



S PATIAL DISTRIBUTION PATTERN OF SECONDARY SCHOOLS IN IKOT EKPENE, AKWA IBOM STATE, NIGERIA

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ABSTRACT

This research examined the spatial distribution pattern of public and private secondary schools in Ikot Ekpene, compared the existing set United Nations Educational Scientific and Cultural Organization (UNESCO) and Universal Basic Education (UBE) standards. Multi sampling technique alongside purposive and simple random sampling

Introduction

The location of educational facilities is therefore known to influence utilization and efficiency, as proximity to them do influence the decision to seek and receive education. This implies that the distribution of educational facilities particularly public ones which are more affordable and accessible may influence accessibility to educational opportunity. One of the most outstanding educational problems in Nigeria, as in other parts of the developing world, is the inadequate number of secondary schools especially in the northern part of the country (Inobeme and Ayanwole, 2009). The problem of inadequate secondary schools is aggravated by location inequalities in the location of the few available schools. The spatial disparity in the distribution of secondary school is most severe between urban and rural areas. Although, majority of the population of Nigeria reside in urban areas that is, according to UN estimates 54 percent of people in the world lived in urban areas



in 2016. Using UN Urbanization Prospects projections, in 2018 this is estimated to be [just over 55 percent](#) of the world. As such, there are very few secondary schools that serve the rural dwellers. Inobeme and Ayanwole (2009), observed that even in the urban areas, there is inequality in the distribution of schools due to several factors ranging from political to environmental accessibility.

Education plays an important role in the life of every citizen and the nation at large. Nigeria is among other countries that concur to education as an undoubted means of fulfilling national development, thereby making private individuals, government, and organizations to set up an educational institute at all level to meet educational yearnings and wants of the citizens; although the expectation for equal distributions of educational infrastructure is a major challenge (Adebola, 2011). Besides, there is variation in the distribution of secondary schools among different zones of the town. This scenario is not restricted to Nigeria but extends to other parts of the world whereby educational facilities are typically concentrated in settlement centers within the higher levels of the settlement hierarchy (Kučerova and Kučera, 2012). Empirical studies by Okafor (1988) and Olajuyin *et al.*, (1997) on the effect of location on the utilization of healthcare facilities in Nigeria revealed uneven distribution of public facilities which eventually affect the patronage of such facilities. Therefore, when educational facilities are unevenly distributed in a region, there is every tendency that such facilities would be underutilized and the people to be serviced become disadvantaged in the use of such facilities. The provision of educational facilities in an area should be among the top priorities of government at both local and state levels. However mere provision of schools does not translate to their accessibility and utilization by the target community. This is because factors are influencing the access and utilization of schools in an area. Moreover, Adejuyigbe (1973) observed that low patronage of schools in Nigeria could be attributed to several factors such as distance and type of facility available. Therefore, there is a need to examine the pattern of the distribution of secondary schools in the study area in order to enhance their access and utilization.



Review of Related Literature

Spatial Distribution Pattern of Educational Facility

Agbabiaka *et al.*, (2019) identified, mapped and modeled the existing secondary schools and its educational facilities in Ibadan South West, Oyo State, Nigeria. The results showed a dispersed pattern of distribution ($z = 4.84$ and $p = 0.001$) of the schools with a disproportionately higher frequency in wards 9, 11 and 12 (21–32 schools) than in wards 8 and 10 (10 and 4 schools, respectively). The model revealed that all the schools are proximally located to major roads and settlements except for a private school in ward 12 that is connected by footpaths and more than 500m away from the main road. Therefore, the location of the secondary schools conforms to UNESCO standard that stipulates secondary schools should be located within 2000m walking distance from major settlements and 500 m away from the primary and secondary roads. Similarly, Fabiyi and Ogunyemi (2015), studied on spatial distribution pattern in Ogun state and the result revealed a dispersed pattern for the overall assessment of spatial distribution in the areas. However a clustered pattern was obtained for 9 electoral wards while a dispersed pattern was obtained in Ilaro ward (a relatively urban ward). Some students in the public post-primary schools travelled as much as 5 kilometers mostly on foot to school every working day.

Education officially occurs in schools where infrastructural facilities are provided for an effective learning experience and conducive environment for imparting knowledge by teachers to the students. It is obvious that the quality of facilities provided would have a profound influence on the quality of students produced (Owoeye and Yara, 2011; Usen, 2016; Turupere, 2016). Studies have revealed that facilities in public schools in some states of the country are generally in a state of disrepair. For instance, Ojeje and Adodo (2018) in Delta state, Izobo-Martins *et al.*, (2014) in Ogun state and Salisu and Rozita (2016) in Katsina state and other studies such as Peter Ikoya and Onoyase, (2008); Ifenkwe, (2013); Danladi, (2015) and Adekoya, (2016) identified challenges such as lack of resources, insufficient educational infrastructure, inadequate classrooms and teaching materials, lack of qualified teachers, poor



learning environment and the lack of a database of facilities available in public secondary schools throughout the country.

Educational facilities are the facilities provided to students so that they can use every opportunity to develop their full potential. Educational facilities include buildings, fixtures, and equipment necessary for the effective and efficient operation of public education, classrooms, libraries, rooms and space for physical education, space for fine arts, restrooms, specialized laboratories, cafeterias, media centres, building equipment, building fixtures, furnishings, related exterior facilities, landscaping and paving among others. The actualization of the goals and objectives of education require the provision, maximum utilization and appropriate management of the facilities (Usman, 2016).

School facilities have been described as an important factor for quantitative and qualitative education. Facilities generally constitute a strategic factor in the functioning of any organization. This is important because they determine the smooth running of any social system including education because of their availability, adequacy, relevance, influence, efficiency and high productivity. It is expected that the wealth of any nation or society could determine the quality of education in such a nation because a wealthy society should be able to establish good schools with quality teachers and learning infrastructure so that students can learn with ease and attain good academic success. However, this seems not to be the case in Nigeria because a lot of secondary school managers face great challenges in the process of implementing school programs. (Yadar, 2007; Yara and Otieno, 2010; Gometi, 2011)

School facilities when provided aid teaching, learning and subsequently improve the academic achievement of students, (but the criteria guiding their provision to schools take different forms), for instance, it can be either through the rational bureaucratic or political model and whichever is adopted, there is always a common feature of inconsistent allocation of facilities to schools. Certain schools are favoured in the allocation of facilities at the expense of others, (an example is the 2014 renovation of some selected secondary schools in Delta State; most schools renovated were in urban centres and along major roads) the school managers are virtually left out of the process. Allocation of these facilities is almost



always politically motivated without due consideration of areas of need. (Owoeye and Yara, 2011)

Research Methodology

Cross-sectional research method was adopted, where information was collected from a set of cases at a point in time without any need to follow up. Data was collected through the administration of the structured questionnaire, interview and observation to the management and students of the sampled secondary schools in the study area. Also, the total number of secondary schools was gotten from the State Secondary Education Board, Uyo. The coordinates of the locations of schools were obtained through the google earth map using the online google street map. Primary data for this study was collected through a hand-held GPS receiver to capture the location of school. The study adopted multi-sampling technique. That is, purposive and simple random sampling techniques were employed, where 40 percent of the public and private schools were sampled. However, 40 percent of 8 public schools resulted in 3 schools and 40 percent of 34 private schools resulted in 14 schools. A total of 17 schools were therefore sampled out of 42 secondary schools in the study area. The use of percentage such as 40 percent is never new in research as some researchers have used same, such as Fabiyi and Ogunyemi (2015) who studied on spatial distribution pattern of schools in Ogun state and the result revealed a dispersed pattern for the overall assessment of spatial distribution in the areas and Ahmed et al., (2013) who analyzed the distribution of facilities in Kano using the Nearest Neighbourhood Analysis and found out that the pattern of distribution of Police Station in Kano Metropolis is generally random and uneven, with a little clustering at the centre.

Table 1.1: Sampled Secondary Schools

S/N	Name Secondary Schools	Location	No of Students
	Private		
1	Saint Paul Comprehensive Secondary School	20, Imek Road, IkotEkpene	825
2	Mid- Town Secondary School	UdofaUkpong Street, Ikot Ekpene	930
3	Top Faith Legacy College	Ibiakpan, IkotEkpene	728
4	Christian Secondary Commercial School	AbiakpolkotEssien	602
5	Methodist Girls' Secondary School	Utu Ikpe, Ik	711
6	Immanuel College, Ibiakpan	Ibiakpan, Ik	492
7	Edwina College, UrukUso	UrukUso, Ik	501
8	Apostolic Faith Secondary School	IkotEkpene	512
9	Ritman College, IkotAbia Idem	IkotAbialdem, Ik	585



10	Holy Child Girls' Secondary School	Ifuho, Aba Road, Ik	752
11	Lutheran High School	IkotObongEdong, Ik	672
12	Premium College	AbakOko, Ik	716
13	Greenfield College	Water Board Road, Ik	813
14	Liberty College	Ikot Idem, Ik	714
	Public		
15	State College	Abak Road, Ik	4353
16	State Secondary Commercial School	OkoEto, Ik	3233
17	Goretti Girls Secondary Commercial School	IkotEkpene	2785
TOTAL			19,924

Source: Akwa Ibom State Ministry of Education.

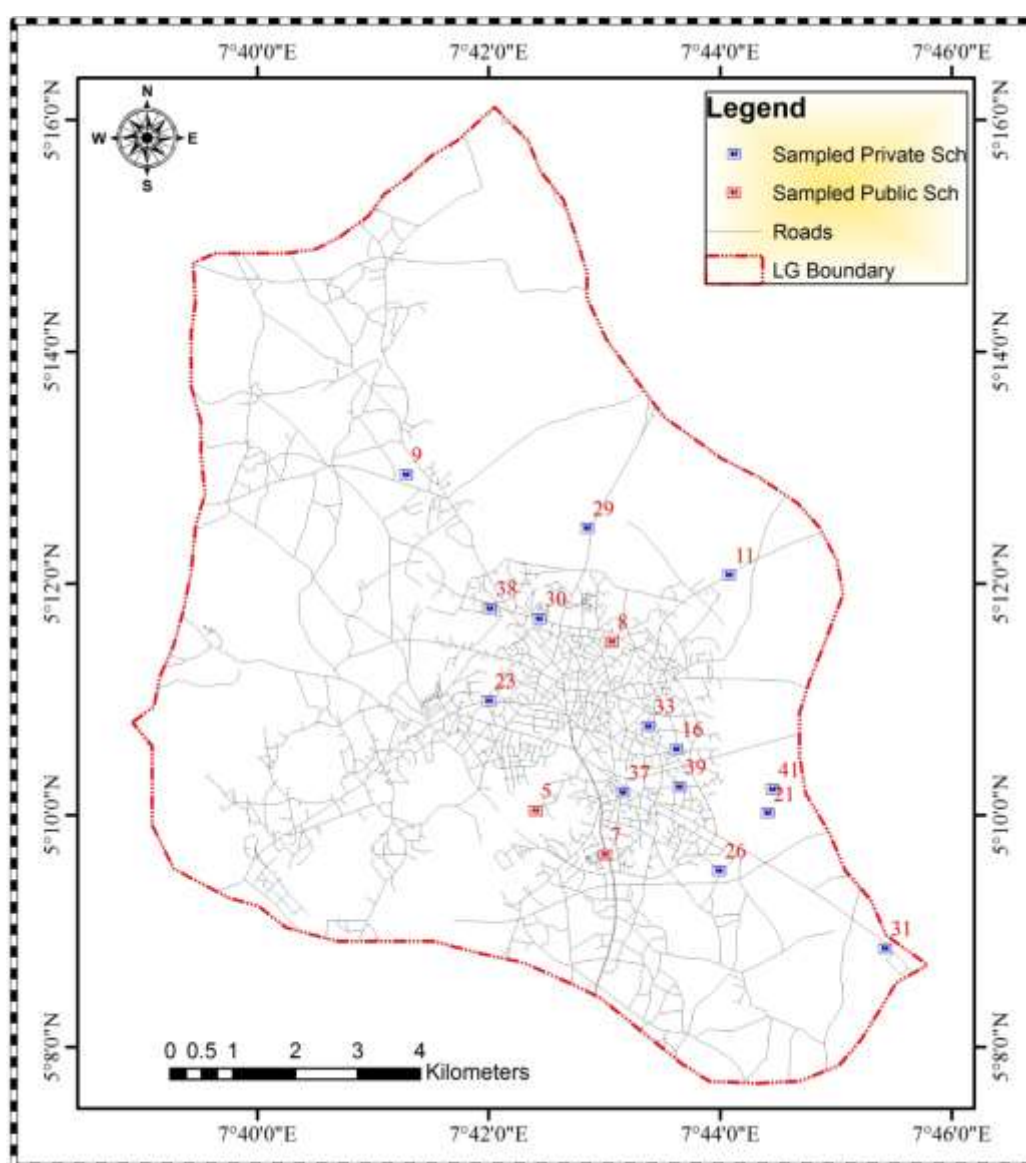


Figure 1.1 Map showing the sampled schools in Ikot Ekpene

Source: Author's Design, (2020)



Results and Discussion

Gender of Respondent

The study revealed that there is more number of sampled female respondents than male. The analysis showed that female respondents in public schools were 30.9% while the proportion from private schools was 26.8%. The male counterpart was 21.4% and 20.9% from public and private schools respectively.

Table 4.1: Gender of Respondent

Category of school	Male	%	Female	%
Public	84	21.4	121	30.9
Private	82	20.9	105	26.8
Total	166	42.3	226	57.7

Source: Field survey, 2020

Age of Respondent

The study identified various age range of respondents that were interviewed in the sampled secondary schools. The highest age range in public school was 11-15 years accounted for 30.6% and 23.2% from the private schools, followed by age range of 16-20 years accounted for 16.6% for public schools and 18.9% from private schools. Others were less than 11 years accounted for 7.7% in both public and private schools and above 20 years were 3.1% sampled from public and private schools.

Table 4.2: Age of Respondent

Category of School	<11yrs	%	11-15yrs	%	16-20yrs	%	Above 20yrs	%
Public	16	4.1	120	30.6	65	16.6	4	1.0
Private	14	3.6	91	23.2	74	18.9	8	2.0
Total	30	7.7	211	53.8	139	35.5	12	3.1

Source: Field survey, 2020

Length of student

The study examined the years each student has stayed in the sampled schools. The analysis showed that the highest number of years was



between 3 and 4 years. The public schools accounted for 27.8% while private schools have 30.1%. Respondents who have stayed for 5 years and above were 12.5% in public schools and 6.4% in private schools. Also, respondents who have stayed for 1 and 2 years in public schools were 9.4% while private schools have 7.9%.

Table 4.3: Length of Studentship in the School

Category of School	<1yrs	%	1-2yrs	%	3-4yrs	%	>5yrs	%
Public	10	2.6	37	9.4	109	27.8	49	12.5
Private	13	3.3	31	7.9	118	30.1	25	6.4
Total	23	5.9	68	17.3	227	57.9	74	18.9

Source: Field survey, (2020)

Ethnicity of Respondent

The study revealed the ethnicity of the respondents. The findings showed that Efik/Ibibio, Igbo and Yoruba students are commonly found in the schools. However, the largest proportion of the population is made up of the natives of the study area being the Efik/Ibibio community. The tribe has 45.7% of the students in the public schools, while 36.7% were in private schools. The Igbo respondents represented 6.1% and 9.9% for public and private schools respectively. Also, the Yoruba respondents being the least had 0.5% and 1.0% for public and private schools respectively.

Table 4.4: Ethnicity of Respondent

Category of School	Efik/Ibibio	%	Igbo	%	Yoruba	%
Public	179	45.7	24	6.1	2	0.5
Private	144	36.7	39	9.9	4	1.0
Total	323	82.4	63	16.1	6	1.5

Source: Field survey, (2020)

Spatial Distribution of Secondary Schools

The study examined the spatial pattern of the schools sampled. The location of schools in the study area is presented in Table 4.5, which



shows the names of schools, their locations with the coordinates. The private schools outnumbered public schools in Ikot Ekpene Local Government Area. In all, there are forty-two (42) secondary schools but eight (19%) of the schools are public, while 34 (81%) are private (See figure 4.1)

Table 4.5 Spatial Distribution of Secondary Schools (Both Private and Public)

S/N	Name Of School	Category of Schools	Location	School Coordinate	
				LAT.	LONG.
1	AmayamCommunity Secondary School	Public	Mbiaso	576006.08	351914.30
2	Community Commercial School	✓	Urua Obo	567743.00	359107.43
3	Community Commercial School	✓	IkotAbia Idem	575243.33	355862.42
4	Community Secondary School	✓	IkotInyang	571434.41	354365.52
5	Goretti Girls Commercial School	✓	IkotEkpene	571305.58	356665.02
6	Secondary Commercial School	✓	Ndon Ide	568920.64	359404.16
7	State College	✓	Abak Road	570609.17	357771.73
8	State Secondary Commercial School	✓	OkopEto	573989.43	357886.82
9	Apostolic Faith Secondary School	Private	IkotEnwang,IkotEkpene	576652.87	354601.30
10	Chris Model Secondary School	✓	IkotUbo	577054.24	358249.34
11	Christian Commercial School	✓	AbiakpolkotEssien	575043.87	359755.49
12	Community Commercial school	✓	Urua Obo	576149.19	354013.00
13	Confident Comprehensive secondary school	✓	AbiakpoEdem Idem	573111.80	359392.86
14	Dunhess Park Secondary School	✓	Ikono road	575137.91	357174.06
15	Edemsco Comprehensive Secondary School	✓	IkotEdem	574883.00	357968.06
16	Edwina College	✓	UrukUso	572276.17	358908.79
17	Ensop Technical College	✓	AbiakpolkotEssien	573698.36	572751.33
18	Foresight Academy	✓	Aba Road	572751.33	355127.71



19	Global Gifted College	✓	Ekoiso Road	571767.42	358659.09
20	God's Restoration City International Secondary School	✓	Utu Ikpe	568867.82	362004.44
21	Greenfield College	✓	Waterboard Road	571264.03	360366.47
22	High Level Comprehensive Secondary School	✓	IkotUbo	576322.62	357667.81
23	Holy Child Girls' Secondary School	✓	Ifuho	573055.25	355917.95
24	Hope Mission Secondary School	✓	Aba Road	570606.60	352054.74
25	Huntaco Comprehensive Secondary School	✓	IkotEkpene	573680.90	356394.83
26	Immanuel College	✓	Ibiakpan	570344.24	359586.95
27	Itai Comprehensive High School	✓	Abiakpalkot Obo	574342.05	360038.12
28	Kent Secondary School	✓	IkotObongEdong	573998.30	356827.47
29	Liberty College	✓	Ikot Idem	575795.80	357491.43
30	Lutheran High School	✓	IkotObongEdong	574356.74	356725.56
31	Methodist Girls' Secondary School	✓	Utu Ikpe	569103.19	362236.17
32	Mimil Secondary School	✓	Amanyam	573552.76	353458.78
33	Mid-Town Secondary School	✓	UdofaUkpong street	572641.45	358463.51
34	Modern Secondary Commercial School	✓	OkopEto Road	575339.70	358345.19
35	Okonosco Comprehensive Secondary School	✓	Aba Road	572833.73	355449.42
36	Pinnacle College	✓	Okonko Road	571141.46	357821.67
37	Premium College	✓	Abakoko	571593.11	358055.55
38	Ritman College	✓	IkotAbia Idem	574522.41	355939.73
39	Saint paul's Comprehensive Secondary School	✓	Imek Road	571681.62	358952.41
40	Scripture Union High School	✓	IkotEkpene	572720.05	356327.22
41	Topfaith Legacy College	✓	Ekoiso Road	571636.06	360447.78
42	Urban High School	✓	Nkap	572607.26	356970.45

Source: Researcher's field survey (2020)

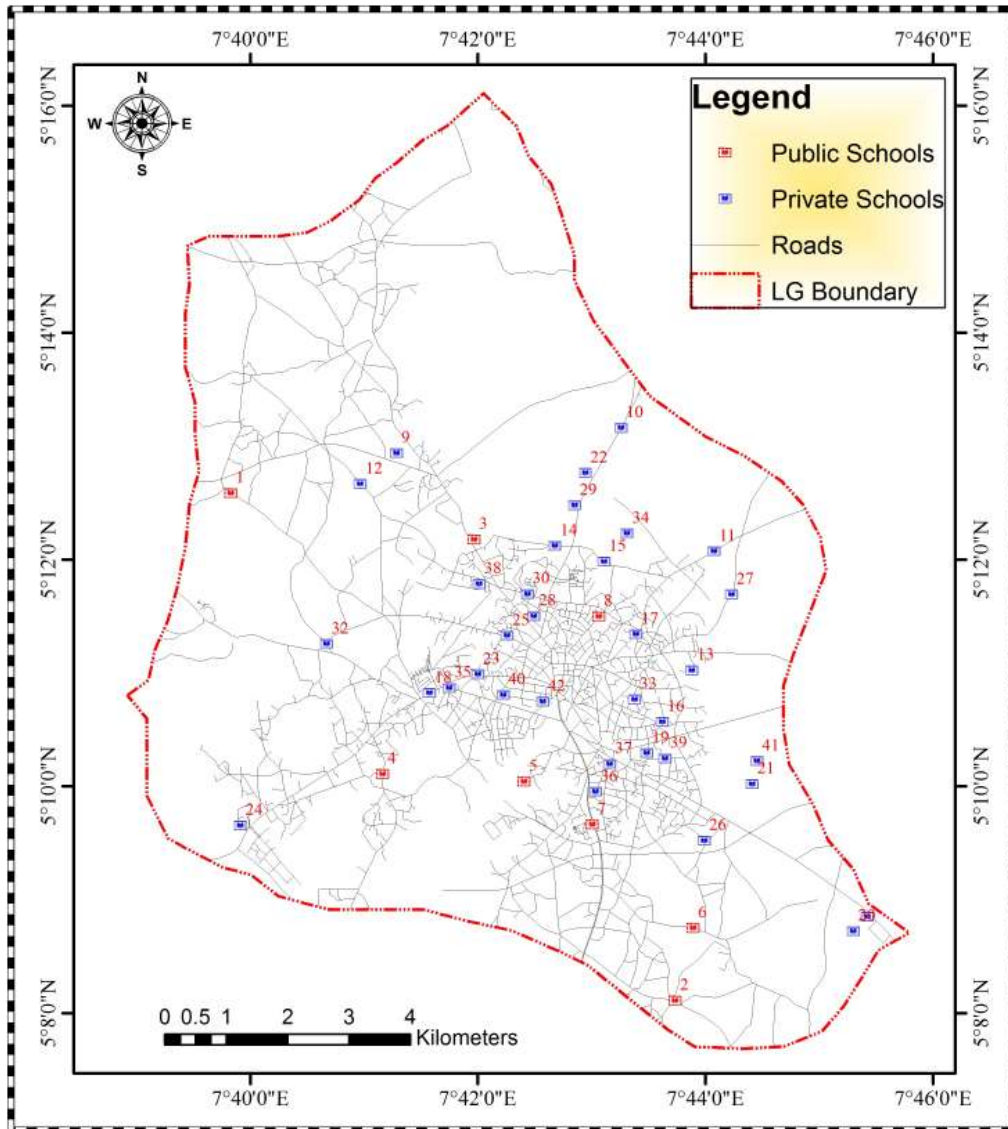


Figure 4.1: Map showing Spatial Distribution of Secondary Schools
Source: Author's Design, (2020)

(a) Distribution Pattern of Public Secondary Schools

The Nearest Neighbour Analysis of public secondary schools in Ikot Ekpene Local Government Area indicates that the study area is 49431970.721224 meters, nearest neighbor ratio is 1.799253, observed mean distance is 2108.3605, expected mean distance is 1171.7979 meters, z-score is 4.587079, p-value is 0.000004. Therefore, the results showed that the distribution of public schools is dispersed (see Figure 4.2).

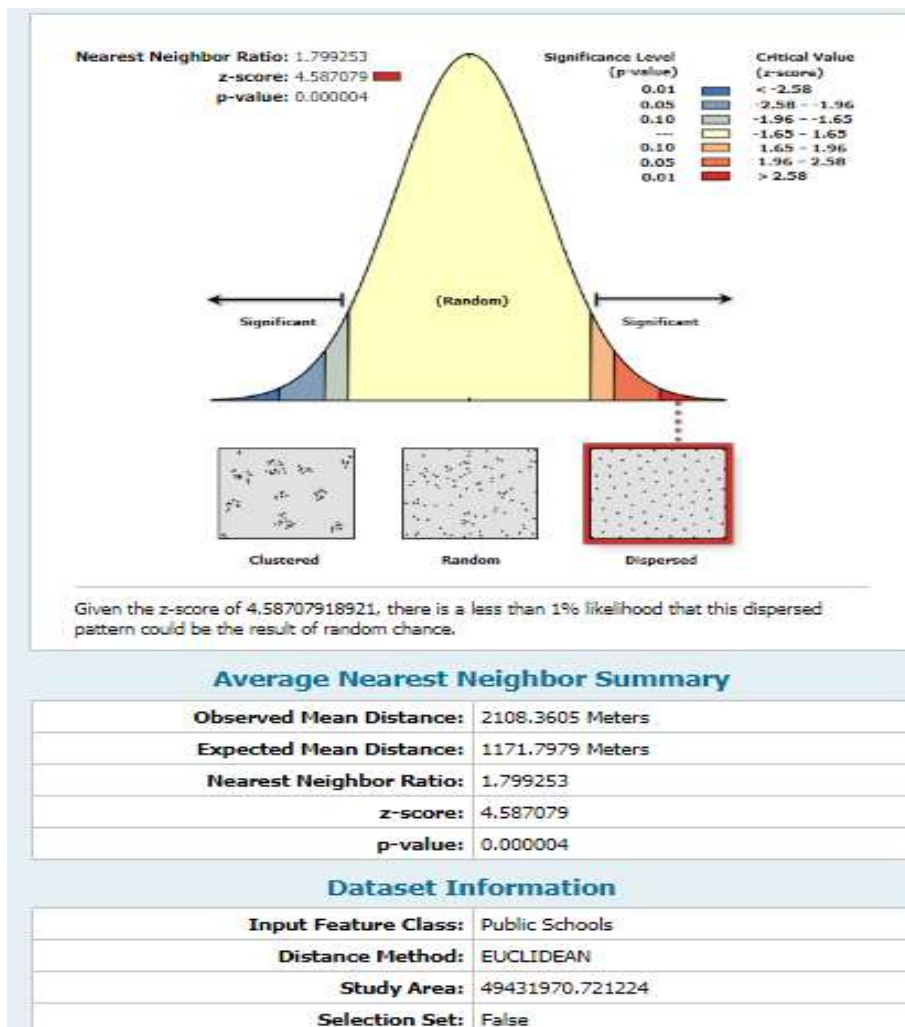


Figure 4.2: Average Nearest Neighbor Summary of Public Secondary Schools

Source: Researcher's computation from figure 4.1(2020)

(b) Distribution Pattern of Private Secondary Schools

The Nearest Neighbour Analysis of private secondary schools in Ikot Ekpene Local Government Area indicates that the study area is 76335005.406876 meters, nearest neighbour ratio is 0.942693, observed mean distance is 706.2571 meters, expected mean distance is 749.1908 meters, z-score is -0.639257, p-value is 0.522656. The results showed that the distribution of private secondary schools in Ikot Ekpene is random. The factors responsible for the random distribution are population of the area, accessibility, availability of land area, and topography of the area.

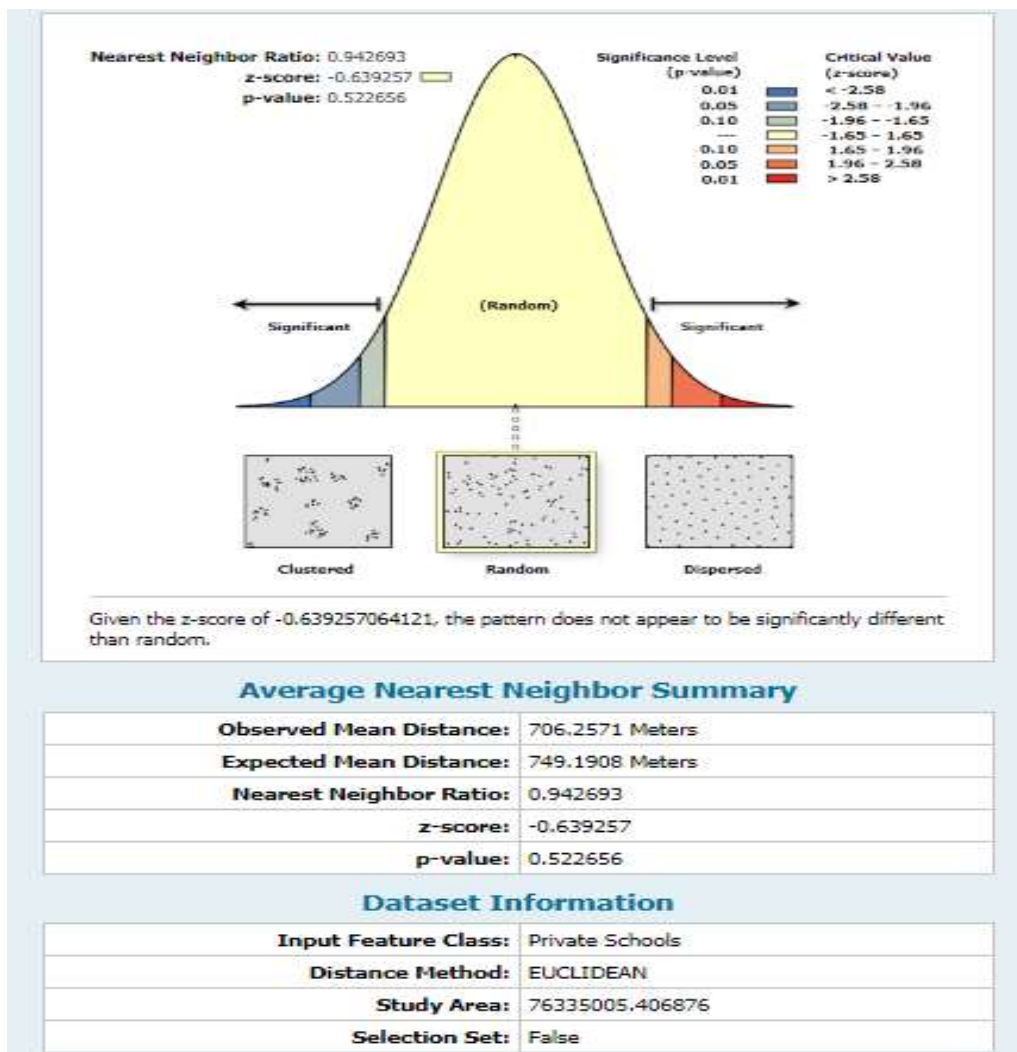


Figure 4.4: Average Nearest Neighbour Summary of private Secondary Schools

Source: Researcher’s computation from figure 4.1(2020)

Conclusion

The study determined the spatial distribution of public and private secondary schools as well as compared the available secondary school with the set standard of UNESCO (1996) and UBE (2004). The study employed Nearest Neighbourhood and Buffer Zone Analysis in determining the distribution pattern and catchment area of the public and private secondary schools in the study area. The coordinates of the



public and private secondary schools in Ikot Ekpene Local Government Area were obtained using handheld GPS and plotted using the ArcGIS software. The maps revealed dispersed pattern distribution in public secondary school while private secondary schools were randomly distributed.

Recommendations

- i. Schools should be evenly distributed within a 2km radius, considering the population of the students to accommodate all within the school-age to reduce the distance the students have to trek to school, bearing in mind that most government schools are day schools.
- ii. The knowledge, practice and principles of urban planners with the integration of GIS should always be considered valuable in spatial analysis, facility management and distribution, as the integration of GIS would assist the government or decision makers in the judicious management and allocation of resources.
- iii. It is recommended that the Ministry of Education should evolve a facility decision support system that will integrate social groups, community associations, government and public secondary school management for effective educational facility management.
- iv. The secondary schools should be properly funded and establishment of new schools should take into cognizance of spatial planning and neighborhood development concept.
- v. The establishment of more secondary schools by the government should be embarked upon and take cognizance of the population increase and land area of the beneficiary community.

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