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Exploring the Effectiveness of Game-Based Learning Approaches in Enhancing History Education among Elementary School Students

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ABSTRACT

This study explored the effectiveness of a game-based learning (GBL) approach in teaching history to elementary school students. While game-based learning has been widely used in science and mathematics education, its application in history instruction has remained relatively underexplored. The primary aim of this research was to examine whether the integration of game elements—such as points, badges, and leaderboards—could enhance students' motivation, knowledge retention, and academic performance compared to traditional instructional methods. A quasi-experimental research design was employed, consisting of an experimental group taught through game-based learning activities and a control group taught through conventional methods. The sample comprised 35 elementary school students (grade 8) selected through purposive sampling from a local public school. Data were collected using a pre-test and post-test to measure academic performance, a retention test to assess long-term knowledge retention, and a structured questionnaire to gauge students' motivation and attitudes toward the learning process. The collected data were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (independent samples t-test). The findings revealed that students exposed to the game-based learning approach demonstrated significantly higher motivation, improved academic achievement, and better retention of historical knowledge compared to those taught through traditional instruction. Moreover, qualitative feedback indicated that students found the gamified lessons more engaging and enjoyable, which fostered a deeper interest in history. Based on the findings, the study concluded that game-based learning serves as an effective pedagogical tool for enhancing learning outcomes in history education at the elementary level. It is recommended that educators and curriculum developers incorporate gamification strategies into classroom instruction to promote active learning, sustained motivation, and improved academic performance among young learners.

Introduction

The paradigm shift from teacher-centered classrooms to student-centered learning environments has redefined the role of teachers and learners in modern education. This transition emphasizes active participation, collaboration, and learner autonomy, moving away from traditional models where teachers were the sole source of knowledge. Over the years, educators have explored various innovative teaching strategies designed to foster engagement, interaction, and flexibility in learning environments. Among these emerging approaches, game-based learning (GBL) has gained considerable attention for its potential to enhance students' motivation and academic performance. Game-based learning integrates gaming elements such as points, badges, leaderboards, challenges, and rewards into educational activities, thereby stimulating students' psychological drivers of competition, achievement, and collaboration (Peláez & Solano, 2023).

In the context of history education at the elementary level, traditional instructional practices—often dominated by textbook reading, lectures, and rote memorization—have proven inadequate in capturing students' interest or promoting meaningful understanding of historical concepts. Many students perceive history as abstract, monotonous, or disconnected from their lived experiences, resulting in low engagement and limited retention. This educational challenge underscores the need for innovative pedagogical interventions that can transform passive learning into a more dynamic and participatory process.

Game-based learning presents a promising solution to this problem by turning history lessons into interactive experiences. Incorporating elements such as role-playing historical figures, participating in virtual simulations, and earning rewards through quizzes can make historical learning more tangible and enjoyable. Such practices not only foster motivation but also cultivate inquiry-based learning and long-term knowledge retention. As noted by Martínez-Hita, Gómez-Carrasco, and Miralles-Martínez (2021), the gamification of history instruction has the potential to bridge the gap between students' curiosity and curricular objectives by creating an engaging and meaningful learning environment.

Background of the Study

In the contemporary educational landscape, the role of the teacher has evolved from being a transmitter of knowledge to a facilitator of learning. This transformation reflects a broader shift toward student-centered pedagogies that emphasize active engagement, collaboration, and experiential learning. Traditional instructional methods—such as lectures, textbook-based teaching, and rote memorization—have been increasingly criticized for their inability to sustain learners' interest or promote higher-order thinking skills, particularly among younger students (Peláez & Solano, 2023). As a result, educators and researchers have sought innovative pedagogical approaches that make learning more interactive, meaningful, and motivating.

One such approach is game-based learning (GBL)**,** which integrates elements of games—such as points, badges, leaderboards, challenges, and rewards—into educational contexts. GBL aims to combine entertainment with pedagogy, leveraging the motivational and psychological appeal of games to foster deeper engagement and active learning. Research in recent years has shown that GBL can improve learners' problem-solving abilities, motivation, and long-term retention across various disciplines, especially in mathematics and science education (Gee, 2017; Dichev & Dicheva, 2020). Despite its proven success in these fields, the application of GBL in history education remains relatively underexplored.

History, as a subject, presents unique challenges in elementary education. Young learners often find historical content abstract, distant, and difficult to relate to their own experiences. Traditional

methods of teaching history tend to rely heavily on factual recall, chronological memorization, and teacher-centered instruction—approaches that may hinder students' curiosity and engagement. Consequently, many students perceive history as a dull or difficult subject, resulting in poor retention and limited appreciation of its relevance. Scholars such as Martínez-Hita, Gómez-Carrasco, and Miralles-Martínez (2021) argue that incorporating interactive and participatory methods can revitalize history instruction by transforming it into an engaging and meaningful experience.

The integration of game-based learning in history education offers an opportunity to reimagine how historical knowledge is taught and learned at the primary level. Through activities such as role-playing historical figures, completing quests based on historical events, or earning digital rewards for achieving learning milestones, students can actively construct historical understanding in an enjoyable and immersive manner. Such experiences not only make learning more appealing but also promote collaboration, problem-solving, and critical thinking—key competencies in 21st-century education.

Given these considerations, the present study was undertaken to explore the effectiveness of game-based learning approaches in enhancing history education among elementary school students. Specifically, the research sought to determine the extent to which GBL influences students' motivation, knowledge retention, and academic performance compared to traditional teaching methods. By providing empirical evidence on the pedagogical value of GBL, this study contributes to the growing discourse on innovative teaching strategies and offers practical insights for educators aiming to make history instruction more interactive, engaging, and effective.

Purpose of the Study

The primary purpose of this study was to examine the effectiveness of game-based learning (GBL) as an instructional approach in teaching history to elementary school students. The study aimed to determine whether the integration of game elements—such as points, badges, leaderboards, and interactive challenges—could enhance students' motivation, engagement, knowledge retention, and academic performance in comparison to traditional methods of instruction.

More specifically, this research sought to evaluate how gamified teaching strategies influence students' interest in history, their ability to retain historical knowledge over time, and their overall learning outcomes. The study also aimed to explore students' attitudes and perceptions toward game-based learning as a pedagogical tool for history education.

By investigating these aspects, the study intended to provide empirical evidence on the potential of game-based learning to transform the teaching and learning of history at the primary level. Ultimately, the purpose was to inform educators, curriculum developers, and policymakers about the value of incorporating gamification techniques into classroom instruction to promote active learning, sustain students' motivation, and foster a deeper appreciation for historical studies among young learners.

Significance of the Study

This study holds considerable significance in advancing the effectiveness and appeal of history education at the elementary level. Traditional approaches to teaching history—often characterized by lectures, rote memorization, and textbook-based instruction—frequently fail to engage young learners, leading to low motivation and poor retention of historical knowledge. By examining the impact of game-based learning (GBL) on students' motivation, participation, and academic performance, this research contributes to the ongoing efforts to make history instruction more interactive, student-centered, and meaningful.

The findings of this study offer valuable implications for curriculum designers, educational policymakers, and classroom practitioners. By integrating gamified elements such as points, challenges, badges, and rewards into history lessons, educators can create learning environments that foster curiosity, collaboration, and critical thinking. Such strategies align with the cognitive and emotional development of elementary school students, making the learning process both enjoyable and educationally effective.

Furthermore, the study provides empirical evidence that educational games can serve as powerful tools for enhancing student engagement and achievement. By transforming history lessons into interactive and reward-driven experiences, game-based learning helps students connect more deeply with historical concepts while maintaining academic rigor. The significance of this approach lies in its dual capacity to promote enjoyment and achievement—demonstrating that meaningful learning can occur when education is made engaging, relevant, and contextually stimulating.

Ultimately, the insights derived from this research have the potential to influence teaching practices not only within history education but also across other disciplines. The adoption of innovative, game-based pedagogical strategies can support the creation of dynamic classrooms where students are motivated to learn, think critically, and develop a lifelong interest in academic inquiry (Shari et al., 2023).

Objectives of the Study

The main objective of this study was to examine the effectiveness of game-based learning (GBL) in enhancing students' motivation, knowledge retention, and academic performance in history education at the elementary level. The study sought to assess how the integration of game elements—such as points, badges, leaderboards, and interactive challenges—can transform traditional history instruction into a more engaging and meaningful learning experience.

The specific objectives of the study were to:

1. Evaluate the impact of game-based learning on students' motivation and engagement during history lessons.
2. Compare the academic performance of students taught through game-based learning with those taught through traditional instructional methods.
3. Assess the extent to which game-based learning influences students' retention of historical knowledge over time.
4. Analyze students' attitudes and perceptions toward the use of game-based learning in history education.
5. Provide recommendations for educators and curriculum developers on the effective integration of game-based strategies in elementary history classrooms.

Research Questions

Based on the objectives of the study, the following research questions were formulated to guide the investigation:

1. How does the use of game-based learning influence elementary students' motivation and engagement in history lessons?
2. What are the differences in academic performance between students taught through game-based learning and those taught through traditional instructional methods?

3. To what extent does game-based learning enhance students' retention of historical knowledge compared to conventional teaching approaches?
4. What are the attitudes and perceptions of elementary students toward the use of game-based learning in history education?
5. How can the integration of game-based strategies improve the overall effectiveness of history teaching at the primary level?

Theoretical Framework

The theoretical foundation of this study is grounded in constructivist learning theory and self-determination theory (SDT)**,** both of which provide a robust framework for understanding the effectiveness of game-based learning (GBL) in elementary history education.

Constructivist Learning Theory posits that learners actively construct knowledge through experiences, interactions, and reflection, rather than passively receiving information from the teacher (Piaget, 1972; Vygotsky, 1978). In the context of history education, constructivism emphasizes that students develop a deeper understanding when they engage with historical content through meaningful, participatory activities. Game-based learning aligns closely with this perspective, as it encourages students to interact with historical scenarios, solve problems, make decisions, and collaborate with peers, thereby constructing knowledge in an active and student-centered manner. Activities such as role-playing historical figures, participating in simulations, and completing gamified challenges create opportunities for experiential learning and promote critical thinking and inquiry-based understanding of historical events.

Self-Determination Theory (SDT)**,** proposed by Deci and Ryan (1985), provides further insight into the motivational mechanisms underlying GBL. According to SDT, learners are most motivated when their needs for autonomy, competence, and relatedness are satisfied. Game-based learning inherently addresses these needs: students have autonomy in navigating game challenges, experience a sense of competence through earning points, badges, or rewards, and engage in relatedness through collaborative or competitive interactions with peers. By satisfying these psychological needs, GBL enhances intrinsic motivation, persistence, and engagement, which are essential for meaningful learning and long-term retention of historical knowledge.

Combining these two theoretical perspectives, the study posits that game-based learning serves as a powerful pedagogical tool by:

1. Enabling students to actively construct historical knowledge through experiential and interactive learning activities (constructivist perspective).
2. Enhancing motivation, engagement, and sustained interest in history by fulfilling learners' psychological needs for autonomy, competence, and relatedness (self-determination perspective).

This theoretical framework underpins the research design, guiding the development of gamified instructional interventions, the selection of research instruments, and the interpretation of outcomes related to students' motivation, engagement, knowledge retention, and academic performance in history education.

Literature Review

Impact of Game-Based Learning on Historical Understanding

Game-based learning (GBL) has increasingly gained attention as an innovative approach to elementary education, particularly in history, which is often perceived as abstract and fact-heavy.

By integrating game elements such as points, badges, leaderboards, challenges, and narratives, GBL promotes active participation, collaboration, and critical thinking (Peláez & Solano, 2023). Unlike traditional teaching methods, GBL allows students to experience historical events through role-play, simulations, and interactive quests, enhancing engagement, content retention, and understanding of chronological sequences and cause-effect relationships (Martínez-Hita, Gómez-Carrasco, & Miralles-Martínez, 2021).

Enhancing Historical Thinking Skills

Digital and interactive games encourage higher-order historical thinking skills, including source analysis, perspective taking, and evaluation of historical causality (Suartama et al., 2024). These games immerse students in historical narratives, enabling inquiry-based learning and development of historical empathy. Adaptive features provide personalized learning pathways, ensuring that diverse cognitive and developmental needs are addressed (Phueakphud, 2019).

Engagement, Motivation, and Retention

GBL significantly increases motivation and engagement through reward-driven mechanisms and active participation (Nwachukwu & Johnson, 2020; Shari et al., 2023). Game-based historical lessons enhance memory retention by linking factual knowledge to interactive experiences, narratives, and emotional investment. Repetitive practice, immediate feedback, and collaborative gameplay further consolidate understanding and reinforce historical concepts, promoting both cognitive and social learning (Ruiz-Bañuls et al., 2021).

Story-Driven and Role-Playing Games

Story-driven and role-playing games (RPGs) have proven effective in transforming passive history instruction into immersive, student-centered experiences. By assuming roles of historical figures, students develop empathy, problem-solving skills, and critical thinking, while exploring historical dilemmas and ethical decisions (Dehghanzadeh & Dehghanzadeh, 2020). RPGs also promote collaboration, communication, and reflective discourse, mirroring authentic historical inquiry practices (Mercan & Varol Selçuk, 2024).

Integrating Game Mechanics in Teaching

Effective integration of game mechanics—such as challenges, progression systems, and interactive storytelling—supports active learning and engagement in history education. These mechanics create tangible goals and feedback loops, sustaining interest and facilitating knowledge construction. Both digital and non-digital game approaches can be adapted for classroom use, provided they maintain historical accuracy and pedagogical alignment (Schaaf, 2024; Sáez-López et al., 2024).

Gaps in Existing Research

While GBL has been widely applied in mathematics and science, its use in elementary history remains underexplored. Traditional methods often disengage young learners due to rote memorization and passive instruction. Existing literature suggests that gamified approaches can transform history learning into dynamic, interactive experiences, enhancing engagement, motivation, retention, and critical thinking (Aljraiwi, 2019; Suartama et al., 2024). This gap justifies further investigation into the impact of GBL on history education at the primary level.

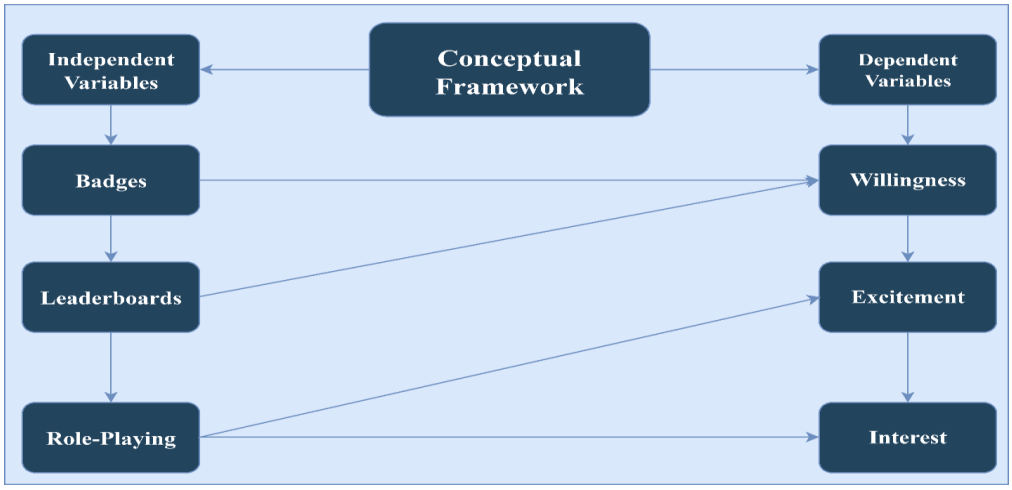
Theoretical Alignment

The present study aligns with constructivist learning theory, emphasizing active, learner-centered knowledge construction, and self-determination theory**,** highlighting the role of autonomy,

competence, and relatedness in motivation (Deci & Ryan, 1985). Game-based approaches inherently support these frameworks by providing interactive, collaborative, and rewarding learning experiences that foster historical understanding, engagement, and long-term retention.

Conceptual Framework

This study examines the impact of game-based instruction on primary-level students' learning outcomes in history. The conceptual framework illustrates the relationships between independent variables—badges, leaderboards, and role-playing—and dependent variables, including students' willingness, excitement, and interest in learning.



Independent Variables: The study focuses on key gamification elements:

- **Badges** – Symbolic rewards for task completion, encouraging motivation and a sense of achievement.
- **Leaderboards** – Competitive displays that foster engagement and drive performance.
- **Role-Playing** – Experiential learning through active participation in historical scenarios, promoting empathy and understanding.

Dependent Variables: The anticipated effects of these game-based strategies are:

- **Willingness** – Students' readiness to participate in history lessons.
- **Excitement** – The level of enthusiasm and emotional engagement during learning activities.
- **Interest** – Sustained curiosity and focus on historical content.

The framework posits that gamified instructional elements directly influence students' motivation, engagement, and interest in history. By integrating these game mechanics, the study aims to evaluate how interactive and reward-driven learning experiences can enhance primary students' historical understanding, foster active participation, and improve overall learning outcomes.

Research Methodology

The research methodology employed to examine the impact of game-based learning on history education among elementary school students. The methodology details the research design, population, sample, sampling techniques, research instruments, instrument reliability and validity, data collection procedures, and data analysis methods, ensuring rigor, reliability, and clarity in the research process.

Research Approach

The study adopted a quantitative research approach, suitable for assessing the effects of game-based instruction on students' learning outcomes, motivation, and engagement through measurable data. Additionally, qualitative methods were employed to capture students' perceptions and classroom dynamics, making this a mixed-methods study.

Research Design

A quasi-experimental design with a pre-test/post-test control group structure was implemented. This design facilitated the comparison of two groups: an experimental group exposed to gamified history lessons and a control group receiving traditional instruction. The pre-test and post-test assessments allowed for measurement of changes in academic performance and historical understanding.

Population and Sample

The population consisted of grade 8 students enrolled in history courses in selected schools. The sample comprised 35 students, aged 12–13 years, drawn from public schools. Participants were divided into experimental (n=21) and control (n=14) groups.

Sampling Technique

A purposive sampling technique was employed to select schools implementing both traditional and gamified teaching approaches. Students were selected based on their enrollment in history courses and availability to participate in the study.

Research Instruments

The study utilized the following instruments:

- Pre-Test and Post-Test: Standardized assessments measured students' prior knowledge and learning outcomes in history.
- Gamified Learning Materials: Experimental group students engaged in quizzes, simulations, leaderboards, and role-playing activities over six weeks.
- Student Engagement Survey: A Likert-scale questionnaire evaluated motivation, interest, and engagement.
- Classroom Observation Checklist: Documented participation, enthusiasm, and interaction during lessons.

Validity of Instruments

Content validity was ensured through expert review by educators and specialists in elementary history and educational psychology. The instruments were evaluated for alignment with learning objectives, grade-level appropriateness, and the construct of historical understanding.

Reliability of Instruments

A pilot study was conducted with a small group of students outside the main study to assess reliability. Internal consistency of the survey was calculated using Cronbach's Alpha, with values above 0.7 indicating acceptable reliability. Standardized procedures for administering tests were followed to ensure consistency across both groups.

Data Collection Procedure

Data were collected in the following sequence:

Pre-Test: Administered to both groups to assess baseline knowledge.

Intervention: The experimental group participated in gamified history lessons for six weeks, while the control group received traditional instruction.

Post-Test: Administered to measure changes in knowledge and performance.

Survey and Observation: Conducted to capture qualitative insights on motivation and engagement.

Data Analysis Procedure

- **Quantitative Data:** Pre- and post-test results were analyzed using descriptive statistics (mean, standard deviation) and inferential statistics **(**t-tests**)** to compare performance between groups.
- **Qualitative Data:** Survey responses and classroom observations were analyzed through thematic analysis to identify patterns related to engagement, motivation, and students' perceptions of gamified learning.

Ethical Considerations

Ethical guidelines were strictly followed, including informed consent from students, confidentiality of participant data, and voluntary participation.

Results and Findings

Demographic Profile of Participants

The study involved 35 elementary school students, aged 12–13 years, from both public and private schools. The sample included 21 students (60%) in the experimental group, which received game-based learning interventions, and 14 students (40%) in the control group, which followed traditional instructional methods. Demographic information, including age, gender, grade level, and prior exposure to technology or educational games, was collected to contextualize the findings and ensure the sample adequately represented the broader student population. Understanding these characteristics provides insights into potential variations in learning outcomes, engagement, or motivation across different subgroups.

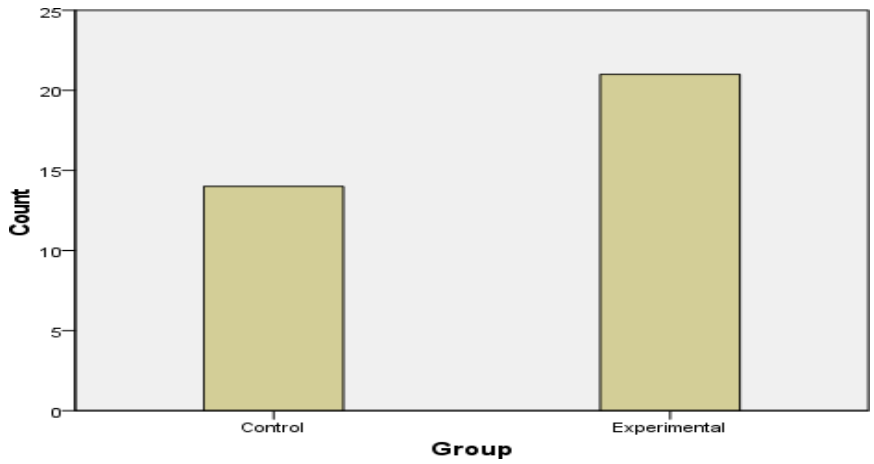
Data Collection Overview

Data were collected using pre-tests, post-tests, student engagement surveys, and classroom observation checklists**.** The experimental group, exposed to gamified history lessons, generally demonstrated positive changes in post-test scores compared to their pre-test performance. Specific students (e.g., PKS1, PKS2, PKS3, PKS11) showed noticeable academic improvement. Motivation and engagement scores were also higher among experimental participants, suggesting that gamified elements such as quizzes, leaderboards, role-playing, and simulations contributed to greater involvement in learning. Retention scores were consistently higher in the experimental group, indicating improved recall of historical facts. In contrast, the control group displayed modest improvements in post-test scores, with mixed motivation and engagement outcomes, highlighting the relative advantage of game-based learning in promoting active learning and retention (Hung et al., 2014).

Group Distribution

The frequency distribution revealed 21 students in the experimental group (60%) and 14 in the control group (40%)**.** This allocation ensured sufficient representation of both instructional

approaches while slightly favoring the experimental group for more robust analysis of game-based learning effects.



Descriptive Statistics

Descriptive analysis summarized participants' performance and behavioral indicators:

Table 1: Descriptive analysis

Variable	N	Min	Max	Mean	Std. Deviation
Pre-Test Score	35	50	84	67.89	10.34
Post-Test Score	35	49	91	69.46	11.70
Motivation Score	35	1	5	2.94	1.55
Engagement Score	35	1	5	3.11	1.28
Retention Score	35	61	89	76.86	7.56

The results of table 1 indicate moderate variation in initial knowledge (pre-test mean = 67.89), with slight overall improvement after intervention (post-test mean = 69.46). Motivation and engagement scores were moderately high, while retention scores suggested that most students effectively retained historical knowledge, particularly in the experimental group (Oltman & Hammond, 2017).

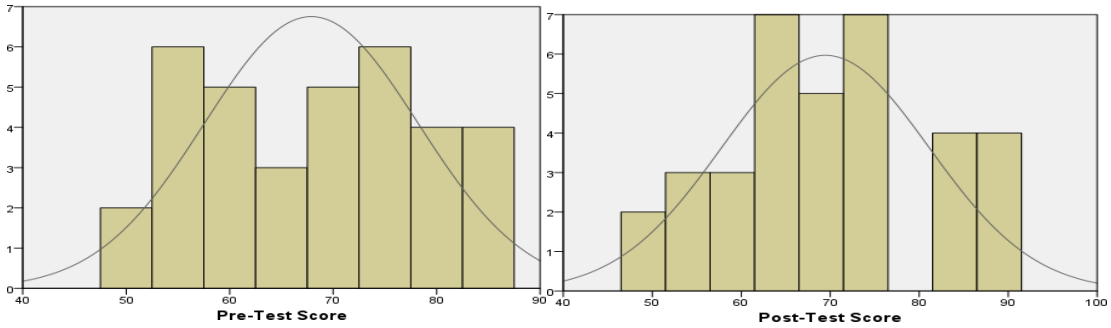
Paired Sample Analysis

A paired sample analysis compared pre-test and post-test scores:

Table 2: Pre-test and post-test scores

Pair	Mean	N	Std. Deviation	Std. Error Mean
Pre-Test Score	67.89	35	10.34	1.75
Post-Test Score	69.46	35	11.70	1.98

Table 2 shows mean post-test score increased by 1.57 points, suggesting a positive effect of instruction, particularly for the experimental group. While the improvement is modest, it reflects a trend toward enhanced academic performance, supported by increased engagement and motivation (Cózar-Gutiérrez & Sáez-López, 2016).



Paired Samples t-Test

The paired samples t-test assessed the statistical significance of pre-test and post-test differences:

Table 3: Paired samples t-test scores

Paired Differences	Mean	Std. Deviation	Std. Error Mean	95% CI Lower	95% CI Upper	t	df	Sig. (2-tailed)
Pre-Test – Post-Test	-1.571	4.698	0.794	-3.185	0.043	-1.979	34	0.056
Motivation – Retention	-73.914	8.016	1.355	-76.668	-71.161	-54.551	34	0.000

The increase in post-test scores was not statistically significant at the 5% level (p = 0.056), though a clear trend of improvement was observed. Retention scores showed a significant difference, indicating that students' ability to recall historical facts was substantially enhanced through game-based instruction (Byusa, Kampire, & Mwesigye, 2022).

Pre-Test and Post-Test Comparison

Comparisons of pre-test and post-test scores highlighted that students in the experimental group exhibited greater improvements relative to the control group. Visualizations of mean scores and score progression indicated that game-based learning effectively filled knowledge gaps, particularly in areas of historical fact recall and application.

Retention of Historical Facts

Retention analysis showed that gamified strategies—role-playing, quizzes, points, and storytelling—enhanced long-term recall of historical content. Students actively engaged with the material, which reinforced memory consolidation and promoted deeper cognitive processing compared to traditional teaching methods (Silseth, 2012).

Motivation and Engagement

Game-based instruction positively impacted student motivation and engagement, as evidenced by survey responses, classroom observations, and teacher feedback. Gamified elements, such as rewards, competition, and interactive challenges, increased intrinsic and extrinsic motivation, fostering a more dynamic, student-centered learning environment. Experimental group students demonstrated higher participation, sustained attention, and positive attitudes toward history learning (Lester et al., 2014).

Differences Between Experimental and Control Groups

Comparative analysis revealed that the experimental group outperformed the control group across academic performance, retention, and engagement measures. Independent sample t-tests and

qualitative feedback confirmed that gamified instruction was more effective than traditional methods in promoting active learning, knowledge retention, and positive student attitudes toward history (Cheng et al., 2013).

Students' Perceptions of Game-Based History Lessons

Post-intervention surveys and informal interviews indicated that students perceived game-based history lessons as enjoyable, useful, and challenging. Elements such as quizzes, storytelling, and role-play were particularly appreciated. Positive perceptions correlated with increased engagement and motivation, demonstrating the acceptability and effectiveness of gamified instruction among elementary learners (W. H. Lee, Park, & Lee, 2021).

Summary of Key Findings

The study demonstrates that game-based learning positively influenced academic performance, retention, motivation, and engagement among elementary students. While the overall post-test improvement was modest, the experimental group consistently outperformed the control group. Students reported high satisfaction with gamified lessons, and retention of historical facts was significantly enhanced. These findings suggest that integrating game-based strategies into primary-level history curricula can effectively promote deeper learning and a more engaging classroom environment (Baek et al., 2015; Ratnasari, Chou, & Huang, 2023).

Discussion

The results of this study indicate that game-based learning (GBL) has a positive impact on elementary students' academic performance, engagement, motivation, and retention in history education. Although the increase in post-test scores was not statistically significant at the conventional 0.05 level, a clear trend toward improvement was observed, particularly within the experimental group exposed to gamified instruction. This aligns with prior research suggesting that gamified learning environments can enhance student achievement by creating more interactive and engaging educational experiences (Hung et al., 2014; Yildirim, 2017).

Academic Performance

Students in the experimental group demonstrated higher post-test scores and a notable improvement in knowledge retention compared to their control group peers. This supports previous findings by Attah, Ogunlade, and Falade (2024), who reported that gamified instruction positively affects learning outcomes by providing immediate feedback, interactive problem-solving opportunities, and reinforcement of content. The observed trend toward improvement, even if modest, highlights that GBL can complement traditional teaching methods to strengthen students' understanding of historical facts.

Engagement and Motivation

Engagement scores were higher among students who participated in gamified activities, indicating that interactive elements such as quizzes, role-playing, leaderboards, and storytelling successfully stimulated interest and participation. Motivation also increased for many students, consistent with Lester et al. (2014), who noted that game-based strategies enhance both intrinsic and extrinsic motivation by promoting a sense of autonomy, challenge, and reward. The variation in motivation among participants suggests that individual differences, such as prior experience with technology or personal learning preferences, may influence the effectiveness of gamified interventions.

Retention of Historical Facts

Retention scores were consistently higher in the experimental group, suggesting that gamified approaches support long-term memory of historical content. These findings align with Silseth (2012), who emphasized that immersive and active learning strategies facilitate deeper cognitive processing, resulting in stronger recall. Classroom observations further indicated that students were more willing to participate, demonstrate curiosity, and discuss historical events, reinforcing the conclusion that gamified methods improve retention through engagement and repetition.

Comparison with Traditional Instruction

While the control group exhibited some improvement in post-test scores, engagement and retention were comparatively lower, demonstrating the relative advantage of gamified learning. This is consistent with previous studies (Cheng et al., 2013; Baek et al., 2015) highlighting that conventional lecture-based methods may be less effective in capturing students' attention and sustaining motivation, particularly in subjects perceived as challenging or less interactive.

Implications for History Education

The findings suggest that GBL offers a promising approach for enhancing historical understanding among young learners. By combining interactive elements with educational content, gamified lessons create an environment that fosters curiosity, active participation, and meaningful learning experiences. These outcomes indicate that incorporating GBL into primary-level history curricula can support both cognitive and affective aspects of learning, including knowledge acquisition, skill development, and positive attitudes toward the subject matter (Ratnasari, Chou, & Huang, 2023).

Overall, this study reinforces the potential of game-based learning as a tool to improve academic outcomes, engagement, motivation, and retention in history education. Although individual responses varied, the experimental group consistently demonstrated enhanced learning behaviors, suggesting that GBL can serve as an effective pedagogical strategy when integrated with traditional instruction. These findings contribute to a growing body of literature supporting the use of gamification to promote active, student-centered learning in elementary education.

Conclusion

This study demonstrates that game-based learning (GBL) is an effective approach for enhancing engagement, motivation, retention, and overall learning in elementary history education. Although the increase in post-test scores was not statistically significant at the 0.05 level, the experimental group consistently exhibited positive trends in academic performance, higher retention of historical facts, and greater participation in classroom activities compared to the control group. These findings indicate that gamified instruction can meaningfully complement traditional teaching methods by fostering deeper involvement and more active learning behaviors among students.

Students exposed to gamified lessons responded positively to interactive activities such as quizzes, role-playing, storytelling, and competitions, reporting increased enjoyment, interest, and motivation. Retention scores in the experimental group were notably higher, suggesting that immersive and interactive learning experiences contribute to better recall and understanding of historical content. The study confirms that well-designed educational games make history more engaging, relatable, and memorable, while promoting student-centered learning strategies that align with contemporary educational practices.

Importantly, game-based learning is not intended to replace conventional instruction but to serve as a supplementary tool that enhances learning outcomes and student engagement. By integrating game mechanics into history education, teachers can create a dynamic classroom environment that

stimulates curiosity, encourages participation, and supports long-term retention of knowledge. Overall, this research supports the growing evidence that gamified instruction is a promising pedagogical strategy for enriching primary-level history education, particularly in subjects that are traditionally perceived as challenging or less engaging.

Recommendations

Based on the findings of this study, several recommendations are proposed to enhance the effectiveness of game-based learning in elementary history education:

For Teachers

Teachers are encouraged to integrate game-based strategies into their history lessons to foster active learning, engagement, and motivation. Instructional activities such as role-playing, interactive quizzes, storytelling, and the use of digital tools can make historical content more relatable and enjoyable for students. To maximize effectiveness, professional development opportunities should be provided to help teachers design, implement, and evaluate gamified learning environments. It is important that game-based activities are aligned with curriculum objectives, and that teachers continuously assess students' responses to refine instructional strategies. Additionally, careful planning is necessary to maintain a balance between educational content and enjoyable gameplay to ensure meaningful learning outcomes.

For Students

Students should be encouraged to actively engage in game-based activities as opportunities for deeper learning rather than mere entertainment. Collaborative participation, reflection on experiences, and connecting game content to real historical events can enhance understanding and retention. Students are also advised to take initiative by asking questions, exploring multiple perspectives, and using game outcomes to reinforce their knowledge of historical concepts. By actively participating in gamified lessons, students can strengthen their academic understanding while developing critical thinking, problem-solving, and teamwork skills.

For Educational Practice

To ensure the reliability and effectiveness of game-based learning, instructional interventions should be grounded in accurate and trustworthy assessments, allowing educators to monitor student progress, adapt strategies, and identify areas requiring additional support.

Limitations of the Study and Recommendation for Future research

Although this study provides valuable insights into the effectiveness of game-based learning (GBL) in enhancing history education at the elementary level, certain limitations should be acknowledged. Firstly, the study was conducted with a relatively small sample size drawn, which may limit the generalizability of the findings to other educational contexts or regions. Future research involving a larger and more diverse sample would help validate and strengthen the results.

Secondly, the study was conducted over a limited duration, which may not have been sufficient to fully capture the long-term effects of game-based learning on students' motivation and knowledge retention. A longitudinal study design could provide a more comprehensive understanding of how sustained exposure to GBL influences learning outcomes over time.

Thirdly, the study primarily relied on quantitative measures such as tests and questionnaires, which may not fully capture the depth of students' experiences, emotions, and attitudes toward game-based learning. Incorporating qualitative methods such as interviews or classroom observations in future studies could offer richer insights into students' learning processes and perceptions.

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