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Influence of Students Attitude on Academic Achievement in Geography Map Reading Among Senior Secondary School III Students In Oyo Metropolis, Oyo State, Nigeria.

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Abstract

This study investigated the influence of students' attitude on the academic achievements of students in map reading in Oyo town, Nigeria. A non-experimental design was adopted. Intact classes of senior secondary school (iii) students from twenty purposively selected secondary schools were used. Geography attitudinal scale (GAS) was used for data collection with Cronbach alpha reliability coefficient of 0.83. Thereafter, map reading achievement test was administered to the students. Data was analyzed using multiple regression analysis. The results indicated that there was significant relationship between attitude of the students and their achievement in map reading. The result however indicated that there was no significant difference between the attitude of male and female students who attempted the attitudinal scale. It was recommended that, teachers should seek ways to improve students' attitude towards the learning of map reading and interpretation.

Keywords: Influence, Students, Attitude, Academic Achievement, Geography, Map Reading, Senior Secondary School, Metropolis.

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INTRODUCTION

Map is a representation of the earth's surface on a two dimensional surface. Different types of maps useful in teaching and learning of geography include topographical map, atlas map, plan map, sketch map among others. The ability of students to recognize conventional signs on a map and interpret what those signs represent is regarded as map reading. Map reading as a topic in the Nigerian secondary school Geography curriculum is portrayed as diverse and dynamic in nature. Map reading is seen as an aspect of geography that develops a learner's critical thinking ability

and helps students to understand spatial relationship among various features of the earth surface. One important aspect of physical geography which is compulsory for all secondary school geography students is map reading. Topographical maps are large scale sheet maps produced by the survey department of each country. Small features like mountains and valleys, plain and plateau can be shown by means of contour lines. Rivers and coastlines are also shown. Man-made features like villages, town, railway, bridges are also shown.

Amosun (2002) identified four types of map as: sketch maps, distributional maps, atlas maps and cadastral maps. It is believed that all kinds of maps that are available can be categorized under any of these. Moreover, all these types of maps are being used at secondary schools in Nigeria. In the classroom, teachers draw sketch maps of Nigeria, Africa and others with free hands to illustrate phenomena like vegetation, population density, transportation networks, and the like. Students also are expected to know how to draw all these maps in their notes. Teachers also draw distributional maps. These are also called statistical maps. The atlas maps are supposed to be used constantly by teachers in the classroom. In fact students are expected to come to every class with their atlas map. This helps students to be familiar with their environment as both physical and human features are well captured by the map. The cadastral map has to do with all forms of topographical maps of reliefs, settlements, land use, water bodies, and the like, with detail information about the particular areas they represent, and this forms the area of map reading and interpretation in Nigeria secondary schools, and even elsewhere. However, more importantly is the topographical map which is the core area of map reading and interpretation. These are big and wide sheet maps that are of small or large scales shown on topographical maps.

Map reading and interpretation which is an aspect of senior secondary school geography has a wide field of applications such as surveying, transportation, architecture etc. However Nigerian secondary school students have been observed and reported in various studies to have difficulty in learning this aspect of physical Geography. A lot of students perform poorly in it as they are always scared of this aspect of Geography. Majority of the topics students recognized as posing problems to them were under map reading and interpretation. The students indicated that measurement of map area, drawing of cross section and annotated relief profile, conversion of map scales, enlargement and reduction of map surfaces among others were very difficult. Geography teachers also indicated that similar topics were difficult to teach and that a lot of students perform poorly in it. Most of the students that were asked to write the difficult topics in geography indicated that the size of topographical maps was big and they hardly understand how to work with it. Others also mentioned that that the calculation aspect of map reading was difficult for them to attempt. Majority mentioned that the tiny contour lines were problematic for them to trace. It is however glaring from the foregoing that student faces a lot of problem in map reading and interpretation.

Mansaray, Ajiboye and Audu (1998) observed that 50% of the topics indicated as problematic by geography students fall in the area of map reading and physical geography. The students indicated that measurement of gradient, drawing of cross profile and indivisibility, latitude, longitude and time, among others were very difficult. In the same study, their geography teachers also indicated that the same topics were very difficult to teach and difficult for students to understand. Moreover Amosun, (2016) reiterated similar problems being faced by students in West African School Certificate Examination (WASCE). The Chief examiners comments on map reading and interpretation in Geography showed that a whooping majority of the students were unable to reduce and draw the map outline to scale correctly; calculate actual distances on the map by the given scale; use contour lines appropriately to identify features on the map; identify the drainage pattern on the map; measure and insert features inside a reduced map

(WAEC Chief Examiners' Report, 1995a, 1996b, 1997a). It is however evident from the literature that the difficulties Nigerian students encounter in map reading and interpretation are being experienced elsewhere also.

Falaye (2013) investigated the influence of student gender, course of study and numerical ability on students' achievement in practical geography (map reading). The findings revealed that students' achievement in practical geography was differentiated by their course of study and numerical ability. It is however evident that students encounter difficulty in map reading questions involving calculation. This trend continued as Okwilagwe (2012) succinctly recorded various comments from the Chief examiners' report of West African Examinations Council as follows:

- Most candidates could not identify simple features on the topographical map.
- Poor performance in questions involving calculations' (WAEC, May/June, 2005).

Similarly, students in some other countries like Britain and Poland, faces similar difficulties in map reading and interpretation. Scholars have different views to the difficulties students encounter in map reading and interpretation. Some researchers traced students' difficulties to intricacies involved in map reading which requires abstract thinking and mathematical skills. Anikwe (2016) argued that these difficulties may not be unconnected with the inability of teachers to properly handle map reading. Amosun (2016) submitted that this aspect of map reading that requires mathematical calculations have been found difficult by the students. Mwenesongole (2009) revealed that most learners do not perform well in map work because they lack motivation in doing map work, and that they lack basic skills to map reading, and finally, they lack basic mathematical skills. The study also revealed the need for re-skilling and retraining for all educators involved in the teaching of map work in areas of basic skills to map reading and interpretation, basic mathematical skills and the importance of motivation.

Registration of Geography and student interests in the subject are not too encouraging except when students are forced by circumstances to choose the subject because of the fear of map reading aspect in the syllabus. This also affects examination results in schools at the senior school certificate level. The performance appears worse in gender comparism. For instance, the number of girls appears to be on the low side. Scholars have worked consistently on the problems associated with the teaching and learning of map reading, the most difficult aspect of Geography. Some scholars specifically dwelt on the "Pull" and "Push" factors in the study of Geography among students. Below is the chief examiners report between 2015 to 2017.

In Geography 3, candidates were reported to perform poorly due to difficulty in sketching of maps and drawing of diagrams. The inability of candidates to draw cross profile of the area specified inability to establish the relationship between relief and transportation network on topographical maps among others were the problem identified by the chief examiner. Challenges related to the understanding of scales and the use of map scales and interpretation of drainage characteristics also posed a challenge, and a good number of the candidates did not follow the rubrics related to choice of questions. Students also faced challenges related to the use of geographic expressions (WAEC, 2017). In the preceding year, the comment was not different as some of the candidates did not fully cover the syllabus as evidenced by their poor performance or even avoidance of some questions like question (8) which was deflation and abrasion. Some of the candidates also performed poorly in the description of the drainage of the topographical map in their possession (WAEC, 2016)

Some of the problem identified was poor plotting of graphs, **s**ome of the candidates could also not properly represent data on graph. They have not mastered the art of divided bar graph,

incomplete coverage of the syllabus. Most of the candidates did not answer the question on coastal erosion and divided bar graph which is an indication that they did not cover that aspect of the syllabus (WAEC, 2015).

Attitude can be described as settled behaviour or manner of acting, as representation of feeling or opinion. It refers to certain predisposition to act or reaction in a positive or negative way towards certain situations and ideas. Attitudes in the learning process can either be positive or negative, enthusiastic feeling and tendencies with respect to social objects. Zacharias (2003) described human attitude as a mental concept that depicts favourable or unfavourable feelings toward an object. While students with positive attitude towards a school subject have greater achievements and participate well in the class discussion, their counterparts with negative attitude achieved lesser and do not participate during class sessions. Zacharia (2003), Tunçok (2010), and Tella and Bashorun (2012) investigated students' attitudes towards school subjects when computer is used as medium of instruction; their findings revealed that computer assisted instructions resulted to students' positive attitude towards the subjects and content taught. The findings of these researchers are pointer that Geography students with negative attitude towards the subject may have had poor Geography scores due to their negative predisposition towards the subject.

AIM AND OBJECTIVES OF THE STUDY

The aim of this study was to determine whether attitude would improve secondary school geography students achievement in map reading. Specifically, the study sought to:

- Determine students attitude towards the study geography Geography map reading
- Determine the extent to which student attitude influences their achievement in map reading and interpretation.

RESEARCH QUESTIONS

The following research questions were raised for the study:

- What is the attitude of students towards the studies of map reading?
- To what extent did the attitude of students predicts their achievement in map reading?

METHODOLOGY

The study adopted a non-experimental research design of the correlational type. This was because the researcher has no direct control over the independent variables because their manifestation has already occurred earlier in the population. Purposive sampling procedure was used to select the sample. In the first stage, purposive sampling technique was used to select the schools in the metropolitan area; this is because of the researcher's observation and personal encounter about high rate of students' achievement in map reading and interpretation. Twenty (20) schools were purposively selected because they have sufficiently taught map reading and interpretation. Intact classes of geography students participated in the study this is because Geography is not a general subject in secondary schools.

The population of the study was made up of two hundred and fifty (250) geography students in all the senior secondary schools that participated in the study. The target population was 250 class three (SSIII) geography students in the study area. The choice of SSIII students

was based on the fact that the concept of map reading which is an important aspect of geography falls under the syllabus and scheme of work of the class, beyond this reason, these students are preparing for external exams and so it is inevitable for them to write map reading and interpretation. The sample of this study was made up of 250 students from twenty senior secondary schools in Oyo Metropolis.

RESULTS

Research Question One

What is the attitude of students towards the studies of map reading?

Table 1: Responses, Mean and Standard Deviation of Attitude of students towards the studies of map reading

S/N	Statement	Very true of me	True of me	Not true of me	Not very true of me	Mean	Std.Dev
1.	I like geography more than other subject.	97 (38.8%)	107 (42.8%)	37 (14.8%)	9 (3.6%)	3.17	0.809
2.	Geography lessons are very difficult for me	22 (8.8%)	50 (20.0%)	123 (49.2%)	55 (22.0%)	2.16	0.866
3.	I would like to have geography lessons more often.	108 (43.2%)	103 (41.2%)	23 (9.2%)	16 (6.4%)	3.21	0.859
4.	I pay more attention to understand geographical learning.	124 (49.6%)	96 (38.4%)	20 (8.0%)	10 (4.0%)	3.34	0.791
5.	I think geography is one of the easiest subject.	81 (32.4%)	89 (35.6%)	66 (26.4%)	14 (5.6%)	2.95	0.901
6.	Geography and nature are strange to me.	54 (21.6%)	66 (26.4%)	89 (35.6%)	41 (16.4%)	2.53	1.006
7.	I always use geographical knowledge to solving problem which is connected with the environment.	123 (49.2%)	100 (40.0%)	18 (7.2%)	9 (3.6%)	3.35	0.768
8.	I always look at nature has been a fundamental part of human life	99 (39.6%)	105 (42.0%)	35 (14.0%)	11 (4.4%)	3.17	0.829
9.	If I finished my study I would like to work in the field of geography.	49 (19.6%)	67 (26.8%)	73 (29.2%)	61 (24.4%)	2.42	1.062
10.	I consider the natural processes found in the environment as very interesting.	121 (48.4%)	104 (41.6%)	12 (4.8%)	13 (5.2%)	3.33	0.795
11.	I think that geography as a subject is able to explain the impact of humans on the nature.	121 (48.4%)	98 (39.2%)	25 (10.0%)	6 (2.4%)	3.34	0.755
12.	I think geographical knowledge is important for the understanding of other subjects.	109 (43.6%)	106 (42.4%)	27 (10.8%)	8 (3.2%)	3.26	0.778
13.	I use geographical knowledge in everyday life	113 (45.2%)	90 (36.0%)	33 (13.2%)	14 (5.6%)	3.21	0.876
14.	I will need geographical knowledge in my future job.	97 (38.8%)	83 (33.2%)	54 (21.6%)	16 (6.4%)	3.04	0.928
15.	I always think geography is not as important as other subjects.	55 (22.0%)	57 (22.8%)	81 (32.4%)	57 (22.8%)	2.44	1.071
16.	I think geography as a subject enables us to understand the behaviour of people from other part of the world.	134 (53.6%)	85 (34.0%)	23 (9.2%)	8 (3.2%)	3.38	0.784
17.	I always think geography lessons develops my knowledge and skills about the environment	133 (53.2%)	70 (28.0%)	38 (15.2%)	9 (3.6%)	3.31	0.858
18.	I am bored within geography lessons	53 (21.2%)	71 (28.4%)	82 (32.8%)	44 (17.6%)	2.53	1.014

19.	I feel teacher's explanation in geography lesson is interesting to me.	129 (51.6%)	81 (32.4%)	30 (12.0%)	10 (4.0%)	3.32	0.836
20.	I think geography would be interesting to me only if we are taught by professional teachers.	92 (36.8%)	65 (26.0%)	62 (24.8%)	31 (12.4%)	2.87	1.049
21.	I work with maps, atlases and globes used in geography lessons.	98 (39.2%)	95 (38.0%)	42 (16.8%)	15 (6.0%)	3.10	0.890
22.	I do not pay attention during geography lessons.	48 (19.2%)	56 (22.4%)	79 (31.6%)	67 (26.8%)	2.34	1.072
					Aggregate mean = 2.99		

Decision mean = 2.50

Table 1 shows the Attitude of students towards the study of map reading. The table revealed that the aggregate mean score is 2.99, which is greater than the decision mean of 2.50. This implies that students had positive attitude towards the study of map reading in Geography.

Research Question Two

To what extent did the attitude of students predicts their achievement in map reading?

To answer this question, responses from students studying map reading from the attitudinal scale were subjected to regression analysis, the result is thus presented in Table 2.

Table 2: Summary of Regression of Attitude of students towards the studies of map reading on their Achievement in map reading and interpretation\

R	0.175				
R Square	0.031				
Adjusted R Square	0.027				
	Sum of Squares	df	Mean Square	F	Sig.
Regression	270.680	1	270.680	7.835	0.000
Residual	8567.964	248	34.548		
Total	8838.644	249			

Table 2 shows the Summary of Regression of the prediction level of Attitude of students towards the studies of map reading on their Achievement. The table shows that 3.1% (R square) of the total variance observed in students' achievement in map reading can be accounted for by students' attitude towards the study of map reading. This implies that the attitude of students towards the study of map reading has 3.1% prediction power. The table also showed that the level of prediction is statistical significant ($F_{(1,248)} = 7.835$, $p<0.05$). The implication of this is that, there are other salient factors that contributed to the achievement of students in map reading apart from their attitude towards the study of map reading.

DISCUSSION

The finding of this study on attitude of geography students towards map reading revealed that the attitude of students towards the study of map reading has a relationship on their achievement on map reading and interpretation. Therefore, negative attitude tends to contribute to lower

achievement of students in map reading and interpretation and vice-versa. However from the table, it is clear that the prediction level of attitude is statistically significant ($F_{(1,248)} = 7.835$, $p<0.05$). The implication of this is that, there are other salient factors that contribute to the achievement of students in map reading apart from their attitude towards the study of map reading. This finding is in agreement with the earlier findings of Tunçok (2010); Zacharia (2003); Tella and Bashorun (2012) who in different studies found that students have positive attitude towards computer assisted learning. The improvement observed in the attitude of geography students towards map reading after being exposed to Computer Simulation Instructional Package could be as a result of the fact that children and youth general have positive interest towards working and performing series of activities on computer. It is also in agreement with the findings of Mohd, Ahmed, Sayutu and Asyraf (20013). The research shows that the attitude of students affects their achievement in learning Malaysian studies. The study also shows that student's attitude also affects the classroom learning styles.

CONCLUSIONS

Based on the findings that emanated from the study, it can be deduced that student attitude is an important factor that contributes to students' achievement in geography map reading. Positive attitude to geography map reading could lead to improvement in students' achievement. The current study has highlighted the significant association between students' achievements and their attitudes towards academic subject.

RECOMMENDATION

This study therefore recommends that students should be exposed to an interesting environment in class. Comfortable learning environment will create a good attitude and reduce the bad attitudes. Hence, the teachers need to identify the real attitude of students and thus be able to find a way to help and attract students to this subject area.

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