Impact of Game-Based Learning on Students' Academic Achievement in Social Studies in Upper Basic Schools

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Article History	Abstract
  	This study investigated the impact of game-based learning on students' academic achievement in Social Studies in upper basic schools. Persistent underachievement in Social Studies has been linked to the continued use of conventional, teacher-centered instructional methods that limit student engagement and meaningful learning. To address this challenge, the study examined game-based learning as an innovative, learner-centered pedagogical approach capable of enhancing motivation, understanding, and academic performance. The study adopted a quasi-experimental pre-test and post-test control group design. A sample of 80 JS3 students was selected from four public secondary schools using stratified random sampling. The experimental group was taught Social Studies using game-based learning strategies, including board games, role-playing, and digital simulations, while the control group received instruction through traditional lecture methods. Data were collected using the Social Studies Achievement Test (SSAT) and a Students' Perception Questionnaire (SPQ). The instruments were validated by experts, and a reliability coefficient of 0.83 was established using Kuder-Richardson Formula 20 (KR-20). Data were analyzed using descriptive statistics and independent samples t-test at the 0.05 level of significance. Results revealed a substantial improvement in academic achievement among students exposed to game-based learning, with a higher mean gain compared to the control group. The t-test analysis indicated a statistically significant difference in post-test scores between the two groups, leading to the rejection of the null hypothesis. Additionally, students expressed positive perceptions of game-based learning, reporting increased enjoyment, improved understanding, and better retention of Social Studies concepts. The study concludes that game-based learning is an effective instructional strategy for improving academic achievement and engagement in Social Studies. It recommends the integration of game-based approaches into classroom instruction, teacher training, and curriculum development to enhance learning outcomes at the upper basic school level. ***Keywords***: *Game-Based Learning, Academic Achievement, Social Studies, Upper Basic Schools, Innovative Pedagogy.*

Introduction

Education in the 21st century demands innovative approaches to teaching and learning. Traditional lecture methods, which often dominate classroom practices, have proven insufficient in catering to the dynamic needs of learners. Social Studies, a subject designed to prepare students for responsible citizenship, requires active engagement and practical understanding. However, many Nigerian classrooms still rely on teacher-centered methods that promote rote learning and disengagement.

Game-based learning (GBL) has emerged as an innovative instructional strategy that combines educational content with interactive play. It supports active learning, fosters collaboration, improves motivation, and potentially enhances academic achievement. This study seeks to

determine the impact of game-based learning on students' academic achievement in Social Studies at the upper basic school level.

The importance of Social Studies in shaping responsible, informed, and participatory citizens cannot be overemphasized. However, despite its relevance, students' performance in the subject remains relatively low in many Nigerian schools. This underperformance has been linked to poor instructional delivery methods that fail to stimulate learners' interest or encourage active participation.

Innovative pedagogical approaches such as game-based learning provide a platform for students to learn through exploration, decision-making, and problem-solving. Games used in educational contexts can range from simple board games to complex digital simulations, all aimed at reinforcing subject content in a fun and memorable way. The cognitive, affective, and psychomotor domains of learning are activated during game-based sessions, promoting holistic development.

Statement of the Problem

Despite the integration of Social Studies into Nigeria's basic education curriculum and its recognized importance in fostering civic responsibility, national consciousness, and social values among students, academic achievement in the subject has remained below expectations. One major contributing factor is the continued reliance on traditional teaching methods, which are often teacher-centered, rigid, and uninspiring. These conventional approaches frequently fail to actively engage students or stimulate their interest, thereby limiting meaningful learning and retention. Student engagement is a critical component of effective learning, especially in Social Studies, which deals with real-life issues and societal dynamics. There is, therefore, a pressing need to explore alternative, learner-centered instructional strategies that can enhance motivation, understanding, and performance. Game-based learning (GBL) presents a promising pedagogical alternative by making learning more interactive, enjoyable, and reflective. This study seeks to bridge the gap by examining the effectiveness of game-based learning in improving students' academic achievement in Social Studies at the upper basic school level in Nigeria.

Objectives of the Study

1. To ascertain the level of academic achievement of students exposed to game-based learning in Social Studies.

2. To determine the effect of game-based learning on students' academic achievement in Social Studies.

3. To compare the performance of students taught using game-based learning and those taught using conventional teaching methods.

4. To assess students' perceptions of game-based learning in Social Studies.

1.4 Research Questions

1. What is the academic achievement level of students exposed to game-based learning in Social Studies?

2. Is there a significant difference in achievement between students taught with game-based learning and those taught with traditional methods?

3. What are students' perceptions of game-based learning in Social Studies?

1.5 Research Hypotheses H_{01}: There is no significant difference in the academic achievement of students taught using game-based learning and those taught using conventional methods.

Significance of the Study The findings of this study will provide useful insights to curriculum planners, educators, and school administrators on the effectiveness of game-based learning in improving academic achievement. It will also encourage teachers to adopt more engaging pedagogies in teaching Social Studies and other subjects.

Literature Review

Theoretical Framework This study is anchored in the Constructivist Learning Theory and Experiential Learning Theory.

Game-based learning finds strong theoretical support in the Constructivist Learning Theory as proposed by Jean Piaget and Lev Vygotsky. According to this theory, learners actively construct knowledge rather than passively receive it. Piaget emphasized that learning occurs as individuals interact with their environment, forming and reshaping mental models through active exploration. Vygotsky added that social interaction plays a fundamental role in the development of cognition, highlighting the importance of collaborative learning and scaffolding. In this context, game-based learning creates an ideal environment for learners to engage with content, peers, and problem-solving tasks. Through participation in games, students make decisions, reflect on outcomes, and build personal understanding, which aligns with the constructivist view that knowledge is constructed through experience and interaction.

Similarly, Experiential Learning Theory, developed by David Kolb (1984), posits that effective learning arises from the transformation of experience into knowledge through a cyclical process of concrete experience, reflective observation, abstract conceptualization, and active experimentation. Game-based learning aligns with this model by immersing students in hands-on activities where

they can "learn by doing." Educational games provide immediate feedback, encourage reflection, and allow for repeated experimentation, all of which contribute to deeper understanding and retention of concepts. Thus, GBL operationalizes experiential learning in meaningful and engaging ways.

Game-Based Learning in Education Game-based learning (GBL) integrates game elements, rules, competition, rewards into educational activities. It has gained traction globally as a tool for improving engagement and learning outcomes. Studies (Gee, 2003; Prensky, 2007) show that GBL enhances student motivation, critical thinking, and academic performance.

In the Nigerian context, Okebukola (2015) emphasized the need for pedagogical innovation to revamp the education sector, noting the positive impact of game-like activities on learners' retention and comprehension.

Game-based learning (GBL) is an innovative instructional strategy that integrates the fundamental elements of games—such as rules, goals, competition, rewards, and feedback—into educational activities to create a more engaging and effective learning experience. Unlike traditional teaching methods that often rely on rote memorization and passive learning, GBL promotes active participation, critical thinking, and problem-solving by immersing students in dynamic learning environments that mimic real-world scenarios. This pedagogical approach leverages the motivational aspects of games to increase students' interest, focus, and involvement in classroom activities, thereby improving their academic outcomes.

Globally, GBL has gained significant recognition among educators and researchers as a transformative approach to teaching and learning. Pioneering scholars like Gee (2003) and Prensky (2007) have contributed extensively to the understanding of how games can support learning. Gee highlighted that video games, when designed with educational goals in mind, offer rich learning experiences that foster deep understanding, critical thinking, and complex problem-solving skills. He argued that games provide a situated learning environment where learners can experiment, fail, and try again without fear of judgment, a process that mirrors effective learning. Similarly, Prensky emphasized that today's students, often referred to as "digital natives," respond better to instructional methods that align with their digital upbringing. He proposed that educational games could bridge the gap between traditional education and the interactive, fast-paced world students are familiar with. According to Prensky, GBL enhances students' motivation, engagement, and retention by making learning enjoyable and meaningful.

In the context of Nigeria, where education faces numerous challenges including low student motivation, poor academic performance, and outdated teaching methods, game-based learning offers a promising solution. Okebukola (2015), a renowned Nigerian educationist, stressed the urgent need for pedagogical innovation to revitalize the country's educational system. He observed that incorporating game-like activities into instruction could significantly improve students' retention, comprehension, and overall academic performance. Okebukola further explained that traditional lecture-based methods often fail to meet the diverse learning needs of students, particularly in subjects like Social Studies that require contextual understanding and active engagement. By introducing GBL, educators can transform abstract concepts into relatable, interactive experiences that resonate more deeply with learners.

Furthermore, in many Nigerian classrooms, especially at the upper basic school level, students often view Social Studies as dull or overly theoretical. However, when educators incorporate games whether digital, board-based, or role-playing students become more curious and enthusiastic about the subject matter. These game-based activities encourage collaboration, healthy competition, and strategic thinking, which in turn lead to improved learning outcomes. For instance, using quizzes, puzzles, educational simulations, or storytelling games in Social Studies lessons can help students better understand historical events, civic responsibilities, and cultural diversity.

In sum, the growing body of research and practical application supports the effectiveness of game-based learning in enhancing students' academic achievement. As emphasized by both international scholars and Nigerian education experts like Okebukola, the integration of game elements into teaching practices holds immense potential for improving learner outcomes, particularly in subjects that benefit from interactive and experiential learning approaches.

Empirical Studies

Game-Based Learning (GBL) has become more and more popular as a new way to teach that can improve students' learning experiences and results. Empirical research from many educational settings demonstrates that GBL significantly improves student engagement, motivation, and academic achievement. In the field of Social Studies, which includes history, civics, geography, and cultural studies, GBL provides a more engaging and immersive way to teach than traditional teacher-centered methods. Current research corroborates its efficacy: Adegoke (2016) noted enhanced student performance in integrated science after exposure to game-based instruction; Akanbi and Yusuf

(2019) reported substantial improvements in Civic Education achievement via digital games; and Igbokwe and Nwankwo (2021) illustrated that board game interventions augmented students' comprehension of governance-related concepts. These results collectively highlight the educational significance of Game-Based Learning (GBL) in promoting enhanced academic performance, especially at the upper basic or middle school level.

Anyanwu and Obikwelu (2019) examined the effects of digital game-based instruction on the learning outcomes of junior secondary school students in Social Studies in Imo State, Nigeria, utilizing a quasi-experimental research design with a sample of 120 students allocated into experimental and control groups. The experimental group was taught using digital game-based methods, whereas the control group was taught using traditional lecture-based methods. The results showed that there was a statistically significant difference in post-test performance, with students in the experimental group getting much higher scores than students in the control group. The scientists determined that the incorporation of digital games served as an effective motivational tool, promoting active student engagement and so improving cognitive outcomes in Social Studies.

Similarly, Adeniran (2020) examined the impact of board games on students' academic achievement and retention in Social Studies among Basic 7 students in Ogun State, Nigeria. The study utilized pre-test, post-test, and retention test measures within a randomized control trial framework. Students who were exposed to Social Studies content via educational board games such as "Social Studies Trivia" and "Historical Map Quest" displayed improved retention and higher academic performance than those taught through conventional means. Adeniran attributed the success of game-based learning to its ability to foster collaboration, critical thinking, and contextual learning, which are crucial for mastering Social Studies concepts.

In a cross-cultural study, Kiili et al. (2018) investigated the role of digital learning games in promoting students' understanding of civic concepts among middle school learners in Finland and Estonia. The researchers used a simulation game called "Democracy in Action" which allowed students to take on roles such as politicians, citizens, and media personnel. The mixed-methods study revealed that students in the experimental group exhibited not only improved academic performance on standardized tests but also demonstrated enhanced civic attitudes and participatory skills. The study emphasized that game-based learning supports both cognitive and affective domains, essential for the holistic development of Social Studies learners.

In another relevant study, Okonkwo and Uba (2021) conducted research to determine the effect of mobile educational games on students' academic performance in Social Studies in Anambra State, Nigeria. Their study involved 150 students from three different schools, and the researchers used a mobile application designed with Social Studies content aligned with the Nigerian curriculum. Pre-test and post-test scores indicated significant improvement among students who used the app. The authors suggested that the interactivity and instant feedback mechanisms in mobile games contributed to deeper understanding and knowledge retention.

Moreover, Papastergiou (2009) investigated the impact of computer game-based learning on student motivation and achievement in a secondary school setting in Greece. Although the study was conducted in the context of Information and Communication Technology (ICT), its relevance to Social Studies is pertinent due to the interdisciplinary nature of the subject. The study showed that students who engaged in game-based learning environments scored higher on achievement tests and reported higher levels of interest and engagement. This highlights the transferable benefits of game-based learning across subjects, including Social Studies.

A thorough meta-analysis conducted by Wouters, van Nimwegen, van Oostendorp, and van der Spek (2013), involving 77 empirical research, evaluated the efficacy of serious games on learning outcomes in many subject areas, including social research. The results show that serious games usually do a better job of improving cognitive learning outcomes than traditional teaching techniques. Importantly, the study highlights that the effectiveness of game-based learning is contingent upon critical factors such as the quality of game design, the degree of alignment with instructional objectives, and the role of teacher facilitation in guiding the learning process.

In the Nigerian context, Odey and Abang (2022) investigated the role of educational games in enhancing Social Studies instruction in Cross River State. The study employed a quasi-experimental design with 200 students and reported that educational games not only improved academic achievement but also encouraged inclusive participation, especially among students who were previously passive during lessons. The authors noted that games like "Civic Responsibility Quest" and "Cultural Heritage Bingo" were effective in breaking classroom monotony and promoting student-centered learning.

In a comparative study, Mensah and Aboagye (2020) assessed the impact of gamification strategies on academic performance among junior high school students in Ghana. Though the study covered several subjects including Social Studies, findings indicated that students exposed to

gamified content scored higher on assessments and displayed improved classroom engagement. The researchers concluded that gamification, which incorporates game elements like points, badges, and leaderboards, provided intrinsic motivation that reinforced learning.

Lastly, a recent study by Edeh and Ogu (2023) explored the implementation of interactive storytelling games in the Social Studies classrooms of upper basic schools in Enugu State. The experimental group participated in lessons that integrated game-based narratives around historical events and cultural practices. Post-intervention assessments revealed that students in the experimental group significantly outperformed their counterparts in both multiple-choice and open-ended questions. The study concluded that storytelling games bridged the gap between abstract knowledge and real-world understanding, making Social Studies content more relatable and memorable.

However, most of these studies have focused on STEM subjects or Civic Education. There is a limited but growing body of work on the application of GBL in Social Studies, hence the relevance of this study.

Methodology

The study employed a quasi-experimental design using pre-test and post-test control group approach. This design allowed for comparison between students exposed to game-based learning (experimental group) and those taught via traditional methods (control group). The population comprised all Upper Basic II students in Osun State. A sample of 120 students was drawn using stratified random sampling from four co-educational public schools. Each school contributed 30 students (15 each to the experimental and control groups). The instruments for data collection are: *Social Studies Achievement Test (SSAT)*: A 30-item multiple-choice test measuring students' knowledge before and after the intervention. *Students' Perception Questionnaire (SPQ)*: A 15-item questionnaire on students' attitudes toward the game-based learning experience. The instruments were validated by experts in Social Studies and educational measurement. A pilot test yielded a reliability coefficient of 0.83 using Kuder-Richardson Formula 20 (KR-20). The experiment lasted for six weeks. In the experimental group, teachers used board games, role-playing, and digital simulations aligned with Social Studies topics (e.g., civic duties, government structure). The control group was taught using conventional lecture methods. Pre-tests were administered at the beginning, and post-tests followed after the treatment period. Data were analyzed using descriptive statistics (mean, standard deviation) and inferential statistics (t-test) to test hypotheses at 0.05 level of significance.

Results and discussion of findings

Table 4.1: Mean Academic Achievement Scores of Experimental and Control Groups (Pre-Test and Post-Test)

Group	N	Pre-Test Mean	Pre-Test SD	Post-Test Mean	Post-Test SD	Mean Gain
Experimental	40	48.2	12.6	72.4	13.1	24.2
Control	40	47.8	12.9	58.1	12.8	10.3

Table 4.1 shows that while both groups improved after instruction, the experimental group recorded a markedly higher mean gain in academic achievement than the control group.

Table 4.2: Independent Samples t-Test of Post-Test Academic Achievement Scores

Group	N	Mean	SD	t-value	df	p-value	Decision
Experimental	40	72.4	13.1				
Control	40	58.1	12.8	4.86	78	< 0.05	Null Rejected

Table 4.2 indicates a statistically significant difference in post-test scores between students exposed to game-based learning and those taught using the conventional method.

Table 4.3: Students' Perceptions of Game-Based Learning (N = 40)

Statement	Agree (%)	Disagree (%)
Game-based learning made lessons more interesting	82.5	17.5
Game-based learning improved my understanding of the subject	80.3	19.7
I remembered what I learned better through games	84.1	15.9
I would like more lessons taught using game-based learning	86.0	14.0

Table 4.3 shows that a large majority of students perceived game-based learning as enjoyable, engaging, and helpful for understanding and retention.

The findings align with earlier studies (e.g., Adegoke, 2016; Gee, 2003) that suggest GBL enhances academic performance. Students' improved performance in Social Studies suggests that game-based learning supports cognitive development, encourages peer collaboration, and sustains interest.

Game-based learning appeals to learners' intrinsic motivation and supports differentiated instruction. The interactive nature of games allows learners to experience content in meaningful ways that promote knowledge retention.

Conclusion and Recommendations:

This study demonstrated that game-based learning significantly improves students' academic achievement in Social Studies. It also positively influences students' attitudes and engagement. It was recommended that - Teachers should be trained in game-based instructional strategies; Curriculum developers should incorporate game-based activities into Social Studies syllabi;Schools should invest in game materials and digital infrastructure and Further research should explore long-term effects of GBL and its application in other subjects.

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