

COLLABORATIVE LEARNING STRATEGY AND ACADEMIC ACHIEVEMENT OF SECONDARY SCHOOL STUDENTS IN SOCIAL STUDIES IN SOUTH-WEST, NIGERIA

ABDU-RAHEEM, Bilqees Olayinka Ph. D

Department of Educational Foundations and Management,
Faculty of Education, Ekiti State University, Ado-Ekiti, Nigeria.

E mail: dr_boabduraheem@yahoo.com

Abstract

This study examines collaborative learning strategy and academic achievement of secondary school students in Social Studies in South-West, Nigeria. The study is necessary as a result of poor performance and achievement of students in schools due to conventional method used to teach them. However, collaborative learning strategy, if properly handled could go a long way to improve students' achievement in Social Studies. The study adopts quasi-experimental pretest-posttest control group design. The population for the study comprised all Junior Secondary School Students in South-West, Nigeria. The sample consisted of 400 Junior Secondary School Class II students randomly selected from sampled schools. Simple random sampling was used to select two co-educational schools from Ekiti, Ondo, Ogun, Osun and Oyo states respectively. Simple random sampling was used to select 40 students from each school (20 males and 20 females). Simple random sampling was also used to allocate the schools in each State to experimental and control groups. The instrument used was the Social Studies Achievement Test (SSAT) designed by the researcher. It was validated by experts in relevant disciplines and validity of the instrument was determined through face and content validity procedures. The test-re-test and internal consistency methods of reliability were adopted and the reliability coefficient of 0.69 and 0.71 were obtained respectively. Two hypotheses were generated and tested at 0.05 level of significance. The data collected were analyzed using ANCOVA statistical tool. The result shows a significant difference between the achievement mean scores of students in the collaborative learning strategy and control groups. ($F_{cal}=1620.442, F_{table}=3.00, P=0.05$). The result also shows no significant difference in gender based achievement mean scores. ($F=1.952, P>0.05$). Male and female students performed equally in collaborative learning strategy in Social Studies. It was recommended that collaborative learning strategy should be used to teach in Secondary Schools to enhance the achievement of students in Social Studies.

Key words: Collaborative learning strategy, Academic achievement, Social Studies, South-West, Nigeria.

Introduction

Secondary school students in South-West, Nigeria like their counterparts all over the world are supposed to be taught with methods and strategies that will make them to be mentally, psychologically and intellectually alert to cope with problems of survival. By using collaborative learning strategy in particular, students are likely to be more gainfully involved in collecting, collating, analyzing and coordinating ideas, issues, information and skills among themselves to solve specific problems.

Collaborative learning is a condition whereby two or more people study or attempt to give time and attention to learning or discovering something together. It involves sharing ideas, information and skills in the classroom to achieve a common goal among members of the group. Chiu (2008) explains that collaborative learning enables people to tap from one another's resources and skills, asking one another for information, evaluating one another's ideas, monitoring one another's work. Bruffee in Qiu, Hewitt and Brett (2012) state that the purpose of collaborative groups is to achieve consensus and shared classroom authority. Qiu, Hewitt and Brett (2012) affirm that with collaborative learning, the control of learning is turned over to the students and learning environment is student-centred.

Collaborative learning gives room for students to be more gainfully involved in collecting, analyzing and assimilating information to solve specific problems. This is an indication that they are being

trained to develop both cognitive and effective abilities that can assist them to solve problems to the best of their ability. This is in line with one of the major aims of Social Studies teaching which is to develop in students the necessary problem-solving skills (Seweje, 2010).

Brum, Bouldin and Whitte (2000) state that teachers of Social Studies need to convert their classrooms to more learner-centred environs which could allow learners to make decisions and solve small problem that their society encounters.

In their own study, Khatoon and Akhter (2010) posit that collaborative learning is an instructional method in which students at various performance levels work together in small groups towards a common goal. They noted that the success of one student helps others to be successful. They also define collaborative learning as a strategy in which students learn in small groups where they interact within their groups and learn from each others' experiences. They observed that students' learning is more productive and meaningful when they are actively involved in learning tasks in groups. They stressed that the instructor's role is not to transmit information, but to serve as a facilitator.

In addition, Dillenbourg and Jermann (2007) stress the risk of impairing collaboration by providing too strict and inflexible scripting rules. They explain that with an obligatory learning protocol, the use of the supporting functionalities is mandatory while optional learning protocols provide functionalities via a

menu for learners to make use when they feel like/or in need of them. Pfister and Oehl (2009) also discover that optional learning protocols are more conducive to support collaborative learning framed as a knowledge acquisition task than a task framed as problem-solving goal focus.

Further still, Mitnik, Recabarren, Nussbaum and Soto (2009) confirm that, specifically, collaborative learning is based on the model that knowledge can be created within a population where members actively interact by sharing experiences and take on asymmetry roles. Chiu (2008) also agrees that collaborative learning refers to methodologies and environments in which learning engage in a common task where each individual depends on and is accountable to each other. Chiu and Khoo (2005) also agree that methods for examining collaborative learning processes include conversation analysis and statistical discourse analysis.

Similarly, Van der Linden, Erkens, Schmidt & Renshaw (2000) argue that for collaborative learning to be successful, students working together within groups should be mutually dependent, share a common goal and responsibilities. Visschers-Pleijers, Dolmans, De Leng, Wolfhagen & Van der Vleuten (2006) observe that students in tutorial groups display cognitive activities such as summarizing, asking each other critical questions and correcting misconceptions. Johnson, Johnson and Smith (2007) also agree that learning increases when students share common goals, are dependent on and accountable to each other. The struggle to resolve potential

conflicts during collaborative activity result in the development of higher levels of understanding (Bukunola and Idowu 2012).

According to Neo (2003), learning takes place in meaningful, authentic contexts and is a social collaborative activity, in which group members play an important role that is encouraging. Wei-Fan and Chung-Pei (2011) also say that learning takes place in more social contexts, such as collaborative, cooperative and that peer learning is gaining popularity in schools. Collaborative learning is widely applied in education, but little is known about the cognitive processes that make it successful (Van Blankenstein, Dolmans, Vander, Vleuten and Smith 2013). They emphasize that collaboration can stimulate elaboration because students process information more deeply when they interact with each other.

Collaborative learning is embedded with many teaching strategies such as problem-solving, discussion, project, brainstorming, debate and creative activities. Discussion itself works on the principle that many people are to put heads together in terms of knowledge and ideas to find solutions to specified problems. Debate encourages critical thinking and reasoning, time consciousness, tolerance and confidence. Problem-solving involves critical thinking, searching for more knowledge, analyzing, investigating and collating issues and ideas, formulating hypotheses, experimenting guesses, collecting and analyzing information (Adewuya, 2002).

The work of Basden, Basden and Henry (2000) discover that collaboration benefits memory when collaborators are subsequently tested individually. Tempelaar, Wosnitza, Volet, Rienties, Gresbers and Gijssels (2013) support that collaborative learning finishes with individual assessment; individual performances are evaluated by written examinations or assessments of individual assignments. Some of the advantages of collaborative learning as listed by Johnson (2000) are; the members of small groups are able to overcome obstacles, act independently and responsibly, rely on the talent of team members, trust others, speak up and make decisions.

One of the major important advantages of collaborative learning strategy according to Volet, Vauras and Salonen (2009) & Jarvela, Volet and Jarvenoja (2010) is that peers who participate in a collaborative learning environment are naturally included in the pursuit of a collective goal. Kamp, Dolmas, Van Barkel and Schmidr (2012) also discover that students who are perceived by their peers as more committed to the group and promote collaboration within the group achieve better on the group assignment than students who are perceived by their peers as less committed to the group. Mansfield (2006) reveals that some students have reported motivation to take responsibility and a pro-social orientation in collaborative learning activities.

In the same vein, Adeyemi (2008) in a research on effects of cooperative learning and problem-solving strategies on

Junior Secondary School Students' Achievement found out that lecture method commonly used is inappropriate and ineffective for achieving high objectives on Social Studies programme. He emphasizes further that there is need to search for more effective strategies which are suitable and efficient for promoting the level of secondary schools Social Studies achievement beyond contemporary limits and to the satisfaction of the current Social Studies curriculum requirements. Ogundiwon, Oladipupo and Adegoke (2014) also conclude that it is better to use teaching strategies that are participatory and students' centred where students are trained to take control and direct their learning process for effective learning.

Lecture method allows a great deal of information to be passed to the learners and favours handling of large classes. In spite of the advantages, it does not stimulate students' innovations, inquiry and scientific attitudes. It encourages students to cram facts which are easily forgotten (Okwilagwe, 2002). He explains further that there is need to search and incorporate modern instructional strategies which the advanced world has long incorporated/injected into their classrooms. Akinleye (2010) establishes that if the students can be given the opportunity to be involved in the lessons, identifying and finding solutions to problems could facilitate better understanding and developing problem-solving skills which could go a long way to give them proper orientation in facing challenges of life.

Collaborative learning activities can include collaborative writing, group projects, joint problem-solving, debates, study teams and other activities (Chiu, 2004). Collaborative learning which embedded problem-solving, project and discussion methods should be encouraged to enable the students to exploit their thinking skills and participate actively in the lesson. Opinions of researchers under review are in agreement with this study that collaborative learning is an effective strategy that promotes students' achievement and gives room for attainment of learners' aims and objectives.

Statement of the Problem

It has been observed that students are learning Social Studies under critical condition which is adversely affecting their academic achievement in schools. The methods used by teachers encourage students to memorise facts which are easily forgotten (Okwilagwe, 2002). Abdu-Raheem (2010) also establishes that out of 3,186 students that sat for JSS 3 final examinations in Social Studies in Ekiti State, only 856 of them which is 26.9% passed at credit level because students were not given challenging tasks that can enhance creative thinking and imaginations. Idowu (2012) also criticizes the method and called for better methods that can enhance learning.

Adesoji and Fabusuyi (2001) also discover in their study that boys are better than girls in Mathematics They found out that 63% of the girls could not attempt solution to problems based on volumetric analyses. This study, therefore, attempts to

investigate collaborative learning strategy and secondary school students' achievement in Social Studies and also look into the effect of gender on students' achievement in Social Studies using collaborative learning strategy in South-West, Nigeria.

Research Hypotheses

- i. There is no significant difference between the achievement mean scores of students in the collaborative and control groups.
- ii. There is no significant difference between the achievement mean scores of male and female students in the collaborative and control groups.

Methodology

Research Design

This study adopts a quasi-experimental, Pre-test, Post-test control group design. The pre-test was used to test the knowledge base-line of all the students used for the study before the commencement of the experiment, while the posttest was used to measure the level of achievement of the students in both experimental and control groups after the treatment.

Population and Sample

The population for the study comprised all the Junior Secondary School Students in South-West, Nigeria. The sample consisted of 400 Junior Secondary School Class II students. Simple random sampling was used to select two co-educational schools from each state of the South West making 10 schools. Simple random sampling was used to select 40 students from each school (20 males and 20 females). Simple random sampling was

also used to allocate each school to experimental or control group. Stratified random sampling was used to divide 40 students in each experimental group into five (4 males and 4 females) while 40 students in the control group was left as a class.

Instrumentation

The instrument for the study is the Social Studies Achievement Test (SSAT) designed by the researcher. The validity of the instrument was determined through face and content validity procedures by Educational Management, Tests and Measurement and Social Studies experts. The reliability of the instrument was ascertained through test-re-test and estimation of internal consistency. The instrument was administered on 30 students from 2 schools that were not used for the study. After six weeks, the instrument was re-administered again on the same sets of students. The scores of the two sets were correlated using Pearson Product Moment Correlation Coefficient Analysis and the correlation coefficient of 0.69 was obtained. Crombach Alpha was also applied on the responses of 30 students from a school that was not used for the study for estimation of internal consistency. The reliability co-efficient of 0.71 was also obtained which is good enough to measure the differences between experimental and control groups when large sample is used.

Experimental Procedure

Before the commencement of the experiment, two graduate Social Studies teachers from each of the ten (10) schools used for the study were employed as

research assistants. The research assistants in each school served as facilitators in experimental and teachers in the controlled groups. The teachers were trained for a week to train and familiarize them with the use of collaborative learning strategy to teach Social Studies. The teachers assisted in handling the treatment lessons and administration of pretest and posttest on students. The pretest was administered on all students before the commencement of the treatment.

During the treatment stage, in experimental group students were allowed to dialogue, discuss, ask and answer questions, share and clarify ideas, issues and information. They work together as a team, class activities were carried out by students and they were put at the centre of learning. Teachers were there to control, regulate, facilitate and direct the affairs of students when necessary to prevent the discussion from going out of hand. In control groups, teachers used conventional lecture method where active participation of students in the learning process was not encouraged.

Immediately after the completion of the treatment, the instrument used for pretest was re-arranged and administered on students from experimental and controlled groups as posttest (Achievement Test). Though, students were used to lecture method in their various schools, they have been participating in inter-school debates and quiz competitions which assisted those in experimental groups to develop social skills of talking, listening and clarification of ideas which enhance critical thinking,

desire for knowledge and self-confidence when they were given opportunity to be at the centre of learning.

Data Analysis

Analysis of Covariance (ANCOVA) was used to test the two hypotheses generated for the study at 0.05 level of significance. Multiple Classification Analysis (MCA) was also used to test the effect of treatment on the achievement mean scores of students in Social Studies.

Results and Discussion

Results

Hypothesis 1

There is no significant difference between the achievement mean scores of students in the collaborative and control groups

Table 1: ANCOVA Showing the Achievement Mean Scores of Students in Collaborative and Control Groups

Source	SS	Df	MS	F-cal	F-table
Corrected model	44210.786	2	22105.393	5303.922	3.00
Covariate (pretest)	662.486	1	662.486	158.955	3.84
Group	43832.569	1	43832.569	10517.519	3.84
Error	1988.014	477	4.168		
Corrected Total	46198.800	479			
Total	347400.000	480			

P<0.05

Table 1 shows that F_{cal} (10517.519) is greater than F_{table} (3.84) at 0.05 level of significance. The null hypothesis is not accepted. It implies that there is significant difference between achievement mean scores of students in the collaborative learning groups and control groups. The students in collaborative learning strategy group have better achievement than students that were taught with conventional lecture method.

posttest scores because of the noticeable difference between the mean posttest scores of students in the experimental and control groups. The Multiple Classification Analysis (MCA) is presented in table 2.

Table 2: Multiple Classification Analysis Showing the Effect of Treatment on Achievement Mean Scores of Students in Social Studies.

Grand Mean = 25.05					
Variable + category	N	Unadjusted Deviation	Eta	Adjusted for independent + Covariate	Beta
Collaborative control	240	9.52	0.36	9.58	0.090
	240	-9.52		-9.75	
Multiple R 0.090					
Multiple R ² 0.008					

Table 2 shows that students exposed to collaborative learning strategy had higher adjusted Posttest score of 34.63 ($25.05 + 9.58$) compared to those in the control group with an adjusted mean score of 15.30 ($25.05 + (-9.75)$). It implies that collaborative instructional strategy provides a veritable tool in effecting better achievement of students in Social Studies. Therefore, collaborative learning strategy group is the probable best in their mean

Hypothesis 2

There is no significant difference between the achievement mean scores of male and female students in the collaborative and control groups

Table 3: 2 x 2 ANCOVA of Gender and Treatment on Achievement Mean Scores of Students in Social Studies

Source	SS	Df	MS	F _{cal}	F _{table}
Corrected total	44219.859	4	11054.965	2653.965	2.37
Covariate (pretest)	655.659	1	655.659	157.376	3.84
Sex	6.473	1	6.473	1.554	3.84
Group	43831.249	1	43831.249	10520.697	3.84
Sex * Group	2.591	1	2.591	0.622	3.84
Error	1978.941	475	4.166		
Corrected total	46798.800	475	4.166		
Total	347400.000	480			

$P > 0.05$

Table 3 shows that F_{cal} (0.622) is less than F_{table} (3.84) at 0.05 level of significance. The null hypothesis is accepted. There is no significant difference between the achievement mean scores of male and female students in the collaborative learning strategy groups and control groups. This implies that male and female students exposed to the same treatment do not differ significantly in their mean post-test scores. Similarly, the effect of gender on students' achievement in Social Studies is not statistically significant at 0.05 level. However, the main effect of treatment on students' achievement in Social Studies is significant at 95% confidence level.

Discussion

This study reveals that there is a significant difference between the achievement mean scores of students in the experimental and control groups. There is a drastic improvement on

students' achievement in experimental group (collaborative learning strategy) after the treatment. The study is in agreement with Arends (2000), Mathes and Allison (2001), Calhoon and Lynn (2003) Jonassen (2004) and Oyelabi (2014). They also discover that shared learning allows students to engage in dialogue, discussion, be at the centre of learning and become critical thinkers.

The study also shows that there is no significant difference between the achievement mean scores of male and female students. The study is related to that of Abdu-Raheem (2012) who concludes that the main effect of gender on students' achievement at 0.05 level of significance which is ($F=1626.882, P<0.05$) and retention which is also ($F=2414.263, P<0.05$) is not significant in Social Studies. In line with the submission, Adeosun (2002) also discovers out that there is no significant difference in the achievement mean scores between male and female students while conducting studies on effects of multi-

media packages and students' achievement and retention in Social Studies. The work is contrary to Wentzel, Baker and Russell (2012) who posited that women have stronger social goal orientations than men in collaborative learning situation. The study is however, contrary to Tempelaar, Wosnitza, Volet, Rienties, Gresbers and Gijsselaers (2013) who found out that female students scored 7% higher than male students in their study carried out on problem-based collaborative learning context.

Conclusion

It is hereby concluded in this study that collaborative learning strategy is more effective than conventional lecture method in improving students' achievement in Social Studies. The study also discovers that gender does not play any significant role on students' achievement in Social Studies. The males and females exposed to the same treatment performed equally.

Recommendations

On the basis of the findings of the study, it is recommended that students should be motivated to work together in small groups, share ideas, skills and information in classrooms towards common goals. Social Studies teachers should, as a matter of urgency explore and use collaborative learning strategy to promote knowledge in secondary schools. School principals should provide Social Studies teachers with enabling environment for the use of collaborative learning strategy which gives room for participatory studentship. Government

should also organize on-the-job training, seminars, workshops, symposia and conferences at intervals for Social Studies teachers in secondary schools to update their knowledge on the application of the collaborative learning strategy of teaching Social Studies.

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