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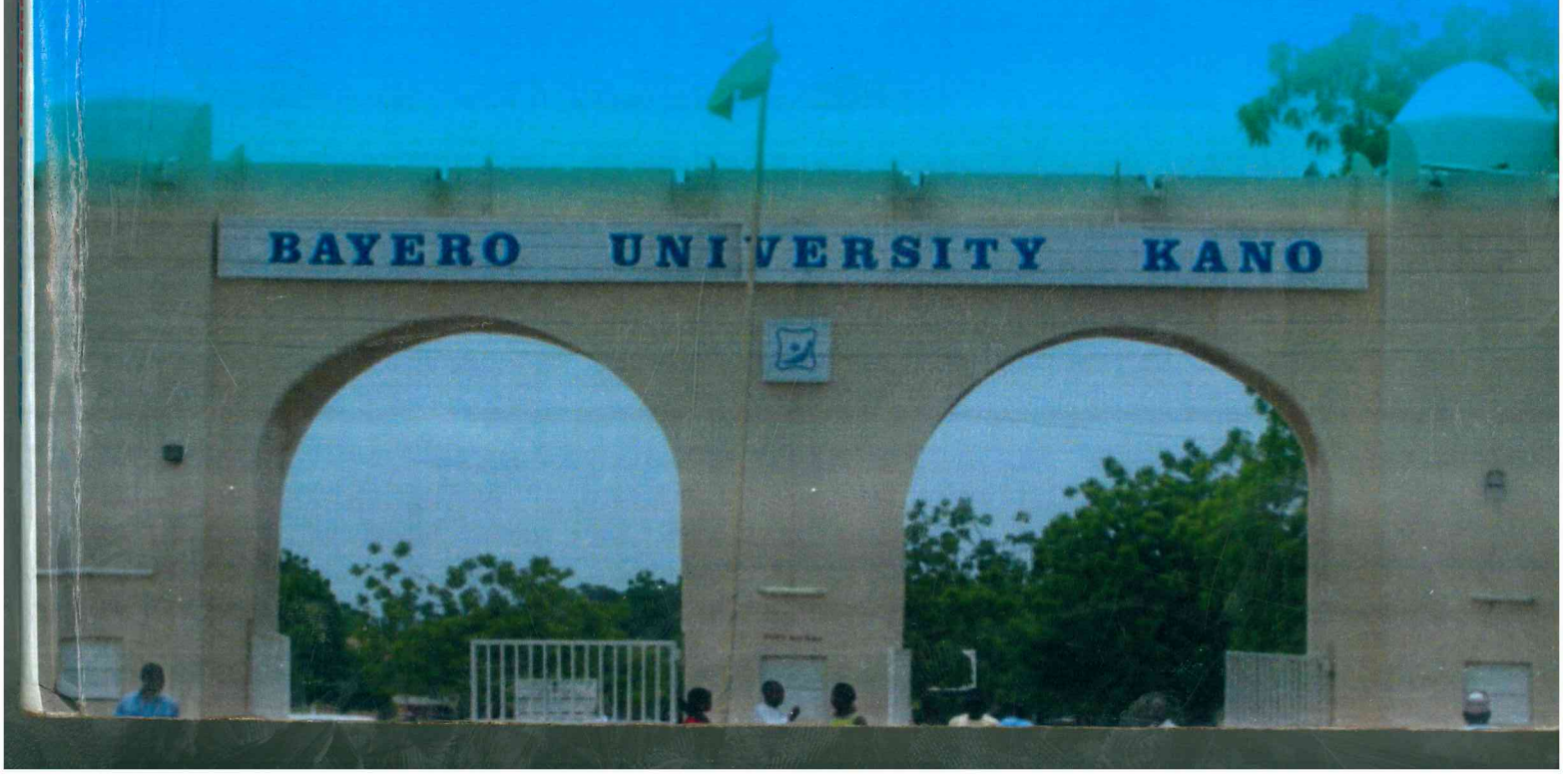

BAYERO JOURNAL OF EDUCATIONAL RESEARCH AND INNOVATION (BAJERI)

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The goal of the journal is:

To provide an avenue for scholars to share research findings, information and experiences on the global pedagogical best practices for the betterment of Nigerian educational sector.

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The objectives of the journal are:

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ii. To facilitate educational development in Nigeria.
iii. To promote the professionalism and global best pedagogical practices among Nigerian teachers through research and innovation.

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PREFACE

The inauguration of the Bayero Journal of Research and Innovation (BAJERI) marks another milestone in the contribution of the School of Continuing Education in the pedagogical endeavour by Bayero University, Kano to advance the frontier of knowledge. BAJERI is a culmination of years of consistent commitment to the pursuit and dissemination of knowledge. The BAJERI Editorial Board is composed of scholars who are models, mentors and exemplary in pedagogy as well as andragogy. BAJERI has a team of assessors who are local, national and international scholars of repute in the academic, pedagogy, and andragogy.

Although, BAJERI is focussed on education, its co-value embraces research, which makes it outstanding in content and context. Researches are significantly captured in the contents of BAJERI. Similarly, the multi-dimensional approach of the journal is another strength of the journal capturing variety of interests and orientations.

Dr. Salihu Lawal
Dean, School of Continuing Education
Bayero University, Kano.
June, 2020

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EDITORIAL NOTE

The Editorial Board of the Bayero Journal of Research and Innovation (BAJERI) is delighted to present its maiden edition (BAJERI Volume I, Number I; June 2020). BAJERI is a multidisciplinary research journal. However, BAJERI focusses more on education related researches, which facilitate the teaching/learning process at all levels: early childhood, childhood, adolescence and ageing education.

In this edition, BAJERI contents include researches from notable academics of varying specialisms. The edition, in its endeavour to pursue heterogeneity while maintaining homogeneity in its contents, publishes research articles in both Arabic and English. In addition, the current edition contains articles from authors in Africa and Asia. The journal offers guidance to undergraduate and graduate students. The journal is getting indexed in the Directory of Open Access Journals and similarly by different accredited forums.

The journal encourages both theoretical and empirical contributions that advance pedagogy and pedagogy. However, the journal, as multidisciplinary oriented literature, would also reach out to other specialisations in the social sciences. This is consequent upon the numerous submissions by authors from over twenty universities.

Finally, the BAJERI Editorial Board wishes to acknowledge the contributions of Dr. Salihu Lawal (the Dean, School of Continuing Education); Mal. Fatima Binta Muhammad (the Registrar, Bayero University, Kano); and Professor Muhammad Yahuza Bello (the Vice-Chancellor, Bayero University, Kano). Members of the Editorial Board of the journal deserve unreserved commendation for their dedication, sacrifice, and burning desire to advance knowledge.

Dr. Bala Ibrahim Sambo
Editor
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teaching and learning for students with physical and health impairment.

2. To provides a policy that should be inserted in the National Policy on Education on students with physical and health impairment.

3. Government should provide all the necessary equipment and materials that will help the students in the school in order to minimize their over dependency

4. NGOs should support students with any related services and equipment, materials etc, that will enhance teaching and learning for students with physical and health impairment.

Conclusion

Service delivery options is a generic term used in special education and rehabilitation sciences to offer a wider range and variety of alternative programmes, formal and informal to ameliorate the difficulties or challenges confronting persons with impairment of which students with physical and health impairment are not exception; Through collaborative effort between families, schools and relevant team of professionals effort are continually being attempted to identify, challenge and conquer the predicaments of students with physical and health impairment to live relative normal life.

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ASSESSMENT OF THE EFFECT OF SUSTAINABLE EDUCATION INFRASTRUCTURE CONDITIONS ON STUDENT'S PERFORMANCE IN ILORIN, KWARA STATE NIGERIA

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Abstract
Substantial indicator of the conducive and quality environment for learning is education infrastructure and it creates standing-points for students' proper understanding and perfect learning experience. This paper therefore evaluates the relationship between sustainable education infrastructure conditions and students' performance in Ilorin with particular focus on secondary schools in four neighbourhoods; Adewole Housing Estate locality, GRA neighbourhood, Fate-Basin and Sabo-Oke neighbourhoods of Ilorin metropolis. Data was collected through the structured questionnaire and simple descriptive mean statistical method was adopted to determine standard deviation as well as coefficient of variation. Ranking method was used to determine education infrastructure condition index using bench mark for minimum acceptable ideal condition, Spearman Rank Order Correlation was adopted to test the level of the significant of school infrastructure on students' performance. The study revealed that, the performance rate of students in Adewole Housing Estate and GRA, secondary schools were rated high54% and 62% respectively, while most students in secondary schools in Fate-Basin, Sabo-Oke neighbourhood poorly performed with 22% and27% respectively. The education infrastructure condition indices in Adewole Housing Estate and GRA is higher than ideal condition index and is better than other selected locations, and it was recommended that adequate provision can be achieved through Public Private Partnership (PPP) arrangement and proper management maintenance should be on board in to enhance students' better performance

Keywords: *Education, Infrastructure, Locality, Performance and Sustainable*

Introduction

There is no denying how significant a school is in shaping up a student's personality and holistic learning process(Okoye & Uche 2004). Like an experienced teacher and teaching pedagogy play a critical role in shaping students' academic lives, infrastructure is also vital as it creates standing-points for effective learning for the students; it also creates a favourable environment for students' holistic development. It is a common knowledge that, every parent wants to spend money where their children feel safe and secure while learning and enjoying their student life. They wish to ensure the school has ample safety standard infrastructure facilities to make learning a joy(Khan, 2018)

According to Chiriswa (2002), there are studies suggesting students 'in school with poor infrastructure can have lower scores than those with access to better infrastructure facilities. This makes school infrastructure a key element in a child's academic as well as holistic growth. Akah, (2018) opined that, poor school infrastructure facilities demotivates students from performing excellently well, going by the state-wise analysis of the National Achievement Survey 2019 classes; Junior and Senior Secondary Schools One, Two and Three (JSSI to JSSIII and SSI to SS III) not only do school buildings need significant repair but also, they lack basic amenities in the country.

Heitor (2005) affirmed that, the most profound feature which makes learning sweet and interesting is adequate and functional education infrastructure in the learning environment. The availability of functioning infrastructure in any educational setting has great impact on the students' health and learning experience which in turn exert influence on their performances. Adequate provision of infrastructure facilities, in any institution of learning brings about educational transformation that accompanies development of any nation. The main message of the World Bank's cutting-edge World Development Report (WDR),"Reshaping Educational Development" (Word Bank, 2005) is that, inadequate provision of functional education infrastructure will encourage unbalanced educational development. If school infrastructure is adequately provided and properly monitored for effective functionality then, education especially in African region, by extension will appreciate in value and but, if otherwise the value depreciates. The goal of education infrastructure system in secondary school seeks to increase school attendance of students, enhance staff motivation and to improve academic achievement of students (Ziporah, 2013)

Tomlison (2001) declared there is no country in the world that had success with fighting poverty and moving away from a subsistence economy without a rising share of the population having access to correct and adequate education infrastructure and services. (Aigbokan (2000); Alausa *et. al,* (1997) described education infrastructure as fundamental facility and system that serve an institution of learning as well as its environment to function effectively and to create conducive atmosphere for students and tutors. Infrastructure in this context includes: spacious and well ventilated classrooms, libraries, playgrounds, well-equip laboratories, study halls, games equipment, well-maintained sanitation facilities, assembly area, facilities study tables, chairs, furniture and basic social utilities such as, electricity, potable water, drainage system, waste disposal system, roads, health facilities, toilet facilities among others to mention but a few(Adede, 2012)

Hwa (2000) studied challenges and prospects of improving education sector in India. The study focused on degenerated condition of education infrastructure facilities in some urban and peri-urban areas of India and surveyed 100 middle schools and higher secondary schools. The foremost source of data collection was secondary source through newspaper, magazines and internet also complemented by primary data collection through interviews, personal observation, visits to the various schools in the selected areas of the study. The study found that,

education infrastructure facilities stand out to allow the education sector in India to march up with world class standard and in cities like Mumbai, Gurgaon and Delhi education infrastructure happens to be the prominent key element of students' learning experience as a result of the past and present trends in students' performance in the selected areas of the study.

Heitor (2005) examined the contention that historic designation of education infrastructure under the heritage legislation in Canada's largest province has a positive impact in the effectiveness of students' learning experience. In this study, the actual academic competition was used to establish how infrastructure effectively contributes to the holistic growth of students' academically. 2,500 schools in 25 communities were selected for the investigation in what is believed to be one of the largest studies of its type ever carried out in North America. It was found that education infrastructure was shown to have impact on child's academic development.

Fayewa & Otegbade (2012) examined the influence of school infrastructure facilities condition on students' performance in public examination in Lagos, Nigeria. The data on 118 secondary schools were modeled into hedonic regression for purpose of evaluation and analysis. The results showed that out of fifteen education infrastructure facilities employed, thirteen have strong statistical significant; some of these are; neat/sanitised environment, physical structure, well ventilated classrooms, games equipment, libraries (both digital and e-library), facilities study equipment, well-equip laboratories and so on. These education infrastructure and their functionalities therefore explained about 75% variation in performance and effectiveness of students in their various classes.

Statement Problem

Education infrastructure cannot be regarded as being sustainable as long as there is inherent problem of poor academic performance as a result of functional deficiency in education infrastructure. Bamgbe (2007) stated that, sound academic minds in students are mostly affected by quality and conducive education infrastructure and majority of the schools in the study areas are being deprived of this infrastructure. Several attempt had been made by public and private property education sectors to ameliorate the problem but the education sector in the country still plagued with the predicament of poor student performance as a result of bad school infrastructure conditions(Corgel, 1998, Dimis 2000 and Ajibola *et al.*, 2013). None of these aforementioned studies on the influence of education infrastructure on students' performance have been able to develop students' performance indices upon which the influence of education infrastructure condition can be adequately captured, which is a course for action. But this study determined the quantum of variation in students' performance indices which will be accounted for by condition of education infrastructure, which will serve as yardstick for educationist to measure the performance of students in light of available infrastructure as this study explored the influence of education infrastructure on student performance.

Aim

The study aimed at assessing the influence of sustainable education infrastructure conditions on students' performance in selected secondary schools of Ilorin metropolis.

Objectives of the Study

In order to achieve the above stated aim, the following objectives are set out: To

(I) assess the trends in students' performance in the study areas from 2009 to 2018

(ii).examine the conditions of the available education infrastructure as they sustained students' performance in the selected areas of the study.

Research Questions

The research questions motivating this study include the following:

1.What are the trends in students' performance in the study areas?

2.Do the conditions of the existing education

infrastructure sustain students' performance across the study areas?

Short Profile of the Study Area

Ilorin is the capital of Kwara State, lies on Latitude 8^0 28'N and Longitude 4^0 33'E in the North Central Nigeria, is populated more than any other city in Kwara state, Ilorin has 217 both private and public secondary schools. Ilorin has been experiencing backwardness in education sector in terms of poor education infrastructure in the last two decades. Ilorin is endowed with basic social infrastructure required of a city and there is room for more provision of education infrastructure as well.

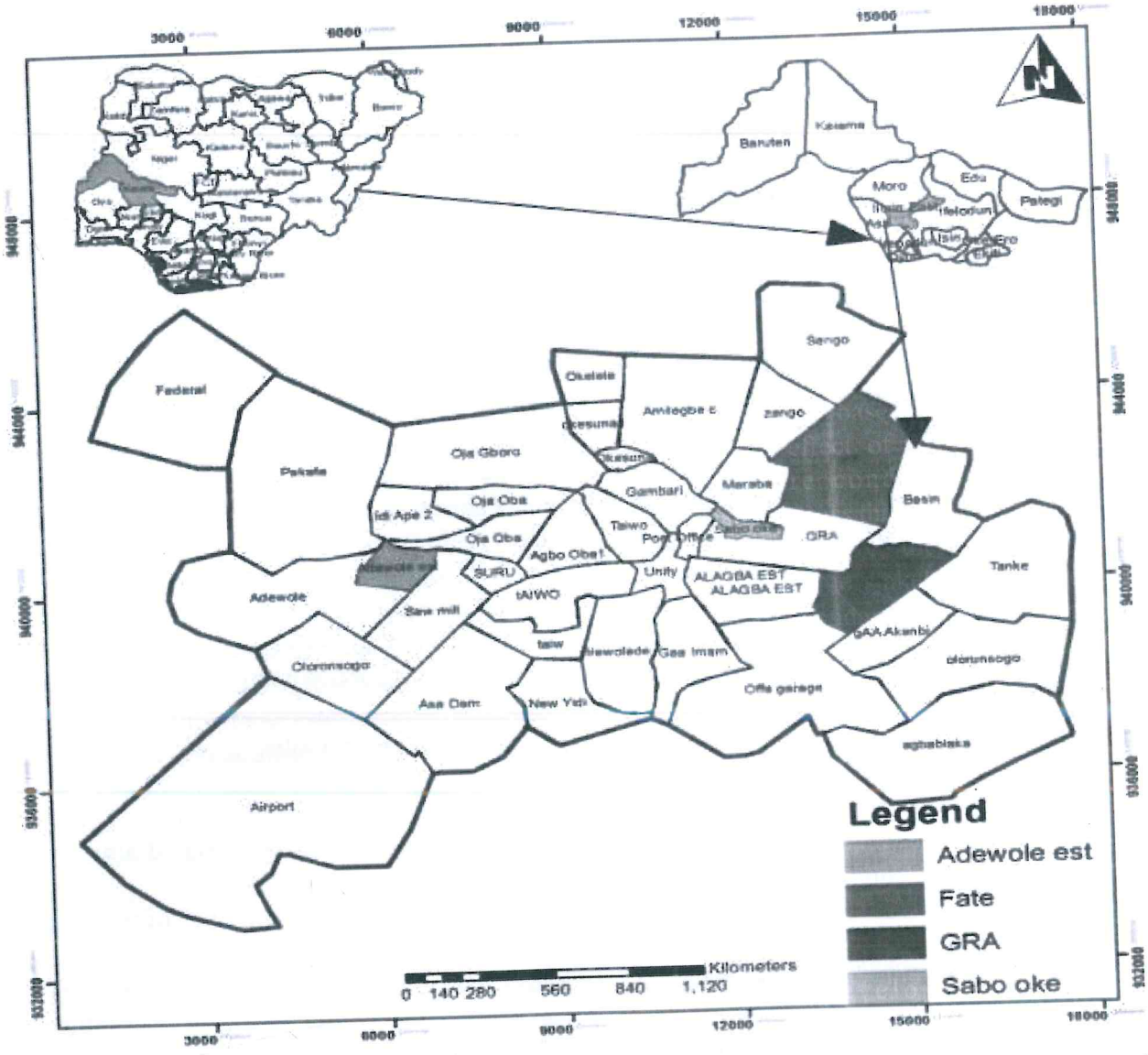

Figure 1 Selected Neighbourhoods in the Context of Ilorin Metropolis
Source: Kwara State Town Planning and Development Authority, Cartography Section, (2018)

Methodology

The study espoused mixed method research design approach based on the concept that revealed the effect of sustainable education infrastructure conditions on students' performance across the selected areas, with the use of questionnaire, the data was sourced primarily from the stakeholders in education sector, three secondary schools were randomly chosen in each of the localities selected (GRA,

Sabo-Oke, Adewole Housing Estate and Fate-Basin) in Ilorin. 1,435 students were sampled as study population but streamlined to 303 sample size through Frankfort-Nachmias formula, Analytical techniques such as descriptive and inferential methods of data analysis were used. Descriptive mean was adopted as analytical tool. Ranking method of data analysis (Likert Scaling) was used and bench mark for minimum acceptable condition for infrastructure index was also adopted and Kendall Coefficient of Concordance was applied to test the relationship among the ranked factors. Spearman's Rank Order Correlation was also used to determine the relationship between sustainable education infrastructure conditions and students performance in the secondary schools of selected areas in Ilorin.

Table 1: Trends in Rate of Students Performance in Secondary Schools in selected Localities of Ilorin Metropolis from 2009 to 2018

Year	High Edu Infra.(%) (A)	Medium Edu Infra.(%) (B)	Low Edu Infra(%) (C)	Least Edu Infra (%) (D)
2009	13.82	16.07	76.61	55.51
2010	12.74	6.28	85.99	55.51
2011	14.05	6.03	56.65	55.54
2012	12.19	15.97	76.03	70.02
2013	12.02	5.99	55.97	60.02
2014	9.816	5.08	56.765	30.39
2015	11.44	13.09	30.405	60.64
2016	9.751	14.03	93.152	80.85
2017	13.166	5.16	69.415	10.15
2018	34.318	4.31	93335	60.66
Average Rate of performance	14.335	8.86	86.553	30.33
Standard deviation	7.171	2.38	84.551	10.12
Coefficient of variation	0.500	2.30	0.660	2.21

Field Survey 2019

Field Survey 2019

The table above showed double digit of trends in rate of performance by secondary school students across GRA area of Ilorin, which indicates a high education infrastructure availability with better performance in students' academic and every other aspects of education. Adewole Housing Estate area which showed medium education infrastructure availability in the neighbourhood exhibited some double digits in its trends in rate of performance with good performance but not better, while, Sabo-oke and Fate Basin which represent low and least education infrastructure availability areas maintained single digit rate of performance indicating a bit poor performances by students in the secondary school across the areas on the basis of average rate of performance. The analysis of school performance is examined through standard deviation and coefficient of variation across the selected localities.

NOTE: (a) Edu = Education
(b) Infr = Infrastructure

Table 2: Analysis of Variance in Students' Academic Performance in Ilorin

Market	Source of Variation	S	S	D	f	M	S	F	P-value	F crit
High Education Infrastructure School (A)	Between Groups	457.3732	3			152.4577	19.32639	0.0000	2.866266	
	Within Groups	283.9888	3	6		7.888576				
	Total	741.3619	3	9						
Medium Education Infrastructure School (B)	Between Groups	85.54466	3			28.51489	7.404149	0.00055	2.866266	
	Within Groups	138.6433	3	6		3.851204				
	Total	224.188	3	9						
Low Education Infrastructure School (C)	Between Groups	65.3243	3			21.77477	5.808334	0.002408	2.866266	
	Within Groups	134.9598	3	6		3.748883				
	Total	200.2841	3	9						
Least Education Infrastructure School (D)	Between Groups	32.86023	3			10.95341	2.101209	0.117218	2.866266	
	Between Groups	32.86023	3			10.95341				
	Total	220.5249	3	9						

Computed from Table one above

The result of variation in the performance of students across the selected schools in the above tables revealed that, students' performance in secondary schools with high education infrastructure education showed a significant variation in average performance across the secondary schools since P-value at 0.000 is less than the level of significance which is 0.05. The result showed a significant variation in the performance of students across secondary schools in medium education infrastructure school neighbourhood of Ilorin since P-value at 0.00055 is less than 0.05 level of significance. The secondary schools selected across low education infrastructure school neighbourhood/locality also revealed that, there is significant variation in the performance of the students at P-value of 0.002408 ($p<0.05$) and only secondary schools across least education infrastructure area showed insignificant variation in students' performance at P-value 0.117218 (p-value >0.05).The implication is that neighborhood differences relative to variation in availability of education infrastructure brought about the exposure and non-exposure of the students to modern school infrastructure that can boost their academic morale to perform better and this therefore, causes different performance irrespective of their in-built intellect,.

Table 3: Education Infrastructure Condition Rating Standard

Condition	General Description	Rating	Condition Index
Very Good	Education infrastructure facilities not denigrated, is new and in good condition, absence of education infrastructure decay	5	0.95 -1.00
Good	Indistinctly deteriorated of education infrastructure, maintenance on education infrastructure not majorly required and is in good condition of decorative repair	4	0.75 - 0.94
Fair	Condition of education infrastructure is average, there is evident of significant defects on education infrastructure, malfunctioned of infrastructure facilities,	3	0.50 - 0.74
Poor	Deteriorated of education infrastructure, including buildings with structural problems, none functional infrastructure.	2	0.20 - 0.49
Very Poor	Infrastructure in bad condition, this includes lack and absence of education infrastructure facilities, and with the inclusion of environmental degeneration.	1	0.00 - 0.19

Source: Adapted from the AAPPA - Australian Association of Higher Education Facilities Officers (updated in 2010)

NOTE:

The Education Infrastructure Condition Index (ICI) is an index number that indicates the current condition of the infrastructure measured relative to its ideal 'perfect' condition.

EICI= Education Infrastructure Current Condition

Perfect condition

Table 4: Education InfrastructureFacility Condition Index (EICI)of selected Secondary Schools across Ilorin Metropolis

Infrastructure	GRA (Alpha-α @0.80)					Adewole Housing Estate (Alpha-α @0.76)					Sabo Oke (Alpha-α @0.85)					Fate Basin (Alpha-α @0.88)				
	N	Sum	Mean	I C I	Status	N	Sum	Mean	ICI	Status	N	Sum	Mean	I C I	Status	N	Sum	Mean	I C I	Status
Ventilated Classrooms	153	651	4.25	0.85	Good	163	480	2.94	0.59	Good	189	700	3.70	0.74	Good	159	584	3.67	0.73	Good
Electricity& Potable Water	153	643	4.20	0.84	Good	163	530	3.25	0.65	Good	189	677	3.58	0.72	Fair	159	530	3.33	0.67	Fair
Road/Neat Environment	153	591	3.86	0.77	Good	163	498	3.06	0.61	Fair	189	750	3.97	0.79	Good	159	556	3.50	0.70	Fair
Game equipment	153	655	4.28	0.86	Good	163	542	3.33	0.67	Fair	189	690	3.65	0.73	Fair	159	656	4.12	0.82	Good
Library and Furniture	153	684	4.47	0.89	Good	163	503	3.09	0.62	Good	189	597	3.16	0.63	Fair	159	621	3.91	0.78	Good
Study Tables and Chairs	153	652	4.26	0.85	Fair	163	504	3.09	0.62	Good	189	673	3.56	0.71	Fair	159	593	3.73	0.67	Fair
Assembly Facilities	153	596	3.90	0.78	Good	163	499	3.06	0.61	Fair	189	618	3.27	0.65	Fair	159	585	3.68	0.74	Fair
Well-equipped Laboratory	153	649	4.24	0.85	Fair	163	524	3.21	0.64	Good	189	658	3.48	0.69	Fair	159	574	3.61	0.72	Fair
Playgrounds	153	646	4.22	0.84	Good	163	499	3.06	0.61	Fair	189	677	3.58	0.72	Fair	159	642	4.04	0.81	Good
Study Hall	153	650	4.25	0.85	Good	163	519	3.18	0.64	Good	189	766	4.05	0.81	Good	159	596	3.74	0.75	Good
Valid N (list-wise)	153					163					189					159				

Source: Computed from the Parents Data

EICI = (Education Infrastructure Condition Index)

Table 4 showed the descriptive analysis of Likert Scale employed on five-point scale of measurement to establish the mean condition of education infrastructure in secondary schools of the selected localities across Ilorin. The study carried out the test of reliability through Cronbach's Alpha and the result revealed that there is high degree of internal consistent among the variables. The result showed that at minimum acceptable alpha at 0.75 (75%), all the items across the study areas maintained high level of internal consistency at 80%, 76%, 85% and 88% for GRA, Adewole Housing Estate, Sabo-Oke and Fate-Basin respectively. The benchmark is calculated as (5+4+3+2+1= 15/5=3). Also, any education infrastructure with mean condition higher than average threshold is referred to as infrastructure with a better condition. This further advocates that education infrastructure condition in secondary schools in GRA and Adewole Housing Estate are better than Fate-Basin and Fate Basin is better than Sabo-Oke.

Table 5: Correlation between Education Infrastructure and Students' Performance across the Study Areas in Ilorin

Infrastructure	GRA ®	N	Adewole Housing Estate ®	N	Sabo Oke ®	N	Fate Basin ®	N
Ventilated Classrooms	.71(.002)	153	.59(.042)	198	.71(.003)	163	.65(.001)	159
Electricity& Potable Water	.57(.041)	153	.55(.044)	198	.44(.055)	151	.42(.239)	159
Road/Neat Environment	.65(.032)	153	.61(.022)	198	.63(.014)	151	.56(.035)	159
Game equipment	.55(.044)	153	.72(.001)	198	.70(.002)	151	.78(.000)	159
Library and Furniture	.311(.522)	153	.50(.045)	198	.51(.045)	151	.60(.011)	159
Study Tables and Chairs	.35(.255)	153	.49(.053)	198	.36(.244)	151	.22(.541)	159
Assembly Facilities	.31(.414)	153	.38(.122)	198	.24(.563)	151	.51(.044)	159
Well-equipped Lab.	.41(.258)	153	.42(.132)	198	.33(.547)	151	.31(.462)	159
Playgrounds	.21(.422)	153	.44(.113)	198	.22(.643)	151	.222(.531)	159
Study Hall	.52(.046)	153	.62(.017)	198	.21(.527)	151	.129(.621)	159

Source: Author's Computation

The result of strength of relationship between education infrastructure index and students' performance is presented in table 5 above. There are strong positive relationships between well ventilated classroom, library, playgrounds and laboratory and students' performance across study areas in Ilorin. Study tables and chairs as well as study hall maintained strong correlation with students' performance across. Adewole Housing Estate, Sabo-Oke and Fate-Basin areas. This indicates that these aforementioned education infrastructure variables are likely to cause positive significant change in students' performance across the aforementioned areas; they are therefore positively and strongly correlated with students' performance in the study areas of Ilorin

Summary of Findings and Recommendations

The study revealed that, there is strong relationship between school infrastructure index and students' performance; there was conducive environment for learning experience in two of the schools sampled in GRA which was not obtainable in some schools in other localities. It was discovered that students in schools where there is adequate and functional facilities perform more better in their academic and other extra-curricular activities as there was increase in the trend of rate of performance in GRA and some schools in Adewole Housing Estate.The existing school infrastructure in the study areas are found below minimum standard of Bench Mark of Australian Association of Higher Education Facilities Officersexcept in some schools in GRA very few ones in other neighbourhoods. It is recommended that, provision of functional education infrastructure facilities should be given priority and this can be achieved through Public Private Partnership (PPP) and school infrastructure provision should formidably be inclusive in the education policy of the state as this will create sound mind for the students to perform better.

Conclusion

Education infrastructure facilities has been proved to be the back bone of students; performance in this recent study. The study revealed that, education infrastructure provided a statistically significant influence on students' performance in the secondary schools of the selected neighbourhoods ofIlorin. The result of the study has shown that performance of students' is hanged on the quality of school infrastructure. The study substantiated it that students tend to performin areas with good and fair infrastructure than the areas characterised with poor and or lack of standard infrastructure. By implication, it is desirable for private school proprietors and government to provide adequate education infrastructure in order to boost the morale of the students and demonstrate their academic proficiency.

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