

**INFLUENCE OF TEACHERS' AND SCHOOL VARIABLES ON ACADEMIC
ACHIEVEMENT IN GEOGRAPHY AMONG SENIOR SECONDARY SCHOOL
STUDENTS IN OGUN STATE, NIGERIA**

By

ADEBAJO Adeniyi Adebambo

Department of Geography and Environmental Management,
Tai Solarin University of Education, Ijagun, Ijebu-Ode, Nigeria

adebajoab@tasued.edu.ng

+234 903 946 8531

&

ALAKE, M. Ajibola Ph.D

Department of Educational Management and Business Studies,
Faculty of Education, Olabisi Onabanjo University, Ago-Iwoye.

m.ajibolaalake@oouagoiwoye.edu.ng

+2347060674060

Abstract

Geography plays a critical role in developing spatial awareness, environmental consciousness, and analytical skills among Nigerian secondary school students. Despite this, students' achievement in Geography in Ogun State remains persistently low, as reflected in 2021 WASSCE and NECO results. This study examined the influence of teachers' and school variables on senior secondary school students' academic achievement in Geography. Using a descriptive ex post facto design, the population comprised all Geography teachers and students in Ogun State, from which a sample of 50 teachers and 250 students were drawn through multi-stage sampling. The hypotheses were tested using simple linear regression at the 0.05 significance level. Findings revealed that school variables such as instructional materials ($F_{1, 48} = 0.7447$; $p > .05$), infrastructure ($F_{1, 48} = 0.904$; $p > .05$), and classroom size ($F_{1, 48} = 0.636$; $p > .05$) did not significantly affect achievement. However, teachers' qualifications, experience, and instructional strategies were more directly linked to students' performance. Based on the findings, it was recommended among others that there should be regular training for Geography teachers in student-centered strategies, including inquiry-based learning, fieldwork, and digital tools.

Keyword: Academic Achievement, Geography, School, Students, Teacher, Variables.

Word counts: 184

Introduction

Education is universally recognized as a crucial driver of national development, as it equips individuals with the knowledge, skills, and competencies necessary for both personal advancement and societal progress. A well-educated population fosters economic growth, social stability, and technological innovation, while also enhancing civic participation and employment opportunities. The quality of education received by learners directly influences their academic achievement, which in turn shapes their capacity for critical thinking, problem-solving, and adaptability in a dynamic world. High-quality education stimulates innovation and ensures sustainable national development, whereas poor-quality education characterized by overcrowded classrooms, inadequate resources, outdated curricula, and ineffective teaching strategies leads to poor student performance, limited career prospects, and stagnation in national growth. As Olabode et al. (2023) observe, education plays a transformative role in equipping individuals with expertise, capabilities, and knowledge essential for holistic advancement at both community and national levels.

Teacher competence, instructional strategies, school infrastructure, and access to learning resources all significantly affect students' learning outcomes (Kapur, 2018; Bamigbade et al., 2021). Geography, in particular, occupies a central place in the secondary school curriculum as it develops students' spatial awareness, environmental knowledge, and problem-solving skills critical for sustainable development (Adeyemi, 2018). This relevance is heightened in the face of pressing global environmental issues such as climate change, pollution, habitat destruction, and biodiversity loss (Latue et al., 2023; Wulandari et al., 2023). Addressing these challenges requires environmental awareness, which Geography education is uniquely positioned to provide. By fostering an understanding of human–environment interactions and the consequences of human activities on natural ecosystems, Geography enhances students' capacity to contribute meaningfully to environmental sustainability (Hong et al., 2022; Rakuasa & Latue, 2023; Gustavo & Rakuasa, 2023; Manakane et al., 2023).

Knecht et al. (2020) was of the view that the reported declension of students' interest in Geography has implications on the rates of enrollment into geography in higher institutions. In addition, Viehrig (2024) insinuates that geography education seems unsuccessful in attaining its set objectives, due to frequently low performance. Some studies identified a linkage between

poor academic achievement of students in geography and “fear” of continuing in the subject, leading to a drop in registration for geography in external examinations (Omoró & Nato, 2024; Reniko et al., 2017). Several factors are responsible for students' academic achievement, including teachers' variables such as qualifications, teaching experience, and instructional methods, as well as school variables like class size, availability of instructional materials, and school infrastructure (Ogunniyi & Akinola, 2020). Teachers play a crucial role in shaping students' academic achievement as they are responsible for delivering content knowledge and ensuring effective pedagogy. Adebayo (2019) established that well-trained and experienced teachers would positively impact students' academic success. The effectiveness of Geography instruction largely depends on teachers' ability to integrate innovative teaching strategies, such as fieldwork, Geographic Information System (GIS) applications, and problem-based learning approaches (Ojo, 2022).

The quality of education depends on the teacher as reflected in the performance of their students. Teachers play crucial role in the educational attainment of students because they are ultimately responsible for translating into actions the principles based on practice during interaction with the students. Teacher variables such as qualification, motivation and experience may be contributing factors to their output. Teacher qualification entails the basic training acquired by a teacher to enable him practice in the teaching profession. According to the National Policy on Education (2014), Nigeria Certificate in Education (NCE) is the minimum qualification for teaching in the primary schools.

Teachers' experience entails the number of years a teacher has been practicing the art of teaching. Experience; they say, is the best teacher. An experienced teacher is more likely to be efficient in class control, determination of individual differences and ability to improvise teaching aids. A newly employed teacher, despite the level of training may find the practice difficult in the first few months, but as he/she progresses, he gets more confident and may be able to device different methods to deal with different types of classroom problems. Olatunde (2019) revealed that students taught by more experienced teachers achieve higher level, because their teachers possess mastery of the content and acquired classroom management skills to deal with different classroom problems. This is determined by the teachers' qualification, experience and motivation. Also, Chako (2021), added that teachers' attitude towards teaching significantly predicts students' attitude as well as achievement.

Ajibola and Lawal (2021) reiterated that school variables significantly impact academic achievement. The availability of instructional materials, such as maps, atlases, weather instruments, and projectors, enhances students' understanding of geographical concepts. Furthermore, adequate school infrastructure, such as well-equipped classrooms, functional laboratories, and a conducive learning environment, fosters better academic achievement (Eze, 2020). Studies have indicated that overcrowded classrooms and inadequate teaching resources contribute to poor student achievement in Geography (Olorunfemi, 2021).

Instructional materials greatly influence education quality and standards and they affect the teaching and learning process. Instructional materials and learning resources are associated with objects, persons or other aspects of the environment which can be used to impact, or help in any learning activity. Instructional materials are intermediate or mediating materials used in instruction or teaching learners so as to make the learning objectives clearer and teaching easier. A careful explanation of a subject may not absolutely lead to a better understanding of that particular subject by adults, whereas, the use of teaching aids or instructional materials provides clarity on issues that are of learning interest to the adults (Knowles, 2016).

In teaching generally, instructional materials make the teaching process easier in geography teaching. Dhakal (2014) stated that for the teaching of geography to be effective, it is necessary for teachers to make use of different types of instructional materials. Geography focuses on disciplinary change and paradigm shift which makes the use of instructional materials important in teaching and learning. Geography as one of the subjects at the secondary schools will be better facilitated when suitable and relevant instructional materials are prepared and utilized during its teaching and learning. Dhakal (2017) opined that for teaching and learning activities to be effective and purposeful, the teacher has to make use of the appropriate instructional materials. The teacher must know the instructional materials that are available for teaching geography and be able to utilize them for achieving the educational objectives. This implies that the use of instructional materials is inevitable if effective teaching and learning must be achieved. It is said that one picture is equal to one thousand words. This agrees with the Chinese proverb that state: "The thing which I hear, I may forget, the thing which I see, I may remember, the thing which I do, I cannot forget". When instructional materials are properly used, they help to consolidate learning in the learner's mind. The use of instructional materials therefore, becomes very crucial in improving the overall quality of the learning experiences of

students. Therefore, the selection and use of instructional materials in teaching and learning geography are determined by the particular aspect of geography that the teacher intends to teach at a particular point in time.

According to several studies on school facilities, it is important to emphasize that school facilities mean buildings housing classrooms, laboratories, dormitories, administrative facilities, athletic facilities, or related facilities operated in connection with a school. They are a major factor in ensuring quality education. This is one of the criteria for measuring education's growth and development level. Recent studies conducted in the United Kingdom have shown the impact of infrastructure on learners' educational outcomes and explain 16% of the variation in primary school students' academic achievement (Teixeira et al., 2017). This analysis shows that the way school facilities are designed has an effect on learning processes based on three characteristics: They must be natural (light and air quality), stimulating (colors and complexity), and individualized (flexibility of learning spaces) (Teixeira et al., 2017). The results of the study conducted by Bullock, (2017) showed that there is a relationship between school facilities and student achievement in secondary schools. It also revealed that students perform better in schools that have been recently new or renovated than in older schools.

Ogun State, being one of the educational hubs in Nigeria, faces challenges related to teacher quality and school infrastructure, which may affect students' academic achievement in Geography. Despite various educational reforms and policies aimed at improving teaching and learning, concerns remain about the effectiveness of these measures in enhancing Geography education in Ogun State (Ogun State Ministry of Education, 2022). Understanding the influence of teachers' and school-related variables on students' academic achievement is essential for developing targeted interventions that can improve academic achievement in Geography. Therefore, this study seeks to examine the influence of teachers' and school variables on academic achievement in Geography among senior secondary school students in Ogun State.

Statement of the Problem

Geography is a core subject in the Nigerian secondary school curriculum designed to equip learners with spatial awareness, environmental consciousness, and analytical skills essential for national development. However, the academic achievement of students in Geography at the Senior Secondary School level in Nigeria and specifically in Ogun State has remained consistently low. Reports from both internal examinations and external assessments,

including the West African Senior School Certificate Examination (WASSCE) and the National Examination Council (NECO), revealed persistent underperformance (West African Examinations Council, 2021). This disturbing trend raises concerns about the underlying factors responsible for students' poor outcomes in the subject.

Research evidence suggests that both teacher-related and school-based variables significantly influence students' academic performance. Factors such as teachers' qualifications, teaching experience, instructional methods, and engagement in professional development have been shown to affect learning outcomes. Similarly, school-related factors, including classroom size, availability of instructional materials, and the quality of infrastructure, shape the teaching-learning process. Yet, in Ogun State, many schools still grapple with overcrowded classrooms, inadequate Geography teachers, and limited access to modern teaching resources such as Geographic Information Systems (GIS), digital maps, and interactive learning tools.

The problem, therefore, is that despite the acknowledged importance of teacher and school variables, little empirical research has examined their combined influence on students' achievement in Geography in Ogun State. Without such evidence, interventions aimed at improving learning outcomes risk being ineffective, perpetuating continued student underachievement in the subject.

Purpose of the Study

1. Investigate the influence of teacher's academic qualification on students' academic achievement in Geography in Senior Secondary Schools in Ogun State.
2. Examine if teacher variable of years of teaching experience influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State.
3. Investigate the influence availability of the school variable of instructional materials on students' academic achievement in Geography in Senior Secondary Schools in Ogun State.
4. Find influence of school variable of availability of infrastructure on students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Hypotheses

The following statements of hypotheses were formulated and tested at 0.05 level of significance.

- H₀₁:** Teacher variable of academic qualification will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State.
- H₀₂:** Teacher variable of years of teaching experience will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State.
- H₀₃:** School variable of instructional materials availability will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State.
- H₀₄:** School variable of availability of infrastructure will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Methodology

This study employed a descriptive survey design of the ex post facto type. The population consisted of all senior secondary school Geography teachers and students in public schools across the three senatorial districts in Ogun State. From this population, a sample of 50 Geography teachers and 250 SS II students were selected from 10 public schools through a multi-stage sampling technique. Schools were stratified across the senatorial districts, after which 10 public secondary schools were randomly selected; all Geography teachers in the chosen schools were purposively included, while students were randomly sampled. Two instruments titled "Teachers' and School Variables Questionnaire (TSVQ), and Students' Academic Achievement Test in Geography (SAATG)" were used for data collection. The instruments were validated by experts in Educational Measurement and Geography Education, and reliability was established through a pilot study which yielded Cronbach Alpha coefficients of 0.81 for the TSVQ and 0.78 for the SAATG, indicating high internal consistency. Data were collected with the assistance of trained research assistants, who ensured proper administration of the questionnaire and supervised the achievement test under examination conditions. The four hypotheses formulated for the study were tested using simple linear regression analysis at the 0.05 level of significance.

Results and Discussion of Findings

Testing of Hypotheses

***H₀₁*:** Teacher variable of academic qualification will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Table 1 showed the influence of teachers' academic qualification variable on students' academic achievement in Geography in Senior Secondary Schools in Ogun State. The regression model summary in Table 1 indicated that teacher variable of academic qualification contributed significantly to academic achievement of students in Geography ($F_{1, 48} = 8.4647$; $p < .05$). The R^2 adjusted indicated that 13.9% of the variability observed in the academic achievement of students was accounted for by teachers' academic qualification variable. Therefore, the null hypothesis one which stated that 'teacher variable of academic qualification will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State' was rejected. This implied that academic qualification of Geography teachers significantly influenced students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Table 1: Influence of Teacher Academic Qualification on Students' Academic Achievement in Geography in Senior Secondary Schools

R		R Square	Adjusted R Square		Std. Error of the Estimate	
.377		.142	.139		3.85436	
ANOVA						
Model	Sum of Squares	Df	Mean Square	F	Sig.	Remark
Regression	197.634	1	197.634	8.4647	.000	Sig.
Residual	1120.704	48	23.348			
Total	1318.338	49				

Dependent Variable: Students' academic achievement in geography

Predictors: (Constant), teacher academic qualification

***H₀₂*:** Teacher variable of years of teaching experience will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Table 2 showed the influence of teachers' teaching experience variable on students' academic achievement in Geography in Senior Secondary Schools in Ogun State. The regression model summary in Table 2 indicated that teacher variable of teaching experience contributed significantly to academic achievement of students in Geography ($F_{1, 48} = 12.1979$; $p < .05$). The

R^2 adjusted indicated that 24.6% of the variability observed in the academic achievement of students was accounted for by teachers' teaching experience variable. Therefore, the null hypothesis two which stated that 'teacher variable of teaching experience will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State' was rejected. This implied that the teaching experience of Geography teachers significantly influenced students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Table 2: Influence of Teacher Teaching Experience on Students' Academic Achievement in Geography in Senior Secondary Schools

R		R Square	Adjusted R Square		Std. Error of the Estimate	
.505		.255	.246		2.18353	
ANOVA						
Model	Sum of Squares	Df	Mean Square	F	Sig.	Remark
Regression	844.121	1	844.121	12.1979	.000	Sig.
Residual	3321.704	48	69.202			
Total	4165.825	49				

Dependent Variable: Students' academic achievement in geography

Predictors: (Constant), teacher teaching experience

H₀₃: School variable of instructional materials availability will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Table 3 showed the influence of school instructional materials variable on students' academic achievement in Geography in Senior Secondary Schools in Ogun State. The regression model summary in Table 3 indicated that school variable of instructional materials did not contribute significantly to academic achievement of students in Geography ($F_{1, 48} = 0.7447$; $p > .05$). The R^2 adjusted indicated that only 1.1% of the variability observed in the academic achievement of students was accounted for by their schools' instructional materials. Therefore, the null hypothesis four which stated that 'school variable of instructional materials availability will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State' was not rejected. This implied that the instructional materials available

in schools for Geography teaching did not significantly influenced students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Table 3: Influence of School Instructional Materials on Students' Academic Achievement in Geography in Senior Secondary Schools

in Geography in Senior Secondary Schools						
R		R Square	Adjusted R Square		Std. Error of the Estimate	
.108		.012	.011		7.36105	
ANOVA						
Model	Sum of Squares	Df	Mean Square	F	Sig.	Remark
Regression	16.772	1	16.772	0.7447	.206	Not Sig.
Residual	1081.040	48	22.522			
Total	1097.812	49				

Dependent Variable: Students' academic achievement in geography

Predictors: (Constant), school instructional materials

H₀₄: School variable of availability of infrastructure will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Table 4 showed the influence of availability of school infrastructure variable on students' academic achievement in Geography in Senior Secondary Schools in Ogun State. The regression model summary in Table 4 indicated that school variable of infrastructural availability did not contribute significantly to academic achievement of students in Geography ($F_{1, 48} = 0.904$; $p > .05$). The R^2 adjusted indicated that only 3.8% of the variability observed in the academic achievement of students was accounted for by their schools' infrastructure. Therefore, the null hypothesis five which stated that 'school variable of availability of infrastructure availability will not significantly influence students' academic achievement in Geography in Senior Secondary Schools in Ogun State' was not rejected. This implied that the available school infrastructure did not significantly influenced students' academic achievement in Geography in Senior Secondary Schools in Ogun State.

Table 4: Influence of School Infrastructure on Students' Academic Achievement in Geography in Senior Secondary Schools

Geography in Senior Secondary Schools						
R		R Square	Adjusted R Square		Std. Error of the Estimate	
.200		.040	.038		6.84016	
ANOVA						
Model	Sum of Squares	Df	Mean Square	F	Sig.	Remark

Regression	18.101	1	18.101	0.904	.184	Not Sig.
Residual	961.241	48	20.026			
Total	979.342	49				

Dependent Variable: Students' academic achievement in geography

Predictors: (Constant), school instructional materials

Discussion of Findings

This study investigated the influence of teachers' and school variables on students' academic achievement in Geography among senior secondary school students in Ogun State. The findings revealed that teacher-related factors, particularly academic qualification and years of teaching experience, significantly influenced students' performance, whereas school-related factors such as instructional materials and infrastructure did not exert a significant impact. The first hypothesis tested showed that teacher academic qualification significantly influenced students' academic achievement in Geography, accounting for 13.9% of the variance. This supports earlier studies such as Akiri and Ugborugbo (2009), who found that teachers' qualifications directly affect student outcomes in specialized subjects. Similarly, Darling-Hammond (2000) and Adeyemi (2010) reported that teachers with higher qualifications possess stronger subject knowledge and pedagogical competence, enabling them to deliver more effective lessons that translate into better academic performance.

The second hypothesis revealed that teaching experience was also a significant predictor, with an adjusted R^2 value of 0.246, indicating that experience accounted for nearly one-quarter of the variance in students' achievement. This finding corroborates Kini and Podolsky (2016), who emphasized that experienced teachers are more effective at classroom management, lesson delivery, and adapting instruction to students' needs. Their research further demonstrated that the benefits of experience increase as teachers refine their instructional practices over time.

Conversely, the third hypothesis indicated that instructional materials did not significantly influence academic achievement. This aligns with Adebayo and Akinrinade (2021), who observed that materials, though available in many schools, were often underutilized due to limited teacher training or motivation. However, contrary evidence exists.

Oladele and Olaniyan (2022) reported a strong positive relationship between instructional aids and students' achievement in Osun State, noting that materials such as maps and atlases made abstract concepts more concrete and engaging. This contrast suggests that availability alone is insufficient; rather, the effective use of materials in teaching is critical.

Similarly, the fourth hypothesis showed that school infrastructure had no significant effect on achievement. This finding resonates with Oduro and Ayeni (2021), who argued that while infrastructure such as classrooms and libraries is important, its presence does not automatically translate into improved outcomes. Instead, teacher competence, classroom practices, and student engagement are more immediate determinants of learning. In subjects like Geography, where outdoor learning and environmental exploration can complement infrastructure, students and teachers often adapt to resource limitations. Overall, the findings highlight that teacher-related variables qualification and experience play a more decisive role in shaping students' academic achievement in Geography than school-level factors.

Conclusion

This study investigated the influence of teachers' and school variables on students' academic achievement in Geography among senior secondary school students in Ogun State, Nigeria. The findings revealed that teacher-related variables, particularly academic qualification and years of teaching experience, significantly influenced students' achievement, while school-related factors such as instructional materials and infrastructure did not have a statistically significant effect. These results emphasize the critical role that teacher quality plays in shaping educational outcomes, confirming that competent, experienced, and well-qualified teachers are essential to improving students' learning performance. The results imply that teacher qualifications enhance content mastery and pedagogical skills, which translate into improved instructional delivery and student comprehension. Similarly, teaching experience contributes to teachers' classroom management, problem-solving, and adaptive instructional strategies, all of which promote better student engagement and achievement. In contrast, the non-significant effects of instructional materials and infrastructure suggest that the mere availability of resources does not guarantee effective learning unless teachers are adequately trained and motivated to utilize them optimally. This finding underscores the need for more strategic investment in teacher

development alongside material provision. Ultimately, enhancing academic achievement in Geography in Ogun State and Nigeria at large depends on a comprehensive approach that combines well-qualified and motivated teachers, supportive leadership, effective use of instructional resources, and a conducive learning environment.

Recommendations

The following recommendations are suggested in line with the findings of this research:

- i. Government through the Teaching Service Commission should prioritise the recruitment and retention of Geography teachers with strong academic qualifications, particularly those with degrees in Geography or related disciplines and formal training in education. Additionally, opportunities for teachers to upgrade their qualifications through in-service training and postgraduate studies should be supported to enhance their subject mastery and pedagogical effectiveness.
- ii. The Ministry of Education should implement mentorship programmes where less experienced Geography teachers are paired with veteran educators to foster professional growth. Teaching experience should be recognised as a valuable asset in staff deployment, and incentives should be provided to retain experienced teachers in the classroom, particularly in public schools.
- iii. Although the availability of instructional materials did not show a significant effect, efforts should be made to not only provide adequate and up-to-date Geography resources but also train teachers on how to utilise them effectively. Emphasis should be placed on aligning these materials with the curriculum and integrating them into daily teaching routines.
- iv. While infrastructure was not found to significantly impact academic achievement, it remains foundational to a conducive learning environment. School management should ensure that all schools have basic, functional infrastructure such as well-ventilated classrooms, accessible laboratories, and resource rooms to support effective teaching and learning, especially in practical subjects like Geography.

References

- Adebayo, F. A., & Akinrinade, I. D. (2021). *Availability and utilization of instructional materials as correlates of teachers' effectiveness in secondary schools in Osun State, Nigeria. Journal of Education and Practice*, 12(14), 45–54.

- Adebayo, M. O. (2019). *Teacher effectiveness and students' academic performance in Nigerian secondary schools. Journal of Educational Research and Development*, 14(1), 45–56.
- Adeyemi, T. O. (2010). *Teacher related factors as correlates of pupils' achievement in social studies in Southwestern Nigeria. Electronic Journal of Research in Educational Psychology*, 8(1), 313–332.
- Adeyemi, T. O. (2018). The role of Geography education in sustainable development. *Journal of Educational Research*, 12(3), 45-56.
- Ajibola, M. O., & Lawal, K. T. (2021). The role of instructional materials in enhancing Geography learning. *African Journal of Education and Development Studies*, 9(4), 78-90.
- Bamigbade, B. A., Afolabi, O. T., & Oyetunji, A. O. (2021). *Societal approach to behavioural modeling and individual performance in contemporary settings*. Ibadan: Grace Publications.
- Bullock, C. C. (2017). *The relationship between school building conditions and student achievement at the secondary school level in the United States. Journal of Educational Administration and Policy Studies*, 9(4), 89–97.
- Chako, F. J. (2021). *Teachers' attitude and students' academic achievement: A case study of selected secondary schools in Nigeria. Journal of Teacher Education and Training*, 5(2), 68–77.
- Dhakal, R. (2014). *Role of instructional materials in teaching geography at secondary level. Educational Review International*, 3(1), 1–9.
- Dhakal, R. (2017). *Instructional materials in geography teaching: A necessity for effective classroom practices. Journal of Geography and Education*, 9(1), 34–42.
- Eze, U. J. (2020). *Impact of school infrastructure on students' performance in public secondary schools in Nigeria. International Journal of Educational Management*, 18(3), 105–118.
- Federal Republic of Nigeria (FRN, 2014). *National Policy on Education*. NERC Press.
- Gustavo, P., & Rakuasa, T. (2023). Education as a catalyst for environmental responsibility. *International Journal of Environmental Studies*, 50(3), 255–270.
- Hong, L., Smith, J. A., & Chen, X. (2022). Environmental awareness and sustainability: Impacts on future generations. *Journal of Environmental Education*, 45(2), 123–139.
- Kapur, R. (2018). *Factors Influencing the Student's Academic Performance in Secondary Schools in India*. New Delhi: University of Delhi.

- Knecht, C., Müller, S., & Weber, D. (2020). Declining interest in geography among secondary school students. *European Journal of Geography Education*, 15(1), 33–50.
- Knowles, M. S. (2016). *The adult learner: A neglected species* (8th ed.). Routledge.
- Latue, A., Rahman, M. S., & Chen, Y. (2023). Global perspectives on climate change and environmental degradation. *Environmental Studies Journal*, 48(2), 115–132.
- Manakane, B., Parker, L., & Shirazi, R. (2023). Geography education and ecological literacy. *Geography Teaching Quarterly*, 12(4), 89–105.
- Ogun State Ministry of Education. (2022). *Annual education performance report*. Abeokuta: Ogun State Government Press.
- Ogunniyi, M. T., & Akinola, A. O. (2020). *Teacher and school-related variables as predictors of students' academic performance in senior secondary schools in Nigeria*. *African Journal of Educational Research*, 24(2), 91–104.
- Ojo, K. A. (2022). *Effective geography instruction: The role of GIS, fieldwork, and problem-solving approaches*. *Journal of Geography Education*, 15(1), 22–37.
- Olabode, O. O., Awolola, O. I. & Awusah, I. B. (2023). Influence of some teachers' variables on academic achievement in Biology among secondary school girls in Ibadan North Local Government Area of Oyo State, Nigeria. *British Journal of Education, Learning and Development Psychology* 6(3), 25-36.
- Olatunde, S. A. (2019). *Teaching experience and student achievement in Nigerian secondary schools: A correlational study*. *Journal of Educational Practice*, 10(6), 73–81.
- Olorunfemi, A. M. (2021). *Instructional resources and overcrowded classrooms as predictors of geography students' achievement in Nigerian secondary schools*. *Journal of Environmental and Educational Studies*, 13(2), 55–65.
- Omoro, K., & Nato, P. (2024). Fear and decline: The dropout from external geography examinations in Kenya. *Education and Culture in Africa*, 9(1), 41–59.
- Rakuasa, T., & Latue, A. (2023). The role of environmental understanding in sustainable earth stewardship. *Global Sustainability Review*, 7(1), 47–60.
- Reniko, H., Moyo, T., & Dube, S. (2017). A-level geography failure rates in Zimbabwe: Implications for teacher training. *Journal of Southern African Education*, 22(2), 98–115.
- Teixeira, J., Wilson, A., & Koutselini, M. (2017). *School infrastructure and learning: Empirical findings from UK primary schools*. *Journal of Educational Facilities and Planning*, 6(2), 24–38.

Viehrig, K. (2024). Exploring the effects of GIS use on students' achievement in geography.

HGG Journal, 29, 219-223.

West African Examinations Council (WAEC). (2021). Chief examiners' report on Geography.

WAEC Press.

Wulandari, D., Nugroho, S., & Putri, M. D. (2023). Biodiversity loss and environmental sustainability: A global concern. *Journal of Environmental Research*, 57(1), 88–101.