

Teacher-Effectiveness and Utilization of Materials as Catalysts for Learning Outcomes in Geography among Senior Secondary Students in Ibadan

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Abstract

Student academic achievement in and student attitude to geography has been attributed to the effect of some variables such as availability and effective use of instructional materials and teacher effectiveness. This study investigated teacher effectiveness and utilization of materials as predictors of students' learning outcome in Geography in Ibadan. This study adopted the correlational research design. The participants were 150 Geography teachers and 300 students in Ibadan. The instruments used were a Questionnaire with two subscales namely teacher effectiveness ($r=0.71$) and utilization of materials, geography achievement test ($r=0.80$) and student attitude ($r=0.81$). Findings show that teacher qualification and effectiveness and student readiness when combine together does not affect student academic achievement and attitude to geography but it was discovered that in effective use of materials available constitutes to nonchalant attitude of student towards geography. It was also observed that student readiness contribute mainly to student attitude. It was therefore recommended that teacher should concentrate more on effective utilization of the materials available and should also improvise. Students should also improve on their readiness towards geography classes.

Keywords: Teacher Effectiveness, Material Utilization, Catalysts, Learning outcomes, Geography.

Introduction

Geography is a subject that deals with the description of the earth. The teaching of geography over the years has been guided by the birth of what geography is perceived to be. Geography evolution in Nigeria education has been in phases. According to Olofin (2001), he explained that there was a time when the teaching of geography was limited only to the geographical phenomena on the surface which deals with where the highest mountain is located and the longest river situated. This phase was trailed by the interactions of processes and results, regional differentiation and the origin of Geographical phenomena. This made the teaching of Geography systematic under which the topics include agents of landforms and denudation, erosion cycle, evolution of settlements, factors of industrial location etc. The next phase was that of quantification which brought forth map reading and finally the phase of neo-environmentalism which involve the relationship between man and its general environment, this phase also brought about the introduction of Geographic Information System (GIS).

Amosun (2016) further described Geography as the study of the earth's distribution of its living and non-living creatures. Geographers have aptly categorized these into physical and human features. Hence the main focus of geography is the

physical and human or cultural phenomena on earth. Amosun (2016) believes that geography lays emphasis on peoples, places, phenomena as they occur in particular patterns and as they evolve in a process in any environment and that it is a subject that studies and teaches realities in the learners' environment and around the world. He further emphasis that classroom, outdoors, and far away are the workshops and fields of its endeavour and that geography makes learners travel thousands of kilometres on their seats right in the classrooms, and it also supposed to be very much an interesting and exciting subject that should keep learners awake and alert throughout the period of teaching and learning either in the classroom or outside the classroom.

Geography is found under both core and non-vocational electives categories (NPE 2013). This shows the importance of Geography in achieving the national educational goals whose significance cannot be overemphasized. Geography is offered at the secondary level and in the second tier of the current educational system in Nigeria. Generally, the secondary level of education is designed to expose the learner to as many disciplines as possible in the upper basic education (Basic 7-9) and then allows them to make choices of subjects in then Secondary School level. Akintade (2011) asserts that geography is as well relevant for both the students who are likely to

continue to tertiary and those who will not proceed, this is because it equips students with a body of knowledge to make them functional and socially relevant in the fast changing world; it is a distinct and dynamic science and or social science discipline that deals with the study of man and his physical environment and therefore helps young people to appreciate the value of their environment and its vast natural resources.

However, teaching of Geography as a science or social science subject in senior secondary schools is not without some problems. Akinniyi et al 2008 submitted that poor academic performance of students in all science subjects and Geography in particular has been documented by many researchers. This has also been corroborated by high failure in public examinations in the country such as the West African Examination Council (WAEC) and National Examination Council (NECO). Studies have shown decline in students performance in sciences and this has been attributed to the fact that strategies used in our classrooms are not very effective. Of all the subjects in the school curriculum in at secondary level in Nigeria, Geography seems to be the most difficult subject to teach and learn some of the reasons put forward are, nature of the subject and the way it is being taught. It is believed that Geography is taught in a way that discourages open questions, inquiry and active participation. The effect of this is that the mind and imagination of students are closed.

Sofowora and Egbedokun (2010) stated that the study of geography from its inception was through verbal description of geographic features, which made the study very abstract and quite uninteresting. They also revealed that the undue emphasis on theoretical aspect of Geography to the detriment of scientific and experiential approach had made the subject very abstract and also uninteresting. The resultant effect of all the above is that the subject no longer attracts young scholars due to the dull, uninspiring and stereotyped approach being

adopted. Sofowora and Egbedokun criticized those who argued that geography is a dull and difficult subject. They argued that geography lessons are often very dull because there is too much chalk and talk and no enough pupils participation. Other problems associated with the teaching of Geography in secondary schools in the country are the low enrolment of students in the course and the poor method of communication. Not only this, they found Geography concepts confusing and unfamiliar. The skeptical attitudes of their parents and their teachers to the subject have also constituted a problem. The effect is that students run away from the subject. Which have culminated in the low enrolment of students in the subject at the University level in Nigeria.

Other problem identified include non-availability and utilization of relevant instructional materials and textbooks. Instructional materials needed in teaching geography include: Maps (depicting different geographical information at various locations), Atlases of different sizes, Aerial photographs, Satellite images, Topographical maps, Flow charts, Globes, Illustrative diagrams, sketches and models, posters, pictures etc, Video clips/tapes/documentary films, Rocks samples and their photographs, Weather instruments- Rain gauge, Wind vane, Barometer, Hygrometer, anemometer, Thermometer etc, Measuring instruments- Tape, Ruler, Chain, Compass, Drawing and Tracing paper, Stencil, Thread, Pens, Pencil, Pairs of divider, etc, Farm land in the locality, Markets, Banks, Computer system installed with GIS software, Printer and Scanner, Published materials. These materials should be made available and accessible in all schools for effective implementation of geography curriculum. Where the materials are not available, the teacher can improvise them using materials from the local environment. Ogunranti (1997) wrote differently emphasizing the importance of relevant instructional materials and the need to diversify the strategy for teaching Geography.

Roberts (1996) suggested that teacher should be discouraged from using didactic method of teaching to a more creative, experiential learning involving project method and to particularly encourage the move towards discovery and investigative approaches in situation well structured by the teacher. Teachers also should be encouraged to be a guide, a facilitator and to abandon the traditional expository approach in favor of an active and open learning. Smith (1997) also

criticizing the teaching strategies employed by most teachers said that there is sometimes narrowness in the range of teaching methods characterized by over long expositions, over-directed style inhibiting curiosity, initiative and discussion mediated by and through the teacher, all of which reduce opportunities for developing thinking.

Fennena and Franke (2006) opined that the perception of teachers for effective teaching of any subject depends to a large extent on the teachers' understanding of the nature of the subject matter and that perception of proper teaching is a consequence of a teacher being able to pass-on the content of the subject matter. Ifiok (2005) also opined that a lack of required background and orientation relevant to curriculum, on the part of the teacher, leads to poor attitudes towards the implementation of a new curriculum, on matter how expertly the pages of the curriculum were designed and put together.

From the foregoing, Elton (2005) asserted that no teacher can perceive the process of education beyond the limits of his mental culture. It is imperative that a teacher has a broad and liberal education, sound knowledge of the subject, a sound methodology, knowledge of child psychology and be knowledgeable about social factors affecting a child that comes to school. He must continue to read widely and deeply to be able to keep up with new developments. Moreover, he must be academically competent in the subject or subjects he teaches (Achinine2001).

Teachers' effectiveness has been accepted as a multidimensional construct since it measures a variety of different aspects of teaching such as; subject mastery, effective communication, lesson preparation and presentation (Onyeachu1996). The influence of teachers' teaching effectiveness on the learning outcome of students as measured by students' academic performance has been the subject of several studies (Adediwura and Tayo 2007). The above studies suggest that effective teaching is a significant predictor of students' academic achievement. Therefore, effective teachers should produce students of higher academic performance. Poor academic performance of students in Nigeria has been linked to poor teachers' performance in terms of accomplishing the teaching task, negative attitude to work and poor teaching habits which have been attributed to poor motivation (Ofoegbu, 2004). It has also been observed that conditions that would make for effective teaching such as resources available to teachers, general conditions of

infrastructure as well as instructional materials in public secondary schools in Nigeria are poor (Oredein, 2000). Other factors that may contribute to teachers effectiveness include; relationship between the students and the teacher; teachers' teaching experience and qualifications. The prevailing conditions would definitely show a negative or positive influence on the instructional quality in public schools, which may translate to either good or poor academic performance, attitude and values of secondary school students.

Although teachers' strong effect would significantly influence students' academic achievement, other factors such as socio-economic background, family support, intellectual aptitude of student, personality of student, self-confidence, and precious instructional quality have been found to also influence students' examination score (Starr, 2002) either positively or negatively. To this end, a study carried out in Nigeria by Joshua and Kritsonis (2006) showed that Nigerian teachers condemn the use of student achievement scores as indicators of teachers' competence, performance or effectiveness. Since students' academic scores are not the only predictors of teachers' effectiveness, researches have sought other fairer ways of evaluating teachers' effectiveness. Students, administrators, colleagues and the teachers' self evaluation have been used to evaluate teachers' effectiveness. Students' competence in the evaluation of the effectiveness of their teachers has been of great concern to researchers in education. However, studies have shown that students' ratings are valuable indicators of teachers' effectiveness (Imhanlahini and Aguele 2006;). Despite the fact that there are researches reports in support of students' rating of their teachers' effectiveness, Nuhfer (2004) warned that students rating should be one of a comprehensive evaluation system and should not be the only measure of teachers' effectiveness.

It is therefore considered a worthwhile endeavour to examine the extent to which material utilization and teacher effectiveness have effect on student academic achievement in and attitude to geography.

Research Questions

1. What is the relationship between teacher effectiveness and utilization of materials and
 - a. students' academic achievement in Geography?
 - b. students' attitude in Geography?
2. What is the composite contribution of teacher effectiveness and utilization of materials to a. students' academic achievement in Geography?

- b. students' attitude in Geography?
 3. What is the relative contributions of teacher effectiveness and utilization of materials to
 a. students' academic achievement in Geography?
 b. students' attitude in Geography?
 4. Which of the independent variables of teacher effectiveness and utilization of materials will predict
 a. students' academic achievement in Geography?
 b. students' attitude in Geography?

Methodology

The design of this study is a descriptive survey research design of a correlational type. Questionnaire was administered to collect data which was analysed to give the findings. The population of this study comprises of geography teachers and students in the senior secondary schools in Ibadan. Random sampling technique was adopted for this study. 150 geography teachers and 300 geography students were used for the study. A self-designed questionnaire titled "Evaluation of geography room, material availability and utilization

and teacher effectiveness". The instrument contains three sections for teachers and three sections for students. The Section A for each contains the demographic information of teachers and students. The section B for teachers contains Teacher effectiveness scale which was validated and the reliability is found to be 0.71, while the section C contains materials availability and utilization. The section B for students contains student attitude towards geography which was validated and the reliability is 0.81, while section C contains geography achievement tests also validated and the reliability is 0.80. Cronbach's Alpha was used in determining the reliability of all these instruments except for the geography achievement test which Kuder Richardson was used in determining the reliability. Data collected were analysed using mean, Pearson correlation and multiple regression.

Research question 1A: What is the relationship between teacher effectiveness, utilization of materials and students' academic achievement?

Table 3: Correlation Matrix Showing the relationship between independent variables and students' academic achievement

Variables	Achievement	Teacher effectiveness	Utilization of materials
Achievement	1		
Students' readiness	-0.058 0.347		
Teacher effectiveness,	0.082 0.388	1	
Utilization of materials	-0.029 0.757	0.047 0.620	1
Mean	14.08	59.66	20.71
STD.D	4.972	6.155	13.170

Table 3 showed that there were negative, non-significant relationships between utilization of materials ($r = -0.029$; $p > 0.05$) and students' academic achievement. There was a positive, non-significant relationship between teacher effectiveness ($r = 0.082$; $p > 0.05$) and students' academic achievement. This implies that teacher effectiveness and utilization of materials were not related and students' academic achievement.

Research question 1B: What is the relationship between teacher effectiveness, utilization of materials and students' attitude?

Table 4: Correlation Matrix Showing the relationship between independent variables and students' attitude

Variables	Attitude	Teacher effectiveness	Utilization of materials
Achievement	1		
Students' readiness	0.545* 0.000		

Teacher effectiveness,	0.224* 0.017	1	
Utilization of materials	-0.053 0.576	0.047 0.620	1
Mean	83.78	59.66	20.71
STD.D	9.555	6.155	13.170

Table 4 showed that there was a positive, low significant relationship between utilization of materials ($r = 0.224$; $p < 0.05$) and students' attitude. There was a negative, non-significant relationship between teacher effectiveness ($r = -0.053$; $p > 0.05$) and students' attitude. This implies that teacher effectiveness was not related to students' attitude.

Research question 2A: What is the composite contribution of teacher effectiveness, utilization of materials to students' academic achievement?

Table 5: Summary of Multiple Regression Analysis on composite contribution of independent variables on students' academic achievement

Sources of Variance	Sum of Squares	Df	Mean Square	F	Significant
Regression	79.513	3	26.504	0.997	0.397
Residual	2898.345	109	26.590		
Total	2977.858	112			

R = 0.163
R Square = 0.027
Adjusted R Square = 0.000
Std. Error of the Estimate = 5.15658

Table 5 revealed that the composite contribution of teacher effectiveness, utilization of materials to students' academic achievement was not significant ($F_{(2,109)} = 0.997$; $p > 0.05$). This implies that teacher effectiveness and utilization of materials were taken together, they did not contribute significantly to students' academic achievement.

Research question 2B: What is the composite contribution of teacher effectiveness, utilization of materials to students' attitude?

Table 6: Summary of Multiple Regression Analysis on composite contribution of independent variables on students' attitude

Sources of Variance	Sum of Squares	Df	Mean Square	F	Significant
Regression	3608.002	3	1202.667	22.554	0.000*
Residual	5812.193	109	53.323		
Total	9420.195	112			

R = 0.619
R Square = 0.383
Adjusted R Square = 0.366
Std. Error of the Estimate = 7.30225

Table 5 revealed that the composite contribution of teacher effectiveness, utilization of materials to students' attitude was significant ($F_{(3,109)} = 22.554$; $p < 0.05$). This implies that teacher effectiveness and utilization of materials were taken together, they significantly contributed to students' attitude. Table 5 further revealed a multiple regression coefficient ($R = 0.619$) and multiple regression adjusted ($R^2 = 0.366$). This implies that 36.6% of the variation in students' attitude were accounted for by the joint effect of the independent variables while the remaining 63.4% may be due to other factors and residuals not in this model.

Research question 3A: What are the relative contributions of teacher effectiveness, utilization of materials to students' academic achievement?

Table 6: Summary of Multiple Regression showing relative contribution of independent variables on students' academic achievement

Model	Under standardized		Standardized	t	Sig.
	Coefficients		Coefficient		
	Beta	Std. Error	Beta (β)		
(Constant)	15.178	5.558		2.731	.007
Teacher effectiveness	.064	.079	.077	.809	.421
Utilization of materials	-.009	.037	-.023	-.247	.805

Table 6 revealed that the relative contributions of teacher effectiveness ($\beta = 0.077$; $t = 0.809$; $p > 0.05$) and utilization of material ($\beta = -0.023$; $t = -0.247$; $p > 0.05$) to students' academic achievement were not significant.

Research question 3B: What are the relative contributions of teacher effectiveness, utilization of materials to students' attitude?

Table 7: Summary of Multiple Regression showing relative contribution of independent variables on students' attitude

Model	Under standardized		Standardized	Rank	T	Sig.
	Coefficients		Coefficient			
	Beta	Std. Error	Beta (β)			
(Constant)	33.568	7.871			4.265	.000
Teacher effectiveness	.382	.112	.256	1st	3.397	.001*
Utilization of materials	-.072	.052	-.105	2nd	-1.394	.166

Table 7 revealed that the relative contributions of teacher effectiveness ($\beta = 0.256$; $t = 3.397$; $p < 0.05$) to students' attitude were significant. The relative contribution of utilization of materials ($\beta = -0.105$; $t = -1.394$; $p > 0.05$) to students' attitude was not significant.

Research question 4A: Which of the independent variables of teacher effectiveness, utilization of materials will predict students' academic achievement?

Table 6 showed the relative contributions of the independent variables to the prediction of students' academic achievement at different levels and ranks as expressed by the t-values. The results indicated that none of teacher effectiveness, utilization of materials predicted students' academic achievement.

Research question 4B: Which of the independent variables of teacher effectiveness, utilization of materials will predict students' attitude?

Table 7 showed the relative contributions of the independent variables to the prediction of students' attitude at different levels and ranks as expressed by the t-values, the prediction power is as shown: teacher effectiveness ($t = 3.397$; $p < 0.05$). Teacher effectiveness predicts students' attitude.

The prediction equation is given by $Y = 33.211 + 0.382X_1$ Where Y = Students' attitude
33.211 = Constant

X_1 = Teacher effectiveness

4.2. Discussion of Results

It was found in this study that teacher effectiveness and utilization of materials were not related to students' academic achievement. There is also a low significant relationship between utilization of materials and students' attitude but there is no significant relationship between teacher

effectiveness and students' attitude. This implies that utilization of materials relatively determines student attitude to geography. The low relationship between the utilization of materials and student attitude is discovered to be low due to the low effective utilization of the materials available.

Findings also revealed that the composite

contribution of teacher effectiveness and utilization of materials when taken together do not significantly contribute to students' academic achievement. This implies that these two independent variables; teacher effectiveness and utilization of materials taken together do not in any way contribute to students' academic achievement in geography but when the composite contribution of teacher effectiveness and utilization of materials are taken together, it significantly contribute to students' attitude. This implies that the joint contributions and effect of these variables determines the attitude of students to geography. The relative contributions of teacher effectiveness and utilization of materials to students' academic achievement were not significant. This implies that these two independent variables when compared relatively with students' academic achievement do not have effect on the academic achievement of students in geography. The relative contribution of teacher effectiveness to students' attitude was significant but relative contribution of utilization of materials was not significant to student attitude. This implies that the positive effectiveness of a geography teacher will determine the positive attitude of the students towards Geography.

Findings further revealed that none of the independent variables; teacher effectiveness and utilization of materials will predict students' academic achievement in geography but these independent variables will predict students' attitude to geography.

Conclusion

Based on the discussions and findings, it appears that teacher effectiveness does not predict student academic achievement in geography but will predict student attitude which implies that teachers should improve on their teaching effectiveness by attending seminars and also being creative in the use of their teaching methods.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Geography teachers should make an effective use of the materials available in teaching geography because an effective utilization of materials in teaching geography will bring about a positive attitude towards geography.
2. Geography teachers should update their knowledge on the new teaching method to improve their effectiveness by attending seminars and workshops relating to geography regularly. Also, Geography teachers should concentrate more on the

affective domain of their students to affect their attitude.

3. Students should improve on their readiness to learning geography by changing their attitude through getting of necessary materials needed in learning geography.

4. The school should make materials needed in teaching and learning geography available.

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