



ABSTRACT

The study investigated the relationship between school environmental factors and learners' academic performance in learning activities with specific focus on infrastructural facilities and learning supervision practice in secondary schools in Katsina State, Nigeria. The study raised two-research questions to establish the nature of relationship that exist between School infrastructure factors and learners' academic performance and learning supervision and learners' academic performance. Two corresponding

ANALYSIS OF RELATIONSHIP BETWEEN ENVIRONMENTAL FACTORS OF SCHOOL INFRASTRUCTURE, LEARNING SUPERVISION AND LEARNERS' ACADEMIC PERFORMANCE IN SENIOR SECONDARY SCHOOLS, KATSINA STATE OF NIGERIA

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INTRODUCTION

Education is a worthwhile investment that nations can count on for accelerated overall development. Many nations underrate investment in education sectors because it does yield immediate returns like investment in mineral resources. Therefore, meager percentage of annual budget is usually allocated to education sector. However, developed nations who have benefited from long-run returns of educational investment in terms of quality of their manpower, advancement in technology and economic buoyancy does not take investment in education lightly. In acknowledging the vital position of education in human capital development and societal advancement, UNESCO (2006) recommended that governments of member countries should at least allocate 26 percent of their national budgets to education alone. However, as 2007 till-date, Nigerian budgetary allocation to education sectors has not exceeded 13%. The implication of this is evident in the UN Human Development Index (HDI) ranks Nigeria 26th out of the 54 African countries and 13th out of the 16 West African countries on investment in human capital development education. Also ranked Nigeria as 156th out of the 187 countries that were surveyed.



hypotheses were formulated. The study embraced census inquiry and stratified random sampling to select a comprehensive sample of 618 respondents. Quantitative data was collected using a self-administered questionnaire. The study used Pearson Product Correlation Coefficient for answering research questions and testing the formulated hypotheses. It was found that statically significant weak positive relationships exist between infrastructural and learners' academic performance ($r=0.34, p=0.00$) while statically significant strong positive relationship exist between learning supervision practice and students' academic performance ($r=0.50, p=0.00$), and classroom condition and students' academic performance. The study concluded among others that improvement in school infrastructural factor will in turn improve learners' academic performance, so also, regular learning supervision practice will improve learners' academic performance in academic activities. The study therefore recommended among others that Katsina State government should increase budgetary allocation towards construction and renovate core school infrastructure to boost learners' academic performance. It was also recommended that learning supervision should carried out regularly by Katsina state ministry of education, school heads, class leaders and classroom teachers so as to improve students' academic performance in learning activities.

Keywords: Environmental Factors, School Infrastructure, Learning Supervision, Students academic performance

One of the requirements for sound education is conducive learning environment. Conduciveness of learning environment largely depends on the nature of the available infrastructural facilities. Usaini, Norsuhaily, and Ado (2015) theorized that children need safe, healthy, and stimulating environment in which to grow and learn that ought to be provided at school because children spend 6-8 hours at the school. Duruji et al. (2014) encapsulate schools infrastructural facilities to include classrooms, libraries and information centers, technical workshops, ICT facilities, multi-purpose halls and performing art spaces, laboratories, playgrounds, conveniences, and sanitation among others. Infrastructural facilities, however, are capital intensive, meager budgetary allocation to education sector cannot sufficiently provide the needed infrastructural facilities in schools nor being able to maintain the available ones. Researchers' personal observation and evidence from previous study shows that Secondary schools in Katsina State faced challenges in school environmental factors range from inadequate and most often decaying infrastructural facilities (Chibuzor, 2015; Olutola, & Dosunmu, 2016; & Bashir, 2015). This problem, if not urgently studied may escalate the already poor academic performance (Danjuma, 2013; El-Rufai, 2013; & WAEC Report, 2015) and put efforts of educating younger ones in jeopardy. This is because the environment in which the students attempt learn falls short in terms of basic provisions like; adequate classrooms, libraries and information centers, technical workshops, ICT facilities, multi-purpose halls and performing art spaces, laboratories, play grounds, conveniences, and sanitation among others which might be adversely affecting students' learning and academic performance as a whole (Duruji, Azuh, & Oviasogie, 2014). Hence, to dream of better grades, better annual



progress rates, increased retention knowledge attained at school, and perfection of co-curricular skills would misguidedness. From the foregone background, this study investigated the relationship between students' academic performance and environmental factor of school infrastructure and learning supervision practice in Katsina State. Using the context of grade 12 learners, Muyoyeta, Abah, and Denuga (2017) investigated school-based factors affecting students' academic performance in the Namibia Senior Secondary Certificate Ordinary level (NSSCO) particularly in Biology and how the Biology teachers managed such factors in the Khomas Educational Region. They reported that lack of relevant teaching and learning resources like well-laboratory equipment was among the cardinal factors negatively affecting Grade 12 learners' academic performance in NSSCO Biology in the study area. The conclusions of Muyoyeta et al. (2017) generated recommendations to better learners' performance in biology which neglected the status of other poorly performed subjects like arts which sanctions another study to address this contextual gap. Similarly, From Ghana, Esia-Donkoh and Ofosu-Dwamena (2014) reported that majority of the teachers perceived/interpreted educational supervision to have a positive impact on their professional development in terms of enhancing; curriculum, teaching methods and materials; classroom management and delivery; characteristics of pupils; and assessment. However, Esia-Donkoh and Ofosu-Dwamena (2014) were interested in measuring the effect of supervision on teachers' professional development with no direct analysis towards learners' academic performance hence summoning this current study to bridged such a conceptual gap.

Methodology

This study aimed at testing research hypotheses to predict any underlying effects among study variables, a correlational research design was the most appropriate research design to be adopted. This was because Creswell (2015) opined that the purpose of correlational research strategy was to create associations between or among variables by computing a correlational coefficient. The study population compromised of 160 senior secondary schools in Katsina State, Nigeria; composed of 7 State education officials, 160 principals (head teachers), 480 teachers (3 per school x 160 schools = 480), 160b PTA members and 480 students (3 per school x 160 schools = 480). Cut across the 3 class levels of senior secondary school education among the three Senatorial zones of Funtua, Katsina, and Daura, totaling 1,287. The sample size for this study is 661 educational stakeholders. This comprised of 7 Katsina State Education Officials, 113 Principals (Head-Teachers), 214 Teachers (6 per school *160 schools=960), 113 Parents/Teachers Association Members, 214 Students (6 per school *160 Schools=960). The study adopted both probabilistic and non-probabilistic sampling strategies to select a comprehensively representative study sample that catered for all target study population as advised by Adams, Khan, and Raeside (2014). All the seven (7) respondents from among Katsina state education officials were selected using the non-probabilistic method of census inquiry because of their unmatched expertise and experience in relation to the research variables. In line, Taherdoost (2016) and Bryman and Bell (2011) defined stratified random sampling as a process where the population is divided into strata (or subgroups) then a random sample is taken from each subgroup created. Therefore, to obtain respondents from among head teachers, teachers, PTA representatives, and students, the study population was first defined into strata according to their respective branches before Krejcie and Morgan (1970)'s formulae and table is applied to select the representative sample from a given stratum then



sampled randomly upon identifying individuals in their schools. The study used a 4-point Likert Scaled closed-end questionnaire, with responses ranging from Strongly Disagree (1), Disagree (2), Undecided (3) Agree (4) Strongly Agree (5). The questionnaire had a total of 25 items, 3 of which addressed the demographic composition of the respondents, 7 on classroom condition factors, 7 on School location conditions factors, 8 on learners' academic performance. This instrument was used based on the advice of Eyisi (2016) that a questionnaire has the potential to collect large amounts of data in a short time and its data is easily quantifiable to infer a relationship/effect between variables. Experts validated the study instrument. Specifically the expert check the construct and content of the instrument whether they can measure what they were proposed to measure. This was followed by pilot study in one (1) secondary school in Katsina State from where data were collected from 30 respondents whose feedback was captured in SPSS and tested for Cronbach's reliability test to determine the levels of reliability that ought to be equal or above threshold of 0.7 as suggested by Amin (2005) for the instrument to be administered. Reliability coefficient of .867 .630 and .618 were obtained for School Infrastructural factors, School learning supervision factors and students' academic performance respectively. The data elicited from the admiration of the questionnaire were analyzed using descriptive statistics of mean, standard deviation and Pearson Product moment Correlation Coefficient (PPMC) using Pearson's correlation coefficient (r) in deciding nature of the relationship between the variable being compared. To test the research hypotheses, the study used the p-value of Pearson Product Correlation Coefficient to determine whether the relationship between variables being compared are significant.

Results and Discussion

Hypothesis 1: There is no significant relationship between School Infrastructural factors and students' academic performance.

To test this hypothesis and the corresponding research question, the stakeholder's opinion on School Infrastructural factors and students' academic performance were rated and converted to parametric data. School Infrastructural factors is having 7 items, respondents can score 35 (7 strongly agrees) or 7 (7 strongly disagrees). So also, the students' academic performance is having eight items, respondents can score 40 (8 strongly agrees) or 8 (8 strongly disagrees). The scores obtained by these stakeholders in location and academic performance were correlated. The result is presented in table 1

Table: Relationship between School Infrastructural factors and Students' academic Performance

Variables	N	Mean	Std.	df	r	p-value
Infrastructural factors	618	17.83	4.02	617	0.34	0.00**
Students' Academic Performance	618	16.78	5.38			

** . Correlation is significant at the 0.01 level (2-tailed).

As represented in table 1, majority of the respondents agrees that there are adequate laboratory facilities, library facilities/books, and toilet facilities. The furthered agreed that there is enough classrooms, residential facilities, sports facilities and attractive compound facilities in senior



secondary schools in Katsina state. This is deduced from overall mean rating of 17.83 (17.83/7items= 2.55 = agree). Their responses on students' academic performance indicated that students' academic performance in various academic activities such as assignment, terminal examination etc are not encouraging. This is deduced from overall mean of 16.78 (16.78/8 items = 2.09 = disagreed). The correlation coefficient between School Infrastructural factors and academic performance is 0.34. This indicated that there is a weak positive relationship between the condition of School location conditions and student academic performance. The observed correlation coefficient of 0.34 is statistically significant (p=0.00). This implies that the better the School Infrastructures the better the students' academic performance in academic activities. In other words, 11.6% of student performance in the academic activities is influenced by the state of Scholl infrastructural factors.

Hypothesis 2: There is no significant relationship between learning supervision practices and students' academic performance.

To test this hypothesis and the corresponding research question, the stakeholder's opinion on learning supervision practices and respondents rating of students' academic performance in academic activities were rated and converted to parametric data. The classroom condition is having 7 items, respondents can score 35 (7 strongly agrees) or 7 (7 strongly disagrees). So also, the students' academic performance is having eight items, respondents can score 40 (8 strongly agrees) or 8 (8 strongly disagrees). The scores obtained by these stakeholders in learning supervision practices and academic performance were correlated. The result is presented in table 2:

Table2: Relationship between Learning Supervision Practices and Students' academic Performance

Variables	N	Mean	Std.	df	r	p-value
Learning Supervision Practices	618	16.38	3.67	617	0.50	0.00**
Students' Academic Performance	618	16.78	5.37			

** . Correlation is significant at the 0.01 level (2-tailed).

As represented in table 2, Majority of the respondents disagreed that student classroom leaders ensure that there is no noise making; Katsina state officials visit school to supervise learning, Head-teachers oversee proper functioning of learning support facilities like dormitories and toilets to ensure cleanliness. Majority of the respondents also disagreed that role call is performant daily. Furthermore, majority of the respondents agreed that teachers supervise learners during daily assessments/exercises and that Head-teachers supervise teachers whether teachers teach daily. However they disagreed that there is weekly school assemblies. This is deduced from overall mean of 16.38 (16.38/7 items=2.36= disagree). Their response on students' academic performance also indicated that students' academic performance in various academic activities such as assignment, terminal examination etc are not encouraging. This is deduced from overall mean of 16.78 (16.78/8 items = 2.09 = disagreed). The correlation coefficient between Learning Supervision Practices and academic performance is 0.50, this implies that a strong positive relationship exist between Learning Supervision Practices and students' academic performance. The observed correlation coefficient of 0.50 is statistically significant (p-value=0.00). This shows that the better the Learning



Supervision Practices the better the students' academic performance in academic activities. In other word, In other words, 25% of students' performance in the academic activities is influenced by learning supervision practice.

Summary of the Findings

1. There is a weak positive relationship between School infrastructural factors and student academic performance. The observed correlation coefficient of 0.34 is statistically significant ($p=0.00$). This implies that the better the school infrastructural factor the better the students' academic performance in academic activities.
2. There is a strong positive relationship between learning supervision practices and students' academic performance. The observed correlation coefficient of 0.50 is statistically significant ($p\text{-value}=0.00$). This implies that the better the learning supervision practice the better the students' academic performance in academic activities

Discussion of the Findings

This study was undertaken to unleash the relationship between environmental factor of School infrastructural facilities, learning supervision practice and learners' academic performance in learning activities in senior secondary schools in Katsina state Nigeria. This is to know how environmental factor of school's infrastructural facilities such as laboratory facilities library facilities/books, toilet facilities, adequate classrooms, residential facilities, sports facilities, and attractive compound facilities influence students' academic performance in learning activities. The study is also interested in establishing relationship between learning supervision practices by classroom leaders, teachers, Katsina State Ministry of Education and principals influence students' academic performance in academic activities. Research question one was raised to know the nature of relationship that exist between School infrastructural facilities and students' academic performance in senior Secondary school of Katsina State Nigeria. From the inferential analysis, it was discovered that most secondary schools in Katsina State performed below average regarding terminal measures of academic performance such as talents' development, academic grade improvement, knowledge retention capacity, and development of their co-curricular skills set. Students scored poorly in mid-term, end of term, and end of year assessments. This was accompanied by learners' failure to vividly retain content taught in class and consequently made some of them fail to progress to subsequent classes. This poor performance in class was worsened by students' failure to develop or attain other co-curricular skills and possession of unwanted disciplinary record. The study found a weak positive relationship between school infrastructural facilities and learners' academic performance in secondary schools in Katsina State Nigeria and. The corresponding hypothesis one revealed that the observed correlation coefficient between School infrastructural facilities and students' academic performance is statistically significant. This implies that the better the school infrastructural facilities the better the academic performance in school related activities. That is, 11.6% of students' academic performance is influence by school infrastructural factors. This finding is slightly different from the findings of from Namibia (Muyoyeta et al., 2017), Ghana (Osei-Tutu et al., 2014), Tanzania (Fuzu, 2014), and other States of Nigeria (Ebikabowei et al., 2014; Dahiru et al., 2018) in related studies where strong positive relationship was observed between school infrastructural factors and students' academic performance. However, the study's findings is largely differ from that of Wunti et al. (2017) who found that there was no significant relationship between school plant facilities and students' academic achievement in Senior Secondary Schools in Bauchi State Nigeria.



Research question two was raised to know the nature of relationship that exist between learning supervision practices and students' academic performances. The study found a strong positive relationship between learning supervision practices and learners' academic performance in secondary schools in Katsina State Nigeria. The corresponding hypothesis two revealed that the observed correlation coefficient between learning supervision practices and students' academic performance is statistically significant. This implies that the better the conditions of classroom the better the academic performance in school related activities. In other words, 25% of students' academic performance in academic activities are influence by learning supervision practices of schools in Katsina State. This finding is in line with previous revelations from Nasarawa State, Nigeria (Dangara, 2015), Ghana (Esia-Donkoh & Ofosu-Dwamena, 2014; Tinab, 2014), Zimbabwe (Nyoni et al., 2017), Pakistan (Kausar et al., 2017), and Kenya (Mwangi, 2016) where it was documented that regular instructional supervision strategies had significant correlation with learners' academic achievement in secondary schools since it offered a serene environment. In contrary with the finding of the present study, were in disagreement with Ankoma-Sey and Maina (2016) who revealed that there was a positive weak relationship between supervision roles and academic performance of students in Senior High Schools in Ghana.

Conclusions

Based on the findings of this study, the study concluded that both infrastructural factors and learning supervision practices have influence on students' academic performance in academic activities. While learning supervision practices has strong positive relationship, school infrastructure has weak positive relationship with students' academic performance in academic activities. The study concluded that improvement in school infrastructural factor will in turn improve learners' academic performance, so also, regular learning supervision practice will improve learners' academic performance in academic activities.

Recommendations

1. Katsina State ought to increase on its budget allocation towards construction and renovation core school infrastructure to boost learners' academic performance. This can be attained by building more classrooms to reduce on teacher student ratio, create ample classroom space by reducing on over-crowding.
2. The study recommends that a non-physical environmental factor and arrest its shortfalls, teachers and head teachers should tip/tool student leaders with effective ways to control noise making which intoxicates the learning process. Additionally, State officials and other representatives are advised to double their visits to schools to ensure their smooth running through supervising the learning environment. Head-teachers are strongly opined to foresee the functionality of support facilities and carry out frequent roll-calls to ensure students' class attendance.

References

- Abdullahi, H.A., Mlozi, M.R.S., & Nzalayaimisi, G.K. (2015). Determinants of students' academic achievement in agricultural sciences: A case study of secondary schools in Katsina State, Nigeria. *African Educational Research Journal*, Vol. 3(1): 80-88.
- Adams, J., Khan, H.T.A, & Raeside, R. (2014). *Research Methods for Business Social Science Students*, 2nd Edition, Sage Publications, California, USA.
- Anbalagan, S. (2017). Impact of school environment on academic achievement of secondary school students in Madurai district. *International Journal of Applied Research*, Vol. 3(5): 732-737
- Arul, L.A.S. (2012). School environment & academic performance of standard six students, *Journal of educational and industrial studies in the world*, Vol. 2(3): 210-215. Available: <http://files.eric.ed.gov/fulltext/ED542331.pdf>
- Bryman, A. & Bell, E. (2011). *Business Research Methods*, Oxford University Press, New York. United States of America.



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EDUCATIONAL RESEARCH & LIBRARY SCI. VOL. 10

- Cheryan, S., Ziegler, S.A., Plaut, V.C., & Meltzoff, A.N. (2014). Designing Classrooms to Maximize Student Achievement. *Policy Insights from the Behavioral and Brain Sciences*, Vol. 1(1), 4–12.
- Creswell, J. W. (2015). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (5th Ed.). Boston, MA: Pearson.
- Duruji, M.M., Azuh, D., & Oviasogie, F. (2014). Learning Environment and Academic Performance of Secondary School Students in External Examinations: A Case Study of Selected Schools in Nigeria, *Proceedings of EDULEARN14 Conference 7th-9th July 2014, Barcelona, Spain*. Pages: 5042-5053.
- Ebikabowei, K., Ayerite, A.I., & Chukwuma, C.B. (2014). Evaluation of the Toilet Facilities in Primary Schools in the Niger Delta: WASH Education Series 2. *International Journal of Innovative Research and Development*. Vol. 3(9), 91-100.
- Ellah, K. E. & Ita, P.M. (2017). Correlational Relationship between School Location and Students' Academic Performance in English Language in Nigerian Secondary Schools, *International Journal of Scientific and Research Publications*, Vol. 7(Issue 9): 381-384.
- Goga, M., Kuyoro, S., & Goga, N. (2015). A recommender for improving the student academic performance, *Procedia - Social and Behavioral Sciences*, Vol. 180, Pages 1481 – 1488.
- Good, T. (2009). Teacher effectiveness in the elementary school: What do we know about it now? *Journal of Teacher Education*, Vol. 30: 52-64.
- Kausar, A., Kiyani, A.I., & Suleman, Q. (2017). Effect of Classroom Environment on the Academic Achievement of Secondary School Students in the Subject of Pakistan Studies at Secondary Level in Rawalpindi District, Pakistan. *Journal of Education and Practice*. Vol. 8(24): 56-63.
- Krejcie, R.V., & Morgan, D.W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, Vol. 30(1), 607-610.
- Kudari, J.M. (2016). Survey on the Factors Influences the Students' Academic Performance, *International Journal of Emerging Research in Management & Technology*, Vol. 5(Issue-6): 30-36.
- Malik, R.H. & Rizvi, A.A. (2018). Effect of Classroom Learning Environment on Students' Academic Achievement in Mathematics at Secondary Level, *Bulletin of Education and Research*, Vol. 40(2): 207-218.
- Moradeyo, A. A. & Adeyemi, S. B. (2013). Institutional factors as predictors of students' academic achievement in colleges of education in south western Nigeria. *International journal of educational administration and policy studies*. Vol. 6(8): 141-153
- Mosha, M.A. (2014). Factors Affecting Students' Performance in English Language in Zanzibar Rural and Urban Secondary Schools, *Journal of Education and Practice*, Vol. 5(35): 63-76
- Muyoyeta, N.K., Abah, J., & Denuga, D. (2017). School-Based Factors Affecting Grade 12 Learners' Academic Performance in Namibia Senior Secondary Certificate Ordinary Level Biology in the Khomas Educational Region, Namibia. *International Journal of Education, Learning and Development*, Vol. 5(7): 9-22.
- Obeta, A.O. (2014). Home Environmental Factors Affecting Students' Academic Performance in Abia State, Nigeria. *Rural Environment, Education, & Personality Journal*, Vol. 7(1): 141-149.
- Ogbadu, M. A. & Arong, F. E. (2010). Major Causes of Declining Quality of Education in Nigeria from Administrative Perspective: A Case Study of Dekina Local Government Area. *Journal Canadian Social Science*. Vol. 6(3): 183-198
- Okafor, C. A., Maina, J. J., Stephen, H., & Ohambele, C. C. (2016). Impact of School Environments on Academic Performance: Feedback from Senior Secondary School Students. *Joint International Conference (JIC) on 21st Century Human Habitat: Issues, Sustainability and Development*, 21-24 March 2016, Akure, Nigeria, page number 1175-1182.
- Samani, S. (2012). The Impact of Indoor Lighting on Students' Learning Performance in Learning Environments: A knowledge internalization perspective. *International Journal of Business and Social Science*. Vol. 3(24), 127-131.
- Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *International Journal of Academic Research in Management*. Vol. 5(2), 18-27.
- Tinab, M. (2014). Effects of Educational Supervision on Students' Academic Performance in Nadowli District in the Upper West Region of Ghana, *The International Journal Of Humanities & Social Studies*, Vol. 2(6): 326-341.
- Wunti, Y.I., Hafsat, A.U., & Igbaji, C. (2017). Impact school facilities have on academic achievement of students in Senior Secondary Schools in Bauchi State, Nigeria. *International Journal of Advanced Research*, Vol. 5(12), 878-889.