EFFECT OF BOARD GAME ON ACHIEVEMENT IN HISTORY EDUCATION CONCEPT AMONG PUBLIC PRIMARY SCHOOL PUPILS IN OSUN, STATE, NIGERIA

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Abstract

The research was designed to find out the effect of Board Game on Achievement in History Education concept among Public Primary School Pupils in Osun, State, Nigeria. The study adopted a pretest, posttest, control group quasi experimental research design. A purposive sampling technique was used in selecting 60 pupils from six selected schools in Osun State. History Education Achievement Test (HEAT) with reliability coefficient of 0.85 was used to collect data. The instrument was validated by educational technology lecturers in the department of educational technology in University of Ilesa and History education teachers. One research question and three research hypotheses were generated and tested. Data analysis was done using mean, standard deviation and analysis of Covariance (ANCOVA) were used to answer the research question and test hypothesis at 0.05 level of significance. Results revealed that the Board Game had significant effect on Students' achievement in History Education. The use of Game-based strategy should therefore be encouraged in Nigerian Schools to improve learning outcomes. The game is recommended as an appropriate and effective learning tool for teaching History education concept in Nigerian School.

Keywords: Board Game, students' achievement, History Education

Introduction

History is one of the earliest subjects incorporated into the Nigerian school curriculum, dating back to the advent of formal education in the country. Since Nigeria's independence in 1960, the subject has remained a distinct and significant discipline within the school system (Longkat & Gotul, 2020). Beyond its traditional role, history provides foundational knowledge that enriches other fields within the arts and humanities. It develops essential cognitive skills such as analytical reasoning, chronological understanding, reflection, and narrative construction. Additionally, the study of history promotes patriotism, nationalism, and a broader global perspective, enabling learners to draw lessons from past events and apply them to present and future challenges. As Markus and Yohanna (2023) assert, an understanding of history is fundamental to comprehending identity, origin, and societal development.

Despite these benefits, history education in Nigeria has faced significant challenges over the past two decades. Educational policies have often marginalised the subject, while emerging disciplines such as social studies, government, and civic education increasingly compete with or replace it in the curriculum. Furthermore, negative societal perceptions, particularly the view that history is limited to memorising past events and heroic figures have reduced its appeal (Okoro & Eze, 2021). This narrow conception undermines

the broader intellectual and civic value of the discipline. Nevertheless, scholars such as Oladipo and Afolabi (2023) emphasise that history remains indispensable for fostering national consciousness and sustainable development.

The relevance of history lies strongly in its role in promoting responsible citizenship. It provides a repository of knowledge about the evolution of institutions, societal values, and intergroup relations, thereby equipping learners with both national and global perspectives. Through the study of past events, learners gain insights into the causes and consequences of social change, which is essential for informed decision-making and civic participation. Moreover, history cultivates critical habits of mind necessary for leadership, public engagement, and moral reflection (Markus & Yohanna, 2023).

However, the neglect of history education, particularly at the primary school level, has contributed to several socio-political challenges in Nigeria. Issues such as weak civic responsibility, poor national identity awareness, and inconsistent policy implementation can be partly linked to inadequate historical understanding. Since the past shapes the present and influences the future, examining historical events such as political transitions and regional conflicts provides valuable insights into contemporary societal issues and possible solutions.

In response to the need for more engaging instructional strategies, the use of games as pedagogical tools has gained attention. Games are structured, rule-based activities that promote interaction, critical thinking, and problem-solving while fostering physical, mental, and emotional development (Adipat et al., 2021; Byusa et al., 2022). As educational tools, games enhance learner motivation by making learning enjoyable and participatory, a concept often referred to as "edutainment" (Kalmpourtzis, 2018). Through gameplay, learners develop logical thinking skills, social interaction, and an understanding of fair play.

One such instructional tool is the Snakes and Ladders board game, which originated in ancient India as "Paramapada Sopanam" (Bornet & Burger, 2012). The game has evolved into a widely used educational resource. It involves movement across numbered spaces, with ladders advancing players and snakes causing setbacks, symbolically representing life's rewards and challenges. When adapted for classroom use, the game incorporates academic questions, thereby reinforcing subject knowledge while promoting engagement, cooperation, and socialisation. It also teaches values such as patience, turn-taking, and teamwork.

Game-based learning, particularly through board games, offers a learner-centred approach that encourages active participation. Unlike traditional teacher-centred methods where learners are passive recipients of information, this approach allows students to explore concepts, solve problems, and construct knowledge collaboratively. This makes it especially suitable for teaching subjects like history, where engagement and critical thinking are essential.

Although research indicates that gender differences in gaming preferences are gradually narrowing, variations still exist. Boys tend to prefer action-oriented and competitive games, while girls often favour simulation and puzzle-based games (Nguyen et al., 2022; Admiraal et al., 2024). These preferences are linked to differing motivational patterns, with boys generally exhibiting stronger performance-driven

tendencies. However, most existing studies focus on recreational gaming, with limited attention to how these differences influence engagement and achievement in educational game-based contexts.

Therefore, this study seeks to address this gap by examining the effectiveness of a modified Snakes and Ladders game in teaching social studies concepts at the junior secondary school level, while also exploring how gender differences influence learners' participation and academic achievement in game-based learning environments.

Theoretical Framework

Behaviorist Learning Theory views learning as a passive process in which individuals respond to external stimuli, leading to the acquisition of new behaviours (Akdeniz et al., 2016). According to Skinner, knowledge is reflected in observable actions rather than internal mental processes (Skinner, 1988). The theory emphasizes that learning occurs when learners actively engage with stimuli and receive reinforcement, particularly immediate rewards that strengthen desired behaviours (Richter et al., 2015). Consequently, rewarding desirable behaviour increases the likelihood of its repetition, while excessive punishment may weaken learning outcomes (Pritchard). This underscores the importance of well-structured reward systems in schools for shaping students' behaviour and enhancing learning.

Furthermore, behaviorism promotes breaking down learning tasks into small, sequential steps supported by continuous reinforcement and repetition. The use of "skill and drill" exercises ensures that learners practice consistently until behaviours become habitual and retained (Richelle, 2016). Learning, therefore, is seen as a gradual change in behaviour through trial and error, with little emphasis on internal cognitive processes, as these are not directly observable (Watson, 1913). Skinner highlighted key principles for effective learning, including structured progression, consistent reinforcement, immediate feedback, and the use of stimulus discrimination to guide learners toward correct responses (Richelle, 2016).

Reinforcement theory, a core aspect of behaviorism, explains how behaviour is shaped through consequences (Laird, 1985; Burns, 1995). Positive reinforcement, such as praise or tangible rewards, encourages repetition of desired behaviours, while negative reinforcement removes unpleasant conditions to achieve similar outcomes. In contrast, punishment weakens undesirable behaviours by associating them with negative consequences. Both forms of reinforcement play significant roles in modifying behaviour, although behaviorists advocate more strongly for positive reinforcement as an effective learning strategy.

The principles of behaviorism align strongly with game-based instructional strategies, particularly in the use of rewards, repetition, and immediate feedback to enhance learning. In game-based learning environments, learners are motivated through points, badges, levels, and instant feedback, which serve as forms of positive reinforcement that encourage continued engagement and skill mastery. The structured progression of game levels reflects the behaviorist idea of breaking tasks into manageable steps, while repeated gameplay reinforces learning outcomes. Additionally, games provide clear stimuli-response interactions, allowing learners to learn through trial and error in an engaging context. Thus, integrating behaviorist principles into game-based instructional strategies can significantly improve student motivation, participation, and achievement by making learning both interactive and rewarding.

Statement of the Problem

Despite the well-documented potential of game-based learning to enhance learners' engagement and academic achievement, the teaching of history in many Nigerian public primary schools continues to be predominantly teacher-centered and didactic in nature. Such traditional instructional approaches often limit active learner participation, thereby contributing to low levels of achievement and reduced interest in history concepts among pupils.

Furthermore, there is a paucity of empirical studies examining the effectiveness of board game–based instructional strategies in improving pupils' achievement in history within the Nigerian educational context, particularly in Osun State. This gap in the literature underscores the need for context-specific evidence on innovative pedagogical approaches. Consequently, this study seeks to address this deficiency by investigating the impact of a board game–based intervention on pupils' achievement in history education.

Research Question

What is the mean difference between the students exposed to the experimental group (Snake and Ladder Board game) and control group (Traditional Method)?

Hypotheses

HO_1: There is no significant main effect of treatment on students' achievement in History education concept

HO_2: There is no significant interaction effect of treatment and gender on students' achievement in History education concept

Methodology

The study used a pretest, posttest, control group quasi experimental research design because the independent variable was manipulated on the dependent variable. This is represented in Table 1

Table 1 : Research Design Layout for Pretest–Posttest Control Group Quasi-Experimental Study

Group	Pretest (O_1)	Treatment (X)	Posttest (O_2)
Experimental Group	O_1	X (Board Game Intervention)	O_2
Control Group	O_1	– (Conventional Teaching Method)	O_2

- **O_1** = Pretest administered before treatment
- **X** = Treatment (Board Game-Based Instruction)
- **–** = No treatment (Conventional Method)
- **O_2** = Posttest administered after treatment

Research instruments

The following were the instruments used for the study

(a) History education achievement test (HEAT)

The research instrument was developed by the researcher and subjected to both validity and reliability procedures to ensure its adequacy for the study. Content and face validity were established through expert review, while the reliability of the instrument was determined using the Kuder–Richardson Formula 20, yielding a reliability coefficient of 0.85, which indicates a high level of internal consistency.

The instrument was designed to assess pupils' level of comprehension in selected history topics, namely: Early Nigerian Peoples and Settlements, Heroes and Heroines in Nigeria, Colonial Rule in Nigeria, and Nigerian Independence. It consisted of 20 multiple-choice objective items structured into two sections. Section A elicited demographic information such as the name of school, pupil's name, class, gender, and age, while Section B comprised the test items, each with four response options ranging from A to D.

Each correct response attracted two marks, while incorrect responses were awarded zero, with a total obtainable score of 60 marks. The test items were constructed to reflect the six levels of the cognitive domain of Benjamin Bloom's taxonomy of knowledge, comprehension, application, analysis, synthesis, and evaluation, thereby ensuring a comprehensive assessment of pupils' learning outcomes.

Snakes and Ladders Board Game

This is the board game designed and validated by the researcher, which served as an instructional material used to teach the experimental group. The board has 100 square boxes numbered from 1 to 100. The player starts by rolling a dice in order to know the box where to commence the game, the players move along until they encounter a ladder or snake. If a player lands at the tip of the snake's head, the group will be asked History education-related question by the question master, if they get the question right they stay on the square if not they slide down to the square at the snake tail. If a player lands on a square that is at the base of a ladder, the group will be asked a History education-related question by the question master, if right answer is given they move to square at the top of the ladder and continue from there.

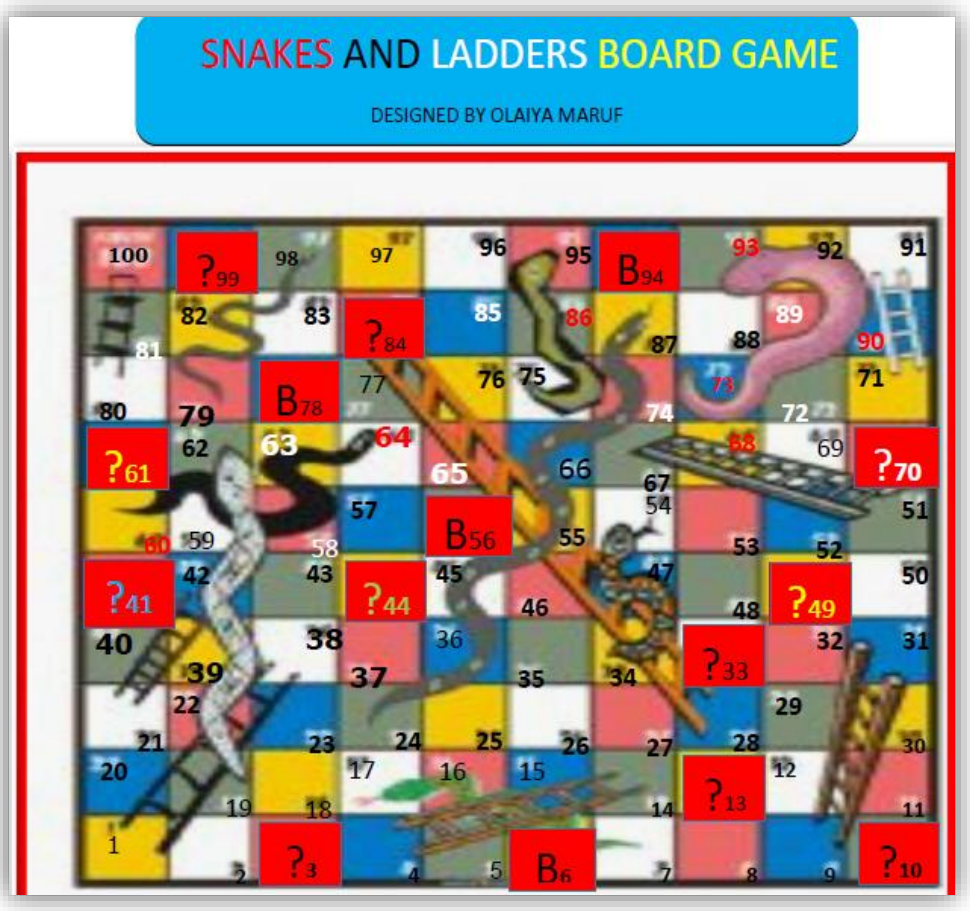

Image 1: Snake and Ladder Board game interface

Question Bank

The Question Bank that contain items (related content) on the following, Early Nigerian Peoples and Settlements, Heroes and Heroines in Nigeria, Colonial Rule in Nigeria, Nigerian Independence. are playing tools for the snake and ladder board. Options for the questions range from A to D. Students ascend by picking correct option while a wrong option leads to their descent.

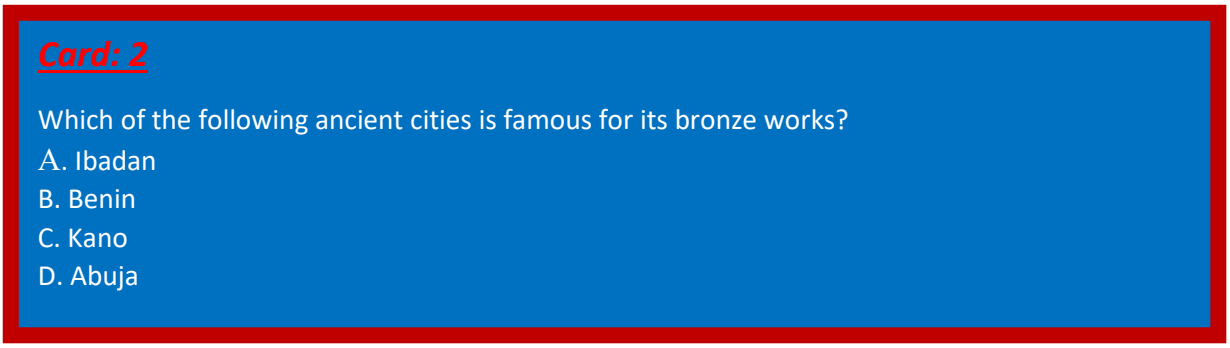

Image 2: Snake and Ladder Board game card

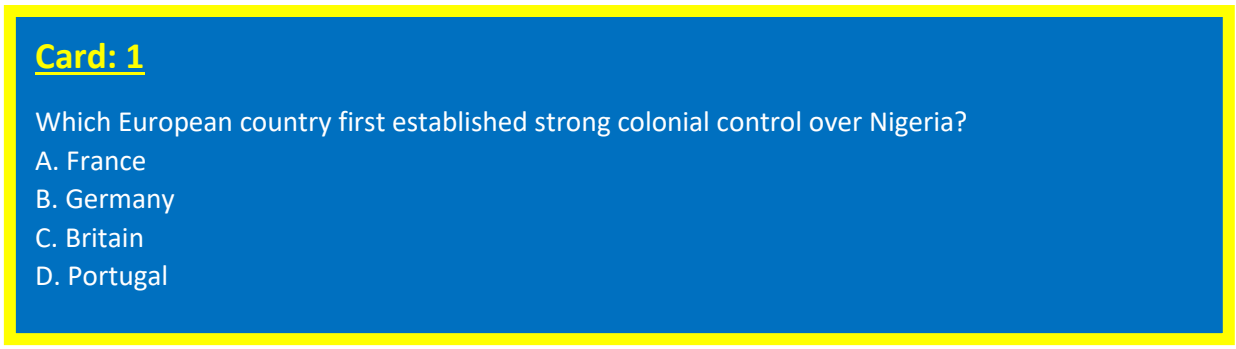

Image 3: Snake and Ladder Board game card

The board game and the materials for playing the game were validated by experts, Social studies professional teachers and educational media technologists for content and packaging. Based on their corrections and comments, necessary corrections were done by the researcher which made the game suitable for the study. The history Education Achievement Test (HEAT) was trial tested on 20 students apart from those used for the main study.

Procedure of data collection

The research was carried out for a period of 12 weeks: 3 weeks for pre-test, 6 weeks for treatment, and 3 weeks for post-test. Data was analyzed using mean, standard deviation and Analysis of Co-variance (ANCOVA).

Results

Research Question 1: What is the mean difference between the students exposed to the experimental group (Snake and Ladder Board game) and the control group (Traditional Method)?

Table 2: Summary of the mean difference between the experimental and control groups in students' posttest achievement scores

Descriptive Statistics

Variable	N	Mean	SD
Pretest	60	21.27	3.47
Posttest	60	26.40	4.16

The mean score of students (26.40) exposed to the intervention is higher than the mean score of those exposed to the Conventional method of teaching (21.27). The implication of this is that the treatment or intervention is effective and capable of improving academic performance of students in History education concept

HO_1: There is no significant main effect of the treatment on student achievement in History Education

Table 3 Summary of Analysis of covariance of posttest, achievement by treatment, (Snakes and Ladders board game and Conventional method of teaching)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	803.582	4	200.896	50.495	.000	.786
Intercept	138.702	1	138.702	34.863	.000	.388
Pretest	446.915	1	446.915	112.332	.000	.671
Group	310.494	1	310.494	78.043	.000	.587
Gender	14.079	1	14.079	3.539	.065	.060
Group × Gender	1.107	1	1.107	0.278	.600	.005
Error	218.818	55	3.979			
Total	42840.000	60				
Corrected Total	1022.400	59				

Significant at P<.05

Table 3 shows that after adjusting for pretest scores, treatment had a significant main effect on students' achievement in Social Studies in some selected topics ($F_{(1,218.818)}$ =78.043; $p < 0.05$). This implies that the treatment contributed better to the performance of Primary five pupils in some selected topics in History Education.

Table 3 shows that after adjusting for pretest scores, gender had no significant main effect on students' achievement in some selected topics in History education ($F_{(1,218.818)}$ =3.539; $p < 0.05$). The results show that gender did not contribute to pupils' learning outcomes in selected topics in History Education.

HO_2: There is no significant interaction effect of gender and treatment on student achievement in some selected topics in Social Studies

Table 4: Summary of Analysis of Covariance of Posttest, Achievement by gender and Treatment

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	803.582	4	200.896	50.495	.000	.786
Intercept	138.702	1	138.702	34.863	.000	.388
Pretest	446.915	1	446.915	112.332	.000	.671
Group	310.494	1	310.494	78.043	.000	.587
Gender	14.079	1	14.079	3.539	.065	.060
Group × Gender	1.107	1	1.107	0.278	.600	.005
Error	218.818	55	3.979			
Total	42840.000	60				
Corrected Total	1022.400	59				

Significant at P<.05

The table 4 shows that after adjusting for pretest scores, the interaction between treatment and gender had no significant effect on students' achievement in some selected topics in History Education ($F_{(1,218.818)}$ =.278; $p < 0.05$) There is no positive effect on the interaction of gender and treatment on the learning performance of students in History Education

Discussion of findings

Summary of the mean difference between the experimental and control groups in pupils' posttest achievement scores, indicates that the treatment had improved posttest achievement scores for the experimental group over the posttest achievement scores of pupils in the control group that was exposed to conventional method of teaching. This shows that Snakes and Ladder board game had significant effect on the achievement of Primary five Pupils learning outcomes in some selected topics in History Education. The theoretical implication of this result is that using board games could promote effective teaching and learning of History Education than the conventional method.

Previous studies have shown that game-based learning positively influences student outcomes in This result confirms with previous studies that have been carried out on the effectiveness of games. Olaiya et al. (2016) compared the lessons taught by traditional methods and lessons taught by using snake and ladder games and observed that using games in lessons increases students' motivation as well as social and academic abilities.

This result also confirms with previous studies that have been carried out on the effectiveness of sgames. Olaiya et al. (2025) compared the lessons taught by traditional methods and lessons taught by using the games and observed that using games increase the learning outcome of students in Social Studies concept in Primary school in Osun State

This result confirms with previous studies that have been carried out on the effectiveness of simulation games. Olaiya et al (2016) compared the lessons thought by traditional methods and lessons taught by using the games and observed that using games in lessons increases students' motivation as well as social and academic abilities. Hung et al. (2014) conducted research on the effects of digital game-based learning on students' self-efficacy, motivation, anxiety, and achievements in learning mathematics. To evaluate the effectiveness of the proposed approach, an experiment was carried out on an elementary school mathematics course with a quasi-experimental research design. The experimental results show that the game-based e-book learning model effectively promoted the students' learning achievement, self-efficacy, and motivation of mathematics.

Akande (2017) carried out a quasi-experimental research design of pre-test and post-test control group on the topic, 'Effects of Mathematical games on the academic achievement of senior secondary school students in Nasarawa state'. The findings revealed that the students taught with the use of games had a greater mean score than their counterparts taught without the use of games.

Imoko and Isa (2015) embarked on a quasi-experimental research using the pre-test and post-test on the impact of computer games on pupils' achievement in mathematics in primary school. The analysis of the data showed that the use of a game-based learning approach improved significantly pupils' achievement in mathematics.

Some studies may measure game-based math achievement of males versus females; whereas, others measure math achievement and teacher competency. The results of various studies in non-experimental, correlational analysis show that hands-on game scores and attitudes toward mathematics aligned significantly to students' scores on mathematical tests (Jong, 2015). The outcomes of quasi-experimental control-group design show that students utilising game-based learning repeatedly outperformed the students who did not utilise game-based learning (Tobias et al., 2014).

Researchers contended that executing game-based learning to support education is critical to student achievement (Hsieh et al., 2016). Students become intrinsically motivated and register improvements on various attributes, including critical thinking, problem-solving, creativity, innovation, and communication.

It is evident that Snakes and Ladders board games had significant effects on the achievement of Primary five Pupils in some selected topics in Social Studies. The summaries of ANCOVA shows that the treatment (Snakes and Ladders board game) had improved posttest achievement score compared to the control group (Conventional method).

Furthermore, there was no significant difference between the achievement scores of male and female students. This may be because female like board game more than male, female s are more interested in a fun filled atmosphere than male. The interface of the game was also attractive to the students and this promoted the acceptability of the game by both gender. The game is also easy to play as does not require special skills before it can be played

The interaction of both gender and treatment had positive effect on the performance of students in some selected topic in civic education. This finding reveals that treatment and gender are two factors that can contribute to academic development of Social Studies.

Recommendations

It is recommended that Nigerian educational stakeholders promote and integrate board games as a supplementary instructional tool in history education curricula to facilitate active learning and improve student achievement. Further research should explore long-term impacts and the scalability of such interventions across diverse educational settings in Nigeria

Conclusion

The students' mastery of Social Studies concepts was promoted because game motivated the students' interest in learning Social studies, it provided alternative ways to help the students to learn Social Studies topics. It also promoted child centered learning because the students were actively involved in the teaching and learning process. Thus, game made teaching and learning more fun and this assisted the students to master the newly taught concept faster.

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