of school proximity to pupils home and their academic performance in Obio/Akpor Local Government Area.

The objectives of this study are

1. To determine the travel distance of students to selected schools in the study area.
2. To ascertain the academic performances of children in their various schools.
3. To examine the relationship between the travel distances and children's academic performances.

2. EMPIRICAL REVIEW

Adewunmi M.G. *et al* (2012) looked at the roles of parents on the academic performance of students in elementary schools. Among other responsibilities, such as providing a safe environment, provision of basic needs, self-esteem needs, involvement in the child's education, getting to know the child, etc, were different levels of involvement. Findings revealed that academic performance improves when parents play roles such as act as teachers, supporters, advocates and decision makers through continuous enthusiasm and positive parenting. It impacts on students positively because they are motivated, have self-esteem and have high educational aspiration.

Kudazi C. *et al* (2014) looked at the academic performance of the girl child learners who came from poverty stricken homes in Zimbabwe. In this work, parents, 10 girl children and four teachers all in form three from two secondary schools in one rural and on urban settlement was used to gather qualitative data. Interviews, group discussions and observations were used. The theoretical framework used was Bronfenbrenner's Ecological Theory which says that the surrounding of a person has an influence on the way a child develops (Donald *et al*, 2010), (Woolley and Raylor, 2006). Findings revealed that the performance of a girl child academically is affected by many contexts and suggested that governments should sensitize parents of the needs of a girl child.

Owoeye and Yara (2011) studied the academic performance of Secondary School Students in relation to the location of the school. Schools and their WAEC results from 1991-1997 both in urban and rural areas were studied. Student location questionnaire (SLQ) was used to collect data while T-Test and mean were used to analyse the data. The results showed that students in the urban area had better academic results than those who stayed in the rural areas. Bridging the gap between the rural and the urban location, by social amenities incentives, transportation and facilities was suggested to the government agencies and the communities.

Bliming (1989) examined the efforts of on-campus and off-campus living in relation to students, academic performance. The study revealed that living on-campus was better because the results were better.

Eric *et al* (2011) in the journal of issues in inter-collegiate discussed freshman athletes' academic performance in relation to their residence. It was concluded after the study that athletes' performance academically was not affected by on or off campus environment. Statistically though, there were gender difference between National Collegiate Athletic Association sub-groups among the freshman students.

Khcoud (2012) looked at the reasons for low academic achievement among the students of the min stages in selected schools in the province of AC Balqa. Questionnaires were distributed three axis – student, family and school hub. The findings revealed that the focus of students was the greatest cause in poor academic performance followed by the school hub and family. The study recommended students' attention to academic level of the faculty and early treatment of problems.

Jane *et al* (2012) studied the relationship between women participation in mira (Khat) business and the academic performance of primary school children in Runyenjes Division, Embu, Kenya. The children of the respondents had their standard eight results studied in relation to the nature, time spent, years of participation and the women's attitude towards mira business. Findings showed that the business impacted negatively on the performance of the students in that area. It was recommended that government should intervene and regulate the production, consumption, and supply of mira thereby fostering gender protection and raising the quality of bringing up children as well as empowerment of women to shift from the mira business. Kwame O. *et al* (2007) in the journal of agricultural and applied economics looked at proximity to school quality and residential property values in Greenville, South Carolina. Does close count? Findings showed that close does count. It was concluded that proximity appeared to be significant. There was positive value associated with closer proximity to school at all levels while longer than average distance to schools had negative values. Property values had impact at the elementary and high school levels.

Duze (2010) looked at the average distance travelled to school by primary and secondary school students in the following Nigerian states thus Anambra, Enugu and Ebonyi which is among the top ten densely populated and educationally advantaged states in the country. Findings revealed that the schools were located far from the children's houses and this resulted in long distance travel of over the stipulated 1km maximum. The attendance was adversely affected. Approval of the location of schools based on maximum 1km should be taken into consideration by the authorities in charge and also organized transport system should be set up.

3. MATERIAL AND METHODS

For the purpose of working with a manageable size, the study utilized the random sampling technique to select 10 percent of the target population giving each sample equal and non zero chance of being selected. Communities located in the study area were arranged alphabetically and assigned numbers serially which was further subjected to selection using the table of random numbers. Performance of students in relation to their proximity to school was acquired using their report cards. Home location of the students was made known through personal interview and questionnaire while the actual distance of the home from the school was acquired using the Global Positioning System used to acquire the coordinates of the school and each student's home location with the aid of satellite imagery (Google Earth image) to ascertain the actual home location in meters from the school in the ArcGIS 9.3 environment and mapping techniques was employed to measure the actual distance of the students' home from school.

Data acquisition was done using personal interviews and questionnaires to find out their actual home location which was computed by the Global Positioning System (GPS) as used by geographers. The GPS was used to acquire the coordinates of the school and each pupil's home location. Information on child performance was derived from the class report cards. The GPS software, ArcGIS 9.3 and mapping techniques was employed to measure the actual distance of the pupils' home from school.

This shows the spatial spread of student's home in relation to school location. Using the Pearson Product Moment correlation, students travel distance and their academic performance was examined where x_1 represents the student distance from school while student's academic performance represents x_2 , while n represents the total number of students sampled.

The questionnaire instrument that was used for this study aided in gathering documented information on the impact of pupil proximity to school in relation to their academic performance. This instrument was developed by the researcher and contained questions that helped the researcher in obtaining information on respondent's performance, location in relation to their proximity to school.

The relationship between the pupils travel distance to school and their academic performance was tested using the Pearson Product Moment Correlation while the pupils distance was measured as the crow flies from the school to their home destination represents x_1 while children's academic performance using the class report card for the third term (promotional term) represents x_2 , while n represents the total number of pupils sampled.

From the analysis, questionnaire data acquired from the study population revealed that there are variations in the distances shared by students from their residence to the schools as shown in the figure 3

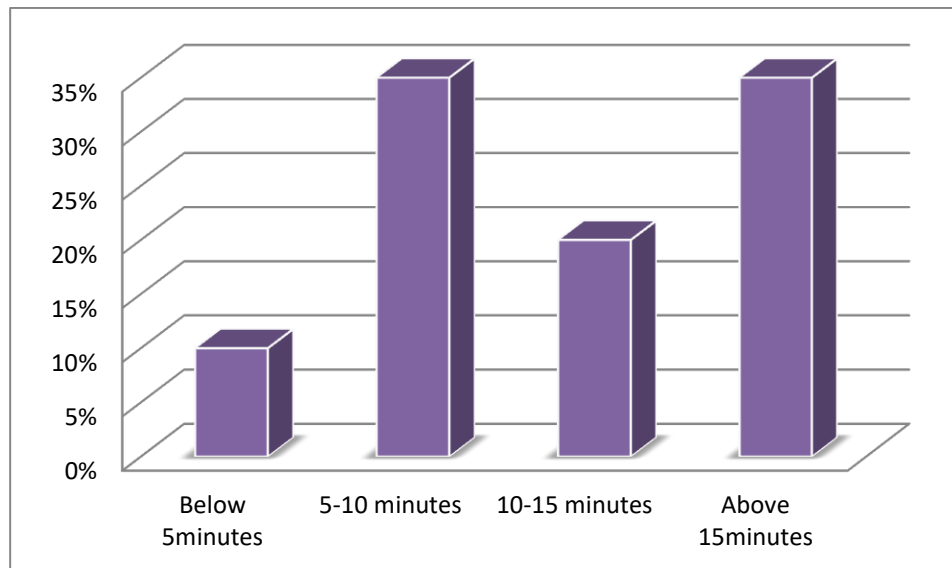


Figure 3: Variations in percentages of the distances (minutes) shared by the students from their residences to the schools in minutes

From the survey carried out, the chart above was plotted. Only 5% of the students lived below 5 minutes from their houses to the school and this accounted for the least in the time survey. The highest percentage was in the range of 5 – 10 minutes and above 15 minutes with a 35% frequency recorded.

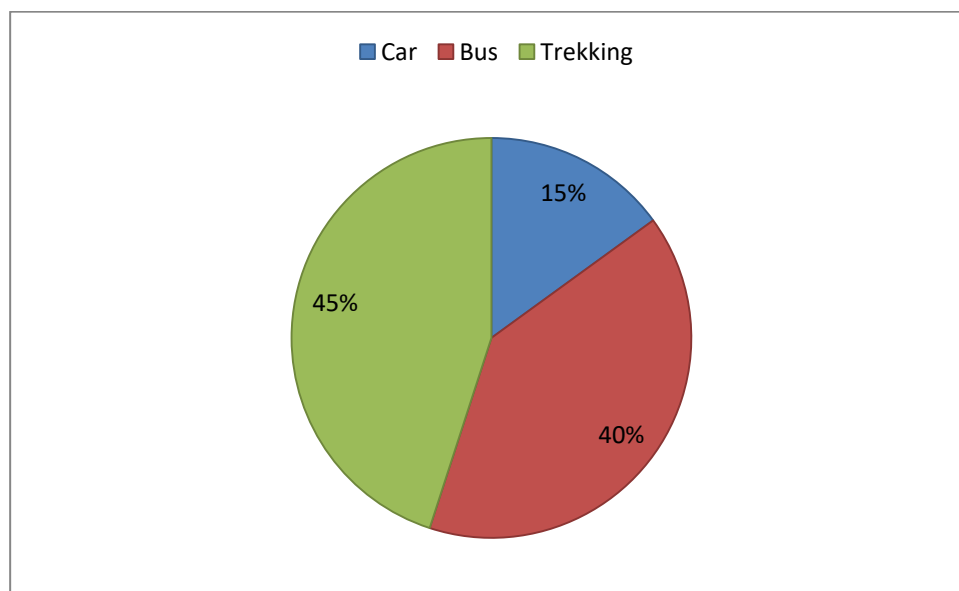


Figure 4: Mode of student's transportation to their schools in percentages

The mode of transportation which the students use to school ranges from cars to buses to trekking. 45% of the students trekked to school which gave the highest percentage while 15% accounted for the least in the survey which is the usage of the car transportation mode by the students.

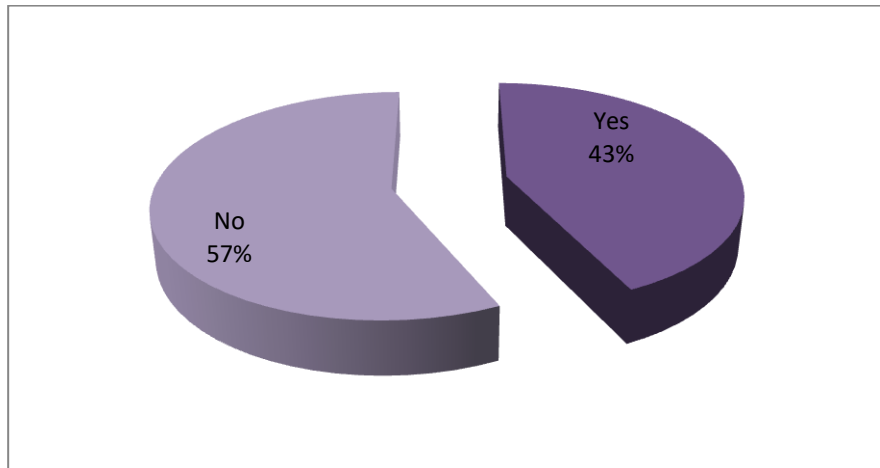


Figure 5: Lateness to school

Lateness to school was also one of the parameters that were surveyed. 57% of the students do not come late to school while 43% of the students attested to late coming. Those who disagreed accounted for a higher percentage of the population.

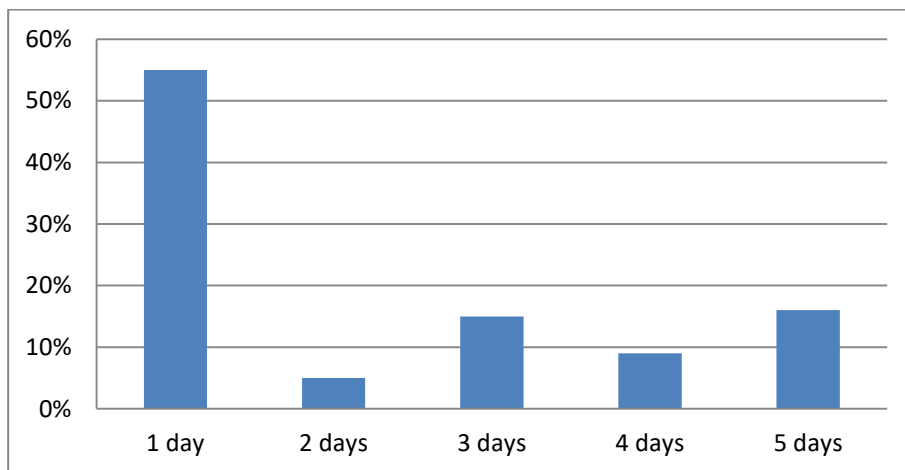


Figure 6: Frequency and trend of lateness to school (daily record)

The frequency of late coming was surveyed. It was deduced that only about 5% of the population came late twice a week accounting for the lowest outcome. The highest frequency was for those who came late once a week which gave a 55% record. For three times, four times and five times weekly lateness were 15%, 9% and 16% respectively.

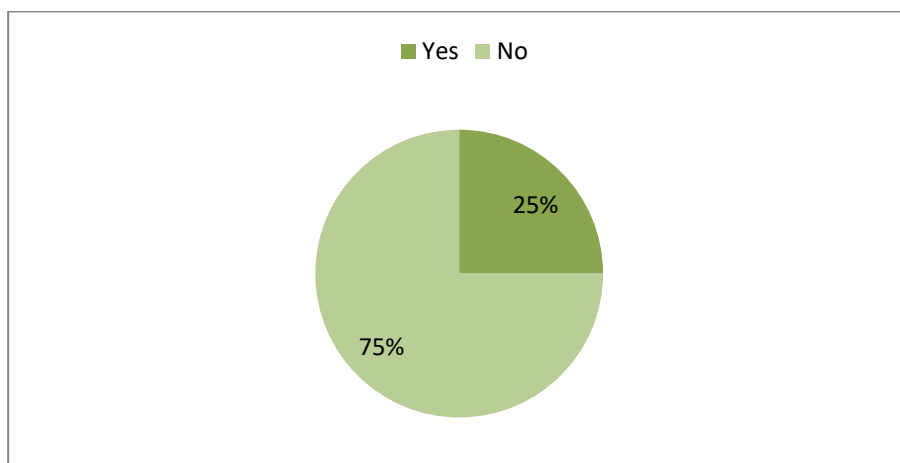


Figure 7: Percentage of students' Absenteeism from school

From the above representation, a quarter of the respondents have been absent from school while three quarters of the students have never been absent.

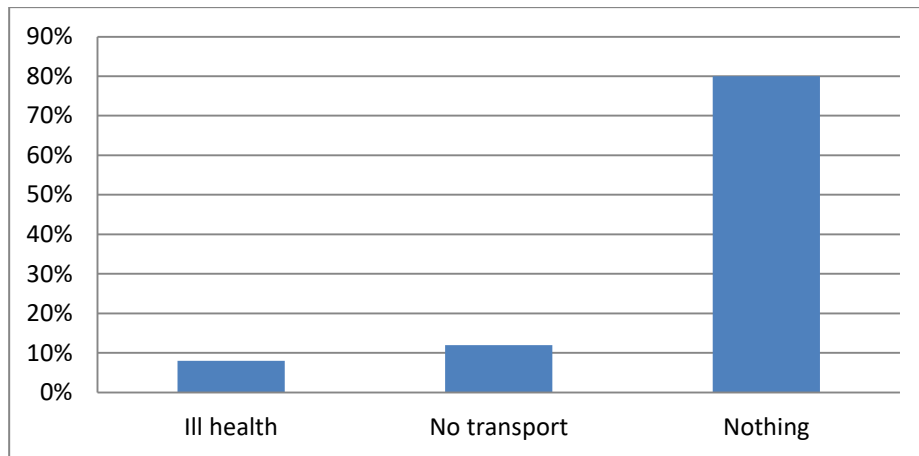


Figure 8: Respondents reasons for being absent from school

Reasons for absenteeism was ill health which was put at 8%, no transportation which was put at 12% and no reason which got 80% of the total, being the highest.

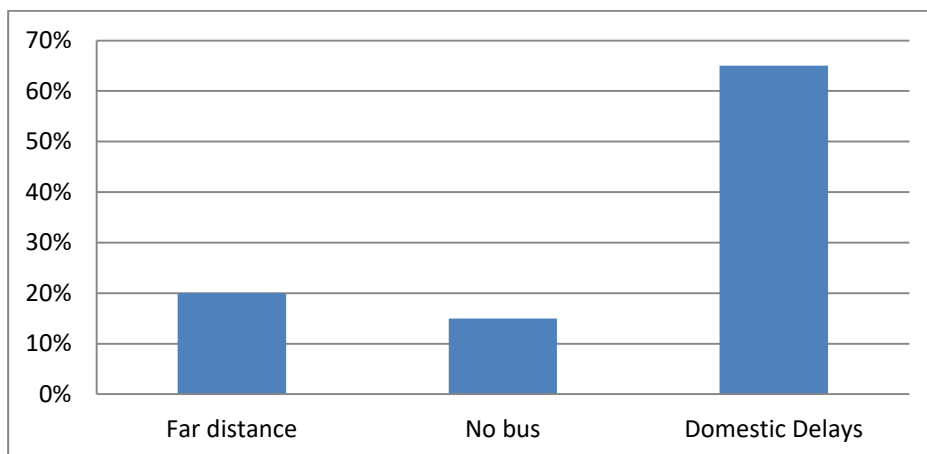


Figure 9: Respondents Reasons for lateness to school

The respondents gave reasons for late coming as distance been too far, unavailability of bus and domestic delays accounting for 20%, 15% and 65% respectively.

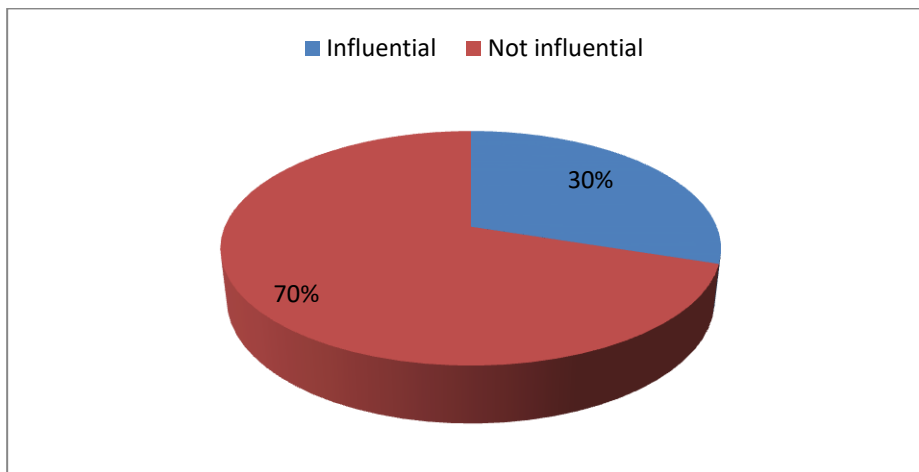


Figure 10: Respondents perception of school proximity influence on performance

From the above figure, 30% of the respondents see distance as an influence on their performance in class while 70% think otherwise.

Table 1: Class positions of students and their respective distances of their homes from school.

| S/N | Class Position | Mean Distance from school (m) |
|-----|----------------|-------------------------------|
| 1 | 1st | 201 |
| 2 | 2nd | 744 |
| 3 | 3rd | 940 |
| 4 | 4th | 221 |
| 5 | 5th | 931 |
| 6 | 6th | 252 |
| 7 | 7th | 449 |
| 8 | 8th | 864 |
| 9 | 9th | 837 |
| 10 | 10th | 253 |
| 11 | 11th | 450 |
| 12 | 12th | 449 |
| 13 | 13th | 162 |
| 14 | 14th | 45 |
| 15 | 15th | 327 |
| 16 | 16th | 556 |
| 17 | 17th | 851 |
| 18 | 18th | 624 |
| 19 | 19th | 934 |
| 20 | 20th | 892 |
| 21 | 21st | 36 |
| 22 | 22nd | 624 |
| 23 | 23rd | 610 |
| 24 | 24th | 890 |
| 25 | 25th | 17 |
| 26 | 26th | 908 |
| 27 | 27th | 747 |
| 28 | 28th | 376 |
| 29 | 29th | 179 |
| 30 | 30th | 579 |
| 31 | 31st | 275 |
| 32 | 32nd | 490 |
| 33 | 33rd | 497 |
| 34 | 34th | 202 |
| 35 | 35th | 488 |
| 36 | 36th | 314 |
| 37 | 37th | 635 |
| 38 | 38th | 366 |
| 39 | 39th | 785 |
| 40 | 40th | 726 |

Table 2: Correlation Analysis

| | | Class_Position | Distance_from_school_m_ |
|-------------------------|---------------------|----------------|-------------------------|
| Class_Position | Pearson Correlation | 1 | -.038 |
| | Sig. (2-tailed) | | .814 |
| | N | 40 | 40 |
| Distance_from_school_m_ | Pearson Correlation | -.038 | 1 |
| | Sig. (2-tailed) | .814 | |
| | N | 40 | 40 |

From the table, proximity of students home from school does not influence their academic performance given a p value of .814 which is greater than .05. Hence, student distance to school does not determine their academic performance rather other factors other than distance determine their academic performance.

4. SUMMARY OF FINDINGS

The present trend in population growth in urban area resulted in the infringement of population in to rural area making land available for other developmental process scarce. This situation may result in much difficulty in the provision of land for school locations in the urban areas and other rural area. Hence pupils would therefore travel much distance to acquire sound education. The effect of distance of pupil's homes from school in relation to their academic performance was therefore tested or examined in this work. Findings from analysis using information acquired through structured questionnaire, imagery, pupils result sheet and Global Positioning System and tested using the Pearson Moment Correlation Analysis gave a p value of .814 which is greater than .05. Hence, from the result of the analysis, pupil distance to school does not determine their academic performance rather other factors other than distance determine their academic performance.

Significance of the Study:

This study examines school's proximity in relation to children's academic performance therefore, findings from this study will help in school locational planning and provide basis for locations. Parents would also adopt strategies that would ensure home locational preferences to include pupils school location as indicators for choice of home location.

5. CONCLUSION

The present trend in population growth in urban area resulted in the infringement of population in to rural area making land available for other developmental process scarce. This situation may result in much difficulty in the provision of land for school locations in the urban areas and other rural area. Hence students would therefore travel much distance to acquire sound education. The effect of distance of student's homes from school in relation to their academic performance was therefore tested or examined in this work. Findings from analysis using information acquired through structured questionnaire, imagery, students result sheet and Global Positioning System and tested using the Pearson Moment Correlation Analysis gave a p value of .814 which is greater than .05. Hence, from the result of the analysis, student distance to school does not determine their academic performance rather other factors other than distance determine their academic performance.

Also from the analysis, most of the student travel above distances that are beyond 5 minutes to school via busses. Other student averaging 45 percent of respondent walk to school resulting in about 43 percent lateness to school which are mostly on a daily basis. Finally, from this study, it was revealed that geographical proximity does not have an influence on the performance of children rather other factors such as their parental upbringing, environment and many more may have much influence on their academic performance.

6. RECOMMENDATION

Therefore this work recommends that researchers should pay attention on the other factors spelt out in other to ascertain the factors that contribute most to the academic performance of the children. In addition this research should be elaborately conducted in other schools across the study area, accommodating other possible factors such as household size, family literacy level, income as determinant of pupils' academic performance.

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