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Comparative analysis of the effects of self-directed learning (SDL) strategy and simulation technique (ST) on students' knowledge retention in social studies at upper basic 11 in kogi east education zone

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Abstract
This study investigated the comparative analysis of the effects of self-directed learning strategy and simulation technique on students' knowledge retention in social studies at upper basic 11 in Kogi east education zone of Kogi State. The study used gender as a moderating variable to compare the mean interest rating scores, of male and female at Upper Basic II when exposed to the treatment using self-directed learning and simulation techniques. Three research questions and three hypotheses were formulated and tested at 0.05 level of significance. The study employed quasi experimental (pre-test, post-test and nonequivalent groups) the sample consisted of 442 Upper Basic II Social Studies students, comprising 232 males (52.49%), and 210 females (47.51%) drawn from 6 intact classes of co-educational government public schools in the study area. The instruments for data collection were Social Studies Retention Test (SSRT). The SSRT was computed using cronbach alpha with reliability r= 0.77. Mean and standard deviation were used to answer research questions while analysis of covariance (ANCOVA) was used to test the hypotheses. Findings revealed that students that were taught Social Studies using self-directed learning exhibited higher knowledge retention level than those taught with simulation technique. That is f (1441) =88.445; p=0.00<0.05 than those who were taught using simulation technique. There is significant difference in the mean knowledge retention rating using Self-Directed Learning (SDL) and simulation technique in favour of male students. Based on the findings, the study recommended among others that, Social Studies Teacher should be encouraged to employ self-directed leaning as a strategy in the teaching/ learning of Social Studies. Government (National, State and Local Government Areas), professional bodies, parents, stake holders should encourage capacity building workshops, seminars, conferences, in service training on the use and implementation of self-directed learning and simulating techniques in Social Studies.

Keywords: self-directed learning strategy, simulation technique, students knowledge retention, social studies, basic education

Introduction

Social studies adopted as one of the compulsory curriculum subjects in the junior secondary schools. In Nigeria today and globally, there is a constant change in the curriculum of social studies education in the endeavour to meet modern day societal needs (National Council for Social Studies, 2010). Students taking Social Studies development the ability to comprehend and appreciate the societal values embedded in the concepts of the subject.

For this reason, many social studies educators have clamored for linking its teaching and learning to the world of students, emphasizing in them the need to participate in different kinds of activities to gain a broad knowledge base, develop thinking skills and take responsibility for their own learning (Oyediji and Okwilagwe, 2015) [29]. Mesieobi (2008), defined social studies as an integrated field of study which probes man's symbiotic relationships with his environments. It also endows man with the reflective or contemplative capabilities affective and psychomotor skills to enable him understand his world and his problems and to rationally solve them for effective living in the society. Human beings (students) interact with their environments, and the influences may be positive or negative. The general purpose of social studies education is to help learners develop the ability to adapt to the ever-changing environment in which they find themselves through the acquisition of relevant knowledge, attitudes values and practical skills (Adeyemi, 2010) [5].

Although, teachers are expected to use several approaches to influence effective teaching and learning, the conventional method is still very much evident in the Nigerian classrooms, in spite of it being criticized for emphasizing teaching centeredness and relegating the learner to a passive role player in the education process (Okam, 2010, Patrick, 2000) [26]. This scenario has created continuous and enormous gap between the intended behavioural changes and the actual classroom practices in Social Studies teaching and learning. Thus, experts in the field have affirmed that the situation has not changed over time in spite of the introduction of new concepts in the curriculum and innovation into the teaching and learning of social studies (Adeyemi, 2010; Long, 2010) [5, 20]. Besides the inadequate students' performance observed in the subject, there is the problem of students not imbibing the effective changes expected from the learning experiences they go through. Thus, they youths are rich in the knowledge of social studies but deficient in the expected social values and attitudes that characterize socially responsible citizens (Adeyemi & Ajibade, 2011) [4].

The institutionalization of Social Studies as a school subject

rose out of the realization that the study of man and his environment was not adequately covered by single discipline in the social sciences. It is on this note that federal government of Nigeria in her National Policy on Education (FRN, 2013). Recognized Social Studies as one of the compulsory subjects in primary and post primary schools. It is also studied as a discipline in some of the higher institutions of learning in Nigeria (Federal Republic of Nigeria, 2013).

Despite its recognition, Odoma 2013 [24], Ikwumelu and Oyibe (2014) [18] observed that Social Studies has been part of educational curriculum in the United States of America (USA) for many years before its formal introduction into Nigeria educational curriculum in early 60s yet its philosophy, scope, content and methods of teaching have remained to both scholars and Social Studies teachers. Thus, opinions about what Social Studies should vary from country to country, even within a single nation, experts are divided on the question of the definition (Ikwumelu & Oyibe, 2014) [18].

Mezieobi (2008) [21] defined Social Studies as an integrated field of study which probes man's symbiotic relationships with his environments, endows man with the reflective or contemplative capacities, intellectual, affective, social and work skills to enable him understand his world and his problems and to rationally solve them for effective living in the society.

The general purpose of social studies is to help learners develop the ability to adapt to the ever-changing environment in which they find themselves through the acquisition of relevant knowledge, attitudes, values and practical skills (Adeyemi, 2010) [5]. With this is mind, Social Studies has been designed and introduced into the national curriculum of primary and secondary schools and made a compulsory subject in the current school structure, referred to as the Universal Basic Education (UBE).

Ironically, Social Studies has been implemented many years now without adequate success in terms of inculcating the right type of attitudes and values of good citizenship among the youths (Abdu-Raheem, 2012) [2]. The youths are rich in knowledge of Social Studies' concepts and facts but deficient in expected social values, attitudes and behaviours that characterize socially responsible citizens (Adeyemi & Ajibade, 2011) [4]. It is assumed that the deficiency arose from the way the subject was taught and learnt in the classroom. Some Social Studies educators have blamed teachers of using lecture method in teaching the subject that required interactive methods in a conducive social environment (Okam, 2010) [26]. The authors explain further that a teacher is expected to be a facilitator whose main function is to help learners to become active participants in their learning.

There are many research works supporting various instructional techniques which enhance teaching and learning as well as enhance interest, achievement and retention in Social Studies. (Chiodo & Byford, 2009; Russell & Waters, 2010, Essien Akpan & Obot 2015) [9, 31, 11]. The instructional techniques intended to address in this study are: to compare self-directed learning and simulation learning strategies, as to which would best enhance interest, achievement and retention of Social Studies Students in Kogi East.

Self-Directed Learning (SDL) as a process in which individuals consciously take responsibility and initiatives with or without the help of others to diagnose their learning needs, formulate learning goals, identity resources for learning, select and implement learning strategies and evaluate learning outcomes within a given framework, thereby becoming their own learning agents (Long, 2010; Grow, 1991; Guglielmino, 2013) [20, 14, 15]. The advantage of self-directed learning is a paradigm shift from teacher to learner-centeredness. That is, it removes the passive role students play and thus gave room for effective participation during the classroom teaching and learning. The students chose different learning objectives and performance outcome based on their personal interest and strengths.

When the teacher directs learning, learners tend to be more dependent-prone. In a self-directed learning situation, students take control over their learning experiences, challenge themselves by going beyond the easy familiar, think independently, plan and execute their own activities. These make them to exhibit curiosity and motivate interest, since they are given the opportunity to work independently

The term simulation technique entails the use of activities or materials that represent real life situation, past events, incidents or organization in such a way that pupils learned and understand more about them (Adegoke, 2013) [3]. It is a simplified model of a real-world situation. Simulation is simply pretence or an imitation device used to help learners discover how certain situations, circumstances or processes that affect human behaviour. Adeyemi (2010) [5] as well as Glen and Johnson (2012) [13] described simulation as an unstructured situation in which learners improvise behaviour according to their assigned roles. The authors further say that simulation technique entails assigning students to unique roles within a group as the group addresses a series of issues. Simulation technique motivates pupils by keeping them actively engaged in the learning process which requires them to play roles. The authors asserted that simulation could make the teaching of Social Studies interesting and realistic which lead to acquisition of knowledge, skills and values necessary for the survival of the individual and the society at large.

Okereke and Onwukwe (2011) [27] asserted that the use of simulation technique make students learn concept or material much better as they could discern situations for themselves and retain the knowledge acquired for a long period of time.

Retention as endurance of behavour which has been learned or acquired when the behaviour is not utilized, signified by being able to recall, relearn, recognized or reproduce the behavour (Nathan, 2014) [22]. It is the preservation of memory within the mind. It is also the act or power of remembering things, or a preservative factor of the mind. The mind acquires the material of knowledge through sensation and perception.

These acquired material needed to be preserved and retained in the mind inform of image for knowledge to develop. Whenever a stimulus occurs retained images are reviewed or reproduced to make memory possible. This depicts that Social Studies concept should personate the students in such a way or method that will touch their consciousness. Would these be achieved and retained through self-directed learning and or simulation technique? The achievement of some school out of omission, retention result of learning efficiency of male and female may be different. This provided the ground for channeling students into prescribe gender activities. For instance, the grouping of subjects in

our school encourages stereotype choice of subjects, such as home economic for girl and woodwork for boy (Abdul-raheem 2012) [2]. Thus, retention level of male and female in Social Studies may differ since there are some specific roles for male and other roles specifically for female. However, the study sought to use SDL and Simulation technique for treatment in Social Studies concepts whether they will influence the retention level of male and female Social Studies students at Upper Basic II in Kogi east. Gender roles are patterns of behaviours, attitudes, and expectations associated with a particular sex-with being either male or female.

The study carried out by Adeyi (2017) [6] on the effect of inquiry method on students' achievement and retention in Social Studies in Otukpo Benue State revealed that there was significance difference between retention mean scores of the students in the experimental groups and control groups; there is significant difference between male and female students in achievement and retention level; it was also found out that there is significant difference between mean achievement and retention scores of students in urban and rural areas. It was therefore, recommended that new activity based strategies such as inquiry method should be adopted in teaching Social Studies in upper basic schools. The present study is a bit different because the review study was undertaking in Otukpo Benue State, while the present study is in Kogi State. But its relationship is seen in the knowledge retention level which is the dependent variable in the study.

Education for All (EFA) goals number 4, 5, and 6 showed that there is gender disparity in schools. The latest data showed that there are seven females to every ten-boy male in primary schools; while at the secondary school level, 97 countries have not reached gender parity, in forty-three of them females are disadvantages. In many middle- and high-income countries, males are more likely to be out of secondary schools than female students. Female students perform better than males in reading at both primary and secondary school level. Male students have an advantage in sciences, although there are some evidences that the gap is narrowing down. (UNESCO, 2012) [33].

Literature showed that gender is a strong predictor of human conduct and many differences have been identified between influence of gender, the behaviours, attitudes and retention of male and female students. This explained the influence of gender on the learning outcomes of students which do not seem to have reached a consensus on the effect of gender on students' performance in school (Abdu-Raheem, 2012; Akinbode, 2006; UNESCO, 2012) [2, 7, 33]. In the light of this, the role of gender as it affects knowledge retention is worth further studying in order to provide better insight on how they influence learning outcomes, especially under experimental condition(s) of self-directed learning and simulation technique.

The debate on who achieves higher (male or female) has been a subject of academic discourse for a long time. However, Abdu-Raheem, (2012) [2] posited that improved instructional techniques can close the gender gap in knowledge retention in social studies. Thus, this study sought to find out if knowledge retention level of male and female pupils in social studies could be enhanced through SDL and simulation technique.

Statement of the Problem

The implementation of Social Studies Curriculum Upper Basic II level is yet to be appreciably effective. According to Okobia (2015:68) [28] the implementation of Social Studies in the past has not been very encouraging. Report of studies evaluating (Social Studies) curriculum implementation demonstrates a wide gap between the expectations of the curriculum developers and the perception and attitudes of teachers in actual classroom practice.

There are evidence of poor performances of students in Social Studies at the Upper Basic II level. Imogie (2010) [19] observed that teachers' quality determines learners' strength of leaning and by extension performance in internal and external examinations. Ukadike (2005) [32], in a study found that students poor performance at the Upper Basic II level are based on ineffective teaching strategies and appropriate learning environment to induce effective learning, Ikem (2014) [16] remarked that poor performance in Social Studies and learning of Social Studies are based on the following factors; the employment of significant number of non-professionally qualified Social Studies teachers who lack the professional instructional orientation to present content to the cognition of learners, including inadequate use of resources, improper delivery of instruction to enhance high level of comprehension amongst learners.

Pedagogic practices at the basic level of education in Nigeria encourage learners' regurgitation of facts without the inculcation of behavioural changes which are supposed to reflect the objectives of learning Social Studies (Oyedij and Okwilagwe, 2015) [30]. Instructional practices have shifted from teacher-centeredness to student-dominated processes in many developed nations of the world. It has been established by Okam (2012) [25]; Abdu-Raheem, (2011) [1]; and Ikwumelu and Oyibe (2014) [18], that exposition method do not encourage development of cognitive and affective components in learners. Utulu (2007) [34] suggested that it is only through the application of appropriate innovative instructional and learning methods that sound knowledge and the corresponding behaviour changes can be imparted to students. In view of this, the present study investigated experimentally, the effects of self-directed learning and simulation technique on students' knowledge retention in social studies at Upper Basic II, Kogi East.

There had been an observed frequent poor students' knowledge retention in Social Studies in upper Basic Education level in the study area of Kogi State. This deplorable state of poor students' achievement is seen in students' performance in JS III Social Studies external examination between 2007 – 2016. The observation showed the total number of students who sat for the examination; the number who passed within grade 1-6; and the total average number of students that passed was 56%. The percentage showed that only 4 years were above 60%. The researcher therefore, wondered what could have been responsible for the irregularities in students' achievement or performance in the study area.

There is, however, inadequate documented information in research conducted in Nigeria and /or in the study area on the comparative effects of self-directed learning (SDL) and stimulation technique on students' knowledge retention level in Social Studies in upper Basic level of Education. The problem of this study, therefore, what are the comparative effects of self-directed learning (SDL) and Simulation technique on students' knowledge retention level in Social Studies at upper basic II in Kogi East Education

zone?

Purpose of the Study

The purpose of this study is to compare the effects of self-direct learning (SDL) and simulation techniques on students' knowledge retention level in Social Studies at upper Basic II in Kogi East. Specifically, the study sought to:

1. Determine the difference in the mean retention scores of male and female students taught social studies using Self Directed Learning (SDL) strategy?
2. Find the difference in the mean retention scores of male and female students taught social studies using simulated technique
3. Find the interaction effect of methods and gender on students' mean retention scores in Social Studies.

Research Questions

The study sought to provide answers to the following research questions:

1. What is the difference in the mean retention scores of male and female students taught social studies using Self Directed Learning (SDL) strategy?
2. What is the difference in the mean retention scores of male and female students taught social studies using simulation technique?
3. What is the interaction effect of methods and gender on students' means retention scores in Social Studies?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

1. There is no significant difference in mean retention scores of male and female students taught Social Studies using Self Directed Learning (SDL) Strategy
2. There is no significant difference in mean retention scores of male and female students taught Social Studies using simulation technique
3. There is no significant interaction effect of method and gender on students' mean retention scores in Social Studies

Research Method

The study adopted quasi-experimental design of pre-test, post-test non-equivalent- group design. The reason for the adoption of this design is hinged on the fact that it is not possible to have a complete randomization of the subjects hence intact classes were assigned to experimental groups. The design was implemented in four stages. In the first stage, pretest was administered to the first and second experimental groups. In the second stage, self-directed learning was administered to experimental group 1, simulation technique were administered to experimental group 2. In the third stage, post test was administered to both groups. Finally, the subjects were tested after 8 weeks to ascertain the level of retention of what was learned and achieved.

This study was carried out in Kogi East Education zone of Kogi State. Kogi East Education zone is located between latitude 7^0 30' north of the equator and longitude 6^o 42' east of the Greenwich meridian. The area is bounded to the north by Benue State, to the west east by Enugu and Anambra States, to the south by River Niger and Benue Confluence. Kogi East has nine (9) local government areas, with the total population of 1, 484, 345 with 759,738 male and 724,607 female (Population census figure of Nigeria, 2006). The researcher chooses the study area because Kogi East has quite a number of government owned co-educational upper basic schools that offer social studies at the West African Junior Secondary Certificate Examinations (WASSCE). Beside, from the literature that were reviewed, there had not been empirical records of the use of Self Directed Learning and Simulation Technique in determining the knowledge retention level of social students in the zone which justified the choice of the study area.

The target population of this study consisted of 18,560 Upper Basic II students from 150 public junior secondary schools in Kogi East Education zone for 2016/2017 academic session. This population according to Kogi Ministry of Education is made up of 10,240 male and 8,320 female. Out of the 150-public, co-educational schools, 6 schools were selected. 3 schools for experimental group I from old Ankpa Education Zone for Self Directed Learning, while 3 schools for experimental group II from old Dekina Education Zone for Simulation Technique.

The study used a multi-stage random sampling technique. In the first stage, purposive sampling technique was used to select 6 schools from the nine (9) Local Government Areas in Kogi East. The choice of purposive sampling technique was to enable equal and fair representation of Local Government Areas in the sample. In the 2nd stage, simple random sampling was used to pick Upper Basic II class in each school. The 3rd stage, the number of males and female were assigned to the experimental group one and two through a random sampling technique. The co-educational nature of the schools allowed for the determination of gender variable in the study- total of 442 Upper Basic II students for the sample; 232 (52.5%) males and 210 (47.5%) females.

Social Studies Retention Test (SSRT) was used as an instrument for data collection. In addition, lesson plans were used for treatment. The SSRT was designed by the researchers to test students' retention level in Social Studies. The instrument consisted of 50 multiple choice objective items with four options letter A-D but was scaled down to 40 items by the analysis. The instrument used was developed based on topics in Social Studies such as marriage, family, drug abuse, communication and religion which are drawn from Upper Basic II Social Studies curriculum and the topics cut across all terms. In constructing SSRT, consideration was given to the objectives of the contents as these served as a guide in determining the number of topics for each of the units that were studied. The items of SSRT are developed according to lower order questions, which represent knowledge and comprehension of cognitive domain and higher thinking processes covering application, analysis, synthesis and evaluation.

The two lesson plans on marriage, family, communication, drug abuse and religion are prepared by the researcher for the treatment both the experimental group 1 and group 2. The administration of the lesson plan covered upper basic II students and not more than 40 minutes duration as it has been in the school timetable. Previous knowledge of the students as regards the topics such as marriage, family, drug abuse, communication and religion were ascertained. Laid down steps in instructional delivery, evaluation, conclusion, summary as well as assignment were equally presented to

the students.

The instruments were presented to three experts, one in Social Studies Education, another in Curriculum and Teaching and the other in Test and Measurement from Department of Curriculum and Teaching, Benue State University, Makurdi for validation. These experts' advice was sought in terms of scope of coverage, content relevance, ambiguity and vagueness of expression. The experts also checked among other things whether SSAT answers are correct or not. Through this process, corrections were affected, additional items were framed and inappropriate items removed to ensure that the instruments were less ambiguous and capable of providing all the necessary information required for answering the research questions and testing the hypotheses. The SSRT had 50 items which were scrutinized by the analyst to 40.

A trial test was conducted in two secondary schools within the area of study, but outside the schools to be used for the main study. The data generated were used to compute the reliability of the two instruments. SSRT was administered to 36 students. Two days were used for the trial test, one day for each instrument. The regular Social Studies teachers served as a research assistant. The teacher was responsible for administration and collection of the instruments. The reliability of the SSRT was computed using Kuder-Richarson 21 formula. It yielded a reliability coefficient of 0.89. The instrument was considered to be sufficiently reliable to be used for the study as it met the condition of 0.70 set by Emaikwu (2012) as necessary for an instrument to be considered reliable.

The researcher obtained permission from the school principals, and letter of introduction were given to them. A week before the commencement of the experimental procedure, six research assistants were trained by the researcher. Intact classes were assigned to experimental groups. The researcher with the help of the research assistants administer SSRT in each of the schools selected. The students were taught by research assistants who were their regular Social Studies teacher. The criteria used in the selection of these assistants were people who have first degree in social studies and have at least five years of experience in teaching the subject. They were also currently teaching in Upper Basic II classes. Oral test and interviews were carried out after training to determine whether they have mastered instructional packages. The training was carried out in the following stages:

Training of Research Assistants

Before the commencement of the treatment the researcher used (6) research assistants that were holders of Bachelor of Science in Education (B. Sc. Ed.) Social Studies with at least five years teaching experience in the selected schools. The research assistants were properly trained and coordinated on the necessary steps to handle the experimental group 1 and experimental group 11 lesson plans. The training was carried out in the following stages.

Treatment Schedule

This section covered training of research assistants, exposure of experimental group 1 to self-directed learning (treatment), and that of experimental group 11 to simulation technique. The normal time table of the schools was used for the study. Three research assistants were exposed to Self-Directed Learning strategy. Lesson plans to teach the five topics selected in the experimental group 1, while on the order hand three research assistants were exposed to simulation technique in the experimental group II using simulation lesson plans on the five topics.

Data were analyzed using mean and standard deviation to answer the research questions. The hypotheses were tested at 0.05 level of significance using Analysis of Covariance (ANCOVA). This statistic was deemed appropriate because it eliminated bias which resulted from using intact classes whose equivalence in certain measures have been determined. This method removed the initial differences among the research respondents and control extraneous variables (Ali, 2006).

Results and Discussion

Research Question 1

What is the difference in the mean retention scores of male and female students taught social studies using Self Directed Learning (SDL) strategy?

The data which provide answer to this research question is presented in Table 8.

Table 1: Mean and Standard Deviation of the Retention Scores of Male and Female Students taught Social Studies using Self-Directed Learning (SDL) Strategy

Gender		Pre SSAT	Retention	Mean Gain
Male	Mean	35.0259	60.8879	25.8620
	N	116	116	
	Std. Deviation	10.2842	8.9538	
Female	Mean	36.38	57.4100	21.0500
	N	100	100	
	Std. Deviation	9.9275	9.4805	
Difference				4.8120

Table 1 shows the mean retention scores of male and female students taught social studies using Self-Directed Learning (SDL) strategy. The table shows that 116male students and 110 female students in Upper Basic II were taught social studies using Self-Directed Learning (SDL) strategy. Table 8 indicates that the mean retention scores of male the students was 35.03 with a standard deviation of 10.28 during pre-test and the post test scores was 60.89 with a standard deviation of 8.95. While the mean retention scores of female students taught social studies using Self-Directed Learning (SDL) strategy was 36.38 with a standard deviation of 9.93 during pre-test, the post test scores was 57.41 with a standard deviation of 9.48. Table 8 further reveals that the mean gain of male students taught social studies using Self Directed Learning (SDL) strategy was 25.86 and that of the female students taught social studies using Self Directed Learning (SDL) strategy was 21.05. The mean difference between the retention scores of male and female students taught social studies using Self Directed Learning (SDL) strategy was 4.81 in favour of the male students.

Research Question

What is the difference in the mean retention scores of male and female students taught social studies using simulation technique?

The data which provide answer to this research question is presented in Table 9.

Table 2: Mean and Standard Deviation of the Retention Scores of

Male and Female Students taught Social Studies using Simulation Technique

Gender		Pre SSAT	Retention	Mean Gain
Male	Mean	35.0259	49.4569	14.4310
	N	116	116	
	Std. Deviation	10.28419	8.15970	
Female	Mean	36.3600	47.5900	11.2300
	N	100	100	
	Std. Deviation	9.92754	6.93708	
Difference				3.2010

Table 2 shows the mean retention scores of male and female students taught social studies using simulated technique. The table shows that 116male students and 110 female students in Upper Basic II were taught social studies using simulated technique. Table 9 indicates that the mean retention scores of male the students was 35.03 with a standard deviation of 10.28 during pre-test and the post test scores was 49.46 with a standard deviation of 8.16. While the mean retention scores of female students taught social studies using simulated technique was 36.36 with a standard deviation of 9.93 during pre-test, the post test scores was47.59 with a standard deviation of 6.94. Table 9 further reveals that the mean gain of male students taught social studies using simulated technique was 14.43 and that of the female students taught social studies using simulated technique was 11.23. The mean difference between the retention scores of male and female students taught social studies using simulated technique was 3.20 in favour of the male students.

Research Question

What is the interaction effect of methods and gender on students mean retention scores in Social Studies?

The data which provide answer to this research question is presented in Figure 3.

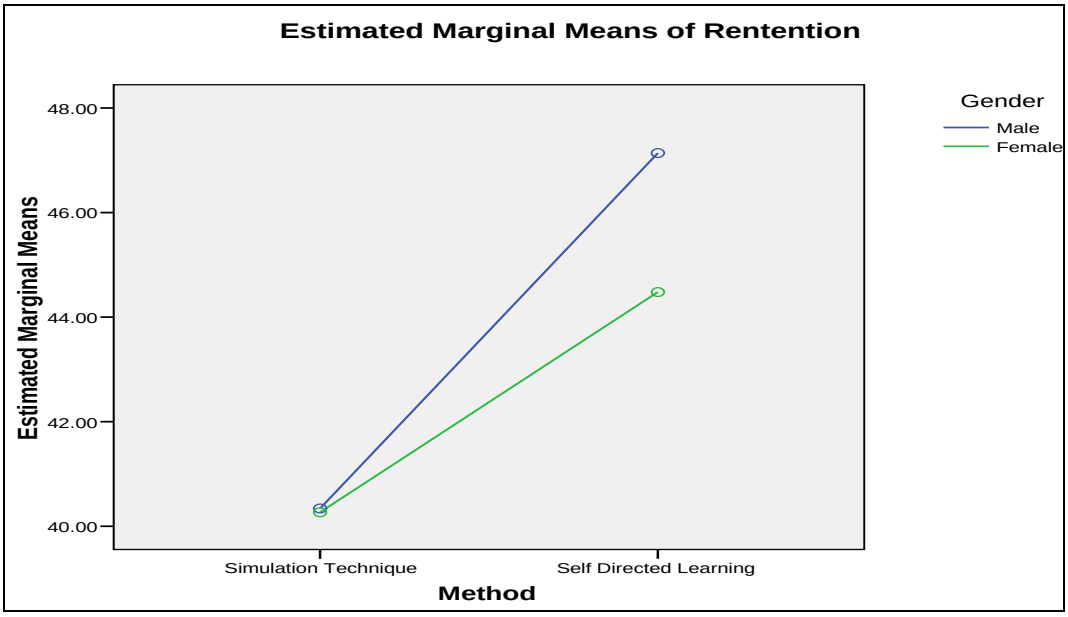

Fig 1: Interaction Effect of Methods and Gender on Mean Retention Scores of Students in Social Studies

In Figure 1, the profile plot/graph shows the interaction effect of methods and gender on student's retention scores in Social Studies. The figure further shows that there is interaction effect of methods and gender on students' retention scores in Social Studies at simulation technique. The interaction pattern shows that the plots for males and females intersected at simulation technique, this implies that there is interaction effect of method and gender on students' means retention scores in Social Studies

Hypothesis 1

There is no significant difference in mean retention scores of male and female students taught Social Studies using Self-Directed Learning (SDL) Strategy.

The data for testing this hypothesis are presented in Table 17.

Table 4: ANCOVA on Mean Retention Scores of Male and Female Students taught Social Studies using Self-Directed Learning (SDL) Strategy

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	9818.198(a)	2	4909.099	116.842	.000
Intercept	20719.563	1	20719.563	493.150	.000
Pre SSAT	9168.598	1	9168.598	218.223	.000
Gender	1007.509	1	1007.509	23.980	.000
Error	8949.136	213	42.015		
Total	777760.000	216			
Corrected Total	18767.333	215			

AR Squared =. 523 (Adjusted R Squared =. 519)

Table 4 reveals that F (1, 215) = 23.980; p = 0.00< 0.05. Thus, the null hypothesis eight is therefore rejected. This implies that there is significant difference in mean retention scores of male and female students taught Social Studies using Self-Directed Learning (SDL) Strategy. Thus, it can be concluded that based on evidence from data analysis that there is significant difference between the mean retention scores of male and female students taught Social Studies using Self-Directed Learning (SDL) Strategy. The findings are in agreement with the findings of Abdul-Raheem (2011) [1] that there is a significant difference between the retention mean scores of the students in the experimental and control groups. The findings also agree with the finding of Adeyi (2017) [6] that there is significant difference between retention means scores of the students in the experimental group and those in the control group.

Retention as endurance of behaviour which have been learned or acquired when the behaviour is not utilized, is signified by being able to recall, relearn, recognized or reproduce. It is the power of remembering things or preservation of memory within the mind. The mind acquires the material of knowledge through sensation and perception, the acquired material need to be preserved and retained in the mind inform of image for knowledge to develop. Whenever a stimulus occurs retention images are reviewed or reproduced to enhance memory. Therefore, the learning of Social Studies should personate the students in such a way that will touch their consciousness. Would these be achieved and retained through self-directed learning or simulation technique, the achievement of students would be greatly enhanced. The retention result of learning efficiency of male and female maybe different this provides the ground for channeling students into prescribe gender activities without segregation. This implies that the grouping of subject in our school encourages stereotype choice of subject such as home economic for girls and woodwork for boys could be eliminated by the use self-directed learning or simulation technique. Although, retention level of male and female in Social Studies differ since there are some specific role for male and other roles specifically for female as ascribe by the society. However, the study used SDL and Simulation technique for treatment in Social Studies concepts and found gender sensitivity retention level of male and female Social Studies students at Upper Basic II does not encourage the separation of the students into male and female before teaching especially where they previously exist as mixed in Kogi east.

Hypothesis 2

There is no significant difference in mean retention scores of male and female students taught Social Studies using simulation technique.

The data for testing this hypothesis are presented in Table 18.

Table 5: ANCOVA on Mean Retention Scores of Male and Female Students taught Social Studies using Simulation Technique

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	247.024(a)	2	123.512	2.128	.122
Intercept	34679.454	1	34679.454	597.577	.000
Pre SSAT	59.850	1	59.850	1.031	.311
Gender	200.539	1	200.539	3.456	.064
Error	12361.124	213	58.033		
Total	522636.000	216			
Corrected Total	12608.148	215			

AR Squared =. 020 (Adjusted R Squared =. 010)

Table 5 reveals that F (1, 215) = 3.456; p = 0.06> 0.05. Thus, the null hypothesis nine is therefore not rejected. This implies that there is no significant difference in mean retention scores of male and female students taught Social Studies using simulation technique. Thus, it can be concluded that based on evidence from data analysis that male and female students taught Social Studies using simulation technique do not differ significantly in their mean retention scores. The findings are contrary to the findings of Yusuf and Adigun (2010) [35] that there is no significant gender difference at both the post-test and retention test of students.

Self-directed learning is presented in educational status and variety of actions including reading, comprehension, and debate, accessing resources, research and development. Taking time to prepare and studying in-depth are expected from students in self-directed learning. Consequently, self-directed learning means an ability to sub-edit educational objectives, name resource, select and carry out proper educational strategy and evaluate instructional outcome as well as learning experiences are possible approaches to eliminating the gender disparity being observed with the use of Self Directed Learning (SDL) Strategy.

Likewise, findings on the use of Simulation Technique (ST) and gender on the students' retention in social studies show that the retention scores of male and female students taught social studies using simulation technique was 3.20 in favour of the male students. This implies that the use of Simulation Technique (ST) is gender sensitive in favour of male based on their students' retention scores in social studies. To check if the difference in the mean gain is statistically significant it was found that there is no significant difference in mean retention scores of male and female students taught Social Studies using simulation technique.

Hypothesis 3

There is no significant interaction effect of method and gender on students' means retention scores in Social Studies

The data for testing this hypothesis are presented in Table 21.

Table 6: Tests of Between-Subjects Effects Interaction of Methods and Gender on Students' Mean Retention scores in Social Studies

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	24104.778(a)	4	6026.195	203.278	.000
Intercept	20423.181	1	20423.181	688.923	.000
Pre SSAT	11076.505	1	11076.505	373.637	.000
Method	2621.956	1	2621.956	88.445	.000
Gender	203.114	1	203.114	6.852	.009
Method * Gender	183.088	1	183.088	6.176	.013
Error	12954.905	437	29.645		
Total	857072.000	442			
Corrected Total	37059.683	441			

AR Squared =. 650 (Adjusted R Squared =. 647)

Table 6 reveals that the interaction effect of methods and gender on students' mean retention was significant, F (1, 441) = 6.178, P= 0.01<0.05. Therefore, we reject the null hypothesis and draw conclusion that there is significant interaction effect of method and gender on students' mean retention scores in Social Studies. The findings disagree with that of Adeyi (2017) [6] that there is significant difference between male and female students in retention level. Male and female students were both festinated from the stimulation to engender improved performance.

Conclusion

Based on the findings of this study, it was concluded that self-directed learning and simulation technique enhance student's interest, achievement and retention in social studies. It was concluded that social studies concept are better taught via self-directed leaning, since the students find themselves reassessing the importance of social studies and becoming more interesting. The study concluded that self-directed learning is gender sensitive in favour of male based on student's interest in social studies. Interest is a degree of choice that the leaner has within an instructional situation. Learners exhibited different levels of self-direction in different learning situation.

The study concluded that students taught social studies using ST is gender sensitive in favour of male based on student's interest in social studies but in achievement and retention scores, the subject is not affected by gender.

Since self-directed learning and simulation techniques have been proven to be instrumental in helping teachers to teach Social Studies more meaningfully in improving students' knowledge retention; the persistent poor achievement of Upper Basic II social students need not to continue. There is hope that with self-directed learning and simulation technique. The situation can be changed or reduced to the minimal.

Recommendations

The following recommendations were made in the light of the findings of this study.

1. Social Studies teachers should employ self-directed learning strategy and simulation techniques in their classroom interaction since they have the capacity to improve student's interest, achievement and retention in the subject.
2. Social Studies teachers should regularly provide the structure and opportunity for learners to employ these learning methods.
3. Students with low interest and achievement and female students who are observed to have less academic achievement should be encouraged academically since they are influenced by the methods to succeed in a student-centered academic environment to close gender gap
4. In service training, seminars, work-shops and symposia should be organized by the state and federal ministry of education for training social studies teachers on the use of self-directed learning and simulation in teaching the subject.
5. Social studies teachers' guide and workbook including the modules on the use of self-directed learning are recommended.
6. Self-directed learning and simulation technique should be included in the training package of teacher education programme both in colleges of education and at university level to ensure that teacher trainees acquire necessary skills to effectively implement the techniques.

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