PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 64, 2015
38

INVESTIGATING THE EFFECTS OF SELF-DIRECTED LEARNING AND COLLABORATIVE METHODS ON JUNIOR SECONDARY SCHOOL STUDENTS SOCIAL STUDIES LEARNING OUTCOMES IN OYO STATE, NIGERIA

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Abstract

Learner-centred methods of teaching are rarely used in most Nigerian classrooms. Pedagogic practices at the basic level of education encourage teacher-dominated methods that do not allow for students' active participation and inculcation of behavioural changes that reflect the outcomes of learning Social studies. As a paradigm shift, the main effects of treatments (Self-directed learning, Collaborative task method and a combination of the two methods), gender and achievement motivation on the combined dependent variables of achievement in Social studies and critical thinking were investigated. Three hypotheses stated were tested at the 0.05 level of significance. A pre-test post-test non-randomised control group design was adopted in which treatments were crossed with two levels of achievement motivation and gender respectively. 223 males and 136 female students were randomly selected from 12 junior secondary schools in Oyo State. Three instruments: Academic Achievement Motivation Inventory (α = 0.83), Critical Thinking Disposition Inventory (α = 0.87) and Social Studies Achievement Test (r = 0.80) were used to collect data from the participants. Using Multivariate Analysis of Covariance (MANCOVA), Self-directed learning proved to be most significant in improving the learning of Social studies concepts, followed by a combination of Self-directed learning and Collaborative task methods while the Collaborative task method was the least effective. Gender and achievement motivation had significant effects on students' achievement and not on critical thinking. The findings have implications for the teaching of Social studies in Nigeria. If the rationale of instruction is to enhance the acquisition of cognitive learning outcome with the teacher acting as a facilitator, then the Self-directed learning is most beneficial to students followed by a combination of Self-directed learning and Collaborative task method. When students are actively involved in the teaching-learning process, their academic achievement is more enhanced, especially when a conducive environment is provided.

Key words: *achievement motivation, collaborative task method, critical thinking, self-directed learning, social studies achievement*.

Introduction

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; Federal Ministry of Education, Nigeria, 2007). Students taking Social studies

develop the ability to comprehend and appreciate the societal values embedded in the concepts of the subject. For this reason, many Social studies educators have clamoured for linking its teaching and learning to the world of students, emphasising in them the need to participate in many different kinds of activities to gain a broad knowledge base, develop thinking skills and take responsibility for their own learning (Wiggins, 2003). 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 criticised for emphasising teacher centredness and relegating the learner to a passive role player in the education process (Patrick, 2000). This scenario has created continuous and enormous gap between the intended behavioural changes and the actual classroom practices in Social studies teaching and learning. Dissatisfied with the conventional method of imparting Social studies knowledge in the classroom, experts in the field have affirmed that, the situation has not changed over time in spite of the introduction of new concepts into the curriculum and innovations into the teaching and learning of the subject (Adeyemi, 2008; Ogundare, 2000). Besides the inadequate students' performance observed in the subject, there is the problem of students not imbibing the affective changes expected from the learning experiences they go through.

Problem of Research

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. Instructional practices have shifted from teacher-dominated to student-dominated processes in many developed nations such that the learner is placed at the centre of learning. It has been established in the preceding paragraph that exposition methods do not encourage enhanced development of cognitive and affective components in learners. Some innovative methods currently gaining grounds are those that emphasise learner-centred and problem-based learning (Grant, 2010). Review of literature suggest that it is only through the application of appropriate innovative instructional and learning methods that sound knowledge and the corresponding behavioural changes can be imparted to students. In view of this, the present study investigated experimentally, the effects of self-directed learning and collaborative task methods (two methods of learning) on students' critical thinking and achievement in Social studies. The moderating effects of gender and achievement motivation were also studied.

Research Focus

At the centre of Vygotsky's (1978) social constructivist theory is the idea that the social environment (provided by significant others, such as parents and teachers) impact greatly on a child's development. The process involves the use of materials, such as books or culturally specific practices to engage the child in the classroom or at home. Children as active partners in these interactions construct knowledge, skills, and attitudes, not just mirroring the world around them, thus shaping their minds. For Vygotsky, the most effective learning happens when the new skills and concepts being taught are just on the edge of emergence, that is, in the ZPD – Zone of Proximal Development. During this stage, the child does not simply acquire new knowledge, but learning which leads to development as the child uses some scaffolding and actually makes progress in his or her development. Brockett and Hiemstra (1991) synthesized many aspects of knowledge about Self-directed learning and conceptualized the PRO (Personal Responsibility Orientation) model. This model recognizes both differences and similarities between self-directed learning as an instructional method and learner self-directed as a set of personality characteristics. Personal responsibility refers to individuals assuming

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 64, 2015

ownership for their own thoughts and actions. Brockett and Hiemstra see self-directed learning as an instructional process that centres on such activities as assessing needs, securing learning resources, implementing learning activities, and evaluating learning. These theories provided the framework for this study.

Self-directed learning (SDL) and collaborative task method (CTM) formed the active variables in the treatment conditions in this study. Self-directed learning is described 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, identify resources for learning, select and implement learning strategies and evaluate learning outcomes within a given framework, thereby becoming their own learning agents (Long, 2010; Morrow, Sharkey & Firestone, 1993; Smith, 2002). The advantage of self directed-learning, which is a paradigm shift from teacher to learner-centredness, is that it removes the passive role students' play and thus gives room for effective participation during the classroom teaching and learning process. 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 and familiar, think independently, plan and execute their own activities (Gibbons, 2010). They also set goals for themselves, arranging for feedback on their work by inspiring themselves and achieving success. These make them to exhibit curiosity and motivation since they are given the opportunity to work independently. Besides, SDL has been a method that has enjoyed the prerogative of adult learners and has not been tried on young adolescents at least within the Nigerian environment. However, some scholars stressed that self-directed learning is not a panacea for only adult learning; but it does appear to provide an appropriate response to changes in societal and educational demands (Rossi, 2007). These facts served as rationale for the further consideration of SDL in this study.

Collaborative task method is a learner-centred educational approach to teaching and learning that involves a small or large group of learners sharing responsibilities, taking collective decisions and acting together with a view to learning something together (Dillenbourg, 1999 in Hernandez, 2012). It is based on the idea that learning is a natural social act in which the participants brainstorm among themselves, thereby creating learning. It has been observed that students learn best when they are actively involved in the process of learning regardless of the subject matter (Chickering & Gamson, 1991). Collaboration is a personal philosophy based on consensus building and is distinct and different from cooperation which is a structure of series of steps designed to help people facilitate the accomplishment of an end product or a goal (Panitz, 1996). In contrast to a passive approach to learning, collaborative learning has been shown to enhance students' active participation in the teaching and learning process, thereby stimulating stronger interest in the subject matter and promoting collaborative learning skills (Wilson, 2005). With collaboration, students achieve at higher levels of thought and retain information longer than students who work quietly as individuals and it also helps students to develop some of the attributes and skills that are highly valued in employment (Tribe, 1994; Neale, Carroll & Rosson, 2004).

The benefits of collaborative learning are the development of practice skills such as active and tolerant listening, assisting others to master the content, giving and receiving constructive criticism, and managing disagreements (Asan & Haliloglu, 2005; Davis, 2009). It also has a range of generic skills benefit which includes the development of general communication abilities, empathy, social and problem solving skills (Beckman, 2000; Gillies, 2000). When students perceive that each member is responsible for and dependent on each other and that one member cannot succeed unless all members in the group succeed (Davis, 2009), they tend to learn more of what is learnt, have longer retention than when the same content is presented in other instructional formats, and students appear more satisfied with their classes (Neale, Carroll & Rosson, 2004; Bower & Richards, 2005). Collaborative task method, as further

stated by these scholars, is a powerful motivator for group work, which becomes necessary as a preparation for future life and living and the teacher is at best a facilitator of effective learning by creating and promoting conducive learning environment where inter-student and student-content interaction are maximised with a suitable lesson and classroom structure. This process makes autonomy of thought and variability in learning outcomes more fundamental.

Critical thinking involves the active interpretation and evaluation of observations, communications, information and argumentation. It employs not only logic but also broad intellectual criteria such as clarity, credibility, accuracy, precision, relevance, depth, breadth and significance (Fisher & Scriven, 1997). It also involves careful acquisition and interpretation of information and its use helps to reach a well justified conclusion. It is an essential attribute that can free students from the fetters of ignorance, confusion and unjustified claims about ideals and reality (Garrison, 1992). By nature, Social studies has the potential in promoting and enhancing critical thinking because its contents are within the immediate environment and experience of the learners (United States of America Ministry of Education, 2005). In summary, critical thinking can be seen as a pervasive and self-rectifying human phenomenon that enables learners to gain enduring intellectual abilities which can be used long after particular facts have been forgotten in the classroom situation. In view of this, it is important that this variable be investigated in this study.

Achievement motivation is a psychological construct that is concerned with what makes people do what they do and was developed by McClelland (1962). Adherents of achievement motivation theory believe that people have innate need to succeed or to reach a high level of attainment, desire to perform well in a specified area and attain success, and people who experience great level of success are motivated to strive more for success (McClelland, 1962; Sandra, 2002). It has been postulated that people who achieve high level of excellence tend to regard those who do not, as not having tried enough, while those who are not high achievers tend to see those who are, as being lucky (Bernard,1990). Such individuals, he claims, set challenging goals for themselves, assume personal responsibility for goal accomplishment, are highly persistent in the pursuit of these goals, take calculated risks to achieve the goals, and actively collect and use information for purposes of feedback. Literature shows that gender is a strong predictor of human conduct and many differences have been identified between the behaviours, attitudes, and achievements of males and females. Studies, which explain the influence of gender on the learning outcomes of students do not seem to have reached a consensus on the effect of gender on students' performance in school (Adegoke, 2003; Akinbode, 2006). In the light of these, the roles of gender and achievement motivation are worth further studying in order to provide better insight on how they influence learning outcomes, especially under experimental condition.

Hypotheses

Three hypotheses were posed and tested at the 0.05 level of significance.
There is no significant main effect of:

(1) treatment,
(2) gender, and
(3) achievement motivation on the combined dependent variables of students' achievement in Social studies and critical thinking.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 64, 2015

Methodology of Research

General Background of Research

The study is a quasi – experimental study that employed pre-test, post-test in a non-randomised control group design in which the treatment varied at three levels, crossed with achievement motivation and gender at two levels. In the conduct of this study, certain threats to validity, such as testing, selection and testing- treatment interaction, were taken care of by the researchers. First, a control group was included in the study; Multivariate Analysis of Co-variance (MANCOVA) was adopted and Boferroni-type of adjustment made to counteract the potential effects of inflated error due to multiple ANOVA. Students' pre-test scores in Social studies achievement test and critical thinking were used as covariates. Second, schools and teachers were randomly selected on the basis of certain characteristics such as age of school (not less than 20 years old), adequate distance from other participating schools and must be co-educational were considered, while teacher characteristics were that they must be first degree graduates with not less than 10 years of experience. Also, subjects made up of intact classes were randomly assigned to experimental and control groups while their scores in achievement motivation were used to categorise them into high ($\geq 50^{th}$ percentile) and low ($< 50^{th}$ percentile). Third, to guard against pretest/posttest interaction, the experimental schools were far apart, and their teachers provided with instructional guides and trained on lesson preparation to match the objectives of each learning package. The researchers monitored every aspect of the instruction process except in cases where more than two groups were on at the same time.

Sample of Research

Multistage sampling technique was adopted in which four educational zones were randomly selected from eight educational zones in Oyo State, Nigeria. From each of the selected zones, three junior secondary schools (JSS) were randomly selected to give a total of twelve schools. Random sampling technique was used to select an intact class from an arm in the twelve schools. A total of 359 JSS two students formed the sample 223 (62.1%) males and 136 (37.9%) females.

Instruments and Procedure

Social Studies Achievement Test (SSAT; $r = 0.80$), self-directed learning and collaborative task methods treatment packages were developed and used (See Appendix A). SSAT was a-150 item multiple choice questions in Social studies with 4-options developed in line with the first 3 levels of Bloom's taxonomy of objectives in the cognitive domain (knowledge, comprehension and application). It was subjected to all the relevant processes of test construction (that is, the use of test blue print, trial testing and ensuring adequate content validity and reliability indices). A-50 item valid and reliable test with good difficulty and discrimination indices of between 0.40 – 0.70 was achieved. Using KR-20, a reliability of 0.80 was obtained. AAMI consisting of 30 items was constructed along the ideals of Ibadan Multi-Dynamic Inventories of Achievement Motivation (Aremu & Hammed, 2002) and students responded on a 4- point response format. A sample item in the scale is: 'I prefer tasks that are less difficult'. Critical Thinking Disposition Inventory (CTDI) (See Appendix B) consisting of 22 items was constructed along the ideals of Watson and Glacer (2010). A typical item says 'I do not find it difficult stating questions or concerns in an understandable way'. Cronbach Alpha reliability method was employed to establish the internal consistency reliability coefficients of the scales (AAMI, $\alpha = 0.83$ and CTDI, $\alpha = 0.87$). SSAT, AAMI and CTDI were validated using 300 junior secondary school two students selected from six public co-educational schools in Ogun State, Nigeria.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 64, 2015

Social studies teachers of the participating schools were trained on how to use the treatment packages which were group-specific viz: exposure to self-directed learning, collaborative task method and a combination of the two methods. Treatment packages which lasted six weeks were executed in the nine experimental and the three control schools. Twenty-five of the items that covered the contents taught and with the above indices were selected and administered on the subjects as a result of time constraint as the schools had to prepare for their end of term activities. The internal consistency reliabilities of these instruments for the present participants are: SSAT: r = 0.54, AAMI: α= 0.63 and CTDI: α = 0.71. CTDI, AAMI and SSAT were administered to both the experimental and the control groups before and after treatment conditions.

The students in the SDL experimental group, using the self-directed learning package, learnt the five basic concepts to be taught independently. These are: (i) Social groups (ii) Group behaviour (iii) Family and marriage relationships (iv) Drug abuse (v) Culture and identity. The procedure for using the SDL package was developed into ten successive steps divided into three stages: student activity, class or group activities and teacher activity that incorporated the ideals of prominent scholars in the field (Gibbons, 2010; Long, 2010; Morrow, Sharkey & Firestone, 1993). The students in the CTM group studying the five topics earlier stated worked towards the achievement of a common goal and the success of the group, depended on the individual learner's contribution within the group. The basic features of CTM were fashioned after experts and presented in nine steps that were divided into three stages: student's activity, class or group activities and teacher activity (Beckman, 2000; Gillies, 2000; Saunders, 1995). The SDL + CTM group receiving double treatments adopted the procedures highlighted in the experimental groups I and II. The result was recorded as one group score. Pre and post administration of instruments were strictly conducted as in other groups. The Control Group, which used the conventional method of instruction consisted of four major procedural steps: preamble, exposition, remediation and summary.

Data Analysis

A Multivariate Analysis of Covariance MANCOVA was conducted on the data. Students' pre-test scores in Social studies achievement test and critical thinking were used as covariates. The use of this analytical tool was justifiably based on the premise that, it is a robust method that permits the use of several criterion measures at a time to give a more holistic picture and detailed description of the phenomena under investigation. Whenever a significant effect was observed, the combined dependent variables (achievement in Social studies and critical thinking) were checked to discover which of them was affected by the treatment and univariate ANCOVA was conducted. Also, in order to counteract the potential effect of inflated error due to multiple ANOVA's, Boferroni – type of adjustment was made. Consequently, the alpha level was adjusted to 0.025 (since there are two dependent variables).

Results of Research

Social studies achievement mean scores in Table 1 show that students in the self-directed learning had highest performance score (M = 19.90; SD = 3.48), followed by the SDL + CTM group with (M = 19.44; SD = 3.41) and CTM (M= 19.13, SD= 4.02). These scores were higher than those in the traditional method group (M = 17.19; SD = 3.11). Also, the results for critical thinking in the table show that the SDL + CTM treatment group, SDL and CTM in that order had higher scores than those in the control group. The results of the tested hypotheses follow thereafter.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 64, 2015

Table 1. Estimated marginal means for treatment effects and social studies achievement.

Dependent Variable	Treatment	Mean	Std. Dev	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Post Achievement	Collaborative task method	19.13	4.02	0.36	18.44	11.14
	Self-directed learning	19.90	3.48	0.344	19.22	9.97
	Collaborative task method & Self-directed learning	19.44	3.41	0.32	18.81	9.72
	Traditional Method	17.19	3.11	0.33	16.54	12.75
Post Critical Thinking	Collaborative task method	58.18	11.14	1.26	55.70	60.67
	Self-directed learning	59.12	9.97	1.23	56.71	61.53
	Collaborative task method & Self-directed learning	59.17	9.72	1.13	56.94	61.39
	Traditional Method	57.71	12.75	1.16	55.42	59.99

Ho1: There is no significant main effect of treatment on the combined dependent variable of achievement in Social studies and students' critical thinking.

The multivariate test of MANCOVA in Table 2 shows that the main effect of treatment was statistically significant on the combined dependent variables (achievement in Social studies and critical thinking), Wilks' $\Lambda = 0.896$, $F_{(6,680)} = 6.41$, $p < 0.05$, Multivariate $\acute{\eta}^2 = 0.054$. The univariate ANCOVA of between subject effects in Table 3 shows that only students' achievement in Social studies was affected by treatment after adjusting for the covariates, $F_{(3,341)} = 13.13$, $p < 0.05$, partial $\acute{\eta}^2 = 0.104$, with calculated effect size of 10.4%. Critical thinking was not significantly affected by the treatment conditions, $F_{(3,341)} = 0.376$, $p > 0.05$, partial $\acute{\eta}^2 = 0.003$.

Table 2: Multivariate test of MANCOVA of independent and dependent variables.

Effect	Wilk's Λ	F	Hypothesis Df	Error Df	Sig.	Wilks' $\acute{\eta}^2$
Intercept	0.689	76.75	2	340	0.000	0.311
Pre. Ach.	0.760	53.66	2	340	0.000	0.240
Pre. Critical	0.993	1.23	2	000	0.295	0.007
Treatment	0.896	6.41	6	680	0.000*	0.054
Ach. Motivation	0.966	5.91	2	340	0.003*	0.034
Gender	0.974	4.46	2	340	0.012*	0.026
Treat & Ach. Mot	0.979	1.22	6	680	0.296	0.011
Treat & Gender	0.992	0.46	6	680	0.837	0.004
Ach. Mot & Gender	0.946	9.78	2	340	0.000*	0.054
Treat & Ach. Mot & Gender	0.995	0.26	6	680	0.955	0.002

*Significant at $p \leq 0.05$

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 64, 2015

Table 3. Univariate ANCOVA summary of between – subjects effects.

Source	Dependent Variable	SS	Df	MS	F	Sig.	Partial ή²
Corrected Model	Achievement	1644.348	17	96.726	10.77	0.000	0.349
	Critical thinking	4089.905	17	240.583	2.11	0.000	0.095
Intercept	Achievement	446.680	1	44.680	49.74	0.000	0.127
	Critical thinking	13914.436	1	13914.436	122.22	0.000	0.264
Pre. Achievement	Achievement	9675.290	1	965.290	107.49	0.000*	0.240
	Critical thinking	113.943	1	113.943	1.00	0.318	0.003
Pre. Critical thinking	Achievement	1.312	1	1.312	0.15	0.703	0.000
	Critical thinking	276.568	1	276.568	2.43	0.120	0.007
Treatment	Achievement	353.613	3	117.871	13.13	0.000*	0.104
	Critical thinking	128.271	3	42.757	0.38	0.771	0.003
Ach. Motivation	Achievement	90.641	1	90.641	10.09	0.002*	0.029
	Critical thinking	89.997	1	89.997	0.79	0.375	0.002
Gender	Achievement	71.395	1	71.395	7.75	0.005*	0.023
	Critical thinking	212.182	1	212.182	1.86	0.173	0.005
Treatment & Ach. Motivation	Achievement	1.079	3	0.360	0.04	0.989	0.000
	Critical thinking	788.563	3	262.854	2.31	0.076	0.020
Treat & Gender	Achievement	11.933	3	3.978	0.44	0.722	0.004
	Critical thinking	204.024	3	68.008	0.60	0.617	0.005
Ach. Mot. & Gender	Achievement	10.874	1	10.874	1.21	0.272	0.004
	Critical thinking	2203.233	1	2203.233	19.35	0.000*	0.054
Treat. & Ach. Mot. & Gender	Achievement	3.135	3	1.045	0.12	0.950	0.001
	Critical thinking	126.029	3	42.010	0.37	0.775	0.003
Error	Achievement	3062.148	341	8.980			
	Critical thinking	38821.543	341	113.846			
Total	Achievement	131772.000	359				
	Critical thinking	1262565.000	359				
Corrected Total	Achievement	4706.496	358				
	Critical thinking	42911.448	358				

Ho2: There is no significant main effect of gender on the combined dependent variables of students' critical thinking and achievement in Social studies.

Table 4. Adjusted means for social studies achievement and critical thinking by gender.

Dependent Variable	Gender	Mean	Std. Dev	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Post Achievement	Male	18.43	3.70	0.20	18.03	18.83
	Female	19.39	3.40	0.27	18.86	19.93
Post Critical Thinking	Male	57.72	11.37	0.72	56.29	59.14
	Female	59.37	10.15	0.96	57.48	61.26

Female students had higher mean score (M = 19.39; SD = 3.40) in the Social studies achievement than male students (M = 18.43; SD = 3.70) (Refer to Table 4). Also, females had higher mean score in critical thinking (M = 59.37; SD =10.15) than males (57.72; SD=11.37). The multivariate test of MANCOVA in Table 2, shows that the main effect of gender on the combined dependent variables (achievement in Social studies and critical thinking) was statistically significant, Wilks' Λ= 0.974, $F_{(2, 680)} = 4.46$, $p < 0.05$, Multivariate $\acute{\eta}^2 = 0.026$. The univariate ANOVA of between subject effects conducted (Table 3), shows that only the achievement in Social studies was affected by gender after adjusting for covariates, $F_{(1,341)} = 7.75$, $p < 0.05$, partial $\acute{\eta}^2 = 0.023$. The effect size is 2.3%. The DV of critical thinking was not significantly affected by the gender of the students, $F_{(1,341)} = 1.86$, $p > 0.05$, partial $\acute{\eta}^2 = .005$.

Ho3: There is no significant main effect of achievement motivation on the combined dependent variables of achievement in Social studies and students' critical thinking.

Table 5. Adjusted means for social studies achievement and critical thinking by achievement motivation.

Dependent Variable	Ach. Motivation	Mean	Std. Dev	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Post Achievement	Low	19.46	3.30	0.23	19.00	19.90
	High	18.37	3.82	0.25	17.88	18.87
Post Critical Thinking	Low	58.00	3.60	0.81	56.41	59.60
	High	59.08	4.26	0.89	57.33	60.84

Students, who were classified as low in achievement motivation had higher mean score (M = 19.46; SD = 3.30) in the Social studies achievement than students who were classified as high in achievement motivation (M = 18.37; SD = 3.82). Students who were classified as high in achievement motivation had higher mean score in critical thinking (M = 59.08; SD= 4.26) than students who were classified as low (M = 58.00; SD = 3.60) (Refer to Table 5). The multivariate test of MANCOVA in Table 2 shows that the main effect of achievement motivation on the combined dependent variables (achievement in Social studies and critical thinking) was statistically significant, Wilks' $\Lambda = 0.966$, $F_{(2, 340)} = 5.91$, $p < 0.05$, Multivariate $\acute{\eta}^2 = 0.034$. The result of the univariate ANCOVA conducted (Table 3), shows that only students' achievement in Social studies was affected by the achievement motivation after adjusting for the covariates, $F_{(1,341)} = 10.09$, $p<0.05$, partial $\acute{\eta}^2 = 0.029$. The effect size is 2.9%. The dependent variable of critical thinking was not significantly affected by the level of achievement motivation of the students, $F_{(1, 341)} = 0.79$, $p > 0.05$, partial $\acute{\eta}^2 = .002$.

Discussion

The findings of the present study indicate that, with respect to the main effect of treatment, SDL was most significant, followed by the combination of SDL+CTM, whereas CTM made the least significant main effect on the combined dependent variables of students' achievement in Social studies and critical thinking, were statistically significant Wilks' $\mathbf{\Lambda} = 0.896$, $F_{(6,680)} = 6.41$, $p< 0.05$, Multivariate $\acute{\eta}^2 = 0.054$. Further analysis indicated that, only achievement in Social studies was positively influenced by the three treatment conditions after adjusting for the covariates, but the dependent variable of critical thinking was not significantly influenced. This indicated that a 10.4% effect size in Social studies achievement was accounted for by the

learning methods. Literature has consistently affirmed the positive effects of SDL on students' academic achievement when it is effectively used. Thus, the finding observed in respect of this study is in consonance with the ideals and elements of SDL outlined in Guglielmino, Long and Roger (2004), Connor (2004), Kerka (2005) and Gaudet (2008). These studies affirmed that SDL is an important method that can expose students to accept responsibility for their own learning, make decisions about goals, pursue them with added efforts and become their own learning agents. Students in this study were able to make correct conclusions from their own self- inquiry, thereby restricting the teachers from handing out facts to them without allowing them to experience effective learning process themselves. The findings further confirm that the method allowed the learners to be at the centre of learning how to learn since they learnt independently, a situation that develops lifelong learning skills in them.

Similarly, when collaborative task method is combined with Self-directed learning or used independently, learning outcome is enhanced and a balance between structure and flexibility in instructional designing ensured, including learner autonomy and tutor-control in learner support strategy, if properly handled and opportunity given to learners to explore and be at the centre of their learning. This finding corroborates that of previous scholars (Guthrie, Alao & Rinehart, 2008), who found that learners achieve enduring skills of learning how to be individually and collectively accountable for active participation when engaged in group activity, doing fair share of work and helping other group members to demonstrate competence and achieving, both individually and collectively in a learning environment. Also, Gibbons (2010), Gustafson (2003) and Beckman (2000) discovered in their study on self-directed learning and collaborative task method that these methods are veritable tools which teachers can use not only to challenge students to excel, but could be used by the teachers to challenge themselves to go far beyond the easy and the familiar in spite of non-interaction.

Study findings tend to support the learning situation that, when students who are low in achievement motivation are exposed to appropriate learning conditions, such as the treatment conditions used in the study, they perform better academically than their counterparts presumed to be high in achievement motivation. This could be attributed to the expression made by that when the content of instruction is interesting, it can motivate the students to learn better. Study findings corroborate previous works which revealed positive significant effects of motivation on students' academic performance (Broussard & Garrison, 2004; Sandra, 2002; Tella, 2007). In respect of gender, the Social studies cognitive achievement of the female students was found to be better than their male counterparts in this study. The study outcome also is in agreement with some earlier studies (Chanlin, 2001; Colley & Comber, 2003), which found gender differentials in academic achievement in various subject areas, but contradicts the other works (Iroegbu, 1998) which found no gender differential in their respective studies. The study outcome that gender was not significantly related to critical thinking is in agreement with previous works (Rudd, Baker & Hoover, 2000).

Study findings have implications for Social studies teaching and learning. The three learning modes: SDL, SDL+CTM and CTM have statistically and significantly influenced students' achievement in Social studies, SDL being the most influential. Findings from this study have created an opportunity for improving learning through the use of SDL and CTM learning modes or a combination of the two. It is pertinent to note that if the rationale for instruction is to enhance cognitive skills, then SDL is the most beneficial of the three learning modes, followed by SDL+CTM and CTM in that order. In view of this, teachers must view the teaching-learning process as a way of developing students' ability to acquire cognitive learning outcomes with less teacher dominance. The teachers' role in the learning process is that of a facilitator, thereby stimulating in students' thinking skills that can be useful in solving real-life challenges.

Conclusions

Self-directed learning and collaborative task methods have proven to be effective in enhancing students' cognitive achievement in Social studies. When used, these methods could ensure increased problem-solving skills and a more positive response to life changes outside the classroom environment. In view of the observed effectiveness of self-directed learning and collaborative task methods in enhancing Social studies learning, there is the need to encourage teachers to employ these methods to achieve effective teaching and learning. It is also imperative for teachers to begin to think of how they can regularly provide the structure and opportunities for learners to employ these learning methods. Students with low achievement motivation and female students, who were observed to have higher cognitive achievement, should be encouraged academically in class since they are influenced by these methods to succeed in a student-centred academic environment. Teachers of methodology courses in tertiary institutions who engage in the training of prospective teachers should emphasise the teaching of the subject through the use of student-centred methods that could enhance academic achievement.

Acknowledgements

The researchers express profound appreciations to the principals, teachers and students of the participating schools for accepting to be involved in this study and for making it a reality. We appreciate Dr Benson A. Adegoke of the Institute of Education, University of Ibadan, Ibadan for his constructive criticisms and for peer reviewing the article.

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PROBLEMS OF EDUCATION IN THE 21st CENTURY
Volume 64, 2015

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Appendix A

Academic Achievement Motivation Inventory

Background Information:

Name of School…….Sex……..

Age:……...Class:……..

Instruction: Carefully read through these items and respond accordingly, using this format:

Very much unlike me	=	1	Like me	=	3
Unlike me	=	2	Very much like me	=	4

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 64, 2015

S/N	Items	1	2	3	4
1	I look forward to going to school every day of the week.				
2	I go to school early to enable me settle down before the classes start.				
3	I always stay in my class during break period to revise my lessons.				
4	I make good use of the library to assist me in my studies.				
5	I have a great urge to succeed in life.				
6	I find learning in school interesting.				
7	Nothing pleases me like my studies.				
8	I press on even though my parents are insensitive to my educational feelings.				
9	I am still in school because my parents want it.				
10	Scoring high marks in my subject makes me work harder.				
11	I feel unhappy whenever I get to school late.				
12	I attach importance to my studies, as it will enable me have a good future.				
13	Success in life is not necessarily through education.				
14	I prefer tasks that are less difficult.				
15	I focus on my own abilities in attaining success.				
16	I am always encouraged by my teachers' feedback of my performance in my subjects.				
17	My present examination scores are discouraging.				
18	No matter how hard I try, what will be will be.				
19	My performance in examinations or tests is due to chance or luck rather than my efforts.				
20	I feel comfortable even when I am not doing well in my studies.				
21	I am happy when my peers perform better than me in class.				
22	I plan for my studies ahead so as to get good grades.				
23	I prefer to work with students that I perform better than in class.				
24	I always work hard, to be the best in my class.				
25	I always look for ways of doing things to avoid being obsolete.				
26	I search for a variety of information in order to get ahead in my studies.				
27	I am an ambitions person.				
28	I allow days to go by, without attending to my studies especially those I learnt in class.				
29	I take life as it comes without much planning.				
30	I hardly remember my studies during the holidays.				

Appendix B

Critical Thinking Disposition Inventory

Background Information:

Name of School:…….Sex:……

Age:……Class:……..

Instruction: Carefully read through these items and respond accordingly, using this format:

Strongly like me (SLM) = 4

Like me (LM) = 3

Not like me (NLM) = 2

Strongly not like me (SNLM) = 1

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 64, 2015

S/N	Items	SLM	LM	NLM	SNLM
1	I am curious about why things work the way they do.				
2	I have interest in developing and maintaining sound knowledge.				
3	I like to sort out facts and analyse information.				
4	I thoughtfully weigh multiple sides before taking a decision.				
5	I take time to reflect before taking any action.				
6	I am always ready to entertain new ideas.				
7	I always give consideration to alternative opinions.				
8	I am always considerate about the opinions of others.				
9	I like to probe deeply into any information on my studies.				
10	It is not difficult for me to state questions, opinions, and thoughts in an understanding way.				
11	I think clearly and thoroughly through any idea, information or thoughts at all times.				
12	I am good at pointing out inconsistencies in someone and other people's ideas.				
13	I am precise when discussing issues.				
14	I prefer to deal with the difficult questions asked in my subjects.				
15	I consider other persons' viewpoints and not my own.				
16	I find myself accepting information without finding out if it is true or not.				
17	Most of the times my assumptions on issues are not right.				
18	I am always fair-minded when I consider issues.				
19	I am only concerned about my personal opinions.				
20	I consider my argument to be sensible always.				
21	I argue out of point most of the time.				
22	My thinking is not always easy to understand.				

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Received: *February 23, 2015* Accepted: *April 19, 2015*

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