

## Evaluation of the Factors Influencing Students' Performance in Map Reading in Some Selected Public Senior Secondary Schools, Tarauni, Kano State

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### Abstract

*The study investigates the factors that influence Geography students' performance in Map Reading in some selected public senior secondary schools, in Tarauni Local Government Area of Kano. The study was achieved through establishing teachers teaching experience and teaching methodology influences their performance in Map Reading. Twelve (12) teachers of geography who are handling SSS 1-2 and 198 SS II Geography students from six public Senior Secondary Schools in Tarauni formed the sample of this study. Descriptive survey design and purposive sampling technique was employed in obtaining information needed since the researcher is studying events and circumstances that is people's thoughts, feelings and opinions about the nature of existing conditions. The data obtained from the study were analyzed using descriptive statistics on the other hand inferential statistic ANOVA and T-test was used to test the hypothesis of the study. The findings of the study revealed that teaching/learning resources were inadequate in most secondary schools in Tarauni. The study further revealed that text books, cartographic equipments, geography laboratories were inadequate and by large extent some were not applicable in most schools, performance is a function of how factors such as student's characteristics, teacher's characteristics and Teaching/Learning resources interact in the school environment influences students performance in map reading, If the interaction is healthy, the performance should be good. Observed t-value of 28.6 and p-value of 0.01 revealed a significant difference exists between the performances of male and female students exposed with different skills in favour of male students. In conclusion, students' performance in map reading can be improved. Improving performance therefore depends on changing some of these influences pedagogically. The study further recommend that more female teachers to take up a map reading teaching combination because this influences the students decisions especially the female students who want to take up geography as a subject but they have no inspiration from the teachers hence this could affect students' performance and attitude toward map reading, and teaching methodology should be well diversified to cater for the needs of the students.*

### Article History

Received: September 2022

Review processes

September – October 2022

Received in revised form:

November 2022

Accepted: November 2022

Published online:

December 2022

### KEYWORDS

- Performance
- Geography student
- Map reading
- Evaluation
- Public School

### Introduction

Education has been universally recognized as the key to sustainable development and the enhancement of human welfare (Egunyomi, 2016). Secondary education is crucial to development because it provides learners with a bridge to highest education as it prepares them for employment and enables

them to continue learning through their lifetime According to (World Bank, 2017). The teacher's ability to deliver the content depends not only on his qualification but also the in-service courses which keep him up to date with the new development. Douglas, (2014); Nkosana (2018) further points out that if teachers feel that a subject is not important to the extent that they do not emphasize teaching it, students may not be

blamed for the same attitude. A study by Glen (2013); Fellman *et al.*, (2015) indicated that the “tips “that were provided by the teachers were often regarded by pupils as the most important things to learn on an examination course. For example, Geography, it is one of the few disciplines that encompass very different ways of knowing from the natural and social sciences and the humanities and which can only be understood better with the aid of maps (Oluoch, 2018).

Cartographers (map makers) are therefore uniquely equipped to understand and address critical problems facing the world. Map Reading is fundamentally interdisciplinary area in Geography. Map Readers are motivated by issues such as social and environmental justice and the efficient, equitable and sustainable use of resources. Maps are the most valuable equipment which student of Geography possesses. Map reading can be defined as “the recognition and identification of map symbols and the comprehension of the geographic features that they represent” (Innes 2018). According to Eshiwani (2017), no school bothered with the extra subjects as they selected the subjects to be offered at WAEC depending on the resources available in the school including teachers. According to Brunner (2012), all learning is based on curiosity or intrinsic motivation.

Research reports and available literature over the years (West African Examination Council, WAEC, 2018) revealed that poor performance among Senior Secondary School Certificate Examination (SSCE) in Geography still persist in the study area. According to the released result for

2020 National Examination Council recorded failure in Senior Secondary School Certificate Examination (SSCE) in Geography, as only 10 percent of the candidates that sat for the examination scored credit and above. Despite the rationale for teaching geography to attaining the overall education goals in secondary school syllabus, Nigeria still has dismal performance in Geography examinations. This is true in the study area as its performance in WAEC/NECO has been comparatively declining in relation with other humanities. This study attempts to identify the factors that influence Geography Students’ Performance in Map Reading in some selected public secondary schools in Tarauni Local Government Area.

### **Conceptual Framework**

The study developed a framework in which the performance of Public Senior Secondary School students in Map Reading can be improved. Improving performance, therefore depends on changing some of these influences pedagogically, the challenge is to:

- a) Get the learner to believe in his or her personal capabilities to successfully perform a designated task.
- b) Provide environmental conditions such as instructional strategies and appropriate technology that improve the strategies and self-efficacy of the learner.
- c) Provide opportunities for the learners to experience successful learning as a result of appropriate action

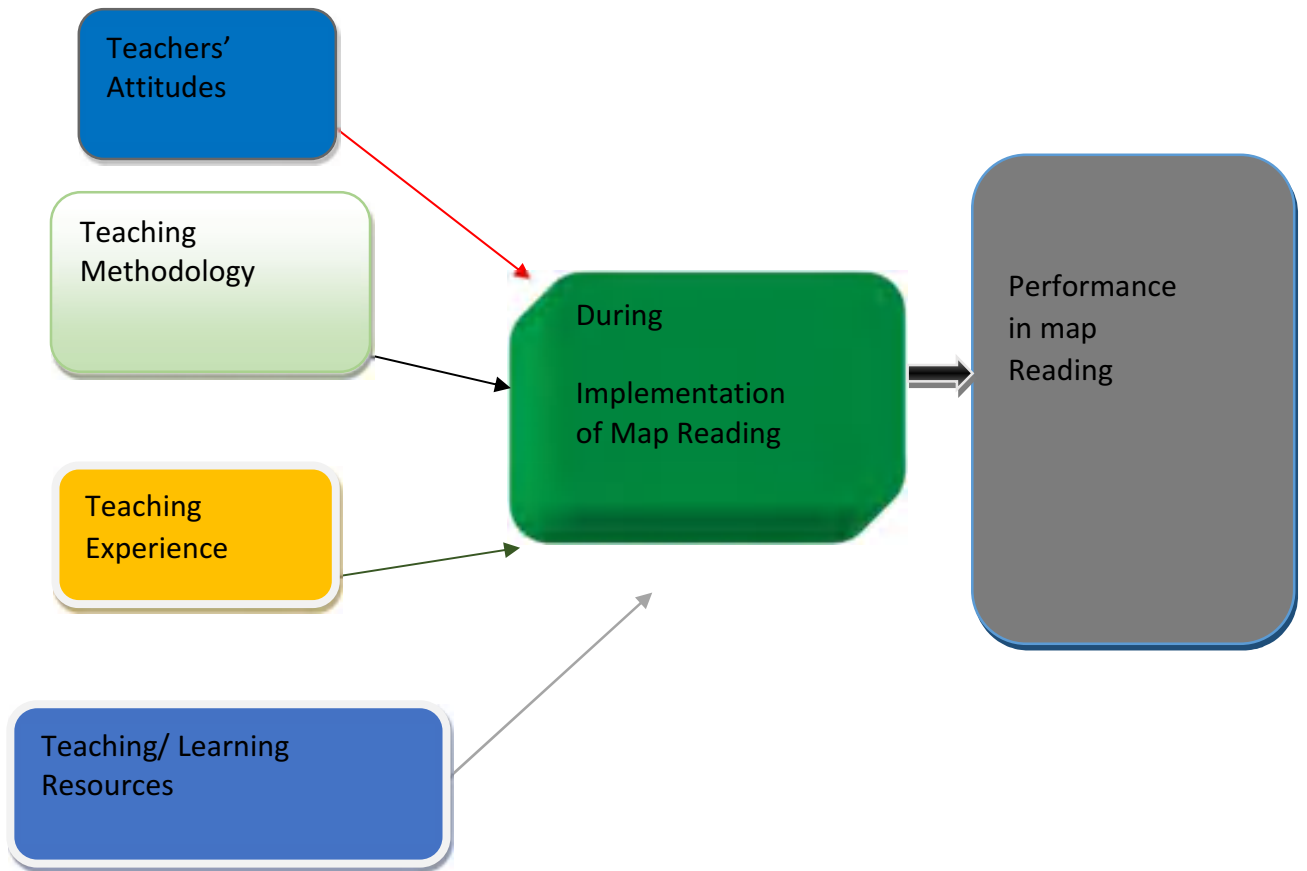


Figure 1: Conceptual Framework

### Methodology for the Study

The study focused on the evaluating factors influencing students' performance in Map Reading in some selected public Senior Secondary schools in Tarauni Local Government Area of Kano. This study basically adopted a descriptive survey research design since the researcher is studying events and circumstances, which had already occurred, and as they exist in schools.

### Population of the Study

The study covered all SS II Geography students in public Senior Secondary School offering Geography in

Tarauni Local Government Area. But for the purpose of sampling, the study purposively sampled 6 public secondary schools in the area, with a population of 240 students at of which four were boys' school and two girls' schools which make the sample for the study, the selected schools were base of the history and the instructors they have in handling map reading in the study area. And the attribute of the population is that majority of the students in the study area are Hausa by tribe, the population cut across gender with average age of 16-17 years. In this study, two teachers were purposively selected from each school based on years

of service and educational qualifications. Considering the main purpose of this study, the most appropriate target population was the group of SS II students who were about to sit for the WAEC examinations were therefore the first category of the target population the respondents who had done the WAEC Geography exams were not captured due to inaccessibility. Instead, the researcher used SS II Students who had not taken their examinations and are available.

### **Sources data and methods**

Questionnaires and interview were used to collect data for the study. According to Mwiria and Wamahiu (2013), the choice of a research instrument was determined by the nature of the study, the kind of data to be collected and the kind of target population. Additionally, the researcher examined official records on performance in the sampled schools as maintained by each school which enabled the researcher to identify the past performance in Map Reading as manifested by the schools in order to trace the trend of performance in the subject area in the year 2021. The findings of the study were analysed using tables and charts depicting different categories of information of the research were drawn to show different responses from the respondents involved in the study. On the other hand, inferential statistic ANOVA and T-test was used to test the hypothesis raised in the study.

### **Result and Discussion**

A total of two hundred and forty (240) questionnaires were administered to the students in six (6) public Senior Secondary School students in Tarauni Area, 198 students out of the 240 expected participated with a response rate of (82.5%). The percentage return rate was averaged to about 83% and it was deemed adequate for analysis and reporting. According to Mugenda (2008), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent, so from Mugenda (2008), the response was excellent. Analysis therefore was based on the response of one hundred ninety-eight (198) prospective students from public secondary schools and the questionnaire was analyzed corporately in tables under different outline (Table 1).

All the one hundred ninety-eight (198) students under study were in the same year group. It is therefore expected that their ages and levels of reasoning would be almost within a certain range. Hence, they have ages that range between 16 and 17 years. Again, in this study out of the 12 geography teachers sampled, 9 respondents (75%) returned the questionnaires.

**Table 1: Analysis of Questionnaire Distribution in Public Secondary Schools in the area**

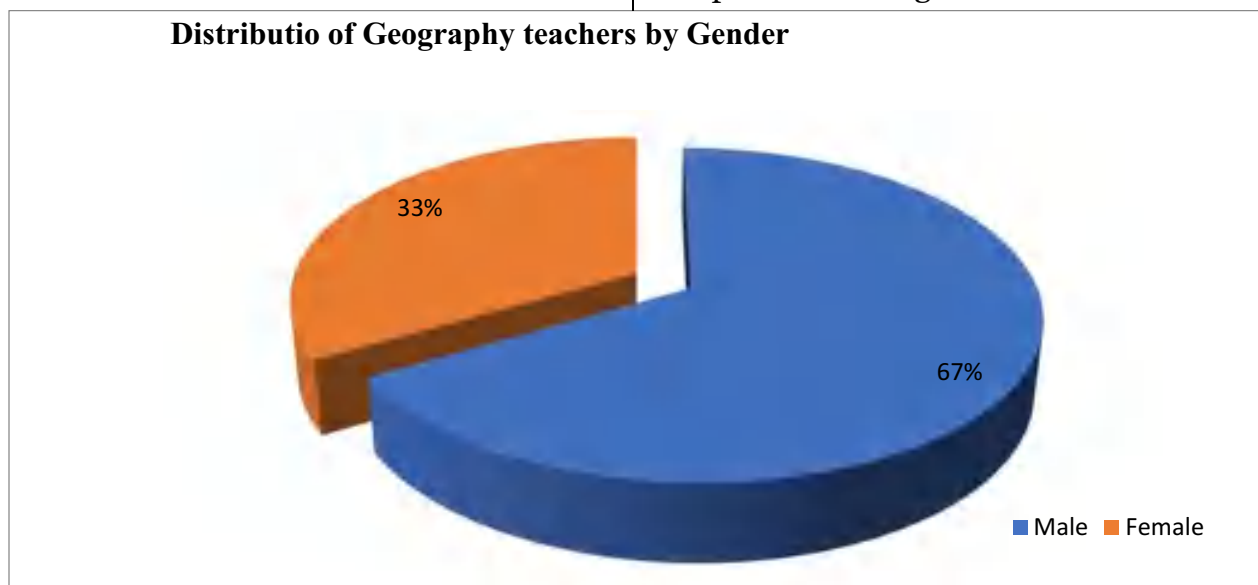
Name of School	Total No. of Students in SS II	Number of Questionnaire Administered	Number of Completed and Return	Number Missing
Tahir Govt. Girls Arabic Sch. Gyadi-Gyadi.	29	29	22	07
Fatiama Mohammad Government Girls Secondary School, Gyadi- Gyadi	38	38	33	05
Government Girls Arabic Secondary School, Taraunin Arewa. <b>(Control group)</b>	19	19	15	04
GDSS Gyadi-Gyadi <b>(control group)</b>	49	49	40	09
GDSS, Kundila	51	51	40	11
GSS, Tarauni.	54	54	48	06
Total	240	240	198	42

Source: Field survey, June 2021

### Demographic data of Geography teachers

The demographic data was based on their gender, professional qualification

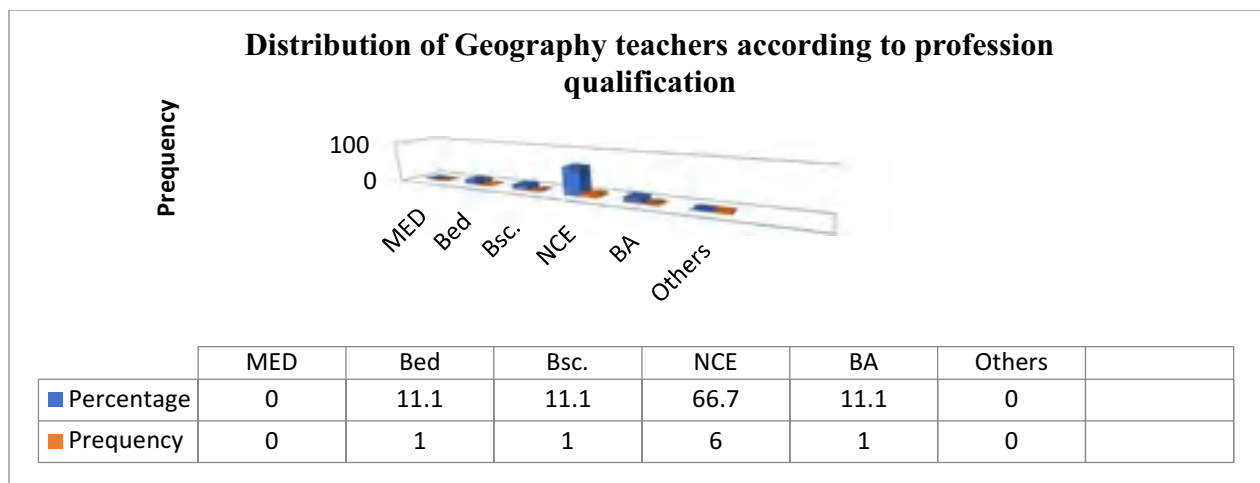
and experience as Geography teachers. To establish the gender of teachers, they were asked to indicate it. Their response is presented in figure 2.

**Figure 2: Distribution of Geography teachers by Gender**

Source: Field survey, June 2021

Data on the gender of teachers indicated that 67% were males as against 33% who are said to be female. The data shows that there is gender disparity in the teachers who teach map reading in public secondary schools in Tarauni. When asked to indicate how teachers' gender influence students decision to full participation in map reading in the school, the respondents indicated that most male teachers tend to be hands-on with map reading while

female teachers tend to not be involved in map reading. In the study area due to the socio cultural setting of the area gender may likely influence the students decisions especially the female students who want to take up geography as a subject but they may no have any inspiration from the teachers hence these could affect students' performance and attitude toward map reading.



**Figure 3: Distribution of Geography teachers according to professional qualification**

Source: Field survey, June 2021.

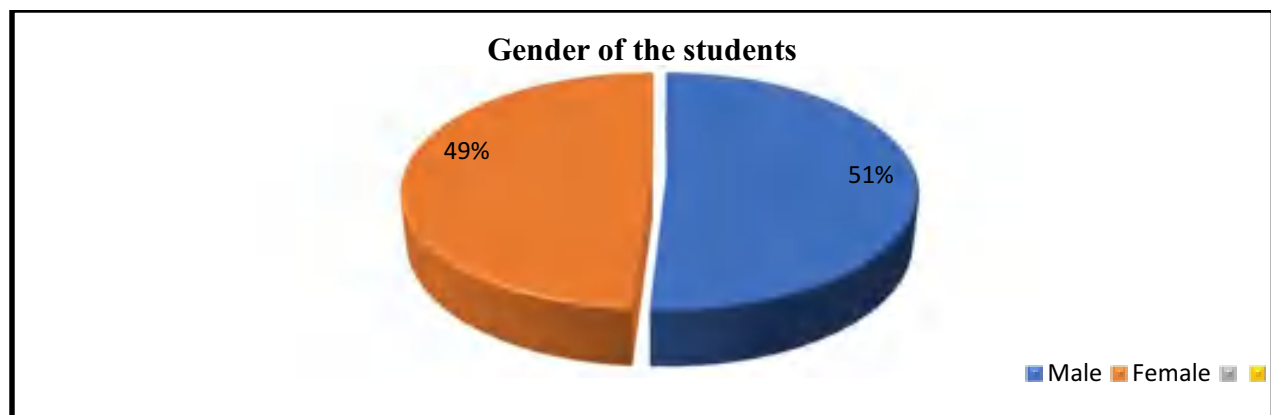
The results of the map reading teachers on their professional qualifications indicated that majority were holders of NCE with 66.7%, bachelor of education degree with only 11.1% of the respondents, map reading teachers who were Bachelor of Science as well as Bachelor of Art holders were 11.1% of the respondents. This implies that 77% of respondents representing the majority of teachers were qualified, had competent teaching methodologies that influence geography students' performance in map reading and they were resourceful in

learning and teaching resources. The study also sought to find out the teaching experience of the map reading teachers. The finding revealed that 36% of the respondents had a teaching experience of over 9 years and for the teachers ability to understand students' attitude towards map reading, their teaching methodology towards the subject and their experience over the years in teaching map reading hence influence the performance of geography student in map reading.

### Demographic data of Students

The demographic data was based on their gender and age. On the gender of respondent, 51% students were males while the females were represented by 49% of the respondents. This indicated that the males thrive in geography and

prefer the area more compared to the female counterparts. The female students' attitude towards map reading showed that they preferred not to have the subject maybe because it was difficult to understand it and hence the male students dominated the field as shown by the figure 4.



**Figure 4 Gender of the students**

Source: Field survey, June 2021.

### Teaching resources influence on students' performance

Teaching and learning resources were rated on how adequate they were for teaching students. The data is presented in table 2.

**Table 2 Teaching / learning resources**

Learning Resources	Adequate	Inadequate	Mean
Textbooks	4	5	1.4
Field work Equipment	4	5	1.2
Maps Instruments	3	61.3	
Budget For Trips	3	6	1.3
Laboratory	4	5	1.2

Source: Field survey, June 2021.

According to the study findings on whether teaching or learning resources influences geography students' performance, the geography teachers rated

the learning resources as adequately used in the schools. The textbooks and educational trips were adequate while Maps instruments, field work equipment

and laboratory were not applicable in most schools due to inadequate resources to support these facilities of learning.

The results show the quantity of Availability of Maps-Aided Instruction and Laboratory Facilities enriched with lecture method Used in Teaching Map Reading. When compared to standard set by WAEC and STAN which provide a ratio of 5:1 students/facilities ratio, it was discovered that none of the facilities are available in the schools under study. For example, taking the ratio of availability of

topographical maps which has the highest quantity, it was discovered that the number of topographical maps observed is 32 and the population of the study is 240 students in which a ratio, of 8:1 (eight students per Map) was observed which deviate from standard set by WAEC and STAN (5:1). This study is in conformity with a study conducted Abdulkarim (2010) conducted on assessment of facilities for teaching geography in Secondary schools of Kaduna state where the study revealed inadequacy of the teaching facilities.

### **Influence of teaching methodology on students' performance in map reading**

The study sought to establish the teaching methodology students felt were most influential in students' performance in map reading. The table 3 shows the frequency of how the students selected frequency of the use of teaching methodology and the calculated mean.

**Table 3: Influence of teaching methodology on students' performance in map reading**

<b>Teaching Methodology</b>	<b>Quite Often</b>	<b>Often</b>	<b>Less often</b>	<b>Never</b>	<b>Mean</b>
<b>Students</b>					
Lecture Methods	94	57	27	20	1.58
Discussion	52	65	42	39	2.34
Question and Answer	25	28	121	24	2.05
Demonstration	28	37	119	34	2.45
<b>Teachers</b>					
Lecture Methods	2	5	2		1.89
Discussion	2	2	4	1	2.21
Question and Answer	4	3	2		1.84
Demonstration	4	3	1	1	1.79

Source: Field survey, June 2021.



Majority of the respondents said that lecture method was most used hence it is most influential in their performance. The table shows that lecturer method was quite often utilized with a mean of 1.58. The students preferred demonstration teaching methodology because it provided room for study ahead of the class for better understanding. Reading before class improved on the students' attitude towards the area and it was a way of utilizing the learning resources such as books provided by the school hence influencing students' map reading performance.

On the other hand, the study sought to find out the teaching methodology that is often used by the map reading teachers in their schools. The study found out that lecture method was often used with a mean of 1.89. The table above shows how frequent teaching methodologies were used in map reading classes. From the study findings, the teaching and learning resources influenced students' performance by providing the best resources and suitable teaching methodologies, the students' and teachers attitude towards map reading hence a general improvement in performance of map reading. The curriculum implementation theory propounded by Fellman *et al.*, (2015) states that implementation of any educational programme envisages inter alia the question of teacher competence and capability as well as compatibility with the organizational arrangement and the clarity of the implementer (teacher) on what is to be done. The training of teachers, which is

mainly attached to one's qualification, goes a long way in equipping the teachers with knowledge and skills to enable them handle the task ahead of them.

According to the study findings, students felt that teaching method is most effective and was employed in teaching map reading in class as shown in the table above. Majority 66% of respondents felt that lecture was the most frequently used method employed in map reading class with a mean of 1.58. The students indicated that the most frequently used method of teaching in their schools was lecturing hence it was employed as a teaching methodology that influenced geography students' performance in map reading.

### Hypotheses Testing

**Null Hypothesis (H<sub>01</sub>):** There is no significant difference between the mean academic performances score of students taught Map Reading using Maps-Aided Instruction and Laboratory Facilities enriched with lecture method and those taught the same concept using lecture method. In order to test this hypothesis, Analysis of Variance was run using SPSS software version 17.1 and the result is presented in Table 4, where F-ratio of 103.41 was calculated and found to be significant at 0.05. The null hypothesis was rejected and there is significant difference between the mean academic performance of students taught map reading using Maps-Aided Instruction and Laboratory Facilities enriched with lecture method and those taught the same concept using Lecture Method.

**Table 4: ANOVA for the difference in performance of student in Experimental and control groups**

Source of variation	Sum of Squares	DF	Mss	S-ratio	p	Remarks
Between groups	633.54	1	633.54			
Within groups	842.33	2	421.34	103.41	0.01	Sig
Total	1475.87	3				

**F cal=103.41; F crit=24.31. F calculated > F Critical at 0.05 Level of significant**

Table 5 presented the source of variance in the mean academic performance score of students taught map reading using maps-Aided Instruction and Laboratory Facilities enriched with lecture method

(experimental groups) and those taught the same concept using Lecture Method (control group). The test revealed the direction of difference in favour of experimental groups.

**Table 5: Scheffe Test for Direction of difference in Performance of student in Experimental and Control Group**

N1	N2	N3	X2	Msw	F	F cal	F <sup>1</sup>
68	60	70	18.3	421.34	29.5	24.31	8.24

F-cal 24.31 F-value required for significant (F)= 8.24. F Value to be significant at 0.05 Level, H<sub>0</sub>1 rejected.

This shows that geography students taught map reading using Maps-Aided Instruction and enriched lecture method performed better than their counterpart taught the same concept using Lecture Method only. The finding is in congruence with that of Parrot (2012) who observed that, Material-Aided Instruction such as internet system gives students access to wide range of information and knowledge about environment, socio-cultural, economic and other aspects of life of the people in various parts of the world. The two

strategies are gender friendly. However, there exists significant difference between the mean academic performance scores of male and female students' taught map reading of geography using Lecture Method only. Male and female students exposed to different Teaching Methodology Instruction and Laboratory Facilities did not differ significantly, but there exists significant different between the performance of male and female students exposed to Different Method.

The findings supported studies such as that of Bichi and Usman (2010);

Areola, (2018) who in their separate studies found that innovative teaching strategies with integrated resource materials enhance students' performance irrespective of gender. Bichi and Usman (2010) further supported the result of finding in his study "relationship between students' performance and their academic performance using NISTEP mode of teaching who revealed that senior

secondary male and female students will not differ significantly in their performance when exposed to innovative strategies. Furthermore in the discipline of geography, Obeka (2010) revealed that the use of innovative strategies in environmental education concepts of geography proved to be effective in enhancing the performance of male and female students and are gender friendly.

**Table 6: T-Test Analysis of Male and Female Student in Experimental Group**

Variable/Group	N	Mean	SD	Df	t	p	Remarks
Male	33	29.41	5.02	68	28.6	0.01	Significant
Female	37	13.09	3.90				

Significant at  $p \geq 0.05$

From the result presented in Table 6, t-value observed was 28.6, while the p-value observed is 0.01 which is less than the alpha value. This shows that there is significant difference in the performance of gender exposed to Map Reading using different teaching methodology in favour of male students as indicated by their mean score. As a result, there is no significant difference between the performances of male and female students exposed to different teaching methodology. However, significant difference exists between the performances of male and female students exposed with different skills in favour of male students.

### Conclusions

The findings obtained from the Geography teachers and students

indicated that teaching/learning resources were inadequate in most secondary schools in Tarauni. The study further revealed that text books, cartographic equipments, geography laboratories were inadequate and by large extent some were not applicable in most schools. The study also established that students' attitude towards Map reading largely contributed to the performance of the students in the schools, availability of learning resources to both the students and teachers also contributed to the performance of map reading in the schools. Gopsill (2016) adds that people learn to teach in part, growing up in a culture by serving the apprentices for 12 years or more when they themselves were student. When they face new challenges of the classroom,

they often abandon new practices and revert to the teaching methods their teachers used. The negative attitude therefore jeopardizes professional standards by influencing effectiveness of teaching methods and performance of students.

The study concludes that students' performance in map reading can be improved. Improving performance, therefore depends on changing some of these influences pedagogically, the challenge is to; get the learner to believe in his or her personal capabilities to successfully perform a designated task; provide environmental conditions such as instructional strategies and appropriate technology that improve the strategies and self-efficacy of the learner and provide opportunities for the learners to experience successful learning as a result of appropriate action. According to Bandura's (2011), a person's attitudes, abilities and cognitive skills comprise what is known as self- efficacy. Virtually all people can identify goals they want to accomplish, things they would want to change and things they would like to achieve. People with strong self-efficacy: view challenging problems as tasks to be mastered, develop deeper interest in the activities in which they participate, form a stronger sense of commitment to their interest and activities and recover quickly from setbacks and disappointments. Head teachers, geography teachers and students alike have the capacities to change this dismal performance of map reading.

## Recommendations

Based on the findings presented above, the study makes the following recommendations:

- More female teachers to take up a map reading teaching combination because this influences the students decisions especially the female students who want to take up geography as a subject but they have no inspiration from the teachers hence these could affect students' performance and attitude toward map reading. The government through the NUT should recruit the teachers.
- The government should take an initiative to ensure that the problem of inadequacy of teaching /learning resources is eradicated.
- There is need to sensitize the parents and the community on the provision of adequate teaching /learning resources in public secondary schools. The government should endeavour to source funds from donors, well-wishers, and NGOS to diversify provision of appropriate facilities. This will supplement funds released from the government kitty which is insufficient to put in place learning resources for geography education. These resources should be readily available for both the students and teachers for study, understanding and research reference for geography.
- The teaching methodology should be well diverse to cater for the needs of the students. To achieve this, the government should provide funds for re-training of geography teachers, as

the findings revealed that a good percentage of the teachers had not attended any in service training in the recent past.

### References

- Abdulkarim, B. (2010). Assessment of facilities for teaching geography in some Secondary schools of Kaduna state.
- Areola, R. (2018). Geographers profession and different areas of human endeavors in West Africa.
- Bandura's, A. (2011) Assessing of teaching performance of Community College Junior Faculty. Unpublished M.Ed Thesis Kenyatta University, Nairobi.
- Brunner, O. (2012). *International Encyclopedia of Education Research Studies*. New York Pergamom Press.
- Bichi, A. and Usman, K. (2010). Innovative teaching strategies with integrated resource materials enhance students' performance irrespective of gender
- Douglas, O. (2014). Parental encouragement as an important single factor that accounts for the improvement of child's test scores and Development of the student in Nigerian's broad based curriculum.
- Egunyomi, D. (2016). "Access to Basic Education for Girls: The Nigerian Experience" in duaran, A and Bhola, H.S. (Eds) widening access to Education as social Justice: Essays in honour of Michael Canolawa. The Netherland, Dordrecht: Springer Pp427-438
- Eshiwani G. S. (2017). *Education in Nigeria since Independence*, Lagos: West African Educational Publishers.
- Fellman, J. D., Getis, A., Getis, J. and Malinowski, J.E.(2015). *Human Geography: Landscape of Human Activities*. Boston: McGraw-Hill Higher Education Pp4-9.
- Glen, T. (2013). Tips "to learn on an examination course. Teacher's ability to deliver the content.
- Gopsill, G. H. (2016). *The Teaching of Geography*. London: Macmillan.
- Innes, L. M. (2018). Map Aware and Environmental Education: improving map literacy together. Paper presented at the annual conference of the Environmental Education Association of Southern Africa (EEASA 7-10 September 2008), Grahams town: Rhodes University.
- Mugenda, A.G. (2008). *Social Science Research. Theory and Principle*. Nairobi: Applied Research and Training Services.
- Mwiria, K. and Wamahiu, S.P.(2013). *Issues in Educational Research in Africa*. Nairobi: East African Publishers.
- National Examination Council (NECO) (2020). Report.
- Nkosana, T. (2018). Teachers Teaching Behaviour and Students Attitude toward Teaching Methodology.

Obeka, O. (2010). Significant Difference in the Interest ability of Male and Female Students in Environmental Education concepts of Geography due to exposure to demonstration and inquiry teaching methods.

Oluoch, G. P. (2018). Essentials of Curriculum Development. Nairobi: Elimun Limited.

Parrot, E. (2012). Effective Teaching: A Practical Guide to Improving your

teaching. New York: Longman Group Ltd.

Richard, N. I. (2006). The Integration of Media into the Curriculum. London: N. Billing and Sons Limited.

World Bank Report, (2017). Education Development in Nigeria. (71), 34.

West African Examination Council (WAEC) (2018). Report.