International Journal of Learning, Teaching and Educational Research
Vol. 20, No. 3, pp. 1-17, March 2021
https://doi.org/10.26803/ijlter.20.3.1

Effective Social Studies Pedagogy: Effect of Simulation Games and Brainstorming Strategies on Students' Learning Outcome

Sunday Obro, Clifford Edore Ogheneakoke and Williams P. Akpochafo
Delta State University, Nigeria
https://orcid.org/0000-0002-7675-9166
https://orcid.org/0000-0001-8545-6274
https://orcid.org/0000-0002-8632-3323

Abstract. This study explored the effects of game simulation and brainstorming pedagogy strategies on students' learning outcomes. In addition, the study compared the effects of three strategies on students' learning outcomes. This study tested pedagogical strategies for effects on learning outcomes. The quasi-experimental research involved 180 students. The results reliably indicate that a simulation-game pedagogical strategy boosted students' learning outcomes, while a brainstorming pedagogical strategy was effective on students' learning outcomes. When equated with brainstorming and the lecture strategies in enhancing students' learning outcomes, the superiority of the simulation-game pedagogical strategy was also observed. These findings indicate that innovative and student-centred pedagogical strategies such as simulation-game and brainstorming strategies improve students' learning outcomes. In-service teachers should be appropriately trained through seminars and conferences on modern pedagogical strategies such as brainstorming and simulation games for better Social Studies pedagogical strategies.

Keywords: brainstorming; pedagogy; Social Studies; simulation game; students' learning outcomes

1. Introduction

In the face of challenging experiences of the present time, one needs to advance and create diverse and innovative solutions for what seems like a problematic life task. In Nigeria, Social Studies is a mandatory discipline at the Basic Education level. Irrespective of the ethnic, racial and cultural differences, Social Studies is seen as a tool for building and creating a robust Nigerian nation. With recent modifications or changes in the Upper Basic Social Studies curriculum, what still dominates Social Studies classrooms is the lecture strategy with no quality or lasting learning outcomes (Essien et al., 2015). Teachers generally rely

on the lecture strategy for imparting Social Studies knowledge and skills. This lack of an inventive, creative teaching strategy and critical progression in Social Studies lessons and classrooms can be linked to teachers' disinclination to learn and use novel and creative teaching strategies. Also, the dictate of high-stakes experimentation and execution involves students' churning out factoids to grasp the content. Thus, there is a lack of real motivation for teachers or students to learn more than a particular fact. Any challenging of the subject matter is regarded as unnecessary and unimportant. According to Wood (2011), the typical Social Studies classroom inhibits critical and creative thinking and strengthens the idea that facts and information are unchangeable and not free for criticism or interpretation. Students stuck in this type of Social Studies classroom or environment quickly discover that they are bored and helpless, having been taught from the standpoint that Social Studies is an assemblage of useless inconsequential knowledge.

Simulation games challenge students' understanding to comprehend difficult tasks by means other than the traditional lecture strategy. In other words, they have the potential for helping students achieve more than the conventional teaching method (Nja et al., 2019). On the other hand, a brainstorming strategy enhances the productivity of ideas and explores solutions. It helps learners to discover better solutions or answers to problems (Malkawi & Smadi, 2018).

In the expository strategy, learners are passive and collect information that can be reclaimed when the teacher requires it from them (Tarman & Kuran, 2015). However, evidence has shown that knowledge gained through an active discussion strategy is generally retained better than knowledge gained through a lecture strategy. Furthermore, according to Jack and Kyado (2017), students more often favour active participation in discussion than being inactive or passive in a lecture. Through meaningful or fruitful learning, Social Studies learning need no longer be a matter of memorisation facts and principles that cannot be applied to novel problem-solving situations (Shear, 2016). Students are given the means and the opportunity to participate actively in the teaching and learning situation in activity-based learning, unlike in the conventional pedagogical strategy.

Study outcomes of other research have shown that brainstorming and simulation-game pedagogical strategies aided students' learning outcomes. Customarily, students' inculcation of knowledge using a lecture strategy is inefficient to grasp curriculum contents. There are various Social Studies pedagogical strategies. Some of these strategies are thought to be more valuable and successful than others. The question is which strategy is more productive and beneficial for Social Studies teaching, specifically at the Upper Basic level. Hence, this study compares and establishes the effect of the selected strategies (simulation games and brainstorming strategies) on Social Studies students' learning outcome. This study is intended to find the answers to the following propositions: a simulation-games pedagogical strategy will not enhance students' learning outcomes; students instructed by means of a brainstorming pedagogical strategy may not increase their learning outcomes; and differences

will not be found among brainstorming, simulation-games, and lecture pedagogical strategies on Social Studies students' learning outcomes.

The hypotheses listed below were formulated and tested:

i) Students' involvement in simulation-game strategies will not improve their learning outcomes.
ii) Students' involvement in brainstorming strategies will not improve their learning outcomes.
iii) There is no statistically significant difference among brainstorming, simulation-games and lecture pedagogical strategies regarding students' learning outcomes.

1.1 Practical gaps

The study could provide teachers with the desired information to design and adopt the right teaching strategies to suit varied learners and enhance students' learning outcomes in Social Studies. Similarly, the study could provide researchers in Social Studies areas with future research in instructional strategies. It could also help authors and publishers in their presentation of content to readers. Finally, the results obtained may lead to further research in other subject areas.

2. Literature Review

2.1 Simulation-Game Pedagogical Strategy

As indicated by Mozelius et al. (2017), a simulation game denotes a board game, or those various teacher-made games for teaching and learning purposes. The focus of these pedagogical games is usually on the socioeconomic, religious, political and aspects of society. A variety of games is accessible which cover substantial areas of the Social Studies programme. The varieties include, among others, chess, tug of war, Diplomacy, Monopoly, Risk, Die Macher, Scrabble, and Hacienda, among others (Nja et al., 2019). Ochoyi (2018) opined that simulation-assisted learning merges distinctive characteristics that make it appropriate to situations where the emphasis is on interactive or cooperative learning. It produces excitement, enhances learning and almost mirrors the real-life world. They refer to simulation games as contrived or artificial activities which match some facet of reality. A simulation game is a representation of a real social or physical situation reduced to manageable sizes to serve a particular function or purpose. It is any environment or game among challengers functioning under rules towards achieving a goal such as winning, or a victory. It has two features, namely overt rivalry or competition, and rules.

Simulation games give students the understanding to comprehend difficult tasks. In other words, they have the potential for helping students achieve more than they would by means of the conventional teaching method (Nja et al., 2019). On the other hand, a brainstorming strategy enhances the productivity of ideas and explores solutions. It helps learners to discover better solutions or answers to problems (Malkawi & Smadi, 2018).

According to Ezeudu and Ezinwanne (2013), a simulation game is often referred to as an activity that is based, partially or wholly, on the judgment and decisions of the players. It is an excellent enhancement to the standard traditional lecture. It is a didactic tool whereby students learn through the application of decision-making and theories to a simulated real-life scenario (Folta, 2010). Antunes et al. (2012) contend that simulation games are applied in the teaching-learning process because they provide fascinating challenges to learners and add interest, activity and novelty to the lesson. According to Mozelius et al. (2017), it increases their enthusiasm and leads to learning outcomes.

However, despite the several positive educational benefits or advantages, it still has some shortcomings. Guy and Lownes-Jackson (2015) pointed out that teachers using the simulation game strategy must be aware that it takes much time, and students are likely to be very noisy, unmanageable and might at times be uncontrollable. Students should therefore be organised and educated on how to behave during simulation activities. Simulation games demand adequate preparation and coordination from both the teacher and the institution.

2.2 Brainstorming as a Pedagogical Strategy

Hashempour et al. (2015) described the brainstorming pedagogical strategy as a group or individual creative strategy by which members attempt to solve a particular problem or issue by collecting a list of instinctive ideas contributed by its member(s). Ashammari (2015) asserted that it is called brainstorming because it involves a situation where individuals generate as many fresh ideas as possible around a particular concern or problem using guidelines which eliminate shyness and produce creative thinking and novel solutions and ideas. In that way they, they come up with several new ideas and answers. The participants or contributors shout out ideas as they come to mind and subsequently build on the ideas suggested by others. All views or opinions are recorded but not criticised or evaluated. It is only when the brainstorming session is over that students' ideas are evaluated. Rowan (2014) defined brainstorming as a creative individual or a groupactivity in which efforts are made to ascertain a definite solution or conclusion for a particular problem by gathering facts in the form of a list of opinions and ideas instinctively contributed by the members. When used as a Social Studies strategy for teaching, particularly in introducing and laying out new facts and ideas, a brainstorming pedagogical strategy is simple, less complicated, and very useful.

Jack and Kyado (2017) opined that a brainstorming strategy is an instructional strategy that emphasises students' participation, dialogue, input and two-way interaction. The fundamental purpose of a brainstorming pedagogical strategy is to build and boost communication andinteraction skills, enhance thinking and decision-making or judgement skills, and simultaneously foster different opinions. It is effective for the reason that it stimulates the students' background knowledge and raises their interest. The teacher can ascertain whether the students have sufficient background experience and knowledge to go ahead

with the study during the learning process (Rashtchi & Beiki, 2015). Brainstorming can be utilised in all relevant facets of learning.

However, in spite of all the usefulness and qualities of a brainstorming strategy, weaknesses or inadequacies abound: the brainstorming strategy has its shortcomings. The major shortcoming is that brainstorming groups' contributions and productivity may be inhibited by fear of critical evaluation. Students may desire to follow the prevalent practice and pattern of idea generation. For Owo et al. (2016), brainstorming is generally not appropriate at the primary school level because of the level of reasoning required to work out and achieve known objectives. Simultaneously, the teacher must be equipped to guide and be of assistance as necessary, bearing in mind the class environment as such considerations often determine the outcomes. As mentioned earlier, these barriers can lower levels of enthusiasm and effort when individuals work cooperatively in the classroom. When these barriers are present, the individual gives up on the group, and interaction and cooperation are reduced. Moreover, the kind and amount of time dedicated to assigned tasks may also affect individuals' decisions to leave the group (Owo et al., (2016).

2.3 Studies Related to Simulation Games and Students' Learning Outcome

Balasubramanian and Brent (2010) explored the challenges and opportunities offered by simulation and games to improve learning with students' ethnicity and gender as factors. They found that students from all groups exhibited significant learning outcomes through the employment of simulation and games. However, Hsu et al. (2011) found no effect of games on students' learning outcomes. Ezeudu and Ezinwanne (2013) examined the effects of simulation games on chemistry students' learning outcomes. They deduced that simulation games brought about improved performance in mathematics. Ahmad et al. (2013) examined the computer games' effects on students' interest and achievement in geometry. The study found that students taught using games did better than those instructed by means of the traditional strategy. The study of Beuk (2015) looked into the effect of sales' simulation games on students' learning. The research established that the academic learning of those students who were exposed to simulation games improved.. This result means that students subjected to games teaching methods did better than students in the control condition. Carenys and Moya (2016) explored students' learning outcomes in digital game-based business and accounting education. The study found that digital game-based pedagogical strategies significantly improved students' learning in business and accounting education.

2.4 Studies Related to Brainstorming Strategy and Students' Learning Outcome

Owo et al. (2016) examined whether the brainstorming method would improve students' knowledge in chemistry. The study established that the brainstorming method did not improve their performance. In addition, Hashempour et al. (2015) examined the usefulness of a brainstorming strategy on students' learning. The study found that a brainstorming strategy failed to enhance students' learning outcomes. Also, students did not differ due to gender. Owo

et al. (2016) explored the brainstorming strategy efficacy on students' previous knowledge and learning outcomes in chemistry. Their finding proved that the brainstorming strategy did not boost students' learning outcomes. However, Jack and Kyado (2017) concluded that a brainstorming pedagogical strategy resulted in students' better learning outcomes in electro-chemistry. In addition, Malkawi and Smadi (2018) examined the effect of the brainstorming method on students' learning outcomes in English grammar in Jordan. The study concluded that the brainstorming pedagogy method improved students' learning outcomes.

3. Theoretical Background/Framework

The present study is grounded on Albert Bandura's (1999) social cognitive learning. The theory accentuates the importance of observation and modelling in the actions, attitude, and emotional reactions or responses of others. Therefore, it centres on learning by modelling and observation. Social cognitive learning theory explains how both cognitive and environmental factors interact to affect human learning and conduct. Its emphasis is on learning within a social setting or framework**.** As indicated by Bandura (1999), people learn from each other's ideas through observational learning, imitation, and modelling. This theory is pertinent to this study because its propositions are traditionally considered necessary ingredients required for activity-based teaching.

The theory provided the theoretical foundation for organising simulation-game environments and developing brainstorming, which can be utilised as practical teaching strategies. The theory has shown why teachers must promote the most creative and helpful strategies by moving away from ineffective practices and moving towards more supportive learning strategies for all students. The theory is robustly associated with this study because students will boost their learning outcomes as they actively build their knowledge through imitation, modelling, observation, and interactions with different simulation games and brainstorming exercises that Social Studies teachers provide. Furthermore, the social cognitive theory is vital to this study because it is used to examine this study's cause and effect. It is additionally suitable and relevant to highlight and relate it to pedagogical strategies (simulation games and brainstorming) on learning outcomes.

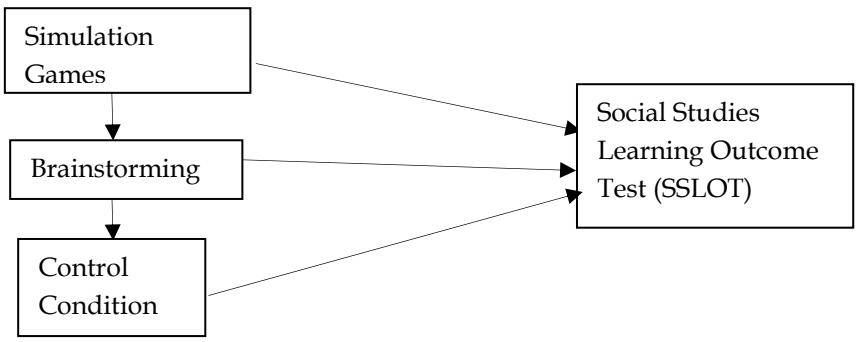

Figure 1: The conceptual framework

4. Methodology

4.1 Study Design

The research design was quasi-experimental. The design encompassed three groups, namely two experimental groups (EGs) and one control group (CG). The pedagogical strategies include simulation games (SGs) and brainstorming as treatment or intervention, and the traditional lecture strategy was utilised for the control group. The study design signifies the following:

Table 1: Research blueprint

Groups	Pretest	Treatment	Posttest
Experimental Group 1	**O_1**	X	**O_2**
Experimental Group 1	**O_3**	X	**O_4**
Control Group	**O_5**		**O_6**

The codes are explained as follows:
O_1 = Pretest measurement for Experimental Group I
X_1 = Treatment for Experimental Group I (Simulation games)
O_2 = Posttest extent for Experimental Group I
O_3 = Pretest extent for Experimental Group II
X_2 = Treatment for Experimental Group II (Brainstorming)
O_4 = Posttest measurement for Experimental Group II
O_5 = Pretest measurement for Control Group
O_6 = Posttest measurement for Control Group (Rogers & Révész, 2020).

As detailed previously, an intervention was introduced to the two experimental groups, while there was no such intervention or no difference in treatment with the control group. Accordingly, changes observed in the posttest learning outcomes were ascribed to the intervention or treatment effect.

4.2 Participants

Participants are all Upper Basic Education 2 students of the public schools in Delta and Edo States, Nigeria. The study sample consisted of 180 Basic 2 (Upper) students who constitute 0.22% of the total population as the study was an experimental study. The multistage sampling method at four levels through the balloting method was utilised to select the study sample. The first level of sampling was the senatorial districts which were used as the sampling units. For the second level of sampling, a local government area was randomly selected. In the third level of sampling, a school was chosen from the local government areas by means of a balloting method. The judgemental approach was employed in selecting all the students from the six (6) schools. Furthermore, a class of Upper Basic level eight was sampled as the fourth sampling level from each school.

All the students in that class from the six (6) government secondary schools were the experimental study subjects. In selecting the schools for the study, only mixed schools were considered as appropriate for the research as gender was a variable that was investigated. The ballot method was used to assign these schools to either the experimental or control groups. The schools selected were sufficiently far off from each other, and no school had double treatment to prevent interference. Specifically, the topics were not taught at any school before

the start of the experiment. The classes used in the research were carefully chosen using a die.

4.3 Instrument

The instrument employed for the study was a test instrument titled "Social Studies Learning Outcome Test" (SSLOT) (see Appendix 1). The SSLOT contained fifty (50) items (multiple choice) which were Social Studies topics taught in Upper Basic level 2 during the period of experimentation. The test items were spread to cover the following topics: Drugs abuse, Harmful substances and Drug trafficking. In constructing the test, a specification table was worked out. It was a two-dimensional table showing the test objectives and the content to be tested. In drawing up the SSLOT, the researcher took cognisance of the taxonomy of objectives in the cognitive domain using three cognitive reasoning skills: Remembering, Understanding and Thinking (RUT). The items were shared around the three levels of Remembering (25%), Understanding (50) and Thinking (25), all totalling 100%.

Table 2: Test blueprint for Social Studies learning outcomes (SSLOT)

SYLLABUS SECTIONS	%	REMEMBERING 25%	UNDERSTANDING 50%	THINKING 25 %	**TOTAL**
Drug abuse	28%	3	6	3	12
Drug trafficking	32%	4	9	4	17
Harmful substances	40%	6	10	5	21
Total	**100%**	**13**	**25**	**12**	**50**

Instrument reliability was confirmed by using 30 students in a test-retest process. Using the Pearson coefficient (r), a value of 0.74 was obtained. Thus, the instrument was deemed reliable and therefore suitable for the study.

4.4 Research Procedure

The experiment took six (6) weeks. Students were assigned after selection to intervention groups and control conditions. The SSLOT was administered as a pretest. This was followed by the intervention (experimentation) through the subject matter or content instruction as presented in the curriculum using the selected instructional conditionstrategies. Two teachers were employed to conduct the experiment or treatment (that is, two treatment administrators).

The students selected for the experiment (experimental group) were taught Social Studies content three days per week with each lesson lasting 40 minutes per period, making a total of 120 minutes a week. Students were pretested with the SSLOT to establish their learning outcomes level prior to experimentation.

After six weeks of experimentation or treatment, a posttest was administered to determine students' learning outcome levels.

The control groups were instructed using only the lecture strategy and both a pretest and posttest were administered. The teaching and test administration were done simultaneously in the six schools.

5. Results

RQ 1

Will a simulation-game pedagogical strategy lead to enhanced students' learning outcomes?

Table 3: Students' pretest and posttest learning outcome scores of simulation-game pedagogical strategy

Strategy/ Treatment	Pretest			Posttest			Learning outcome Gain
	No	Mean	Standard Deviation	No	Mean	Standard Deviation	
Simulation game	58	53.34	12.50	58	70.78	11.85	17.44

Table 3 shows that students taught using a simulation-game pedagogical strategy had a mean score of 53.34 in the pretest and a mean score of 70.78 in the posttest, making a pretest-posttest learning outcome gain to be 17.44. The result proved that students instructed using a simulation-game pedagogical strategy had a better learning outcome in the posttest than in the pretest.

Ho_1

Students' involvement in simulation-game strategies will not improve their learning outcomes.

Table 4: Results of ANCOVA of learning outcome test according to simulation game strategy

Source	Sum of Square	DF	Mean Squares	F value	Sig. of F
Corrected/Adjusted Model	5476.124	1	5476.124	35.254	.000
Intercept	682325.124	1	682325.124	4320.159	.000
Simulation	5476.124	1	5476.124	35.254	.000
Error	28558.197	178	158.893		
Total	755678.001	180			
Corrected/Adjusted Total	33834.121	179			

Table 4 shows that students involved in a simulation-game pedagogical strategy had improved learning outcomes. Data in the table revealed that simulation games' effect on students' learning outcomes was significant ($F(1,178) = 35.254$, $p = 0.000$). Consequently, the hypothesis that students' involvement in simulation-game strategies will not improve their learning outcomes was rejected.

RQ 2
Will students instructed by means of a brainstorming pedagogical strategy improve their learning outcomes?

Table 5: Students' retest and posttest learning outcome scores of brainstorming strategy

Strategy/ Treatment	Pretest			Posttest			Learning outcome Gain
	No	Mean	Standard Deviation	No	Mean	Standard Deviation	
Brainstorming	64	50.77	12.28	64	64.46	13.14	13.69

Table 5 shows that students instructed using brainstorming had a mean score of 50.77 and a standard deviation of 12.28 in the pretest and a mean score of 64.46 and standard deviation of 13.14 in the posttest, making a pretest-posttest learning outcome gain to be 13.69. The result showed that students instructed using a brainstorming pedagogical strategy had better learning outcomes in the posttest than in the pretest.

Ho_2
Students' involvement in brainstorming conditions will not improve their learning outcomes.

Table 6: Results of ANCOVA of learning outcomes test according to brainstorming strategy

Source	Sum of Square	DF	Mean Squares	F value	Sig. of F
Corrected/Adjusted Model	115.824	1	115.824	.610	.043
Intercept	630084.358	1	630084.358	3316.401	.000
Brainstorming	115.824	1	115.824	.610	.043
Error	33818.287	178	189.990		
Total	754668.000	180			
Corrected/Adjusted Total	33935.112	179			

As shown in Table 6, students involved in the brainstorming conditions improved their learning outcomes. This is confirmed by the value (F (1,178) =.610, p=0.043). This demonstrates that the brainstorming strategy boosted students' learning outcomes. The implication is that the effect on students' learning outcomes due to treatment or teaching strategy was significant. Thus, the hypothesis was rejected.

RQ 3
Will there be a difference amongst brainstorming, simulation games, and lecture strategies on students' learning outcomes in Social Studies?

Table 7: Pretest/Posttest of students' learning outcomes by strategies

Strategies	Pretest			Posttest			Learning outcome Gain
	No	Mean	Standard Deviation	No	Mean	Standard Deviation	
Simulation game	58	53.34	12.50	58	70.78	11.85	17.44
Brainstorming	64	50.77	12.28	64	64.46	13.14	13.69
Lecture strategy (control)	58	45.60	12.09	58	55.37	10.91	9.77
Total	**180**	**49.90**	**12.29**	**180**	**63.54**	**11.97**	**13.63**

Table 7 shows that at pretest, students' mean score when exposed to simulation games was 53.34, which was better than the pre-test total mean of 49.90. Brainstorming had a mean score of 50.77, which was also better than the pretest total mean (49.90), while the lecture method pretest mean score was 45.60 which was lower than the total mean of 49.90. However, at the posttest, the simulation games had a mean score of 70.78, which was better than the total mean of 63.54 and a learning outcome gain of 17.44 which was better than the grand mean gain of 13.63. The brainstorming strategy mean score at the post-test was 64.46, which was also better than the total mean of 63.54 while the learning outcome gain of 13.69 was slightly better than the learning outcome gain of 13.63. Simultaneously, the control groups had an overall mean score of 55.37 that was less than the total mean of 63.54 and a learning outcome gain of 9.77, which was lower than the total learning outcome gain. Thus, the table's results indicate that students exposed to brainstorming and simulation strategies attained a better score than the control group. In effect, simulation games proved to be superior to both brainstorming and lecture strategies in enhancing students' learning outcomes. On the other hand, the brainstorming strategy proved to be better than the lecture strategy in improving students' learning outcomes.

H_{O3}

There is no statistically significant difference among simulation game, brainstorming and lecture strategies on students' learning outcomes.

Table 8: ANCOVA summary of the posttest according to strategies

Source	Sum of Square	DF	Mean Squares	F value	Sig. of F
Corrected/Adjusted model	8509.920	2	4254.960	59.245	.000
Intercept	717131.541	1	717131.541	4992.579	.000
Strategies	8509.920	2	4254.960	59.245	.000
Error	25424.191	177	143.639		
Total	754669.010	180			
Corrected/Adjusted Total	33935.112	179			

Table 8 displays a statistically significant difference among simulation-game, brainstorming and lecture (control) pedagogical methods on learning outcomes of students' ($F(1, 177) = 59.245$, $p = .000$). This implies that the hypothesis stating there is no significant statistical difference among simulation-game, brainstorming and lecture pedagogical methods on students' learning outcomes

was rejected. To prove the difference among the groups, Scheffe's posthoc was used. The outcome is presented in Table 9.

Table 9: Scheffe's posthoc analysis by strategies

STRATEGIES	No	Subset		
		1	2	3
Control	59	54.2667		
Brainstorming	64		64.4561	
Simulation	57			70.7937
Sig.		1.000	1.000	1.000

Table 9 indicates that significant differences existed between the posttest mean scores among the different groups. According to the results of Scheffe's posthoc analysis, there is a significant difference among the groups of simulation (70.79), brainstorming (64.45) and control (54.27). From the result, the simulation pedagogical strategy was superior to both the brainstorming pedagogical strategy and the lecture pedagogical strategy as it obtained the highest mean score. However, brainstorming also proved to increase learning outcomes more significantly than the lecture strategy did.

The posthoc scores proved that the experimental groups differ significantly from the control or lecture group. These pairs contributed to the observed significant differences among the three strategies on students' learning outcomes. Thus, the hypothesis which stated there is no significant statistical difference among the three pedagogical strategies or methods on students' learning outcomes was rejected.

6. Discussion

Simulation games and brainstorming pedagogical strategies have been proved to increase and boost learning outcomes more significantly than the lecture strategy. Students instructed using a simulation-game pedagogical strategy improved more than students tutored by means of the lecture strategy. Similarly, students taught with a brainstorming pedagogical strategy had significantly better learning outcomes than those instructed using the lecture pedagogical strategy. The result supports the views of Balasubramanian and Brent (2010), Ezeudu and Ezinwanne (2013), Ahmad et al. (2013), Beuk (2015), Rashtchi and Beiki (2015), Owo et al. (2016) and Dankbaar et al. (2016), who had earlier testified that students instructed using a simulation-game pedagogical strategy demonstrated better learning outcomes than those students instructed by means of the lecture strategy. However, this finding is in contrast with that of Hsu et al. (2011) who proved that simulation games did not improve students' learning outcomes. Furthrmore, this study's results also confirmed the findings of Mehr et al. (2016) and Jack and Kyado (2017), namely that the use of a brainstorming pedagogical strategy enhanced students' learning outcomes more than the lecture strategy did. However, this finding disagreed with those of Hashempour et al. (2015) and Owo et al. (2016).

A simulation game pedagogical strategy is significantly superior to brainstorming in enhancing students' learning outcomes. This superiority of a

simulation-game pedagogical strategy in improving students' learning outcomes is consistent with the views of Kikot et al. (2013), Ranchhod et al. (2014), Lu et al. (2014), and Carenys and Moya (2016). They reported that a simulation-game pedagogical strategy motivates and enhances students' learning outcomes.

The limitations of students' learning outcomes are that they may be given greater importance than they deserve. They may be treated as sacrosanct, whereas learning outcomes are merely the end product of a value judgement on the teachers' part. It may lead to turning out students who are undoubtedly well-trained in particular areas but are inadequate in a broad range of skills, desirable attitudes and abilities associated with a comprehensive education.

7. Study Limitations

The study was conducted using Social Studies teachers; however, their personalities, experience and attitudes were not considered, which may have affected the study results. The content used was also limited to what is in the school syllabus. It is believed that the application of more units of instruction might make for a better generalisation of the study results.

8. Conclusions

The aims of the study were established. This study proved the effectiveness of simulation games and brainstorming pedagogical strategies as well as the superiority of simulation game strategy to brainstorming and the lecture strategies in enhancing students' learning outcomes. It was concluded in the study that if Social Studies teachers embrace simulation games, students will achieve better Social Studies learning outcomes. Thus, rather than limiting students at the upper basic education level to conventional pedagogical strategy, introducing modern pedagogical strategies for teaching such as simulation-game and pedagogical brainstorming strategies will help students improve their learning outcomes.

The study could provide teachers with the desired information to design and adopt the right teaching strategies to suit varied learners and enhance students' learning outcomes in Social Studies. Similarly, the study could provide Social Studies researchers with areas for future research in instructional strategies. It could also help authors and publishers in their presentation of content to readers.

9. Implication of the study

This study's observable implication rests on confirming that activity-based strategies such as simulation games and brainstorming are superior to the lecture strategy in boosting students' learning outcomes. Teachers could attract and sustain students' interest and make learning permanent through the use of these strategies. The strategies include numerous activities that will encourage and enable both male and female students from different environments and experiences to assimilate and internalise Social Studies skills and knowledge effectively.

10. Recommendations

i) In-service teachers should be appropriately trained through seminars and conferences on modern pedagogical strategies such as brainstorming and simulation games for better Social Studies pedagogical strategies.
ii) Educational institutions charged with training teachers responsiblyshould restructure the methodology course to include simulation games and brainstorming pedagogical strategies. This will ensure that Social Studies teachers are effectively trained in employing these Social Studies teaching strategies. iii) Social Studies textbook writers should include explicit instructions and illustrations in their textbooks for applying these strategies to enable teachers to utilise in teaching.

Acknowledgements

The authors would like to thank the participants in this study.

11. References

Ahmad, S. M. S., Fauzi, N. F. M., Hashim, A. A., & Zainon, W. M. N. W. (2013). A study on the effectiveness of computer games in teaching and learning. *Journal of Advanced Studies in Computers, Science and Engineering, 2*(1), 1-8. https://www.academia.edu. /8177173/A_Study_on_the_Effectiveness_of_Computer_Games_in_Teaching_and _Learning_1

Antunes, M., Pacheco, M. A. R., & Giovanela, M. (2012). Design and implementation of an educational game for teaching chemistry in hgher education. *Journal of Chemical Educational, 89*, 577–521. https://doi.org/10.1021/ed2003077

Ashammari, M. K. (2015). Effective brainstorming in teaching social studies for elementary schools in Saudi Arabia. *Journal of Education & Social Policy, 2*(3), 70–75. http://jes pnet.com/journals/Vol_2_ No_3_September_ 2015/8. pdf

Balasubramanian, N., & Brent, G. W. (2010). Games and simulations. *Instructional Technology Forum (ITFORUM)*. http://itech1.coe.uga.edu/itforum/paper73/paper 73.html

Bandura, A. (1999). Social cognitive theory: An agentic perspective. *Asian Journal of Social Psychology, 2*, 21-41. https://doi.org/10.1111/1467-839X.00 024

Beuk, F. (2015). Sales simulation games student and instructor perceptions. *Journal of Marketing Education*, *38*(3), 170-182. https://doi.org/10.1177/0273475315604686

Carenys, J., & Moya, S. (2016). Digital game based learning in accounting and business education. *Accounting Education, 25*(6), 598-651. https://doi.org/10.1080/09639284.2016. 1241951

Dankbaar, M. E. W., Alsma, J., Jansen, E. E. H., Van Merrienboer, J. J. G., Van Saase, J. L. C. M., & Schuit, S. C. E. (2016). An experimental study on the effects of a simulation game on students' clinical cognitive skills and motivation. *Advances in Health Sciences Education, 21*(3), 505–521. https://doi.org/10.1007/s10459-015-9641-x

Essien, E. E., Akpan, O. E., & Obot, I. M. (2015). Students' interest in social studies and academic achievement in tertiary institutions in Cross Rivers State, Nigeria. *European Journal of Training and Development Studies, 2*(2), 35-40.

Ezeudu, F. O., & Ezinwanne, O. P. (2013). Effects of simulations on students' achievement in senior secondary school chemistry in Enugu east local government area of Enugu State, Nigeria. *Journal of Edu & Practice*, *4*(19), 58-66.

Folta, E, E. (2010). *Investigating the impact on student learning and outdoor science interest through modular serious educational games: A design-based research.* [Doctoral dissertation, North Carolina State University].

Guy, R. S., & Lownes-Jackson, M. (2015). The use of computer simulation to compare student performance in traditional versus distance learning environment. *Issues in Informing Science and Information Technology*, *12*, 95–109.

Hashempour, Z., Rostampour, M., & Behjat, F. (2015). The effect of brainstorming as a pre-writing strategy on EFL advanced learner's writing ability. *Journal of Applied Linguistics and Language Research, 2*(1), 86-99.

Hsu, C., Tsai, C., & Liang, J. (2011). Facilitating preschoolers' scientific knowledge construction via computer games regarding light and shadow: The effect of the prediction observation explanation (POE) strategy. *Journal of Science Education and Technology, 20*(5), 482-493. https://doi.org/10.1007/s10956-011-9298-z

Jack, G., & Kyado, J. (2017). Effectiveness of brain-based learning strategy on students' academic achievement, attitude, motivation and knowledge retention in electrochemistry. *Journal of Education, Society and Behavioral Science*, *21*(3), 1-13. https://doi.org/10.9734/ JESBS/2017/34266

Kikot, T., Costa, G., Magalhães, R., & Fernandes, S. (2013). Simulation games as tools for integrative dynamic learning: The case of the management course at the University of Algarve. *Procedia Technology, 9*, 11–21. https://doi.org/10.1016/j.protcy.2013.12.002

Lu, J., Hallinger, P., & Showanasai, P. (2014). Simulation-based learning in management education: A longitudinal quasi-experimental evaluation of instructional effectiveness. *Journal of Management Development, 33*(3), 218–244. https://doi.org/10.1108/J MD-11-2011-0115

Mehr, M. M., Aziz-Malayeri, F., & Bayat, A. (2016). The effects of brainstorming as a prewriting activity on Iranian EFL learners prompted expository writing. *International Journal of Educational Investigations, 3*(3), 85-93.

Malkawi, N. A. M., & Smadi, M. (2018). The effectiveness of using brainstorming strategy in the development of academic achievement of sixth grade students in english grammar at public schools in Jordan. *International Education Studies, 11*(3), 92-100. https://doi.org/10.5539/ies.v11n3p92

Mozelius, P., Hernandez, W., Sällström, J., & Hellerstedt, A. (2017). Teacher attitudes toward game-based learning in history education. *ICTE Journal, 6*(4), 27-35. https://doi.org/10.1515/ijicte-2017-0017

Nja, O. C., Cornelius-Ukpepi, B. U., & Orim, E. R. (2019). Effect of simulation instructional method on undergraduate chemistry education student's academic performance in sodium reactions. *European Journal of Scientific Research, 155*(1), 6-12.

Ochoyi, U. E. (2018). *Effects of computer simulated games and power point on senior secondary students' attitude and achievement in geometry in Adamawa State*. [Ph.D. thesis, Benue State Univeristy, Markudi, Nigeria].

Owo, W. J., Idode, V. O., & Ikwut, E. F. (2016). Validity of brainstorming strategy on students' prior knowledge and academic performance in chemistry in selected secondary schools in South-South Nigeria. *American Scientific Research Journal for Engineering, Technology, and Sciences, 24*(1), 113-130.

Ranchhod, A., Gurău, C., Loukis, E., & Trivedi, R. (2014). Evaluating the educational effectiveness of simulation games: A value generation model. *Information Sciences, 264,* 75–90. https://doi.org/10.1016/j.ins.2013.09.008

Rashtchi, M., & Beiki, M. (2015). The effect of teachers' generated cooperative brainstorming versus learner-generated cooperative brainstorming on activating

EFL learners' background knowledge in essay writing classes. *Indian Journal of Fundamental and Applied Life Sciences, 5*(s2), 1218-1227.

Rowan, K. (2014*). Glossary of instructional strategies*. Beesburg.com. http://www.beesburg.com/edtools/glossary.html

Shear, S. B. (2016). Does critical theory have a place in social studies research? A commentary. *Journal of Social Studies Research, 40*(3), 229-231. https://doi.org/10.1016/j.jssr.2016. 03.009

Tarman, B., & Kuran, B. (2015). Examination of the cognitive level of questions in social studies textbooks and the views of teachers based on Bloom Taxonomy. *Educational Sciences: Theory & Practice, 15*(1), 1-10. https://doi.org/10.12738/estp.2015. 1.2625

Wood, K. R. (2011). *Simulation video games as learning tools: An investigation of instructor guided reflection on cognitive outcomes.* [Dissertation, Georgia State University].

Appendix 1

Social Studies Learning Outcome (SSLOT) Instrument

Time: 1hr

INSTRUCTIONS: ATTEMPT ALL QUESTIONS

Choose from the options lettered **A-E** the one that **best** answers each of the following questions and write out in your answer sheet the correct **letter** only. Give only one answer to each question.

1. One of these is NOT a symptom of drug abuse: A. Depression; B. Violent behaviour tendencies; C. Impaired vision; D. Lack of sleep; E. Good health.
2. ……. is the name of the agency responsible for the control and prevention of harmful substances. A. NECO; B. EFCC; C. NURTW; D. NAFDAC; E. NDLEA
3. …… is one of the ways to prevent trafficking in drugs. A. Education; B. Conflict; C. War; D. Disturbance; E. Greed.
4. All of the following ways would help to discourage drug abuse EXCEPT..... A. strict penalties on drug offenders; B. education. C. constructive use of time; D. choosing good friends. E. belonging to cult.
5. The following are factors responsible for drug trafficking EXCEPT …… A. bad nation economy; B. education; C. greed; D. poverty; E. unemployment.
6. The agency responsible for controlling and preventing drug abuse and drug trafficking is called …. A. NDLEA; B. ICPC; C. EFCC; D. FRSC; E. JAMB.
7. The following are the effects of harmful substances EXCEPT……. A. vomiting; B. death; C. good health; D. ill health; E. frequent stooling.
8. The following are the consequences of drug abuse to the individuals EXCEPT… A. mental disorder; B. poor attitude to work; C. good health; D. brain fatigue; E. long disease.
9. The process whereby a person prescribes drugs for him- or herself is called…. A. acceptance; B. drug abuse; C. discipline; D. protection; E. injection.

10. These are the negative impacts of drug trafficking on a country's economy EXCEPT …. A. currencies are buried underground; B. leads to death of victims; C. increases development; D. increases crime rate; E. increases money laundry.
11. One of the following is correct about harmful substances EXCEPT ….. A. can make people sick; B. can lead to diabetes; C. healthy growth; D. can be destructive to the body; E. damage to internal organs.
12. Which of the following is NOT a consequence of drug abuse on the individual? A. good nutrition; B. death;
    C. mental illness; D. depression; E. leads to crime.
13. A powerful person in an organisation that deals in illegal drugs is called…
    A. Drug baron; B. Distributor; C. Drug officer; D. Drug master; E. Drug seller.
14. …… is the misuse or excessive consumption of drug. A. Drug trafficking; B. Medication; C. Drug abuse; D. Treatment; E. Operation.
15. Food that has been exposed to insects is called….. A. stale food; B. good food; C. infested food; D. expired food; E. rotten food.
16. The following are some of the causes of drug abuse EXCEPT… A. emotional disturbance; B. broken homes; C. desire to feel high; D. education; E. curiosity/ experiment.
17. …… food's life span has been outlived. A. Expired; B. Rotten; C. Stale; D. Immature; E. Infested.
18. One who sells illegal drugs is called …… A. drug baron; B. drug dealer; C. drug carrier; D. drug runner; E. drug addict .
19. The following are the consequences of drug abuse on the community EXCEPT…. A. development of gangsters; B. insecurity of lives and properties.
    C. increase in crime; D. destruction of the youths in the community;
    E. growth and development of the community.
20. The following are consequences of drug trafficking EXCEPT ……
    A. Bad image for the country; B. shame and disgrace;
    C. improved education; D. Imprisonment;
    E. Death penalty.