Assessing Junior Secondary School Students' Achievement and Learning Retention in Social Studies through the Application of Scaffolding and Brainstorming Instructional Models: A Quasi-Experimental Research

Jacob Filgona[1]*, John Sakiyo[2]

[1*]Ph.D Research Scholars, Department of Environmental and Life Sciences Education, ModibboAdama University of Technology, Yola, Adamawa State, Nigeria
[2]Dr. (Associate Prof.), Department of Environmental and Life Sciences Education, ModibboAdama University of Technology, Yola, Adamawa State, Nigeria

A B S T R A C T

The high rate of indiscipline and moral decadence among secondary school students in Adamawa State is a source of concern. This has contributed to academic indiscipline among students, hence the dismal achievement in social studies' Basic Education Certificate Examinations (BECE) recorded over the years. Social studies is one of the subjects that educate learners on the need to imbibe good attitude, values and norms to become responsible citizens of a nation, yet, little empirical evidence exist in Adamawa state on how teachers could effectively scaffold and brainstormed learners th rough learning of social studies. To augment this literature gap, this study tested the efficacy of scaffolding and brainstorming instructional models on junior secondary school students' achievement and learning retention with gender acting as a moderating variable. It is a quasi-experimental intervention with no randomization of participants into classes selected for the study. A sample of 272 Junior Secondary School Two (JS II) students offering social studies from six government-owned schools was engaged in the study. Data from the respondents were gathered through the administration of Social Studies Achievement and Retention Test (SOSART) designed, validated, and trial tested in the study. The reliability of the SOSART was established using Guttmann Spl it-Half statistic and was found to be 0.78. The research questions were answered using descriptive statistics of mean and standard deviation, while the hypotheses were tested using One-Way Analysis of Variance (ANOVA) and Tukey HSD Post hoc. Findings revealed that students exposed to social studies through the application of scaffolding and brainstorming instructional models had better achievement and learning retention results compared with their peers in the conventional teaching method group. It was also recorded that students' gender had no effect on their achievement when exposed to social studies using scaffolding and brainstorming instructional models. The study enjoins social studies teachers in secondary schools to incorporate scaffolding and brainstorming instructional models while teaching the subject.

Keywords: Achievement, Retention, Gender, Social Studies, Scaffolding and Brainstorming Instructional Models, Conventional Teaching Method

1. Introduction

Academic achievement is a cognitive component used to measure students' academic progress in school. It is a critical component of secondary school education because it is used to determine learners' promotion from one class to another. Achievement, in relation to the Blooms taxonomy of behavioural objectives has six cognitive domains of learning objectives, which include: knowledge, comprehension, application, analyses, synthesis and evaluation.

* *Corresponding author*
E-mail address: filgonajeff@gmail.com

The success of students' in learning specified curriculum content as revealed through their continuous assessment and examination results is termed as achievement (Filgona, 2020). These views are supported by Goldman (as cited in Ugwu, 2011) who defined achievement to mean those knowledge, skills, and understanding which result from a particular course in a school. These learning however, could not be acquired without specific school or out of school experiences with a particular subject matter (Goldman, as cited in Ugwu, 2011). According to Ugwu (2011), specific learning is called achievement. This is to say that there can't be achievement without learning, and for learning to take place within the context of school, there must be teaching. According to Ali (2013), academic achievement is a measure of the degree of success in performing specific tasks in a subject or area of study by students after a learning experience. It is the outcome of education that indicates how well a student or class of students is/are doing academically. Nja et al. (2020) defined students' academic achievement as the extent to which students achieve their short or long-term educational goals. This shows that academic achievement is related to the knowledge that students have acquired and the skills that they have developed into a learning institution (Ganai& Mir in Stofile, 2017). The academic achievement of students at secondary school level is not only a pointer of the effectiveness of schools, but also a major determinant of the well-being of youths in particular and the nation in general (Levin et al., 2011). These definitions demonstrate the importance of achievement in students' academic progress in school.

Within a school setting, different approaches for assessing students' academic achievement exist; this may include assessments or tests and examinations. This props the view of Adediwura and Tayo (2007) who stated that academic achievement is designated by test and examination scores or marks assigned by the subject teachers. Educationists hold that achievement tests are designed to assess students' level of accomplishment in a specified subject area (Eze-Odurukwe, 2002). The results of these tests can be used to diagnose and predict students' academic progress. However, achieving high in a school's test or examinations comes with its attendant challenges.

Adamawa state is one of the north eastern states in Nigeria. It is made up of 21 local government areas with it headquarter situated in Yola. It is one of the educationally backward states that were ravaged by the activities of Bokoharam insurgency. This underscores the importance of the social studies education in addressing some of the challenges that gave rise to the insurgency. Social studies education is sacrosanct for the attainment of national cohesion. The National Policy on Education by the Federal Republic of Nigeria (FRN, 2014) made social studies a core subject in the junior secondary schools in Nigeria, with the objectives of inculcating in the learner in integrated forms; basic skills, values, and attitudes for useful living. This is in line with the objectives and goals of the Universal Basic Education (UBE) programme at the junior secondary school level. Social studies aim at creating educated individuals who can be responsible citizens of their nation (Keshwan, 2014). Teaching leaners social studies increases the possibility of them becoming more aware, more responsible as human beings, thus increasing the chances that they will adhere to ethical and moral values in life. Mezieobi (2007); Esu and Inyang-Abia (2004); Mezieobi and Osakwe (2003) have indicated that the essence of social studies instruction is to equip the learner with attitudes, values, knowledge, and skills for purposeful living in the Nigerian society. Emphatically, Onuoha and Okam (2011) reiterates that the primary purpose of social studies education is to produce and develop intelligent, responsible and self-directing citizens who are expected to discover opportunities to develop their capabilities and as well contribute their own quota to the enhancement of group living within a social milieu.

From the preceding discourse, it is clear that the main focus of social studies is transformation of the citizens for national transformation. It is an instrument of positive change in terms of knowledge, attitudes, values, and skills required to be responsible members of the societies as equipment for social unity. Given the stated objectives, it is clear that if students have and imbibe the good knowledge of social studies, it would invariably in no small measure facilitate national cohesion and development. However, it is disheartening to know that in Nigeria today, and in Mayo Belwa LGA of Adamawa state, despite the existence of social studies education in the school system, observation made showed that the values of students are degenerating, students engage in all sorts of intolerance manifested in ethnic chauvinism, Boko haram, cultism, militancy, thuggery, indecent dressing and other social vices are on the rise. With the rising spate of these earlier listed social vices amongst the youth, it becomes paramount to take another look at our values, acquired through the teaching and learning of social studies.

Filgona (2020) presented a hydra-headed picture involving the students, teachers, government and the institutions as culprits in the problems affecting students' academic achievement in Nigeria's learning institution. Similarly, the study by Filgona, Sababa and Iyasco (2016a) clearly demonstrated that the teaching and learning of social studies have been plagued by overcrowded classroom, poor infrastructural facilities, limited number of qualified social studies teachers, dearth of instructional materials, poor performance of students in the subject, and poor method teaching. An observation made in Mayo Belwa LGA showed that the methods used by teachers during lesson delivery are often very boring and lacklustre. There is too much chalk and talk and teachers do not encourage students' participation during lessons. Corroborating this view, studies conducted by Filgona et al. (2016a), Dania (2014) affirms that the methods used by teachers in teaching social studies was not capable of motivating students' interest to learn the subject. In support of this, a report has it that social studies teachers are yet to involve learners adequately in active learning engagement (Ukadike&Iyamu, 2007). The authors also condemned the expository method as responsible for the poor implementation of the social studies curriculum, consequences of which is the poor appreciation by learners of the knowledge, values, attitudes, and skills in the social studies curriculum (Ukadike&Iyamu, 2007). Ideally, social studies classroom instruction ought to be innovative in exposing the learner to discover knowledge, create ideas, and think scientifically.

In an attempt to address this problem, Filgona et al. (2016a); Filgona et al. (2016b) at different occasions used different approaches to teach social studies in secondary schools of Adamawa state. However, on a broader picture, it was observed that students in secondary schools of Mayo Belwa LGA continue to record dismal achievement in social studies' Basic Education Certificate Examinations (BECE). The findings of Filgona et al. which reported secondary school students of Mubi education zone to have performed below average (50.94%, 36.25%, 27.08% and 24.26%) for four consecutive years (2013, 2014, 2015 and 2016 respectively) substantiates this assertion. The reason for this failure has been linked to the instructional technique adopted by social studies teachers (Filgona et al., 2016b). The teaching strategy adopted by teachers may contribute significantly in determining students' learning outcomes. Filgona et al. (2016b) found out that most social studies teachers still employ the old-fashioned lecture method of teaching, which limit students from actively participating in the teaching learning process. This finding is in synergy with Okorie (as cited in Nwali, 2014) who asserts that all accusing finger points toward the teachers for adopting instructor-positioned method (lecture) of teaching which encourages repetition and memorization of facts. The 21st century education emphasizes the need for the adoption of student-centred approach to teaching and learning, the need for students to take control of

their learning, and in the process, construct their knowledge. As constructivists' approaches, this is what scaffolding and brainstorming instructional models may do to improve students' learning outcomes in social studies (Alake &Ogunseemi, 2013; Ejekwu&Inyon, 2019; Filgona et al., 2016a) as opposed to the conventional lecture method. However, testing the efficacy of these instructional models empirically in junior secondary schools in Mayo Belwa LGA may help to further validate these claims.

Scaffolding is a teacher assisted activities that helps students acquire new skills, concepts, or attain levels of understanding and comprehension of the material leading to the students successfully completion of a specific learning activity with predetermined goals (Maybin, Mercer &Stierer's, in Mahan, 2020). It has been applied in teaching-learning situations in the classroom settings (Chi et al., 2001, Roll et al., 2012). Scaffolding takes into cognizance students' previous learning experience and links closely to this prior knowledge, which makes applying a teacher's support ea sier for students (Wittwer&Renkl, 2008, Van de Pol, Mercer &Volman, 2019). Owo, Idode and Ikwut (2016) emphasized the need of prior knowledge for meaningful learning to take place. This shows that scaffolding may promote the degree to which students take up teachers' support. The degree to which students yield to teachers'support have been documented to promote students' learning as new knowledge is integrated into the students' existing knowledge structures (Webb, Nemer&Ing, 2006; Wittwer&Renkl, 2008, Van de Pol et al., 2019). In recent times, the academic goal of learn er-centred curriculum is for students to become independent lifetime learners, so that learning is individualized or better still, with limited support from a teacher. This is what scaffolded instruction does to enhance students' learning by providing a supportive learning environment while facilitating students' independence.

According to Bruner (1975), the concept of scaffolding is contained in the work of Vygotsky, who theorised that with a more capable hand, children could be made to accomplish tasks that they ordinarily could not accomplish independently. In advancing this concept, Wood, Bruner and Ross (1976) also used the term 'scaffolding' to represent a metaphor which describe the type of assistance offered by a teacher or peer to support a learner to move him/her toward his/her potential understanding. This shows that scaffolding is a teaching technique associated with the zone of proximal development in which a teacher provides individualized support by incrementally improving a learner's ability to build on prior knowledge. Advancing this assertion, Dorn and Stoffos (2001) see scaffolding as a help given by a specialist who always modifies and suits the student's gained abilities. It could also be viewed as teacher means of modelling or coaching that supports students as they develop new skills or learn new concepts (Lipscomb, Swanson & West, 2004). Today, however, the meaning of scaffolding had been modified to include a broad range of formal structures, including conversational devices, curriculum design, and features of computer software (Afuwape&Jimilehin, 2019, Pea, 2004).

In using scaffolding as an instructional technique, the teacher provides tasks that enable the learner to build on prior knowledge and internalize new concepts. This is akin to the fact that scaffolded instructions help to build a bridge between what the students already know and what they do not know. Thus, a scaffolded instruction depends heavily on the ideas that learners come to any educational setting with a great deal of pre-existing knowledge, some of which may be incorrect(Samuel &Apawu, 2020). Building on what learners already know is one of the strengths of scaffolding that may make the technique efficacious over the traditional lecture method. Winnips (2001) opines that learning becomes easy when students receive adequate support. In scaffolding learners through the teaching learning process, it is important that the social studies teacher helps the students to master concepts that the students are initially unable to understand or comprehend on their own. The social studies teacher must provide supportive activities that are just a level beyond that of what the learners can do to assist the learner reach higher levels of comprehension and skill acquisition in social studies. To prop this statement, Edekor (2020);Olson and Pratt (2019) averred that the scaffolding instruction are just beyond the level of what the learner can do alone. When learners demonstrate concept mastery in social studies, the teacher can gradually decrease the supportive activities, leaving learners to take responsibility for their learning progress. At the end of it all, the main goal of scaffolding is student autonomy (Van de Pol, Volman&Beishuizen, 2010), which is realised by the teachers' gradual removal of supports earlier rendered. This tallies with the assertion of Verhagen and Collies (in Alake &Ogunseemi, 2013), that scaffolding is a temporary support for student learning until the student can perform tasks independent of that support. In addition, Ibritam, Udofia and Onweh (2015) observed that the scaffolding provided by the more knowledgeable person is progressively withdrawn as the learners' abi lities increases. Furthermore, Van de Pol et al. (2010) argued that teachers' support during scaffolding activities is contingent and faded, aimed towards the transfer of responsibility for learning task to the learners. Contingent support represents the assistance given by the instructor while he/she fades—reducing the contingent support and transferring learning responsibility to the learners.

Scaffolding instructional model was embedded in the socio-cultural theory of Lev Vygotsky's (1978), which projected the idea of the Zone of Proximal Development (ZPD) (Smagorinsky 2018). The theory identified the actual and the potential developmental levels as the two sections that constituted a learner's developmental levels. The zone of proximal development is defined by the task that the learner can achieve without the help of another and the task that can be achieved by the learner under the tutelage of an instructor. Simply put, Vygotsky used the term 'More Knowledgeable Other' (MKO) to represent the experienced instructor that guides the learners through ZPD. Consequently, it is expected that MKO (who is the social studies teacher) share knowledge, skills, attitudes and values with the student to bridge the gap between what they know and what they do not know. The expansion of the actual developmental level and the shift in the ZPD is tied to the learners gaining more knowledge in social studies. This means that the ZPD changes with a corresponding improvement in learners' knowledge. Therefore, the teacher must constantly individualized scaffolded instruction in order to address variances in the ZPD of each student. Going by this, if social studies teachers could properly apply scaffolding model in the teaching and learning of social studies, it will act as an enabler or a knowledge support spring board for leaners. By acting as an enabler, students will gradually grow through learning until they are mature to learn independently. A study found out that scaffolded instructions provides a sufficient support that promotes deeper learning (Shilly, 2006). On the same note, Adamu (2017) used scaffolding as one of the instructional strategies to teach senior secondary school Physics. The finding showed an improvement in students' academic achievement. Moreover, series of studies have shown that students who were exposed to instructional scaffolding technique could performed significant than those exposed to the lecture method (Pandhu, 2018, Vonna, Mukminatien&Laksmi, 2015, Akani, 2015, Alake &Ogunseemi, 2013, Casem, 2013). However, Atsumbe et al. (2018) in a study revealed that a collaborat ive instructional approach is more effective in improving students' achievement than a scaffolding instructional approach. This notwithstanding, there was the need to empirically test how teachers scaffold secondary school students in social studies in Mayo Belwa LGA.

The 21st century teaching requires learners to know how to learn, to be creative and critical thinkers, to construct their knowledge, to address difficult real-world problems, and to process information and realistically apply what they learnt in real life situations. It may be difficult to achieve this when conventional teaching method is used. However, brainstorming instructional model is one of the common teaching techniques that could be used to boost students' abilities in learning. The idea of brainstorming was developed by Alex Osborn to produce ideas without inhibition (Olagunju&Akinboye, in Adeyemi&Ajibade, 2011). The four instructional guidelines provided by Osborn (in Khodadady, Shirmohammadi&Talebi, 2011) to guide the implementation of brainstorming include ruling out criticism of ideas, encouraging free-wheeling, encouraging the generation of large quantity of ideas, as well as combination and improvement of such ideas. In addition to these set of rules Rossiter and Lilien (in Khodadady et al., 2011) added that: *"(a) brainstorming instructions should emphasize number and not quality of ideas; (b) specific, difficult targets should be set for the number of ideas; (c) individuals , not groups, should generate the initial ideas; (d) groups should then be used to amalgamate and refine the idea s ; (e) individuals should provide the final ratings to select the best ideas, which will increase commitment to the ideas selected; and, (f) the time required for successful brainstorming should be kept remarkably short (p.61)".*However, scholars are yet to unanimously agree to these sets of rules and principles. Generating ideas through brainstorming help students to speed up their thinking abilities by challenging their minds, thereby, breaking the deadlock that may be associated with learning. This assertion is consistent with Brown (2001) who declared that brainstorming *"involves students in a rapid-fire, free-association listing of concepts, ideas, facts or feelings relevant to some topics or contexts (p. 184)".* When used in a classroom setting, brainstorming could help support students' creative thinking abilities and generation of wide range of ideas to address a particular problem in social studies. Hence, it encourages teamwork while making learners enthusiastic to learn. This strategy is flexible in that it could be used on individual or group basis. Buttressing this point, Akinboye (2003) states that brainstorming is a group creativity forum for general ideas. The main goal of brainstorming session among students offering social studies will be to enhance creative thinking and decision-making skills, communication skill, as well generation of multiple ideas without the fear of criticism by the teacher or other members of the group. However, this strategy was found to be unsuitable for younger levels of pupils because of the level of reasoning required in order for it to function (Adeyemi&Ajibade, 2011).

The teacher, during brainstorming sessions, act as a facilitator, he/she guides the students every step of the way until idea s generation is exhaustive. The instructor is saddled with the responsibility of planning the lesson (brainstorming session) to ensure that the desired learning goal is achieved. The students in the groups interact in response to a problem posed in form of question, while the teacher desists from interfering with their discussion as an active participant. The teacher can only come in to offer guidance where the students are derailing from the problem posed. During brainstorming sessions, it is important to note that ideas generated should not be criticized. This is because ideas generated are normally scrutinized to select the ones relevant to the topic, while the repetitive or irrelevant ones are discarded at the end of the brainstorming session. All stu dents should be encouraged to participate actively by generating ideas during the brainstorming session. However, it should be noted that brainstorming technique is time consuming and can deter students from learning a material within a specified timeframe. This is where the lecture method edged the brainstorming technique. This notwithstanding, Al-Shammari (2015) praised the prowess of brainstorming instructional model in improving students' achievement in diverse fields of human endeavour. Supporting Al-Shammari, Manouchehry et al. (2014); Haririan, Maghsoudi and Madani (2014) assured that brainstorming model has several positive effects in improving students' achievement. Moreover, available research evidences supports the general effectiveness of brainstorming technique in improving achievement of students compared with the traditional lecture method (Filgona et al., 2016a, Al-Mutairi, 2015, Al-Shammari, 2015, Amoush 2015, Haririan et al., 2014, Sabet, 2014, Adeyemi&Ajibade, 2011, Al-qarni, 2011, Khodadady et al., 2011, Al-Blwi, 2006). The present study adds to the ongoing debate.

Generational transformation in technology and the gradual transition from teacher to student-centred pedagogy have rendered traditional pedagogy ineffectual for student' learning retention (Hicks, 2007). To guarantee learning retention, it takes considerable learning time for information acquired through the short term memory (STM) to be transferred to the long term memory (LTM). Using traditional lecture method for instruction ensures that the teacher enjoys covering the scheme of work or syllables within the shortest possible time, while the students passively struggle to assimilate the content. Achieving effective LTM information retention may be difficult under this mode of instruction; however, scaffolded and brainstormed instructions facilitated by the teacher may help remediate the students' difficulty in retaining concepts in social studies. Lack of active learning and the use of instructional methods that does not ensure students' freedom to partake in meaningful learning activities may enhance decreased learning retention. Concomitantly, according to Dale's Cone of Learning, retention would not occur without instruction that encourage activities such as speaking, listening, reading, writing, and/or reflecting (Rahn& Moraga, 2007). Students' who retain concepts in social studies may be able to transfer learning to the real world, thus reflecting in their ability to effectively perform tasks in and outside of the classroom. Van de Bogart (2009) in a study discovered that the inability of students to retain key vocabulary and concepts in second language acquisition caused the students' inability to reason or express ideas accurately. The lack of knowledge retention by the students therefore, demands the creativity of the teacher in diversifying the teaching approaches to ensure that the learning goal is achieved. In a related opinion, Slavich (2005) averred that teachers needed to completely transform their ways of thinking to be affective and to increase student knowledge retention. Agreeably, teachers must transit from conventional teaching approaches to address retention issues.

Evidence abounds that the material learned through active students' involvement by the application of scaffolding and brainstorming instructional models is highly retained than material learned through traditional lecture method (Filgona et al., 2016a, Delen, Liew&Willson, 2014). Educationists have always advocated for the adoption of activity-based learning approach due to its potential for promoting greater material retention. Consequently, scaffolding and brainstorming instructional models are some of the activity-based learning techniques that are expected to boost superior material retention of students.Retention in this study is the ability of students to remember or recall social studies concepts they have been taught two weeks after the post test intervention. For knowledge to be transferred into the long-term memory, rote learning, which is emphasized in lecture method, must be discarded. In order words, using lecture method effectively in teaching requires extensive research, preparation, and effective delivery skills to maintain learners' retention of concepts (Joda, 2018). However, this may not necessarily be the case with scaffolding and brainstorming models as the strategies are motivating and self-sustaining. Learning can only be meaningful when new knowledge acquired by the students is retained in the long term memory

(Novak &Gowin in Dantani, 2011). This means that the product of meaningful learning is long term knowledge retention. Williams and McClure (in Bachelor, Vaughan, & Wall, 2012) found that traditional lecture methods had failed in producing the desired learning outcomes, hence the need for exploring of other strategies for better learning retention of learners. Thus, this study puts this theory into test by examining the learning ret ention rate of students exposed to concepts in social studies using scaffolding and brainstorming instructional models.

Gender differences in achievement have continued to attract attention of scholars due to the controversies surrounding it. Gender represents a range of physical, biological, mental and behavioural characteristics of male or female humans in a social structure. It refers to the socially built jobs, practices, exercises and traits that a given society thinks proper for people (WHO, 2002). There is this general assumption that girls tend to perform better than boys in reading and verbal skills, while boys can be better than girls in manipulative and physical productive tasks. This is debatable; however, gender bias in teaching and learning has been and still continues to be an issue. Studies on gender differences in the use of scaffolding and brainstorming instructional strategies have reported conflicting results. While some of these studies (Ejekwu&Inyon, 2019, Atsumbe et al., 2018, Uduafemhe, 2015, Amoush, 2015, Dania, 2014, Azih&Nwosu, 2011, Al-Bwli, 2006) found that gender has no effect on students' academic achievement taught with scaffolding and brainstorming instructional models, other scholars (Talebinejad&Akhgar, 2015, Akani, 2015, Akunne&Anyamene, 2019) reported gender effect on students' academic achievement taught with scaffolding and brainstorming instructional strategies. These inconsistencies created a lacuna that this study explored.

The uniqueness of this study therefore, lies in the fact that it is the first of its kind that combined scaffolding and brainstorming instructional models to teach social studies in junior secondary schools of Adamawa state. The application of scaffolding and brainstorming instructional models in teaching social studies has a great potential of motivating students to learn, and improving their learning outcomes, thus addressing the decay in the existing value system in Nigeria.The results of the study may also be used for further discourse on how social studies teachers may more effectively assist their students in their learning processes through the application of scaffolding and brainstorming teaching models in Adamawa State. The findings of the study provide insights to curriculum planners and school administrators on the need to emphasize the daily implementation of scaffolding and brainstorming instructional models by social studies teachers in and outside the classroom. More so, within the Nigerian and global contexts, it was also observed that no previous study factored the exact variables as contained in the present study. The review of related empirical study in the ensuing section shed more light on this fact.

1.1. Review of Related Empirical Studies

Empirical evidences exist on the effectiveness of using scaffolding and brainstorming models on the students' achievement in various fields of study. This study reviewed some of the previous studies conducted and identified possible knowledge gaps in each, necessitating the conduct of the present research.

Samuel and Apawu (2020)compared the effects of scaffolding instructional strategy, cognitive learning styles and intelligence on students' achievement in genetics in north senatorial district, Benue State, Nigeria. A quasi experimental design was adopted for this study. The population of the study comprised 1,957 SS III in public co-educational schools. The sample of the study comprised 83 SS III students randomly sampled from two intact classes. Three instruments were employed for data collection, namely; Standard Progressive Matrices (SPM), Cognitive Style Checklist (CSC) and Genetics Achievement Test (GAT). The reliability coefficient of SPM and CSC were determined through test-retest and the reliability coefficient of 0.79 and 0.76 were obtained. The reliability of GAT was determined using Kuder-Richardson formula 20 (KR20) and the reliability coefficient of 0.80 was obtained. Descriptive statistical techniques of mean and standard deviation, Kolmogorov–Smirnov test (K-Stest) was used to ascertain the normality of the distribution of achievement scores. An Analysis of Variance was employed on the scores of the students to test the hypothesis. The findings of this study revealed that the achievement of the scaffolding instructional strategy group was found to be significant than the group taught through traditional method of teaching. Also the findings revealed that the difference of achievement was significant at two levels of cognitive styles. It was also revealed that the achievement gain scores of high intelligence group were significant in comparison to low intelligence group. Based on the findings of this study, it was recommended that scaffolding instructional strategy should be used by Biology teachers in the teaching Genetics. The teaching strategy (scaffolding) employed in the preceding study (Samuel &Apawu, 2020) is similar to the one considered in the present study. Similarly, the research design, dependent variable and statistical tools used for data analysis were related in both studies. Nonetheless, the areas where this study i s at par with the previous one include: the variable—brainstorming, the SOSART instrument, sample (272), subject matter (social studies), intact classes used (six), gender, retention, and the location where the present study was conducted. Further, junior secondary school students were engaged in the present study compared with senior secondary school students engaged in the previous study. These variations created a knowledge gap that made this study important.

Edekor (2020) explored the effect of scaffolding strategy on students' performance in Mathematics in Keta Municipality of Volta Region, Ghana. The study employed a quasi-experimental research design. The sample for the study consisted of 115 Senior High School Two Mathematics students. The instrument used for data collection was a multiple type objectives test titled: Mathematics Performance Test (MPT). The instrument was validated by three experts and had a reliability index of 0.88 obtained through the use of Pearson moment correlation. The data collected were analyzed using adjusted mean and standard deviation to answer the research questions, while Analysis of Covariance (ANCOVA) was used to test the null hypothesis at alpha level of 0.05. The result of the study showed that students performed highly using scaffolding learning strategy than those students who were taught using the traditional method. The test of interaction showed that gender had no significant interaction with teaching approach on students mean performance. The study concluded that scaffolding strategy is a good teaching method for teaching elective mathematics. The study recommended that mathematics teachers should adopt scaffolding learning strategy in the teaching because it enhances the academic performance of students in Senior High Schools in Ghana. The study also recommended that workshops should be organized by educational bodies to emphasize and enlighten teachers and mathematics educators on the benefits of using scaffolding strategy in the learning and teaching in Senior High Schools in Ghana. Edekor's study focused on scaffolding and achievement which are relevant to this study, however, brainstorming and learning retention which were part of this study were not

considered by Edekor. Both studies used the quasi-experimental approach; however, the sample of this study (272) is higher than the sample in the study reviewed. Edekor used ANCOVA for data analysis and recorded significant differences; however, it was difficult to know the magnitude of the effect because a Post hoc test was not conducted. This study augments this literature gap by using Tukey HSD to determine the effect sizes in students' achievement.

Mahan (2020) investigated scaffolding in content and language integrated learning (CLIL) in Norway. The study suggests a framework for how to empirically identify and classify scaffolding. Using the framework, the study investigates how three Norwegian CLIL teachers support learning for second language learners (SLL) through scaffolding. Twelve lessons (science, geography and social science) were filmed in one 11th-grade CLIL class. A coding manual (PLATO) was used to identify the scaffolding strategies the teachers used. The findings indicate that CLIL teachers scaffold their students to comprehend material. However, they provide few strategies to help students solve tasks, such as modelling and strategy use. CLIL teachers scaffold differently in the natural and social sciences; the natural science teaching has more visual aids, whereas the social science teachers allows for more student talk. The results imply that natural and social science teacher complement each other. However, CLIL teachers need to create more specific learning activities to provide their students with more support. Mahan's study primarily focused on how teachers scaffold, in which ca se is related to the present study. However, unlike the study reviewed, brainstorming, gender and retention were considered in the present study. The previous study focused on science, geography and social science, while the present study focused on social studies. With Norway serving as the location where the study reviewed was conducted and Nigeria serving as the location where the present study was conducted, there would definitely be variations in the results obtained which helps to bridge knowledge gaps.

Joda (2019)determined the effect of instructional scaffolding strategy on senior secondary school Biology students' academic achievement and retention of concepts in Taraba State, Nigeria. Quasi-experimental research design involving pre-test, the post-test control group was employed. The population of the study was all the senior secondary two (SSII) students in Jalingo education zone. Random sampling technique was used to sel ect four intact classes with 240 students as the samples size for the study. A 50 item Biology scaffolding Achievement Test (BSAT) was the instrument used for data collection, and the same instrument tagged Biology scaffolding Retention Test (BSRT) but arranged differently in numbering and response option. Kuder Richardson's formula 20 (KR-20) was used in estimating the reliabilities for the BSAT and BSRT, and the reliability of 0.87 and 0.85 for BSAT and BSRT respectively were obtained. The mean and standard deviation was used to answer the research questions, and analysis of covariance (ANCOVA) was used to test the two hypotheses. The findings show that the students taught with instructional scaffolding strategy have a significantly higher academic achievement than those taught with lecture method. Equally, those taught through instructional scaffolding retained Biology concept more than those taught through lecture method. It was recommended that the teaching of Biology should be scaffolded for better understanding. Curriculum planners should adopt instructional scaffolding as an adequate teaching strategy for the teaching Biology. Joda's study is relevant to the present study because the dependent variables—achievement and retention were part of the study. Moreover, quasi-experimental research design and achievement test were employed in both studies. This regardless, brainstorming and gender were considered in the present study in contrast with the study reviewed. Junior senior secondary school students in the present study were also exposed to social studies in contrast with senior secondary school students exposed to Biology in the study reviewed. Even though both studies were conducted in Nigeria, the present study was conducted in Adamawa state.

Van de Pol, Mercer and Volman (2019) examined scaffolding student understanding in small-group work: students' uptake of teacher support in subsequent small-group interaction in Netherlands. In this mixed-methods study, the extent of to which the effect of contingent support for students' learning is mediated by the extent to which students take up teachers' support in subsequent small-group work was investigated. We define contingent support as support that contains adapted levels of teacher control or regulation based on the learner's level of understanding. To explore the research question, analysis of all interactions from 35 lessons of 7 secondary social studies teachers and 7 small groups of students was ran. Logistic multilevel mediation analyses showed that the likelihood of students formulating accurate answers during small-group work was higher when students applied the teacher's support in subsequent small-group work (as opposed to ignoring that support). However, the contingency of a teacher's support did not affect students' uptake or the accuracy of their answers. Additional qualitative analyses showed that students' uptake of contingent support was sometimes hampered by untimely fading of the support. Moreover, the study found that contingent support that was then gradually faded was the most effective in fostering students' uptake of a teacher's support. The study reviewed factored a variable (scaffolding) of interest, however, brainstorming technique, gender and learning retention were not considered in the study reviewed. Similarly, social studies teachers played roles in both studies; however, unlike the reviewed study that employed logistic multilevel mediation for data analyses, in the current study, ANOVA was employed for analysis of data. More so, variations in location may bring about different results. This is why, unlike the previous study in Netherlands, the current study was conducted in Nigeria.

Akunne and Anyamene (2019) determined the effect of brainstorming techniques on secondary students study habitamong senior secondary school students in Anambra and Enugu States, of Nigeria. The study adopted the quasi-experimental design.The sample for the study was 800 senior secondary schools students (350 male and 450 female). The study habit inventory questionnaire with a reliability index of 0.897 was used in data collection. Mean and standard deviation were used in answering the research questions while ANOVA was used in testing the null hypothesis. The analysis of the data collected revealed a mean gain of 38.13 between the control and experimental groups, and a difference in mean gain of 4.61 for male and female students. This indicates that brainstorming was more effective for the experimental group and further shows that the effect differs with respect to gender. The findings revealed there was no difference in the mean post test scores of students who received treatment using brainstorming technique and those in the control group, also there was a significant difference in the mean post test scores of male and female secondary school students. The study concluded that brainstorming technique is effective for improving secondary school students study habit.Comparing the previous study (Akunne&Anyamene, 2019) with the present showed that brainstorming technique and quasi-experimental design are similar components. Similarly, the variable—gender was also presented in both studies. However, it could be seen that the independent variable—scaffolding and the dependent variables—achievement and learning retention, considered in the present study, were not part of the previous one. The instrument for data collection (SOSART) in

the current study is also at variance the questionnaire used in the previous study. Further, senior secondary school students in Anambra and Enugu States were engaged in the previous study against junior secondary school students in Adamawa state, Nigeria. Additionally, while the previous study was silent on the subject matter, the present work exposed students to social studies. These variations definitely created knowledge gaps explored in the current study.

Naibaho (2019) examined the effectiveness of scaffolding method on students' speaking achievement, and it is aimed to know effectiveness of scaffolding method on students' speaking skill at Universitas Kristen Indonesia. The method of the study is classroom action research, which was carried out within 2 cycles. The sample used for the study was 22students' speaking class of batch 2017. The instrument used for the study was test sheet and observation sheet, and the data taken using the instruments were analyzed by using descriptive statistics. The result of the study shows that scaffolding method is effective on improving students' speaking achievement. That is, scaffolding can improve students' speaking skills. It is concluded that scaffolding method is a good method to be implemented at speaking class, and the lecturers are suggested to use scaffolding method when teaching speaking in the classroom. Naibaho'sstudy was conducted in farawayIndonesia while the present study was conducted in Adamawa state, Nigeria. Even though scaffolding technique was employed in both studies, it could be observed that brainstorming technique was not a variable in the previous study. Students' speaking skill was tested in the previous study compared with social studies in the current one. Action research and descriptive statistics were employed in the previous study, however, in the present study, quasi experimental design, descriptive and inferential statistical tools were adopted. Moreover, the sample of this study, which is 272, could be said to have produced a dependable and generalizable results compared with the sample of 22 students in the previous work.

Abdurrahman et al. (2019) investigated multi-level scaffolding: a novel approach of physics teacher development program for promoting content knowledge mastery in Indonesia.The study addresses the question of how to promote Physics teachers' CK in science teacher education. The primary focus is on the knowledge transformation process. Mixed method design was used in this study to investigate the development of CK within a group of 45 high school Physics teachers who had at least 5 years of work experience teaching. The authors present a multi-level scaffolding (MLS) approach as a design heuristic for the in-service Physics Teacher Development Program (TPD) to further the principled design of these materials. They build from ideas about teacher learning and organise the heuristics around important parts of a teacher's subject matter knowledge base. These heuristics provide a context for a theoretically oriented discussion of how features of TPD may promote teacher's CK, by serving as cognitive tools that are situated in teachers' practice. The authors explore challenges in the design of MLS approach, such as the tension between providing guidance and choice. Comparing the study reviewed with the current one, it could be seen that the quasi-experimental research design for the current study varies with the mixed method design in the previous work. Moreover, brainstorming strategy, learning retention and students' academic achievement in the present study were not part of the study reviewed. More so, the previous work was carried out in Indonesia, while the present study was conducted in Adamawa state in Nigeria.

Hidayanti, Rochintaniawati and Agustin (2018) investigated the effect of brainstorming on students' creative thinking skills in learning nutrition in Islamic International School, Bandung, Indonesia. The method that was used in this research is quasi-experiment with pre-test post test design. The sample was taken by purposive sampling technique where one group was assigned as experimental group (n=25 students) and the other one group was assigned as control group (n=25 students). The population was 7th grade students from two classes in Islamic International School in Bandung. The quantitative data in this research was obtained from objective test and verbal TTCT (Torrance Test of Creative Thinking), while the qualitative data was obtained from observation sheet. The findings of the study showed that there are statistical significant differences between experimental and control group in creative thinking skills test with the score of 0.000. The result is in the favour of the experimental group, indicating t he effectiveness of brainstorming in developing students' creative thinking skills in learning nutrition. One of the limitations in the previous study that was addressed in the present study is sample used. If it is quasi-experiment, then the question of having equal number of students in the experimental and control groups shouldn't have arisen. Moreover, the sample of 50 students in total, may be limited in producing a generalizable results compared with the sample of 272 students (coupled with spread in schools selected) in the present study. Similarly, the scaffolding technique broadens the scope of the present study when compared with the previous one, and the dependent variables—achievement, gender and retention, are at variance with creative thinking skills in the previous study. The subject matter—nutrition was replaced with social studies in the present study, and the location where the present study was conducted (Nigeria) differs with that of the previous one. These knowledge gaps necessitated this study.

Malkawi and Smadi (2017) investigated the effect of using brainstorming method in the teaching of English grammar; to improve the level of sixth grade students in English grammar at public schools in Jordan. The study population consisted of all sixth grade students of both sexes. The sample of the study was chosen in the random stratified manner, represented in four schools: two for males and two for females, which were divided into two groups (experimental and control). The results showed that there were significant differences at the level of 0.05 in the achievement test in the English grammar, in favour of the experimental group. The results also showed significant differences between males and females in the achievement test in favour of the females. One of the most prominent recommendations was to refer to those concerned with educational guidance, and school administrations to give priority to the issue of the weakness of students in English grammar by focusing on the use of modern methods of teaching, including the method of brainstorming. Malkawi and Smadi employed brainstorming technique alone to teach English language, while in the present study; the scope was widened a little to include scaffolding technique in teaching social studies. The location and the students used in both studies are also different; however, it could be observed that students' gender was considered in both studies. Similarly, the past and present studies are also experimental in nature.

Van de Pol, Volman, Oort and Beishuizen (2015) investigated the effects of scaffolding in the classroom: support contingency and student independent working time in relation to student achievement, task effort and appreciation of support. Thirty social studies teachers of pre-vocational education and 768 students (age 12–15) participated. All teachers taught a five-lesson project on the European Union and the teachers in the scaffolding condition additionally took part in a scaffolding intervention. Low contingent support was more effective in promoting students' achievement and task effort than high contingent support in situations where independent working time was low (i.e. help was frequent). In situations where independent working time was high (i.e., help was less frequent), high contingent support was more effective than low contingent support in fostering students'

achievement (when correcting for students' task effort). In addition, higher levels of contingent support resulted in a higher appreciation of support. Scaffolding, thus, is not unequivocally effective; its effectiveness depends, among other things, on the independent working time of the groups and students' task effort. The present study varied with the study reviewed in terms of brainstorming, retention and gender variables, instrument for data collection, design, location and subject matter. These differences necessitated the conduct of this study to fill the gaps.

Amoush (2015) assessed the impact of employing brainstorming strategy on improving writing performance of English Major Students at Balqa Applied University in Jordan. The study was quasi-experimental in nature. The sample of the study which consisted of 80 male and female university students distributed into two groups of brainstorming strategy and traditional lecture method. The instrument for collecting the data was writing essay. The data were analyzed by using t-Test. The analysis showed that the scores of the students of the experimental group were significant than the scores of the students in the control group indicating the positive impact of employing brainstorming strategy on improving writing performance of English Major Students at Balqa Applied University in Jordan. Similarly, no difference was observed in the academic achievement of male and female students when brainstorming strategy was employed. The study recommended that English instructors should be encouraged to employ brainstorming strategy in teaching writing skill. The study is linked to the present study with brainstorming and gender variables. The research design in the study reviewed is also similar to the design adopted in the current study. However, unlike Amoush' study, the current study employed scaffolding instructional model and the dependent variable was achievement in social studies. The sample in the study reviewed is 80 while the current study engaged 272 students. Unlike the previous study where t-Test statistical tool was used for data analysis, in the present study mean and standard deviation, and ANOVA were used for data analysis. Jordan, where the study reviewed was conducted is also at variant with the location (Nigeria) of the current study. This comparison shows that the present study is broad in scope compared with the study reviewed.

Sdouh (2013) investigated the effect of using the strategies of brainstorming and computer education on academic achievement and the development of creative thinking skills among the students of sixth grade and their attitudes towards learning the engineering unit in mathematics across primary schools in the city of Jerash, Jordan. The researcher used a quasi-experimental approach. The study sample consisted of 69 students from Al Berketenschool, Jordan, for the academic year 2012-2013, spread over two experimental groups. The first group (brainstorming strategy) and the second group (strategy of computer education) comprised of 34 35 students respectively. The study showed that there are differences with statistical significance difference among the averages of the academic achievement as well as the skills of creative thinking of the two groups, in favour of the experimental group that used the strategy of brainstorming. Moreover, the study showed that there are differences with statistical significance for the group that used the strategy of computer education to learn the engineering unit. The study recommended among others the brainstorming strategy in teaching engineering in mathematics. Sdouh's use of brainstorming strategy is related to this study, however, scaffolding strategy, retention and gender were not considered by Sdouh. Sdouh focused on engineering unit in mathematics as the subject matter at the primary school level, while the present study focused on social studies education at the junior secondary school level. Sdouh's study sample is small (69) and not suitable for generalization of results when compared with the sample of 272 students in the present study. Moreover, while mean and standard deviation, and ANOVA were employed for data analysis in the current study, averages and t-Test were used in the study reviewed. Jerash in Jordan was where the study reviewed was conducted while Adamawa state in Nigeria is where this study was situated.

Adeyemi and Ajibade (2011) investigated the comparative effects of simulation games and brainstorming instructional strategies on junior secondary school students' achievement in social studies inOsun state, Nigeria. The study adopted a quasi-experimental design comprising three groups made up of two experimental groups and one control. Simple random sampling was employed in selecting 240 students from six selected schools comprising two arms of JSS II. Social Studies Achievement Test (SSAT), Operational Guide for Simulation Games (OGSG), Operational Guide on Brainstorming (OGB) and Operational Guide for Teacher Exposition (OGTE) were used with reliability coefficients of 0.84, 0.76, 0.81 and 0.78 respectively. Three research hypotheses were generated and tested. Data analysis was done using mean, standard deviation, and Analysis of Covariance (ANCOVA). Results revealed that there was a significant main effect of the treatment on students' achievement in Social Studies. Findings also indicated that there was a significant main effect of gender on students' achievement in Social Studies. Results also showed that there was significant interaction effect of treatment and gender on students' achievement in Social Studies. Based on the findings of the study, Scaffolding instructional strategy should be used by Biology teachers in the teaching Genetics. When the previous study by Adeyemi and Ajibade (2011) was compared with the current one some similarities and differences could be seen. Both studies are similar in terms of the variables—brainstorming, achievement in social studies, quasi-experimental design, number of schools and one of the instruments employed in the previous study (SSAT). However, while it is also true that two different strategies were employed in the previous study as in the present one, simulation games in the previous study was substituted with scaffolding in the present study. More so, the previous work was carried out in Osun state, while the present study was conducted in Adamawa state Nigeria. These are the gaps that the study was poised to fill.

Salamat and Kharashah (2010) conducted a study to determine the effectiveness of brainstorming on the seventh grade students' achievement in geography and the development of trends towards it. The researchers used the experimental approach and the sample consisted of 45 students from the seventh grade, who were distributed randomly into two groups of experimental and control groups. The research instruments used were achievement test and measure of trends towards geography. ANCOVA statistical methods, used to analyze the data revealed the following results: the existence of statistically significant differences for the grades of the students of the experimental and control groups on the achievement test, the scale of trends towards geography are attributed to the teaching method, and to the students of the experimental group who studied using the brainstorming method. The study recommended using the method of brainstorming in teaching social education materials and training teachers to use the brainstorming method. The previous study determined the effectiveness of brainstorming which is relevant to the present study, however, it is glaring that scaffolding was not considered in the previous study; the subject matter in the present work (social studies) varies with the subject matter in the previous work. The sample of 45 students in the previous study is smaller when compared with the sample of 272 students in the present work. These differences show that the scope of the present study is broader when compared with that of the study reviewed.

Ziadat and Adwan (2009) determined the effect of brainstorming on the development of decision-making skills of the ninth grade students in the field of national education and civic education in Jordan. The researchers used the experimental method, and the sample of the study consisted of a random sample that included 158 students who were divided into two experimental groups, experimental group consisting of 81 students and control group 77 students. The study tools were a scale that measured decision-making skill, and plans to develop lessons in brainstorming, and through the use of the following statistical methods: arithmetical averages, standard deviations, t-Test, and the analysis of the binary variance. The study results showed that there are significant differences in the development of decision-making skills in favour of brainstorming method, and the absence of statistical significant differences in the development of decision-making skills are attributed to gender. No differences were found due to interaction between method and gender. The study recommended using the method of brainstorming in teaching different materials, and training teachers to use brainstorming method. The study reviewed centred on brainstorming method alone, while the present study added scaffolding technique as a variable. More so, unlike the reviewed study that was conducted in national education and civic education in Jordan, the present study was conducted in social studies in Adamawa state, Nigeria. The sample of 158 students in the study reviewed is lower than the sample of 272 considered in this study. This notwithstanding, the design and gender variable were investigated in both studies.

Shulah (2009) investigated the effect of brainstorming in the teaching of Educational psychology on both the curiosity and performance improvement on psychology tests with higher mental levels in Saudi Arabia. The experimental and descriptive approaches were used in the study. The sample of the study consisted of 30 students from the faculty of teachers, and was divided into two groups, with 15 students each in the experimental and control groups. The instruments that were employed in data collection include achievement tests and the scale of curiosity. Standard deviations, arithmetic averages, t-Test, and correlation coefficient were used to analyze the data. Findings of the study revealed that the effectiveness of brainstorming in the teaching of educational psychology course. Brainstorming also impacted on the development of curiosity and improves the level of performance on the achievement tests prepared in the light of higher mental levels. The study recommended the use of a brainstorming strategy in the teaching of curriculum courses in teacher preparation colleges. The programs should also be tailored towards developing the capacity of university t eaching staff and train them on how to use brainstorming in teaching. The previous study by Shulah (2009) is related to the current study in terms brainstorming, design, and achievement test. However, unlike the students in the previous study who were exposed to educational psychology using brainstorming, students in the present study were exposed to social studies using brainstorming and scaffolding instructional approaches. Additionally, 30 undergraduate students in university were engaged in the study reviewed while this study considered 272 junior secondary school students. More so, the study reviewed was carried out in Saudi Arabia, while the present study was conducted in Adamawa state Nigeria. These knowledge gaps make the present study paramount.

1.2. Summary

The review of related empirical studies explained 17 studies conducted on the effectiveness of scaffolding and brainstorming instructional models on students' achievement in various fields of study. Further, the breakdown of the 17 studies reviewed shows that 8 studies were on the effectiveness of scaffolding instructional models, while 9 studies were reviewed on the effectiveness of brainstorming instructional models on students' learning outcomes. The studies reviewed prove the strength of scaffolding and brainstorming teaching approaches compared with the traditional lecture method. The strategies were superior in improving students' achievement in various discipline compared with the lecture method. As it pertains to gender, the studies reviewed noted conflicting findings. While some of the studies reported gender effect in achievement in favour of male students when these teaching strategies were employed, others reported gender differences in achievement in favour of female students. More so, other scholars took the middle stand by reporting no gender effect on students' achievement when scaffolding and brainstorming teaching approaches were employed. Throughout the review, observation made showed that none of the studies combined scaffolding and brainstorming teaching strategies to teach students. It was also observed that the dependent variables of gender and retention are conspicuously absent in most of the studies reviewed. Additionally, one area of immense interest addressed in the present study, that the studies reviewed failed to address is in the selection of schools and participants. Most of the authors used a smaller sample (e.g. 25, 45 and 50) concentrated in one location. This will make the research results difficult to generalize. This study engaged 272 students well spread across 6 selected schools in Mayo Belwa LGA of Adamawa state, Nigeria. More so, two schools each were assigned for the experimental and control groups exposed through the scaffolding, brainstorming and conventional instructional models. Notably, this study stands out as one of the quasi-experimental studies that combined scaffolding and brainstorming instructional models to teach social studies, with Adamawa state becoming the first were such was conducted. This makes the results of this study suitable for generalization and unique in all fronts.

1.3. Purpose of the Study

The purpose of the study is to assess junior secondary school students' achievement and learning retention in social studies through the application of scaffolding and brainstorming instructional models. Specifically, the study sought to determine:

i. the post test mean score of junior secondary school students exposed to social studies through the application of scaffolding, brainstorming and conventional instructional models;
ii. the learning retention mean score of junior secondary school students exposed to social studies through the application of scaffolding, brainstorming and conventional instructional models; and
iii. the effect of gender on junior secondary school students' post test mean score exposed to social studies through the application of scaffolding, brainstorming and conventional instructional models.

1.4. Research Questions

The study addressed the following questions:

i. What is the post test mean score of junior secondary school students exposed to social studies through the application of scaffolding, brainstorming and conventional instructional models?
ii. What is the learning retention mean score of junior secondary school students exposed to social studies through the application of scaffolding, brainstorming and conventional instructional models?
iii. What is the post test mean score of male and female junior secondary school students exposed to social studies through the application of scaffolding, brainstorming and conventional instructional models?

1.5. Hypotheses

The following research hypotheses were formulated and tested in the study at 0.05 alpha level:

$H0_1$: The application of scaffolding, brainstorming and conventional instructional models in teaching social studies has no significant effect on the post test mean score of junior secondary school students.

$H0_2$: The application of scaffolding, brainstorming and conventional instructional models in teaching social studies has no significant effect on the learning retention mean score of junior secondary school students.

$H0_3$: The application of scaffolding, brainstorming and conventional instructional models in teaching social studies has no significant effect on the post test mean score of male and female junior secondary school students.

2. Materials And Methods

The quasi-experimental research design with the pre-test and post test; non-randomized control group was employed in the study. Quasi-experimental intervention is a type of experimental design which does not permit for assignment of subjects into groups. The rationale for selecting this research design lies in the fact that the secondary schools involvedin the study already had intact classes, thus randomization of students into groups for the purpose of experiment is simply not allowed to avoid disruption of the schools' time table and disintegration of classes. There were three ca tegories of learners (male and female) that underwent tutelage in social studies through the application of scaffolding, brainstorming and conventional instructional models. The first category of students was instructed in social studies through the application of scaffolding instructional model. The second were taught social studies through the application of brainstorming instructional model, while the third category had their lesson through the conventional teaching method. The pre and post test were administered to the students in each of this category. A preliminary test (pre-test intervention) was administered to establish whether the prior knowledge of learners in social studies was equal. Thereafter, another test (post test intervention) was given to measure the efficacy of the instructional programme on the students' achievement.

2.1. Sample and Sampling Procedure

A sample of 272 junior secondary school students was exposed to social studies using different teaching models. Multistage sampling technique at different stages, with simple random sampling technique constituting each stage was employed to select the participants in the study. Stage one was characterized by the selection of Ganye education from the five education zones in the Adamawa state. Further, Mayo Belwa LGA, from a list of four LGAs in Ganye education zone was selected. Similarly, six junior secondary schools in Mayo Belwa Local Government Area of Adamawa State were selected and one JS II intact class from each of these schools was further selected. Altogether, there were six intact classes (JS II) used for the study. Lastly, the six sampled mixed sex schools were later assigned to the two experimental, and control groups. This means that two schools were assigned the Experimental group X_1 (n = 90, Male = 53, Female = 37) and was treated using scaffolding instructional model. Another two schools were assigned Experimental group X_2 (n = 98; Male = 54, Female = 44) and was treated using brainstorming instructional model while the last two schools were used for the control group (n = 84; Male = 40, Female = 44) exposed to social studies using the conventional teaching method (lecture). The teaching and testing sessions involved all the students in the intact classes. Therefore, the total number of students that were engaged in the study from the six sampled schools (classes) is 272.

2.2. Research Instrument

A 35-item Social Studies Achievement and Retention Test (SOSART) instrument was designed to collect data in the study. The SOSART consisted of 30 multiple choice items and 5 essay items adapted from past examination questions of Basic Education Certificate Examination (BECE). The rationale for using both multiple choice and essay items hinged on the fact that exclusive use of multiple choice items was found to be ineffective in enhancing students' material retention, as it requires students to simply recall concepts; making it difficult for long term retention (Bruno, Ongaro& Fraser,

2007).The Social Studies Achievement and Retention Test was based on JS II curriculum on the concepts of transport and communication, cultism, marriage and culture, family and types of family, and social issues and problems. Items were drawn using the table of specification covering six cognitive domains related to the topics selected for the study.

It should be noted that the topics selected from the junior senior secondary two (JS II) curriculum correspond with the schools' social studies scheme of work and what the students should be taught in those schools at the time of the study. The SOSART has two sections: Section A consisted of 30 objective items (30 marks) with four options (A-D) as possible answers to the question. Only one of the four options stood as the correct answer. Section B comprised of 5 essay items carrying 70 marks in which students were required to write comprehensively on any three. The questions in the SOSART instrument used in the pre-test to ascertain the equivalence in the ability of students were re-numbered for the post test; and the questions relating to the two topics taught in the first two weeks of the study were extracted for the retention test. The instrument was scored over 100. The duration for the test was 1hour 30 minutes.

2.3. Validation of the Instrument

The Social Studies Achievement and Retention Test (SOSART) was given to two Social Studies education specialists from the Art and Social Science Education Department, Adamawa State University, Mubi, and two secondary schools social studies teachers. These specialists evaluated the face and content validity of the instrument in relation to the background of the JS II students. The specialists specifically examined the instrument along these criteria: clarity of questions asked, appropriateness of the questions to the students' level of understanding and experience and agreement of the items with the test blueprint. In addition, the items in the test instrument was thoroughly scrutinized by the authorities, with reference to the applicability of the content, the relevance of the test items to the content and the degree to which the contents measured the topics meant to be measured. Necessary amendments were made on the instrument based on suggestions proffered.

2.3.1 Item Analysis

The item analysis of the objectives items was conducted in two phases: item difficulty measures the fraction of testees who r esponded to an item correctly, and the item discrimination measures how well the item discriminates between testees who are conversant in the content area and those who are not. Expectedly, a good test item or test instrument should be able to clearly discriminate or differentiate between good and weak students.

Item difficulty is the proportion of respondents who answered a question affirmatively or correctly. Item difficulty = p = Number of correct responses / Number of valid responses. Nelson (2000) posits that item difficulty that ranges from 0.30 to 0.70 is considered as a suitable index for the multiple-choice test. Therefore, the facility or difficulty index of the entire objective items in the SOSART instrument fell within the range of 0.30 to 0.70 or 30-70% as suggested by Nelson.

From the differences between two percentages, one for the higher group and the other for lower group, the discrimination index of a test item can be estimated,

The mathematical derivation is D = Ru - Rl

Where D = Discrimination index

Ru = Number among upper students that scored an item correctly

Rl = Number among lower students that scored an item incorrectly.

Discrimination index ranging from 0.30 to 0.49 are described as moderately positive, those above 0.59 to 0.70 are highly positive or has high positive value (Furst in Dantani, 2011). Following Furst's suggestion, the objective test items discrimination index fell between 0.30 and 0.70, which means that all the 30 objective items was included in the SOSART instrument.

2.4. Reliability of the Instrument

A trial test was conducted in the study to ascertain the reliability and suitability of the Social Studies Achievement and Retention Test instrument. The trial test was conducted using 81 students offering social studies from two junior secondary schools in Ganye LGA. Although, this sample is in the population of the study, it is however not within the sample selected for this study. The SOSART was administered once. The r esult of the test was analyzed using the Guttmann Split-Half statistic. A reliability coefficient of 0.78 was obtained. This means that the test instrument was reliable.

2.5. Procedure of Data Collection

The researcher first obtains consent of the principals of the sampled schools, explaining the aim and need for the study. Per mission was sought to engage some of the JS II in the study. The permission of five social studies teachers to serve as research assistants in the study was sought for. This i s to say that the researcher handled one of the schools where the experimental treatment (scaffolding) was administered. The five social studies teachers who accepted to be research assistants were trained for two days and given general introduction and instructions on how to carry out the treatment on the selected groups. Moreover, they were given lesson plans describing how scaffolding (modelling and cueing questions), brainstorming and conventional (lecture)

instructional models were to be applied in each of the groups. The pre-test was administered on the experimental and control groups by the researcher and the trained social studies teachers. The students' pre-test scores were used to select students on the ground of homogeneity in their entry behaviour in social studies. Thereafter, the treatment starts with the application of scaffolding, brainstorming and conventional instructional models in teaching social studies in the three students' groups. Treatment lasted for 5 weeks while the post test was administered in the 6th week. The retention test, which was an extracted version of the items from the SOSART instrument taught in the first two weeks of the treatment, was later administered to the students in the three groups two weeks after the completion of the study. The multiple choice questions were however, reshuffled to prevent students' familiarity with the content.

Control of Extraneous Variables

Extraneous variables are undesirable factors in a study that, if not properly checkmated, may negatively affect the outcome of the research. Taking this into cognizance, several measures were applied to control the influences of extraneous variables in the study; the measures applied are hereby discussed as follows:

i. **Randomization:** No special consideration was given to any students in the process of randomization.This informed the use of simple random sampling in the study. Participants' classes were assigned to experimental and control groups by using random numbers. The treatmentconditions using the instructional models were also randomly assigned to the experimentaland control groups.

ii. **Selection Bias:**The JS II students who participated in the study were not assignedto one group. They were categorized into three groups based on the instructional models applied in the study. Students in two experimental groups were exposed to social studies through scaffolding and brainstorming instructional models, while the students in the control groups were taught through the conventional teaching method.

iii. **Matching Test**: The study ensures that the students engaged had equivalent entry behaviour in social studies prior to their selection. This was achieved by comparing their pre-test scores to guarantee that one group is not favoured against the other.

iv. **Treatment Bias:**While students in the experimental groups were been treated with scaffolding and brainstorming instructional models using their structured instructional guide, the students in the control groups were not left alone. They were also given treatment; however, the treatment given was placebo. It is a placebo treatment because the instruction was regulated like the others using the conventional method lesson plan with topics similar to that of the experimental groups. More so, uniform pre and post test were given to students in the experimental and control groups.

v. **Hawthorne Effect:**Hawthorne effect, which deals with the subjects becoming aware that they were been investigated hence, behave in a manner that may tilt the results in their favour was checked by first, selecting schools that are far from each other in order to prevent subjects contamination of the results. Second, the five research assistants selected in the study were the school's regular social studies teachers, who were familiar with the terrain. Hence, will present the content to the students as a normal social studies lesson. More so, the research assistants were grouped into three, two each for the six schools and trained in separation from the other. The lesson plan for the implementation of each of the instructional models was uniquely design to capture the characteristics of the instructional models. Third, it is possible for smart students to recall the questions and possible answers to the pre-test while taking the post test; this may invalidate the aim of the study. Such occurrences were addressed by retrieving all pre-test question papers from the students and reshuffling them for the post test.

vi. **Maturation:**The time frame between the administration of the pre-test and post test (5 weeks) was good enough to prevent the effect of the students' pre-test scores on their post test.

2.6. Method of Data Analysis

The Shapiro-Wilk test of normality was conducted on the students' post test scores in the two experimental and control groups. This was done to sel ect appropriate statistical tools for analyzing the data. The statistic showed that the data were normally distributed ($p > 0.05$). Similarly, Levene's test of homogeneity of variance was not significant ($p > 0.05$). Having met all assumptions, mean and standard deviation were used to answer research questions One to Three, while the three null hypotheses were tested using One-Way Analysis of Variance (ANOVA) and Tukey Honestly Significant Difference (HSD) pairwise comparison test. Alpha level of 0.05 was used as the benchmark for the testing, and any hypothesis with the probability value of $p < 0.05$ is considered statistically significant. The reverse be the case if $p > 0.05$. Statistical Package for Social Sciences (SPSS) version 25 was employed for the analysis.

3. Results

Research Question One: What is the post test mean score of junior secondary school students exposed to social studies through the application of scaffolding, brainstorming and conventional instructional models?

The scores of students in the three groups were analyzed using mean and standard deviation. The result is presented in Table 2.

Table 1: Summary of Students' Post Test Mean Score exposed to Social Studies through the Application of Scaffolding, Brainstorming and Conventional Instructional Models

Instructional Models	N	Mean	Std. Dev.
Scaffolding Model	90	54.16	18.28
Brainstorming Model	98	49.86	20.80
Conventional Teaching Method	84	32.98	21.44
Total	**272**	**46.07**	**22.03**

Table 1 indicates that the students exposed to social studies through the scaffolding instructional model gained the highest mean score (M = 54.16) in social studies followed by students in the brainstorming model group (M =49.86). The students with the lowest mean score are those in the control group (M = 32.98). This scenario is further depicted graphically in Figure 1.

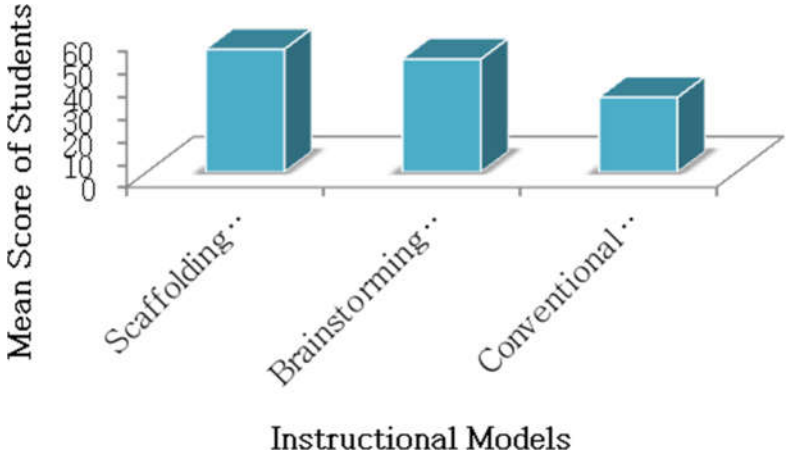

Fig 1: Showing the Mean Score of Students in the Scaffolding, Brainstorming and Conventional Instructional Models Groups

To determine if these mean scores were significantly different, the one way ANOVA was applied. The result is summarized in Table 2.

Null Hypothesis One,The application of scaffolding, brainstorming and conventional instructional models in teaching social studies has no significant effect on the post test mean score of junior secondary school students.

The post test mean scores of the students in the three groups exposed to social studies through scaffolding, brainstorming and conventional instructional models were compared. The ANOVA result is given in Table 2.

Table 2: Summary of ANOVA of Students' Post Test Mean Scores Exposed to Social Studies through the Application of Scaffolding, Brainstorming and Conventional Instructional Models

Source	Sum of Squares	df	Mean Square	F	Sig. (2-tailed)
Between Groups	21691.034	2	10845.517	26.555	.000*
Within Groups	109865.775	269	408.423		
Total	131556.809	271			

*Significant; $p < .05$.

The data in Table 2 reveals that the application of scaffolding, brainstorming and conventional instructional models in teaching social studies has a significant effect on the post test mean score of junior secondary school students ($F(2, 269) = 26.555$, $p = 0.000$). However, the implication of this finding is that only students exposed to the experimental treatment using scaffolding and brainstorming instructional models had remarkable results. This could however, not be ascertained without knowing where the mean differences lies. The Tukey HSD Post hoc in Table 4 provides further clarification.

Table 3:Tukey HSD Post Hoc Test of Students' Post Test Mean Scores Exposed to Social Studies through the Application of Scaff olding, Brainstorming and Conventional Instructional Models

Independent Variable (I) Instructional Models	Independent Variable (J) Instructional Models	Mean Difference (I-J)	Sig. (2-tailed)
Scaffolding Model	Brainstorming Model	4.20	.313
	Conventional Teaching Method	21.18	.000*
Brainstorming Model	Scaffolding Model	-4.20	.313
	Conventional Teaching Method	16.88	.000*
Conventional Teaching Method	Scaffolding Model	-21.18	.000*
	Brainstorming Model	-16.88	.000*

*Significant; $p < .05$.

Even though the students exposed to social studies through scaffolding instructional model scored higher than students in the brainstorming model group in social studies, the Tukey pairwise comparison in Table 3 shows that the difference is statistically insignificant ($p = 0.313$). However, a significant difference could be seen when the post test mean scores of students in the two experimental groups were compared with those of the control group ($p = 0.000$). This implies that scaffolding and brainstorming models improved students achievement in social studies better than the conventional method.

Research Question Two: What is the learning retention mean score of junior secondary school students exposed to social studies through the application of scaffolding, brainstorming and conventional instructional models?

The retention mean score of students in the three groups taught social studies using the three different strategies were compared. Tables 5 present the descriptive result.

Table 4: Summary of Students' Learning Retention Mean Scores Exposed to Social Studies through the Application of Scaffolding, Brainstorming and Conventional Instructional Models

Instructional Models	N	Mean	Std. Dev.
Scaffolding Model	90	35.67	16.76
Brainstorming Model	98	40.36	16.22
Conventional Teaching Method	84	21.77	12.80
Total	**272**	**33.07**	**17.27**

From Table 4, it could be observed that the students exposed to social studies through the brainstorming instructional model had the highest learning retention mean score indicated by the mean gain of 40.36, followed by students in scaffolding model with mean gain of 35.67. The group with the lowest learning retention mean score was the conventional teaching method ($M = 21.77$). The graphical illustration in Figure 2 shows the learning retention mean score of students exposed to the three instructional models.

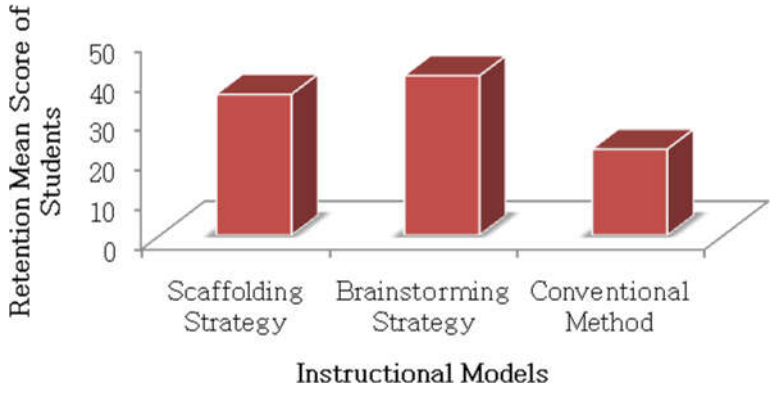

Fig 2: Graphical Illustration of Students' Learning Retention Mean Scores in the Scaffolding, Brainstorming and Conventional Instructional Models Groups

In an effort to determine whether these mean scores were significantly different, the one way ANOVA was applied. Summary of the result is contained in Table 5.

Null Hypothesis Two:The application of scaffolding, brainstorming and conventional instructional models in teaching social studies has no significant effect on the learning retention mean score of junior secondary school students.

Table 5: Summary of ANOVA of Students' Retention Mean Scores Exposed to Social Studies through the Application of Scaffolding, Brainstorming and Conventional Instructional Models

Source	Sum of Squares	df	Mean Square	F	Sig. (2-tailed)
Between Groups	16529.606	2	8264.803	34.581	.000*
Within Groups	64291.202	269	239.001		
Total	80820.809	271			

*Significant; p < .05.

From the data in Table 5, the application of scaffolding, brainstorming and conventional instructional models in teaching social studies shows a significant effect on the learning retention mean score of junior secondary school students (F (2, 269) = 34.581, p = 0.000). By implication, this means that students exposed to social studies using scaffolding and brainstorming instructional models retained the concepts better than their counterparts in the lecture method group. To determine the exact position of effect in the retention mean scores of students in the three groups, the Tukey HSD Post Hoc test was applied as illustrated in Table 6.

Table 6: Tukey HSD Post Hoc Test of Students' Learning Retention Mean Scores Exposed to Social Studies through the Application of Scaffolding, Brainstorming and Conventional Instructional Models

Independent Variable (I) Instructional Models	Independent Variable (J) Instructional Models	Mean Difference (I-J)	Sig. (2-tailed)
Scaffolding Model	Brainstorming Model	-4.69	.096
	Conventional Teaching Method	13.89*	.000*
Brainstorming Model	Scaffolding Model	4.69	.096
	Conventional Teaching Method	18.58	.000*
Conventional Teaching Method	Scaffolding Model	-13.89	.000*
	Brainstorming Model	-18.58	.000*

*Significant; p < .05.

The Tukey's pairwise comparison in Table 6 shows that the differences earlier observed in students retention mean scores exposed through scaffolding and brainstorming instructional models are insignificant (p = 0.096). However, a significant effect of scaffolding and brainstorming instructional models in the learning retention mean scores of students could be observed when compared with those of their counterparts in the control group (p = 0.000). This result implies that scaffolding and brainstorming instructional models enhanced better material retention of concepts in social studies than the conventional lecture method.

Research Question Three: What is the post test mean score of male and female junior secondary school students exposed to social studies through the application of scaffolding and brainstorming instructional models?

This question was answered descriptively using mean and standard deviation. The result is displayed in Table 7.

Table 7: Summary of Descriptive Statistics of Students' Post Test Mean Scores Exposed to Social Studies through the Application of Scaffolding, Brainstorming and Conventional Instructional Models

Instructional Models	Gender	N	Mean	Std. Dev.
Scaffolding Model	Male	53	52.57	21.21
	Female	37	56.43	12.92
Brainstorming Model	Male	54	47.02	21.27
	Female	44	53.34	19.89

Analysis in Table 7 indicates that female students in the scaffolding group scored higher (M = 56.43) in social studies compared with their male counterparts (M = 52.57). Similarly, female students in the brainstorming group scored higher (M = 53.34) in social studies compared with their male counterparts (M = 47.02). These means were further compared in Table 8 using ANOVA statistical tool.

Null Hypothesis Three: The application of scaffolding and brainstorming instructional models in teaching social studies has no significant effect on the post test mean score of male and female junior secondary school students.
The students' post test mean scores in social studies taught through scaffolding, brainstorming and conventional instructional models were compared using one way ANOVA. The data is illustrated in Table 8.

Table 8: Summary of ANOVA of Male and Female Students' Post Test Mean Score Exposed to Social Studies through the Application of Scaffolding and Brainstorming Instructional Models

Instructional Models	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2161.671	3	720.557	1.883	.134
Within Groups	70412.968	184	382.679		
Total	72574.638	187			

Not Significant; $p > 0.05$.

It could be clearly seen from the ANOVA result that the application of scaffolding and brainstorming instructional models in teaching social studies has no significant effect on the post test mean score of male and female junior secondary school students ($F(3, 184) = 1.883$; $p = 0.134$). This denotes that scaffolding and brainstorming instructional models were insensitive to students' gender.

4. Discussion

There is a plethora of benefits adduced to the use of scaffolding and brainstorming instructional models teaching and learning in and classroom. Employing scaffolding and brainstorming instructional models may help in motivating and sustaining student's interest during lesson delivery, providing some guidance to help the learners concentrate on achieving the goal of the lesson, simplifying learning objectives to make it more realizable and achievable for the students, improving proficiency and communication skills, and encouragement of independent thinking. Further, decision making based on direct evidence and experiences will be improved, students' perception and creativity will also improve, and boredom and frustration that might arise from abstract imagination during lesson is eliminated. The present study assesses students' achievement and retention in social studies when scaffolding and brainstorming instructional models were applied. The discussion was done in line with the research questions and hypotheses that guided the study.

4.1 Students' Post Test Mean Scores Exposed to Social Studies using Scaffolding, Brainstorming and Conventional Instructional Models

The degree to which students yield to teachers'support have been documented to promote students' learning as new knowledge is integrated into the students' existing knowledge structures (Webb et al., 2006; Wittwer&Renkl, 2008, Van de Pol et al., 2019). Moreover, generating ideas through brainstorming help students to speed up their thinking abilities by challenging their minds, thereby, breaking the deadlock that may be associated with learning.In this study, the post test mean scores of students exposed to social studies through the application of scaffolding, brainstorming and conventional instructional models were analyzed. The results indicated a significant effect of scaffolding, brainstorming, and conventional instructional models on students' academic achievement in social studies. However, the results placed students in the two treatment groups in a better position while the achievement of their peers in the control group was poor. A pairwise comparison test also revealed similar results, indicating that, even though the students who were scaffolded gained the highest mean score in social studies, a statistically insignificant difference was found when compared with the mean of their counterparts in brainstorming group. On the contrary, a significant difference was recorded when the mean score of students in the scaffolding and brainstorming groups were compared with the mean of the students in the conventional teaching method group.
This finding upholds the findings of Samuel and Apawu (2020), Joda (2019), Van de Pol et al. (2019), Naibaho (2019),Vonna, Mukminatien and Laksmi (2015); Akani, (2015), Yangrifqi (2012) and Solikhah (2012) which shows that an activity-based learning built on scaffolded instruction improved students' achievement than the lecture method. Similarly, Akunne and Anyamene (2019), Hidayanti et al. (2018), Malkawi and Smadi (2017) also found that brainstorming technique had the potential to improve students' learning outcomes compared with the lecture method. Specifically, the studies by Filgona et al. (2016a) and Filgona et al. (2016b) discovered that those students who were exposed to social studies using brainstorming learning strategy achieved better results than the students who were taught by the conventional teaching method.
Winnips (2001) opines that learning becomes easy when students receive adequate support. The contingent support that was then gradually faded during scaffolding was most effective in fostering students' acceptance of the teacher's support (Van de Pol, et al., 2019). Additionally, Al-Shammari (2015) praised the prowess of brainstorming instructional model in improving students' achievement in diverse fields of human endeavour. The benefits attached to the use of scaffolding and brainstorming models may have led students in these groups to achieve better results.

4.2 Students' Retention Mean Score in Social Studies using Exposed to Social Studies using Scaffolding, Brainstorming and Conventional Instructional Models

The possibility of students retaining three and half times of the material is high when they actively participate in the teaching learning process (Filgona et al., 2016a citing Bass et al.). Interactive approaches to lecturing significantly enhance learning (Chang, 2010). Similarly, the application of scaffolding and brainstorming instructional models in teaching social studies improved the concepts retention of students in social studies compared with their counterparts exposed through the conventional teaching approach. The Tukey pairwise comparisons test showed that students in the brainstorming model group gained the highest retention scores; however, the retention scores were insignificant when compared with that of the scaffolding model group. Nevertheless, the pairwise comparisons clearly showed a significant effect of treatment in the retention scores of students in favour of students in the experimental groups. This implies scaffolding and brainstorming instructional models help concretized social studies concepts in students hence, their retention ability improved.

The finding bolsters the findings of Joda (2019), Filgona et al. (2016a) and Filgona et al. (2016b) which showed high material retent ion of students exposed to biology and social studies respectively through the application of scaffolding and brainstorming instructional models. In a related development, Delen et al. (2014) found out that students in the experimental group taught using scaffolding strategy had significant recall test scores than the control group. A study also found that learning can only be meaningful when new knowledge acquired by the students is retained in the long term memory (Novak &Gowin in Dantani, 2011). Remarkably, Williams and McClure (in Bachelor, Vaughan, & Wall, 2012) found that traditional lecture methods had failed in producing the desired learning outcomes, hence the need for exploring of other strategies for better learning retention of learners. This stu dy has validated that the product of meaningful learning is long term knowledge retention linked to the use of scaffolding and brainstorming instructional programmes.

4.3 Post Test Mean Score of Male and Female Students Exposed to Social Studies using Scaffolding and Brainstorming Instructional Models

The study reveals that gender cannot be factored in students' post test mean scores when scaffolding and brainstorming instructional models were applied in teaching social studies. This shows that scaffolding and brainstorming instructional strategies are gender-friendly. The students', male and female, showed keen interest in these strategies, hence the results obtained. This finding bolsters previous findings which showed no significant effect of gender on students' academic achievement taught with scaffolding (Ejekwu&Inyon, 2019, Uduafemhe, 2015, Azih&Nwosu, 2011) and brainstorming (Filgona et al., 2016a, Amoush, 2015, Dania, 2014, Al-Bwli, 2006) instructional strategies. The finding contrasted with previous findings which reported significant gender differences when scaffolding (Edekor, 2020, Talebinejad&Akhgar, 2015, Akani, 2015) and brainstorming (Akunne&Anyamene, 2019) instructional models were applied, showing male dominance over their female counterparts.

5. Conclusion

Scaffolding and brainstorming instructional models were found potent in engendering the desired learning outcomes of students in social studies. They offered students the ample opportunities to interact while they learn. Moreover, scaffolding and brainstorming instructional models enhanced greater retention of social studies concepts than the conventional teaching method. Further, both strategies employed were gender-friendly, as students, irrespective of being male or female were given equal opportunities to interact in the study. The findings denote that teaching techniques employed by the teacher could influence students' achievement in social studies. Consequently, social studies teachers should carefully select their teaching strategy taking into cognizance the topic and the needs of the learners in the classroom.

6. Recommendations

The following recommendations were made on the basis of the outcome of this study:

i. Scaffolding and brainstorming instructional strategies improved students' achievement and learning retention in social studies. The instructional models also bridge the achievement gaps between male and female students. Therefore, social studies teachers in junior secondary school of Adamawa state should be encouraged to use scaffolding and brainstorming instructional models to teach social studies.
ii. The Nigerian Educational Research and Development Council (NERDC), saddled with the responsibility of reviewing the curriculum from time to time, should consider emphasizing scaffolding and brainstorming instructional models in the social studies curriculum.
iii. The Ministries of Education both at federal and states levels, should organize training and retraining workshops, seminars and conferences to enlighten social studies teachers on recent breakthrough in the world of research. This could be done with a view of improving their knowledge base on the use of scaffolding and brainstorming instructional models.

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