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Effects of Guided Discovery Method On Students' Attitude to and Achievement in Social Studies in Nigerian Schools

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ABSTRACT*: This study was carried out on the effects of guided discovery method on student's attitude to and achievement in social studies in College of Education (Pre-service) students in Nigeria. Three research questions were raised and three null hypotheses were formulated. The research design was quasi-experimental non-equivalent control group. The study was carried out in four randomly selected Colleges of Education in Ekiti, Edo, Ondo and Ogun State in Nigeria. The sample size was 240 students from four randomly selected intact classes in the sampled school were used. The instruments for data collection were Social studies Achievement Test (SSAT) and Social studies Attitude Questionnaire SSAQ. Descriptive statistics were used to answer the research questions while T-test was used to test the null hypotheses. The results of the analysis showed that these was significant difference between the mean achievement scores of experimental group and control group. The study also revealed that there was no significant difference between the mean achievement scores of males and females' students in the experimental group. There was a significant difference between the mean attitude scores of males and females students in the experimental group. Based on this study it was concluded that guided discovery method has positive effects on student's achievement as well as improving their attitude towards Social studies and it is gender friendly. Based on the findings, it was recommended that among others seminars, workshops and conferences should be held for Social studies teachers to acquaint them with the knowledge of guided discovery method and should be encouraged to use it in the classroom always.*

KEYWORDS: guided discovery, attitude, achievement, social studies

INTRODUCTION

Teaching is one of the primary concerns of an educational system. It is a systematic, rational and organized process of transmitting knowledge, attitude and skills in accordance with professional ethics. Ekiugbo (2020) defined teaching in terms of intention of producing learning. Famuyide (2015) concluded that nothing can be characterized as teaching without obvious intentionality of bringing about learning. A classroom teacher is therefore a person who has undergone approved professional training in education, at the appropriate levels,

capable of imparting knowledge, attitude and skills to the students. Agunbiade (2019) opined that every teaching must have a definite purpose or intention, embracing two actors; the teacher and the students. The teacher attempts to influence the behavior of the students, the students in turn, intentionally learn new knowledge, skills, values or attitudes. Teachers directly or indirectly are the main vehicles through which knowledge, attitudes and skills about Social studies are transmitted.

Teacher's methodology is important in the course of teaching in that it may promote or hinder learning. It may provide mental activities which is the basis of Social power. It may also hinder initiative and curiosity thereby making self-reliance and survival difficult. Teachers need to be well equipped in methodology as the teacher is responsible for translating policies into actions in the classroom.

Recent Socio economic and political changes in the world and within nations have brought changes in educational processes and goals. The schools are called not only to equip learner with basic knowledge of social studies content, but also with higher cognitive skills such as problems solving and thinking skills that allows for self-development and continuous learning, for the purpose of constructing knowledge and using it to explain how the universe works, in order to explain and possibly control phenomenon.

Constructivists hold that individuals actively construct their own reality in an effort to make sense of their experience Bamiro (2015). This implies that according to constructivists, reality is determined by the experience of the knower and is therefore personal and subjective (Lai-chong & Ka Ming, 1996). The central idea of constructivist is the notion that reality is determined by the experience of the knower. The assertions pivotal to constructivist epistemology are considering knowledge as a way of making sense of experience and as an interpretation open to uncertainty that is based on prior knowledge, Mahmood (2007). These epistemological foundations led constructivists to the conclusion that knowledge is a personal construction rather than imparted from a teacher. Constructivism in classroom incorporates three important dimensions.

i. Valuing the students point of view

ii. Using higher level questions to elicit student's thought

iii. Valuing the process of student thinking rather than student answer or product.

Providing greater opportunity for students to share their opinion value opinion of others, developing consensus among class fellows in the various opinion raised, and appreciate new scientific ways of describing phenomena are the major domains that affect classroom practices upon applying constructivist principles, Mahmood (2007). The centre of instruction is the learner. Karagiorgi and Symeoa (2005) approach to constructivism, is to work with children, helping them to develop their own models. He maintained that it is not good enough to teach children to give a superficial appearance of advanced knowledge.

The notion that students learning is more meaningful, more through, and therefore usable when students seek out and discover knowledge, rather than just being receivers of knowledge has

been held by educational theorist for centuries. One of such method is the guided discovery instruction of learning. Guided discovery learning is intentional learning through problem solving under supervision. Oghenovo (2020) opined that it is a method through which the teacher provides illustrative materials for students to study on their own.

Guided discovery instructional is a learning situation in which the principal content of learning is not directly exposed by the teacher, but left to be discovered by the learner, making the teacher a guardian and students active participants in the learning process. Afolabi (2018) noted that the Social studies content because of its value clarification nature and emphasis on creative and critical thinking, demands the adoption of more progressive strategies of discovery, inquiry, discussion, problem solving, dramatization/role playing, computer assisted instruction and other relaxed classroom learning and teaching activities. The relevance of guided discovery instructional strategy on Social studies emanated from the suggestion of scholars like Famuyibo (2015), Ogunyemi (1996) and Afolabi & Akinbobola (2009) that learners construct knowledge out of their experiences which is advocated with pedagogical approaches that promote learning by doing or active and participating learning. The teacher's role here is to serve as facilitator of learning in which students are encouraged to be responsible autonomous and construct their own understanding of each concept.

During guided discovery, the teacher invites students to initiate discussion and to react to other students Garuma and Tesfaye (2012). Learner's background knowledge and understanding of what is expected of them are most important consideration for effective use of this strategy. It can bring improve understanding of Social studies content because students have background knowledge right from junior secondary schools. Discovery learning is usually carried out in groups and is dependent on pre-existing knowledge. The method is an inductive method of guiding pupils to discuss and organize ideas and processes by themselves, and can help learners to puzzle out the new learning from their existing knowledge and experience, learners background knowledge, techniques and understanding of what is expected of them are most important considerations for the effective guidance.

The value of guided discovery has been the subject of debate and some disagreements among educational psychologists. Famuyibo (2015) claimed to have established that guided discovery was the best method to promote the learning of certain rules. Agwemuria (2018) argued that guided discovery only looked better when compared with other instructional strategy. Mfon (2011) agrees that guided discovery is important in promoting learning with young children. Yet this instructional strategy is quite important with some scholars. They believe that the students are better motivated by an active approach and perhaps by a challenge, but the teacher may justifiable step in at any time to ensure that the desired end point is reached. Mohan (2007) the most eloquent defender of guided discovery claimed that, first guided discovery encouraged a way of learning physics by doing physics and encouraged development, concluding that physics is a process rather than a finished product.

Udoh (2004) pointed out that students should be given chance to think for themselves, having being exposed to ideas that form their prerequisite knowledge. Without such exposure, the student may not have the basic knowledge from which his thinking will spring forth. Mfon (2011) investigated that relative effectiveness of problem solving, guided discovery and

expository methods of instruction on students' performance in redox reaction, considering their physics ability. The results should showed that those taught using problem-solving method performed significantly better than those taught with guided discovery and expository methods, expository approach was the least facilitative.

A study was carried out by Bamiro (2015) on the effects of guided discovery and think-pair-share strategies on secondary school student's achievement in chemistry. The study revealed that the use of guided discovery and think-pair-share strategies had great potential for improving achievement in chemistry and science generally. Another study carried out by Oghenovo (2018) contracted the relative effectiveness of guided discovery, demonstration and traditional lecture method of teaching on students' achievement in Biology. They recommended that the Biology teachers should implement guided discovery with sufficient guidance to help students create, integrate and generalize knowledge through constructivist problem solving by providing them with materials available in the laboratories or locally sourced materials.

John and Janiu (2016) research was on the effectiveness of guided discovery learning strategy and gender sensitivity on academic achievement in financial Accounting in Colleges of Education. It was found that guided discovery learning strategy is more effective than the traditional lecture method in the teaching and learning of Financial Accounting in the Colleges of Education. Another study carried out by Afolabi (2018) on the effect of guided discovery method on students' attitude to, and achievement as well as improving their attitude towards Biology and it is gender friendly.

There is a current trend in research procedures in the methodological aspects of Social studies and Social studies Education in Nigeria (Akinlaye & Adeyemi, 2018). The emphasis is on the need to search for the method which will motivate learners at all levels, especially now that schools all over the world are called to equip learners with higher cognitive skills, to move from the behaviorist method of direct teaching as in lecture method to constructivist method when the learner is required to produce and use knowledge as in values clarification, guided discovery and problem solving. Such a call is not limited to the sciences as seen above. This research was in this direction. It is against this background that the researcher examined the place and importance of using the guided discovery instructional strategy on Pre-service teachers' i.e. students in Colleges of Education and children in Social studies.

Social studies by its design is expected to inform man on how best to tackle societal problems and issues. The general purpose of Social studies education is to help learners develop the ability to adapt to the ever changing environment they live in through the acquisition of relevant knowledge, skills and values. With all these, Nigerians still face a lot of socio economic, political and religious related problems in Nigeria. Teachers especially those in the tertiary institutions still encourage rote learning. It appears most of them are ill-equipped for the demand that is required of a social studies teacher. Most of the teachers, it appears are still far away from the constructive instructional models where the learners is required to produce and use knowledge, hence most students in social studies class lack the abilities to think out solutions to problems facing them.

The challenge for the social studies teachers today is how to help the students to be more effective in discussing issues of public policy, reaching decisions, defending such decisions owning their decision and also respecting and defending the right of others to arrive at viewpoints different from their own. All these, the traditional methods currently mainly used by lecturers in Colleges of Education lack.

A change in methods of teaching is pertinent more also when the current trend in research procedures in the methodological aspects of social studies education is moving towards the direction where knowledge can be constructed and made use of by the students themselves. In the same vein, it appears that the persistent poor achievement, low enrolment, and negative attitude of students in Colleges of Education to Social studies and other related subjects is attributed to inappropriate teaching methods adopted by the teachers. It is observed that the department of Social studies in most Colleges of Education have the least enrolment in terms of the number of students, when compared with other departments.

The specific objectives of the study were to examine the effect of guided discovery instructional method on social studies learning achievement in Pre-service teachers in Colleges of Education. The study also determined which of the methods used enhanced students' achievement and more positive attitude towards social studies. The attitude of male and female students towards social studies was also determined, all aimed at improving the teaching, learning situation at the Colleges of Education level in Nigerian.

Research Hypotheses

Arising from the research questions, the following hypotheses were formulated and tested at 0.05 level of hypotheses.

1. There is no significant difference between the pre-test and post-test achievement mean scores of students in the experimental and control groups.

2. There is no significant difference between the post-test achievement mean scores of male and female students in the experimental and control groups.

3. There is no significant difference between the attitude mean scores of male and female students in the experimental and control groups.

METHODOLOGY

Research design was the quasi experimental pre-test and post-test control group. The study was carried out in three randomly selected Colleges of Education in Ekiti state. The population of the study was all Edo, Ondo State, and Ogun State students in all the Colleges of Education in states mentioned above. The sample was students drawn from three Colleges of Education in Ekiti State, Edo State and Ondo State. The sampling technique used for this study was the sample random sampling techniques. Simple random sampling techniques were used to select the four Colleges of Education that were used for the study.

Two instruments were used for data collection. These were Social Studies Achievement test (SSAT) and Social Studies Attitude Questionnaire (SSAT) face and content validity of the instruments were done by the researcher and other colleagues in the counseling psychology department of Bamidele Olumilua University of Education, Science and Technology in Ikere Ekiti, Ekiti state. Corrections pointed out were effected in the final draft. The test re-test method of reliability was used, yielding 0.71 and 0.73 for (SSAT) and (SSAIP) respectively. This was considered high enough for the study. Descriptive statistics were used to answer the research questions while t-test was used to test the null hypotheses. The instrument packaged used for the study consists of twelve study plans developed on four selected areas containing core message for social studies students in Colleges of Education. These were Marriage, Family, Transportation communication, culture and cultural practices of the Nigerian people. The instructional package made use of captions prepared by the researcher. The instructional package also made use of diagrams and pictures of marriage, family and different modes of transportation and communication.

RESULTS AND DISCUSSION

Table 1: Mean scores of student's achievement in the Experimental and Control groups before treatment.

		Pre-test		Post-test	
Variable	Group	Mean	SD	Mean	SD
Achievement	Guided discovery	14.58	2.37	26.15	1.75
	Discussion	15.45	2.16	22.57	4.66
	Lecture	15.10	2.98	19.65	2.17
	No treatment	14.88	2.98	16.02	3.46

Table 1 shows that pre-test achievement mean scores of students exposed to guided discovery, discussion, lecture method and No treatment are 14.55, 15.45, 15.10 and 14.88 respectively. After treatment students in the guided discovery method reach the highest mean score of 26.15. This is closely followed by discussion group mean = 22.51, SD = 4.66 and lecture method mean = 19.65, SD = 2.71, while the group without treatment had the least score of 16.02

Table 2: Mean scores of student's attitude in the Experimental and Control groups before treatment.

		Pre-test male		Pre-test female	
Variable	Group	Mean	SD	Mean	SD
Achievement (pre-test)	Guided discovery	15.08	2.84	15.56	1.42
	Discussion method	14.92	2.07	16.10	3.45
	Lecture method	15.50	1.93	15.37	2.26
	No treatment	15.64	3.80	15.33	1.86

Table 2 shows the pre-test achievement mean scores of male and female students exposed to treatment by Guided discovery, Discussion, Lecture method and No treatment. These are Mean 15.08, SD = 2.84 (male), Mean 15.56, SD = 1.42 (female) for Guided discovery, Mean 14.92, SD = 2.07 (male) and Mean 16.10, SD = 3.45 (female) for Discussion method, Lecture method Mean 15.50, SD = 1.93 (male), Mean 15.37, SD = 2.26 (female) and No treatment group Mean 15.64, SD = 3.80 (male), mean 15.33, SD = 1.86 (female).

Table 3: Mean scores of student's achievements in the Experimental and Control groups after treatment

		Post-test male		Post-test female	
Variable	Group	Mean	SD	Mean	SD
Achievement (post-test)	Guided discovery	41.38	5.57	67.88	8.71
	Discussion method	41.10	5.26	53.35	7.30
	Lecture method	38.45	10.91	67.32	7.91
	No treatment	14.28	2.37	24.50	5.27

Table 3 shows the pre-test achievement mean scores of male and female students in all the treatment groups. Guided discovery Mean 41.38, SD = 5.57 (male), Mean 67.88, SD = 8.71 (female), Discussion method Mean 41.10, SD = 5.26 (male) and Mean 53.35, SD = 7.30 (female), Lecture method Mean 38.45, SD = 10.91 (male), Mean 67.32, SD = 7.91 (female) and No treatment group Mean 14.58, SD = 2.37(male), Mean 24.50, SD = 2.27 (female).

Table 4: Mean scores of student's attitudes in the Experimental and Control groups after treatment

		Pre-test male		Pre-test female	
Variable	Group	Mean	SD	Mean	SD
Attitude (post-Attitude)	Guided discovery	18.45	10.91	67.32	7.91
	Discussion method	41.12	10.36	61.45	13.11
	Lecture method	38.48	10.20	55.27	14.98
	No treatment	39.07	8.89	44.45	15.03

The pre-attitude mean score of students exposed to Guided discovery as follows Mean 38.45, SD = 10.91 (male), Mean 67.32, SD = 7.91 (female), Discussion method Mean 41.12, SD = 10.36 (male) and Mean 61.45, SD = 13.11 (female), Lecture method Mean 38.48, SD = 10.20 (male), Mean 55.27, SD = 14.98 (female) and No treatment group Mean 39.07, SD = 8.89 (male), Mean 44.45, SD = 15.03 (female).

Table 5

		Post-test male		Post-test female	
Variable	Group	Mean	SD	Mean	SD
Attitude (post-test Attitude)	Guided discovery	67.32	7.91	67.88	8.71
	Discussion method	61.45	13.11	66.58	8.02
	Lecture method	55.27	14.98	53.35	7.30
	No treatment	44.45	15.03	47.70	3.13

The post-attitude mean score of students exposed to Guided discovery as follows Mean 67.32, SD = 7.91 (male), Mean 67.88, SD = 8.71 (female), Discussion method Mean 61.45, SD = 13.11 (male), Mean 66.58, SD = 8.02 (female), Lecture method Mean 55.27, SD = 14.98 (male), Mean 53.35, SD = 7.30 (female) and No treatment group Mean 44.45, SD = 15.03 (male), Mean 47.70, SD = 3.13 (female).

Testing of Hypotheses

Hypothesis 1: There is no significant difference between the pre-test achievement in experimental and control groups.

Table 5: Difference in pre-test mean scores of students

Source	Sum of squares	DF	Mean squares	F-cal	F-tab
Between groups	23.979	3	7.993	1.140	2.60
Within groups	1655.017	236	7.013		
Total	1678.996	239			

P > 0.05 (significant)

The table 5 above shows that f-cal. (1.140) is less than f-table (2.60) at 0.05 level of significance. The null hypothesis is accepted. This implies that there is no significant differences among the pre-test achievement mean scores of students in the experimental and control groups.

Hypothesis 2: There is no significant difference between the post-test achievement mean scores of students in the experimental and control groups.

Table 6: Difference in post-test mean scores of students

Source	Sum of squares	DF	Mean squares	F-cal	F-tab
Corrected model	3340.213	4	835.053	75.634	2.37
Covariance pre-test	4.434	1	4.434	402	3.84
Group	3339.582	3	1113.271	100.833	2.60
Error	2594.582	235	11.041		
Corrected Total	5934.796	239			
Total	112743.000	240			

P < 0.05 (significant)

This table shows that f-cal. (100.833) is greater than f-table (2.60) at 0.05 level of significance difference among the post-test achievement means scores of students in the experimental and control groups.

Hypothesis 3: There is no significant difference between the pre-test and post-test achievement mean scores of male and female students in the experimental and control groups.

Table 7: ANCOVA showing effect of gender and treatment on students' achievement in Social studies

Source	Sum of squares	DF	Mean squares	F-cal.	F-tab
Corrected model	3343.886	8	419.986	32.267	1.94
Covariance pre-test	4.257	1	4.257	0.380	3.84
Sex	0.439	1	0.439	0.039	3.84
Group	3339.698	3	1113.233	99.253	2.60
Sex x Group	3.231	3	1.077	0.096	2.60
Error	2590.910	231	11.216		
Corrected Total	5934.796	239			
Total	112743.000	240			

$P < 0.05$ (significant)

Table 7 above shows that f-cal. (0.096) is less than f-table (2.60) at 0.05 level of significance. The null hypothesis is accepted. This implies that there is significant difference in the pre-test and post-test achievement mean scores of male and female students in the experimental and control groups. Similarly, the main effect of gender on students' achievement in social studies is not statistically significant at 0.05 level of significance. However, the effects of treatment on the achievement of the students is significant at 0.05 level ($f = 99.253$, $P < 0.05$).

Hypotheses 4: There is no significant difference between the pre-test and post-test Attitude mean scores of Male and Female students in the experimental and control groups.

Table 8: ANCOVA, summary of gender and treatment on student's attitude towards social studies

Source	Sum of squares	DF	Mean squares	F-cal.	F-tab
Corrected model	17902.774	8	2237.847	13.025	1.94
Covariance pre-test	246.112	1	246.112	1.432	3.84
Sex	89.009	1	89.009	0.518	3.84
Group	17283.977	3	5761.326	33.533	2.60
Sex x Group	253.653	3	117.884	0.686	2.60
Error	.496	231	171.813		
Corrected Total	840661.008	239			
Total	840661.000	240			

$P < 0.05$ (significant)

Table 8 above shows that f-cal. (0.686) is less than f-table (2.60) at 0.05 level of significance. The null hypothesis is accepted. Therefore, there is no significance difference in the pre-test

and post-test attitude mean scores of male and female students in the experimental and control groups. The effect of gender on students' attitude towards social studies is not statistically significant at 0.05 level of significance. However, the effects of treatment on students' attitude towards Social studies is significant at 0.05 level ($f = 33.533$, $P > 0.05$).

DISCUSSION

The results above show that Guided discovery method with an experimental situation of learner centered, recorded the highest post-test scores. This is important as the pre-test mean scores of this group was not the highest. The Guided discovery method group performed better than all other groups in the post-test. Literature, in psychology generally supports active learners' involvement in teaching and learning. Ekiugbo (2015) opines that active participation by learners is preferable to passive reception of the context to be learned and motivated learners are better than one who is not motivated. The degree of interest and enthusiasm in the group exposed to the lecture methods and no treatment method were far less than the guided discovery and discussion method of teaching.

The null hypothesis relating to attitude was rejected in table 7 above. A cursory look at the descriptive statistics presented in the table I showed that the Guided discovery group which was learner centered, recorded the least pre-attitude mean scores, but performed better than others in the post-test attitude mean scores groups. Ekiugbo 2015 has argued that attitude is rather complex phenomenon which develops overtime and may not be changed overnight. Despite the assured relationship between knowledge and attitude it can be argued that being knowledgeable about a phenomenon may not be a sufficient predictor of positive or negative disposition towards the object of knowledge. The findings collaborated those of Odunbunmi (1983). The findings of the report revealed teaching methods significantly affect the attitude of students as revealed in the post attitude mean scores.

Findings on hypothesis relating to sex suggest that there is no significant difference in the pre-test and post-test achievement scores of male and female students in the experimental and control groups. The null hypothesis is accepted. Similarly, the main effect of gender on students' achievement in Social studies is not statistically significant at 0.05 levels. However, the effect of treatment on the achievement of students is significant at 0.05 levels. This report departs form the conclusion of Aiyloagbe as quoted by Arodele (2006) and Adodo (2005), all of which linked student's attitude and academic performance in the sex types and teaching methods. This report however supports the findings of Adeosun (2002) which found no significant interaction between methods of instruction, gender and achievement.

CONCLUSION AND RECOMMENDATIONS

The result of this investigation have proved some empirical evidences in the support of the superiority of guided discovery teaching methods in handling these topics in Colleges of Education in Nigeria. This in essence supports the need to massively promote its use in Social studies classes more also when this method of imparting knowledge is not popular in the Colleges of Education level many of whom are themselves ignorant or may not be totally

indisposed to its use. Teachers should be encouraged to use innovative methods to, handle Social studies classes at this level in Nigerian schools.

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