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Effective Teaching of Geography in Secondary Schools in Ondo State, Nigeria

T.O. Adeyemi
Department of Educational Foundations and Management,
University of Ado- Ekiti, P. M. B 5363, Ado- Ekiti, Nigeria

Abstract: This study examined the different methods of teaching geography in secondary schools in Ondo State, Nigeria. This is a descriptive research that tends to examine the situation as it is without any manipulation of variables. The population of the study comprised all the 257 secondary schools that presented candidates for the Senior Secondary Certificate (SSC) examination in Ondo, State, Nigeria. The sample consisted of 168 secondary schools drawn from the study population through the process of stratified random sampling. The instruments used to collect data were the inventory and a questionnaire. The analysis of data was carried out through the use of the t-test, correlation analysis and multiple regression. The findings showed that the performance level of students in geography was low. The number of teachers in post did not match the approved teacher quota per school. The expository method of teaching was found to be the best predictor of students' academic performance in geography. Based on the findings, it was recommended that more specialist teachers in geography should be recruited and posted to all secondary schools in the State. The State' Ministry of Education should intensify more efforts in monitoring schools to ensure that teachers use the appropriate teaching method that would enhance the effective teaching of geography in all schools in the State.

Key words: Effective teaching, geography, questionnaire, inventory

INTRODUCTION

The importance of geography in secondary schools curriculum cannot be overemphasized. As one of the required subjects in the curriculum of secondary schools in Nigeria (National Policy on Education, 1998), geography is being taught in the upper classes of secondary schools. It could be combined with Arts, Social Science or Science subjects in the senior secondary classes. The effective teaching of geography could be measured by examining the methods of teaching applied by teachers vis-à-vis the performance of students in school examinations (Adeyemi, 1998). It could also be measured by the level of a teacher's subject matter competence which Mullens (1993) regarded as a prime predictor of student's learning. However, when a teacher teaches at the limits of his knowledge, he can do nothing better than recite his notes to the pupils while the pupils would just be passive receivers. As a result, pupils are often denied the ability to achieve because their teacher does not have enough knowledge to help them to progress (Perry, 1992).

The teaching of geography is being done by secondary school teachers using different methodologies all of which require the use of instructional materials (Aremu, 2001). Among these methods are the lecture method, inquiry method, inductive method and the deductive method (Adewuya, 2001; Adeosun, 2002). Other methods include the discussion method, textbook method, problem solving method, project method, field trip method, question and answer method, dramatization method, laboratory method, experimentation and discovery approach as well as the expository method (Alebiosu, 2000; Seweje, 2000; Ajayi, 2004).

The successful utilization of these teaching methods depends upon the nature of the teaching force in geography. As one of the key inputs and the hub of the educational system (Ukeje, 1979), teachers constitute an important aspect in students' learning. Considering this point, Umeasiegbu (1991) argued that the level of performance in any school is intimately related to the quality of its teachers while the quality of any school system is a function of the aggregate quality of teachers who operate it. Towards this end, Gomwalk (1986) reported that inexperienced teachers who fumble as they teach tend to frustrate and discourage and scare students away. As such, effective teaching is likely to be absent if it cannot be situated within a philosophy of meaning, purpose and achievement (McClelland, 1995).

A critical look at the education industry would reveal that school output has not justified the inputs incurred (Adeyemi, 1998). To this end, Adeboyeje (2003) argued that there is the need to develop teaching techniques that would make teachers more efficient. He suggested the use of multi-media teaching techniques to assist teachers in delivering effective instruction. In terms of prediction, researchers have found that a solid background of students in their subjects of study could boost their performance in higher education (Ubokobong, 1993; Peers and Johnston, 1994; Al-Shorayye, 1995; Othuon and Kishor, 1994). Considering the views and findings of these researchers, this study would explore the techniques used in the teaching of geography in secondary schools in Ondo State, Nigeria in a bid to determine which appropriate method would enhance effective teaching of geography in secondary schools in the State.

Purpose of the study: The need for this study emanated from the fact that the performance of students in geography in Ondo State secondary schools in the Senior Secondary Certificate (SSC) examinations has been at a low level as many students fail the subject on yearly basis (Ondo State Ministry of Education, 2002). One of the reasons for the high failure rate in the subject might perhaps be the lack of effective teaching of the subject. Hence, this study was aimed at examining the teaching strategies used by geography teachers and determine the best strategy that could bring about effective teaching and better performance of students in schools.

Statement of the problem: A common observation within the school system shows that many secondary school students regard geography as being very wide in scope. The low performance level of students in the subject in SSC examinations lent credence to this point (Adeyemi, 2001). The contention of researchers (Seweje, 2000) is that the teaching strategies used in many schools might not have been appropriate enough to allow for effective teaching of the subject. The problem of this study, therefore, was to determine what best teaching strategies could be applied in fostering effective teaching of geography in the senior classes of secondary schools in Ondo State, Nigeria? In addressing this problem, the following research questions were raised:

- What is the performance level of students in geography in senior secondary classes in Ondo State, Nigeria?
- Does the number of geography teachers available in the schools match the approved teacher quota for the subject?
- Is there any difference in the performance of students in geography on the basis of teacher qualification and experience in secondary schools in Ondo State, Nigeria?
- Is there any relationship between the strategies used for the teaching of geography and students' academic performance in SSC examinations in the State?

MATERIALS AND METHODS

This is a descriptive research and it examined the strategies used in the teaching of geography in secondary schools in Ondo State. It did not involve the manipulation of variables (Cressey, 1982; Gay, 1996). In the study, the researcher collected existing data from schools and necessary information from respondents. The population of the study comprised all the 257 secondary schools that presented candidates for the year 2003 Senior Secondary Certificate examinations in Ondo State, Nigeria. Out of this, a sample of 168 schools (65.4% of the population) was selected through the stratified random sampling technique.

Instruments: Two types of instruments were used in the study. These were an inventory and a questionnaire. The inventory was used to collect data on the location of the schools, students' enrolment, number of classes, number of teachers in geography by qualification and years of teaching experience as well as students' grades in geography for the past 5 years (1999-2003). The questionnaire was used to sample the opinion of respondents on the teaching of geography in secondary schools. In order to determine the face and content validity of the instruments, they were given to experts in Tests and Measurement to examine whether the items actually measured what they were supposed to measure. Their comments were used to effect corrections on the items of the instrument before administering them to the subjects.

Data analysis: The data collected were analyzed with the use of percentages, correlation coefficient, t- test and multiple regression.

- What is the performance level of students in geography in senior secondary classes in Ondo State, Nigeria?

Table 1: Students performance level in geography in SSC examinations in sampled schools

	SS1			SS2			SS3		
Years	No examined	Grades 1-6	(%)	No examined	Grades 1-6	(%)	No examined	Grades 1-6	(%)
1999	16,366	3785	23.1	15, 458	3710	24.0	15, 067	3524	23.4
2000	16, 910	4380	25. 9	15, 921	4134	25.9	15, 160	3761	24.8
2001	17, 576	4234	24.1	16, 340	4185	25. 6	15, 534	3824	24.6
2002	18,606	5043	27.1	17, 265	4652	26.9	16, 158	4236	26.2
2003	18, 643	5220	27.9	18, 312	5164	28.2	17, 051	4625	27.1

Table 2: Teacher quota in geography and number of teachers in post in Ondo State

Enrolment of geography students	Teacher quota at 35 students per teacher perschool	Number of schools	Average number of teachers in post perschool
Below70	2	82	2
71-140	3-4	37	3
141-210	5-6	20	4
211-240	7-8	17	6
Above 240	Above 8	12	5
	Total	168	

Table 3: Credit performance in geography on the basis of teachers' qualifications

Schools having one or more teachers with qualifications	N	Mean	SD	Variances	t- cal.	df	t-table
Relevant	98	0.78	0.76	Equal	5.42	166	1.96
Not relevant	70	0.36	0.35				

$p<0.05$

Table 4: Credit performance in geography on the basis of teachers' teaching experience

Schools having teachers with years of teaching experience	N	Mean	SD	Variances	t-value	df	t-table
≥5 Years					85	0.80	0.79
	Equal	6.31	166	1.96			
<5 Years					83	0.37	0.36

$p<0.05$

Table 5: Correlation matrix in respect of each pair of variables

Variables scores SSC 2003	Credit method	Lecture method	Inquiry method	Inductive method	Deductive method	Discussion	Textbook method	Field trip method	Expository method
Credit scores SSC 2003	1.00								
Lecture method	0.16	1.00							
Inquiry method	0.35	0.14	1.00						
Inductive method	0.28	0.19	0.28	1.00					
Deductive method	0.29	0.12	0.31	0.34	1.00				
Discussion method	0.39	0.10	0.23	0.32	0.31	1.00			
Textbook method	0.19	0.09	0.35	0.19	0.19	0.17	1.00		
Field trip method	0.23	0.18	0.32	0.23	0.22	0.24	0.14	1.00	
Expository method	0.52	0.11	0.41	0.37	0.41	0.31	0.12	0.31	1.00

$p<0.05$

Table 6: Multiple regression analysis of predictor variables with the criterion variable credit performance in SSC 2003 geography examination

Predictor variables	B	SE B	Beta	T	Signif. t
Expository method	0.4211	5.5124	0.36237	1. 6321	0.0000
Discussion method	0.3714	0.001	0.3145	1.147	0.0000
Inquiry method	0.3406	0.0101	0.2734	-2.468	0.0100
Deductive method	0.3132	0.0012	0.2198	0.12.745	0.0200
Inductive method	0.2918	0.0015	0.1786	1.756	0.0000
Field trip method	0.2315	5.243	-0.1749	-0.3679	0.0020
Textbook method	0.1821	0.01042	-0.1683	1.748	0.0030
Lecture method	0.1624	8.1627	0.3527	0.9576	0.0004
(Constant)	3.217	0.0216		101.346	0.0000

In answering this question, the grades obtained by geography s tudents in SSI to SS3 examinations were collected and analyzed with the use of percentages. The findings are shown in Table 1. As indicated in Table 1, the

examinations was very low as there was no year when the students' performance level in geography in the SSC performance level was up to 30%. The trend in performance was almost uniform for all the 5 years under review.

- Does the number of geography teachers available in the schools match the approved teacher quota for the subject?

In response to this question, schools were grouped into two, on the basis of the number of geography teachers available. The first group comprised schools having teachers with relevant teaching qualifications such as a degree in geography while the second group consisted of schools having teachers with no relevant teaching qualifications in geography.

Since the approved teacher quota in the State is 35 teachers per class in each subject (Ministry of Education, 1992; Adeyemi, 2001), the 35 teachers per class quota was used to determine the number of geography teachers expected in each school considering the number of students offering geography in the schools. Table 2 shows the distribution of the schools with their teacher quota and number of geography teachers in post.

As shown in Table 2, the bulk of the schools (82 in number) had 2 geography teachers. However, seventeen schools that should have 7-8 geography were found to have only 6 of such teachers while twelve schools that should have above 8 geography teachers were found to have only 5.

- Is there any significant difference in the performance of students in geography on the basis of teacher qualification and experience in secondary schools in Ondo State, Nigeria?

In analyzing the research question, the following null hypotheses were examined:

Ho: There is no significant difference between students' performance in SSC Geography examinations in schools having one or more specialist teachers of geography and schools having one or more non-specialist teachers of the subject in Ondo State, Nigeria.

In testing this null hypothesis, the performance of the students in the SSC examinations was derived by computing the frequency counts of the number of students who obtained grades 1-6 in each subject in the examinations were transformed from discrete data into continuous data through secondary analysis. The weighted average performance is computed using the expression:

$$P = \frac{n_1A_1 + n_2A_2 + n_3A_3 + n_4C_4 + n_5C_5 + n_6C_6}{N}$$

Where, P = Performance
$n_1, n_2 \ldots\ldots n_6$ = Number of times each grade occurs.
$A_1, A_2, \ldots\ldots C_6$ = Numeric weights of each grade.

Data on the 2003 SSC results in geography were used. Schools were classified into 2 groups. The first group comprised schools having one or more teachers with relevant qualifications in geography. The second group consisted of schools having one or more non-specialist teachers teaching the subject. The t-test was employed and the findings are as indicated in Table 3.

The t-test in Table 3 shows the equality of variances. The calculated t-value (5.42) was greater than the Table t-value (1.96). Hence, the null-hypothesis was rejected. This shows that there were significant differences in students' performance in geography on the basis of teachers' qualification. The mean scores were higher in schools having one or more qualified teachers teaching geography than in schools having less of qualified teachers.

Ho: There is no significant difference between students' performance in SSC examinations in schools having more teachers with 5 years and above teaching experience in geography and schools having more teachers with less than 5 years teaching experience in the subject.

This hypothesis was also tested with the use of the t-test. Schools were classified into two groups. The first group comprised schools having more geography teachers with 5 years and above teaching experience while the second group consisted of schools having more geography teachers with less than 5 years teaching experience. The findings are shown in Table 4.

The t-test in Table 4 shows equal variances while The calculated t-value (6.31) was greater than the Table t-value (1.96). Hence, the null-hypothesis was rejected. This shows a significant difference between the students' performance in schools having more teachers with 5 years and above teaching experience in geography and schools having more teachers with less than 5 years teaching experience in the subject.

- Is there any relationship between the strategies used for the teaching of geography and students' academic performance in SSC examinations in Ondo State, Nigeria?

In addressing this research question, the following hypothesis was examined:

Ho: There is no significant relationship between the strategies used by geography teachers and Students' academic performance in SSC examinations in Ondo State, Nigeria.

In testing this hypothesis, data on the rating of the following teaching methods, the lecture, inquiry, inductive, deductive and the expository methods and the grades obtained by geography students in the SSC examinations were collected and analyzed with the use of correlation analysis. In the analysis, a correlation matrix was obtained as shown in Table 5.

In Table 5, the correlation matrix shows the correlation coefficients 'r' between each pair of variables and their respective probability 'p' values. The larger the value of 'r', the stronger the association between the two variables. Thus, the pairs of variables with large correlation coefficients had strong association with each other.

Ho: The lecture, inquiry, inductive, deductive, discussion, textbook, field trip and the expository methods of teaching are not good predictors of academic performance in the Senior Secondary Certificate (SSC) examinations in secondary schools in Ondo State, Nigeria.

In testing the null hypothesis, multiple regression analysis was performed to determine the inter-correlation among the variables put together. The criterion variable was the credit performance in 2003 SSC examinations while the predictor variables were the data collected on the lecture, inquiry, inductive, deductive, discussion, textbook, field trip and the expository methods of teaching. All the variables were entered into the regression model. The findings are shown in Table 6.

Thus, the regression equation derivable from the Table 6 is:

Y = 3.217 + 0.4211 (expository) + 0.3714 (discussion) + 0.3406 (inquiry) + 0.3132 (deductive) + 0.2918 (Inductive) + 0.2315 (Field Trip) + 0.1821 (Textbook) + 0.1624 (lecture)

Multiple R	= 0.76678
R Square	= 0.61536
Adjusted R	= Square 0.61128
Standard Error	= 0.08316

Analysis of variance

	DF	Sum of squares	Mean square
Regression	7	6.7406	1.3472
Residual	161	4.1732	0.00524
		F =3.54	Signif. F =0.000

As indicated in Table 6, all the variables entered the regression equation. The probability was less than 0.05 for all the variables indicating that there was a significant relationship between all the predictor variables and the criterion variable. The best predictor of performance was the expository method of teaching. It contributed 42% to the criterion variable. This was followed by the discussion method which contributed 37%. The contribution of other predictor variables to the regression equation were as follows: Inquiry method 34%, deductive method 31%, inductive method 29% field trip method 23%, textbook method 18 and lecture method 16%.

DISCUSSION

In the foregoing, the relationship between teachers' teaching strategies and students' academic performance in geography in the SSC examinations in Ondo State, Nigeria was examined. The findings were consistent with those of Razouki (1987) in Iraq and Kwari (1989) in Sokoto State, Nigeria which indicated that teaching experience was significantly related to students' achievement. The findings were also at variance with Dewalt's (1986) findings which showed no significant difference between teachers with teaching experience and teachers without teaching experience on teacher competencies in teaching methodology.

The findings were consistent with those of Jones (1997) who claimed that students tend to achieve better results when taught by teachers with more years of teaching experience. The findings indicating significant relationship pf the predictor variables with the criterion variable agreed with those of previous researchers (Ubokobong, 1993; Othuon and Kishor, 1994; Kolawole and Arikpo, 2001; Asaolu, 2003). The findings also agreed with Kadiri's (1999), Ijaiya's (2000), Omirin's (2002) and Oderinde's (2003) findings, that many students perform poorly in WAEC examinations in topics where teachers found difficult to teach as a result of poor teaching methodology and the lack of subject matter competence.

CONCLUSION

The first conclusion in this study is that the performance level of students in Ondo state secondary schools has been below expectation. The level of performance in the subject has been low for quite some time. Certain teaching methods have also been found to be significantly related to better performance of students in geography in secondary schools in the State. These include the expository method, discussion method and

the inquiry method. It is therefore concluded that these factors are critical factores in students' academic performance in geography.

RECOMMENDATIONS

In view of the findings of this study, it is recommended that the State Government should recruit more specialist teachers in geography and post them to all schools in the State. The State's Ministry of Education should also intensify more efforts in the inspection and monitoring of schools to ensure that teachers use the appropriate teaching method that would enhance the effective teaching of geography in all the secondary schools in the State.

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