

# EFFECT OF CONVENTIONAL NOTE-TAKING AND KNOWLEDGE MAPPING NOTE-TAKING PATTERNS ON STUDENTS' INTEREST IN GEOGRAPHY

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**Abstract:** In the recent time, it was observed that interest in geography was diminishing as indicated in the low enrolment by students in the senior secondary certificate examination (SSCE). The poor image of geography among students was attributed partly to the wide content and partly to the old fashioned approach to the teaching of the subject. Hence, this study sought to find the effect of note-taking patterns on students in interest in geography. A non equivalent quasi-experimental design was adopted by the research. Two hundred and twenty five students in three intact classes from each three secondary schools in Enugu South Local Government of Enugu State form the sample. The experiment was conducted during the students' normal class periods and their regular teachers trained by the research taught the students under the supervision of the researcher. One intact class was randomly assigned experimental group one, another experimental group two and the third the control group. A research question and a hypothesis guided the study. Experimental group one was taught using knowledge mapping note-taking pattern the experimental group two was taught using conventional method note-taking pattern while the control group was taught without any defined pattern of taking note. Interest scale on geography (ISOG) was used for data collection. Means and standard deviation were used for answering the research question while the hypothesis was tested using analysis of covariance (ANCOVA). The results of the study revealed that students taught using knowledge mapping note-taking pattern showed more interest in studying geography more than the other two groups of the study. Some recommendations were therefore made on how to get both teachers in training and the serving teachers to get acquainted with this method of note-taking patten in teaching and learning geography in schools.

**Keywords:** Conventional, Note-Taking,



## 1. INTRODUCTION

The declining enrollment in geography in senior secondary school examination has been a serious concern among geography teachers and examiners in the recent time. In the 6-3-3-4 education programme in Nigeria as it concerns secondary education, the curriculum is composed of two major sections viz the core subjects and the electives the core subjects are made up of six groups namely: (i) English language (ii) one Nigerian language (iii) mathematics (iv) one of the following alternatives – physics, chemistry and biology (v) one of the following alternatives – Literature in English, history and geography (vi) agricultural science or a vocational subject.

The core subjects are basic subjects that will enable students to offer arts or science in higher education. Geography was recognized as one of the core subjects, though an elective with literature in English and history. By this arrangement science based students are only left with the option of choosing geography as one of the subjects to offer yet the enrolment and performance in the subject remain poor interest in choosing geography in certificate examination was declining. Many chose geography for school certificate examination to make up the number of subject entries [1]. The poor image of geography among secondary school students was attributed partly to its wide content and partly to the old fashioned approach to the teaching[1]. Teaching of geography in schools then was criticized for not being able to

prepare students for effective living in the society. The teaching was too theoretical. Interest and performance in examination was observed to be poor. Questions in both teacher's made and external examinations analyzed; according to process involved showed overemphasis on memory [2]. During the revision of various curriculums as contained in the national policy on education, Road map for Nigerian education sector (1985), geography teachers made a lot of inputs by infusing more realistic topics into geography curriculum. Some irrelevant topics were edited out without lowering the standard of the subject. In the curriculum package emphasis is on conceptualization, local studies, field work and problem solving approach as a means of preparing the minds of the learners for solving geography problems emerged [3] realistic topics such as environmental hazards and environmental interaction were included in the curriculum and these innovations made the necessary improved teaching methods, for instance, field work became compulsory aspect of continuous assessment and it goes to all aspects of geography to enable students of geography acquaint themselves with biological phenomena. Other important methods such as practical work, game and simulation became an essential ingredient for teaching and learning geography.

In all these research efforts highlighted above in the area of geography education, little effort has been made to look into note-taking patterns as a means of improving the interest of students in geography. Note-taking is a study method whose efficacy could be tested in practical terms. Notes are the students' closet companion; it is the most readily available clue to the memory after learning. At both secondary and tertiary levels, scholars learn from many sources, therefore taking good notes is of practical importance. Hence, without good notes, students would find it difficult to integrate information from all these sources. Acquiring skills in bringing together various aspects of learning that took place in formal setting such as the classroom is important in learning process. An ideal note is supposed to be a rich summary containing all items and necessary ingredients for effective qualitative utilization [4].

The most common note-taking patterns are:

- (i) Patterned notes in form of either brain pattern (mind maps), knowledge maps or concept maps
- (ii) Conventional notes including underlining and
- (iii) Alternative to conventional or linear notes [5]

Researchers observed that the conventional note-taking method is the most popular method being used in secondary schools. The teacher prepares his passage, handout and dictate to his students. According to [6], alternative to linear is a modified conventional note-taking pattern adopted as a way of checking comprehension. The teachers deliver his/her lesson, students jot down salient points the teacher makes as the lesson progresses. At the end of the lesson, the students recall and develop their note in detail.

Knowledge mapping on the other hand is a two dimensional procedures which term a note-link mode assemblies. It is a note form of instructional procedures which has been studied under varieties of names like map [7], concept mapping[8]; cognitive instruction Cartoon[9]; knowledge mapping make to resemble a programme of instruction such as seen in a computer. It has advantage of giving the user a bird's eye view of the note. The note contains the key ideas and the links specifying the relationship between the nodes [10] and it adds structure and organization to the map [11]

## 1.1 Interest

Interest according to [12] refers to the tender ages of a learner to seek out and participate in certain activities from which he derives joy. [13] defines interest as the determiner of success, second to importance to intelligence. [13]'s definition stresses the relationship between interest and learning. To him, interest facilitates learning. Interest helps learners to explore activities fully and to come out with desired learning outcomes. It is a quality that arouses a curiosity that holds and maintains attention. No wonder [14] pointed out that unless a learning situation is arranged in a way that would arouse and maintain students interest, they will not learn well or work consistently. [15] advised that in studying learners interest, care should be taken to identify those undesirable interest areas. Learners interest has to be guided such that educational objective might be directed towards eliminating undesired activities.

The declining enrolment in the school certificate geography is a reflection of the low interest of the students towards the learning of geography. [1] noted that interest plays a major role in any undertaking as it influences devotion to duties, fairness, honesty, endurance and discipline. The interest of students have led to the declining popularity of the subject over the year [16].Geography teachers have expressed deep

concern over this unfortunate trend of our time and unless something is done about it, the position of geography in school curriculum may be jeopardized hence the importance of this study.

The study was delimited to find out the effect of conventional note-taking and knowledge mapping note-taking on students interest in geography in secondary schools (SSI) in Enugu education zone of Enugu State.

To carryout the study, one research question and hypothesis were formulated thus.

**1.2 Research Question:** How do the note-taking patterns influence students' interest in geography?

**1.3 Hypothesis :** The students' interest towards geography as measured by their interest scores will not differ significantly due to different note-taking patterns. This hypothesis was tested at alpha equals 0.05.

## 2. METHODOLOGY

The research is quasi – experimental study of a non-equivalent control group design. This is because it was not possible to have complete randomization of the subjects. Intact classes were used. The study was quasi-experimental because the researcher manipulated independent variable of the study (knowledge mapping, conventional) note-taking patterns and observed their effects on interest. The intact classes randomly assigned to experimental and control groups were used. The treatment of the subjects was done as indicated below.

**TABLE 1**  
**REPRESENTATION OF PRE-TEST POST-TEST CONTROL GROUP DESIGN**

Group	Pre-test	Research	Post treatment test
E <sub>1</sub>	OA	X <sub>1</sub>	OB
E <sub>2</sub>	OA	X <sub>2</sub>	OB
E <sub>3</sub>	OA	X <sub>3</sub>	OB

Where

E<sub>1</sub> = represents experimental treatment group on knowledge mapping note-taking pattern

E<sub>2</sub> = represents experimental treatment group on conventional note-taking pattern

E<sub>3</sub> = represents control group on any other note-taking pattern

OA = represents pretest on interest

OB = represents posttest on interest

X<sub>1</sub> = represents treatment condition on knowledge mapping of note-taking pattern

X<sub>2</sub> = represents treatment condition on conventional method of note-taking method

X<sub>3</sub> = represents treatment condition on any other method of note-taking

### 2.1 Area of Study

The study was carried out in Enugu South Local Government Area, out of the seventeen (17) Local Government Areas of Enugu State. Enugu South Local Government Area is predominantly on urban Local Government Area carved out of Enugu urban LGA.

### 2.2 Population

The population for this study consisted of all the senior secondary schools (SSS) students who offered geography in all secondary schools that have at least three streams in Enugu South Local Government Area. SSS I students were used because they had not yet made choice on which subjects to offer in the senior school certificate examination (SSCE). This enabled the researcher to have enough

subject (students) to study, secondly since the SSS I students were exposed to study of geography for the first line; they had not formed fixed opinion on the subject.

### 2.3 Sample and Sampling Technique

The sample consisted of 225 SSS I students. The samples were drawn through a multi-staged technique. All schools in Enugu South Local Government Area were clustered into male, female and (mixed) co-educational schools. Then random sampling technique was used to select one male school, one female school and one mixed school. The selected schools had up to three streams (classes) of SSS I students. A simple random sample technique was used to choose three streams in schools that have more than three streams. In each school therefore, there was a random assignment of intact classes to experimental group I, experiment group II and control group.

**TABLE 2**  
**SAMPLE OF SSS I STUDENTS USED FOR THE STUDY**

School	School type	Exp I	Exp II	Control Group	Total
1.	Male only	26	22	25	73
2.	Female only	28	27	25	80
3.	Co-education	24	25	23	72
<b>Total</b>		<b>78</b>	<b>74</b>	<b>73</b>	<b>225</b>

### 2.4 Instrument for Data Collection

Interest scale on geography (ISOG) was a 20 item interest scale developed by the researcher. ISOG was made up of geography related statements developed to measure the interest attributes of the students in the areas of study on the solar system; earths movement of rotation and revolution and longitudes and latitudes. The respondents were expected to indicate their degree of agreement or disagreement on a number of positively and negatively cued statements about the above selected geography topics.

#### Validity of ISOG

ISOG was subjected to face validity. The interest scale blue print was face validated by two experts in geography and one expert in measurement and` evaluation. The criticizing and vetting helped in modifying and/or replacing some items. Initially a total of thirty (30) items made up ISOG. ISOG was initially trial tested at one secondary school in Nsukka Education Zone in Enugu State. The interest scale was administered on SS I students who were about starting their promotion examination to SSS II and who had already covered the topics covered in this study. The students were made up of members of intact classes who were available at the time the researcher visited the school. The purpose of the pilot testing was to determine the items appropriateness and clarity of the item language to the students. Finally ISOG was finally made up of 20-item interest scale.

### 2.5 Reliability of ISOG

In establishing the coefficient of internal consistency of ISOG, the scores generated from the SSS I students used for the trial tests were` applied in Cronbach alpha formular. Using the Cronbach Alpha formular, an internal consistency of 0.72 was obtained for ISOG. Cronbach alpha formular for establishing reliability was considered appropriate for items that are not dichotomously scored such as ISOG. Cronbach Alpha formular for establishing reliability was considered appropriate for items that are not dichotomously scored such as ISOG. Cronbach alpha formular ( $\alpha$ ) is stated thus

$$\alpha = r = \frac{\eta^2}{n - 1} \left( 1 - \frac{\sum S_1^2}{S_2^2} \right) \quad (1)$$

Where  $n$  = number of items,  $S_1^2$  = variance of a single item  $S_2^2$  = variance of total test items

$\Sigma$  = summation and  $\alpha$  = Cronbach Alpha

## 2.6 Experimental Procedure

In each of secondary school, three intact classes/streams of SSS I were randomly drawn. Two of the three intact classes were randomly assigned to treatment condition as experimental group I and experimental group II while third intact class was the control group. Group I used knowledge mapping note-taking pattern; group II used conventional method note-taking pattern while the control group used any other pattern they liked. The students were asked to respond on the interest scale before and after the experiment. Their regular teachers under the supervision of the researcher taught the students. The experiment lasted for only three weeks as permitted by the school authority.

## 2.7 Control of Extraneous Variables

In order to reduce as much as possible experimental bias so as to increase internal validity of the experiment, the following measures were adopted.

- (1) Experimental bias – the researcher did not do the actual teaching of both experimental and control groups. The actual teaching was done by the regular teacher of the participating classes.
- (2) Teachers variable – There was training programme of all the teachers that were involved in the teaching. During the period, the validated lesson plans were discussed between the researcher and the teachers. The researcher gave the teachers common instructions. There was trial teaching by the teachers during the training programme, which was supervised by the researcher.
- (3) Initial group difference – All sampled schools were public schools. Unity and private schools were not used. In the public schools, there is nothing like ability streaming arrangement.

## 2.8 Lesson plans

The initial drafts of the lesson plans drawn by the researcher for the experimental and control groups were face validated by three geography teachers and one expert in measurement and evaluation Departments of Education, University of Nigeria, Nsukka. The modified plans were used during the training of teachers' programme feedback from the training programme on the lesson plans incorporated in the final draft of the lesson plans.

## 2.9 Administering and Scoring of the Instrument

ISOG was administered to the students before the study began. This was the pre-interest test which served as covariates for the two variables. The lesson plans were used in teaching the subjects. The actual teaching tested for three weeks. ISOG was administered to the students immediately after the last period of teaching. This was the post interest test.

## 3 METHOD OF DATA ANALYSIS

Mean ( $\bar{X}$ ) and standard deviation( $\delta$ ) were used in analyzing the research question. Mean was used because it is the most appropriate statistical tool to use for such situation and as such takes all measurement (observations) into consideration. Analysis of covariance (ANCOVA) was used to test the

hypothesis. ANCOVA was used because intact classes were used and as such, it corrects the error of initial differences in the ability levels among the students used for the study.

### 3.1 Results

In answering the Research question 2; how do the note-taking patterns influence student's interest in geography?

TABLE 3

MEAN ( $\bar{X}$ ) AND STANDARD DEVIATION OF STUDENTS POST INTEREST SCORE IN GEOGRAPHY

	Exp Group I Knowledge Mapping			Exp Group II Conventional Pattern			Control Group Any Note Pattern		
	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N
Post interest score male	50.20	10.06	40	41.44	11.33	32	39.50	7.46	38
Post interest score female	51.53	6.37	38	40.95	4.21	42	40.69	4.70	35
Overall	50.85	8.44	78	41.16	8.03	74	40.07	6.27	73

Table 3 showed that the mean interest scores for experimental group I, experimental group II and control group were 50.85, 41.16 and 40.07 respectively. This meant that student taught with knowledge mapping notes had the highest mean interest scores.

### 3.2 Hypotheses

The students interest towards geography as measured by their mean interest scores will not alter significantly due to different note-taking patterns.

TABLE 4

ANCOVA OF OVERALL STUDENTS' INTEREST SCORES BY NOTE-TAKING PATTERNS BY GENDER

Source of Variation	Sum of squares	df	Mean squares	F-cal	F-crit	Remarks
Covariates	2600.285	1	2600.285	54.683	3.84	*
Main effects	4317.333	3	1439.111	30.264	2.60	*
Method	4244.944	2	2122.472	44.634	2.99	*
Sex	28.747	1	28.747	0.605	3.84	
<b>2 way interaction</b>						
Method by sex	61.321	2	30.660	0.645	2.99	
Explained	8038.505	6	1339.751	28.174	2.09	
Residual	10365.411	218	47.552	-	-	
Total	18404.916	224	82.165	-	-	

\* Significance at  $p < 0.05$



Table 4 provided result for testing hypothesis stated above. The result showed that the calculated F-value of 44.634 was higher than the critical F-ratio of 2.99 for 2 and 218 degree of freedom at 0.05 level of significance. A higher significance ratio suggests the rejection of null hypothesis. Therefore the null hypothesis of this study was rejected. This implied that note-taking patterns had significant effect on the interest of students toward geography.

#### 4. CONCLUSION

Evidence obtained in this study regarding the level of interest in geography as it is affected by the methods of note-taking showed that the two experimental group I significantly demonstrated more interest in geography than the experimental group II. This must be because knowledge mapping note-taking pattern involves students' active participation in the classroom. It was a strategy that required students to identify and name the interrelationship between and among main ideas. The knowledge mapping note-taking provided the experimental group the opportunities of active participation in identifying the interrelationship between and among main ideas, this can account for high achievements high retention and high interest towards the study of geography in senior secondary school classes.

#### 5. RECOMMENDATIONS

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

1. Since knowledge mapping note-taking pattern was found efficacious in engendering interest in geography and since the technique is not yet popular in our schools, the technique should be incorporated in the curricular for teacher training institutions.
2. Obviously the serving teachers in the field lack the necessary skills to develop knowledge maps. Therefore there is the need for professional bodies such as STAN to organize workshops, seminars and conferences for these categories of serving teachers.

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