

IMPLEMENTATION OF GAMIFICATION AND STUDENT-CENTERED LEARNING APPROACH TO IMPROVE STUDENT ACTIVENESS IN HISTORY LEARNING AT SMAN 11 TANA TORAJA

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ABSTRACT

Low student activeness remains a persistent challenge in history learning because classroom instruction is frequently teacher-centered, limiting students' opportunities to participate, collaborate, and construct historical understanding. This study analyzed the implementation of gamification through Student-Centered Learning, examined its role in fostering student activeness, and identified supporting and inhibiting factors at SMAN 11 Tana Toraja. A qualitative case study was conducted using classroom observations, in-depth interviews with the principal, history teacher, and students, and document analysis. Data were analyzed using the interactive model of Miles, Huberman, and Saldaña, while trustworthiness was ensured through triangulation. The findings revealed that gamification was implemented through planning, design, implementation, reflection, and evaluation. This process enhanced students' cognitive, behavioral, and social engagement through collaboration, historical inquiry, problem solving, and reflection. The study proposes a Gamification Implementation Model integrating Student-Centered Learning, student engagement, and student activeness, providing theoretical contributions and practical guidance for sustainable history learning in resource-constrained rural secondary schools.

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INTRODUCTION

The evolution of 21st-century education necessitates a shift in the learning paradigm from teacher-centered instruction to student-centered learning. This shift is driven by the need to cultivate 21st-century competencies such as critical thinking, creativity, communication, collaboration, and problem solving which cannot be achieved through instruction focused solely on information delivery. In this context, history education plays a strategic role; it not only equips students with knowledge of past facts and events but also fosters historical thinking, source analysis, interpretation, and evidence-

based decision making. Consequently, history education requires a learning environment that encourages students to actively construct knowledge through meaningful learning experiences.

However, research indicates that history education still faces challenges regarding low student engagement during the learning process. Instructional practices remain dominated by lecture-based methods, relegating students to the role of passive information recipients rather than active constructors of knowledge. As a result, history is often perceived as a subject synonymous with the rote memorization of figures, dates, and event chronologies, failing to spark genuine interest or foster student engagement. This situation stands in stark contrast to the true nature of history education, which demands that students explore historical sources, think critically, engage in discussion, and formulate arguments based on historical evidence.

One approach considered capable of addressing this challenge is Student-Centered Learning. This approach positions learners as the central figures in the learning process through activities involving exploration, collaboration, reflection, and problem-solving, while the teacher acts as a facilitator who provides a learning environment enabling students to construct their own knowledge. Kerimbayev et al., (2023), demonstrated that implementing Student-Centered Learning can enhance learning engagement, critical thinking skills, and learning outcomes, as students gain greater opportunities to participate actively in the learning process. These findings indicate that successful learning is determined not only by the material taught but also by pedagogical strategies that allow students to learn actively.

In tandem with advancements in educational technology, gamification has emerged as an innovative strategy with the potential to strengthen the implementation of Student-Centered Learning. Gamification involves applying game elements such as points, badges, leaderboards, levels, challenges, and feedback to the learning context to boost student motivation, engagement, and participation, without transforming the learning objectives themselves into a game. Unlike game-based learning, gamification retains the original learning objectives while utilizing game mechanics to drive student engagement.

Although various studies indicate that gamification has the potential to enhance learners' motivation, engagement, and learning outcomes, most research remains focused on measuring the effectiveness of using gamification. Studies examining how teachers design, implement, reflect on, and evaluate the use of gamification in history instruction specifically through a student-centered learning approach remain relatively limited. Yet, the success of gamification is determined not only by the use of game elements but also by the quality of instructional design, pedagogical strategies, and the active engagement of learners throughout the learning process. A deeper analysis reveals persistent limitations in the scholarly development of this field. Triantafyllou et al., (2025), indicates that most gamification research focuses on evaluating the effectiveness of game elements such as points, badges, leaderboards, and feedback in boosting learner motivation and engagement. However, the review also emphasizes that empirical evidence regarding gamification implementation in everyday teaching practice remains limited and is heavily influenced by the pedagogical approach employed. The authors recommend research that goes beyond merely measuring learning outcomes to also elucidate the process of gamification implementation across various educational contexts.

Ruiz et al., (2024) who conclude that gamification research in primary and secondary education remains dominated by experimental designs focused on measuring learning outcomes. Meanwhile, there is a relative scarcity of research examining how gamification is integrated into instructional design, how teachers manage the learning process, and how learners actively construct their learning experiences. This situation suggests that the effectiveness of gamification cannot be understood solely through improvements in learning outcome scores; it must also be analyzed through the lens of the actual learning processes taking place in the classroom.

Suprianto & Yuliantri, (2025), demonstrated that the application of gamification in history education enhances learning motivation and the understanding of historical concepts compared to conventional instruction. However, as their study employed a quasi-experimental approach, it focused more on measuring the treatment's impact on learning outcomes than on providing an in-depth explanation of the gamification implementation process. Martdana & Atno, (2025) , also showed that gamification in history education boosts student motivation and engagement through the use of various game elements. Nevertheless, they noted that research on gamification in history education remains dominated by discussions regarding motivation and learning outcomes, while studies linking gamification to student-centered learning approaches remain very limited. Furthermore, Safitri et al., (2025) explained that game-based learning can improve students' competence, participation, and learning experiences. However, the success of its implementation is heavily influenced by the quality of

lesson planning, teacher competence, and active student engagement throughout the learning process. This indicates that the use of educational technology cannot be separated from the pedagogical approach that underpins its implementation.

Based on a synthesis of these various studies, four research gaps underpin the present study. First, most existing research employs quantitative or experimental approaches; while these yield information on the effectiveness of gamification, they fail to elucidate the actual implementation process within the classroom. Second, research integrating gamification with student-centered learning particularly through cooperative learning remains scarce, leaving the mechanisms linking instructional strategies and learner engagement largely unexplored. Third, studies on gamification in history education are dominated by analyses of motivation and learning outcomes, with a lack of research explaining how gamification fosters active learner participation during the history learning process. Fourth, the implementation of gamification in rural secondary schools characterized by limited digital infrastructure has rarely been studied, resulting in limited empirical evidence regarding its application in such contexts. This is significant given that school environment characteristics, technology availability, and students' social conditions all have the potential to influence the success of gamification implementation.

This study offers three novel contributions. First, it delineates the gamification implementation process in history education across five stages: planning, design, implementation, reflection, and evaluation. Second, it integrates gamification with a student-centered learning approach specifically through cooperative learning to produce an implementation model that explains the relationships among instructional design, student engagement, and student active participation. Third, the study is conducted within a rural secondary school setting, thereby expanding the empirical evidence regarding gamification implementation in environments with limited digital infrastructure. Based on the described phenomenon, a synthesis of prior research, and the identified research gaps, this study aims to address the following research questions: 1. How is gamification implemented in history education using a student-centered learning approach at SMAN 11 Tana Toraja?. 2. How does gamification, through a student-centered learning approach, foster student active participation in history education. 3. What are the facilitating and inhibiting factors regarding the implementation of gamification in history education using a student-centered learning approach at SMAN 11 Tana Toraja?

METHOD

This study employs a qualitative approach with a case study design. A qualitative approach was selected because the study aims to gain an in-depth understanding of the phenomenon of gamification implementation in history lessons utilizing a student-centered learning approach within a natural setting. According to (Moleong, 2022), qualitative research generates descriptive data in the form of written or spoken words from the individuals or groups being observed. Meanwhile, the case study design is used to examine a phenomenon in depth within a real-life context, (Creswell, 2019). In this study, the specific case examined is the implementation of gamification in history instruction at SMA Negeri 11 Tana Toraja. The research was conducted at SMA Negeri 11 Tana Toraja, Tana Toraja Regency, South Sulawesi. Research informants were selected using purposive sampling, comprising one history teacher, one school principal, and six students representing grades X, XI, and XII, resulting in a total of eight informants.

Data collection techniques included in-depth interviews, non-participant observation, and document analysis. Observations were conducted ten times during history lessons: four sessions in grade X, three in grade XI, and three in grade XII. Each observation session lasted for two 45-minute periods. Non-participant observation was employed, meaning the researcher directly observed the learning process without becoming involved in the teaching and learning activities. The observations focused on the implementation of gamification using QuizWhizzer and Wordwall, the application of the student-centered learning approach via the cooperative learning model, student engagement, teacher-student interaction, and learning dynamics during the activities.

Data analysis utilized the Miles, Huberman, and Saldaña model, which encompasses data condensation, data display, and conclusion drawing and verification. During the data condensation stage, the researcher selected, focused, and organized the data obtained from observations, interviews, and documentation in alignment with the research focus. Subsequently, the data is presented in a thematic narrative format to facilitate interpretation. The final stage involves drawing and verifying conclusions by identifying patterns, inter-theme relationships, and meanings emerging from the research data.

To ensure the credibility of the findings, this study employs source triangulation and technique triangulation. Source triangulation is conducted by comparing information obtained from the school principal, history teachers, and students. Meanwhile, technique triangulation involves comparing data derived from observations, interviews, and documentation. Additionally, the researcher conducts member checking with informants to ensure that the data interpretation aligns with the experiences they shared during the study.

RESULT AND DISCUSSION

Result

Application of Gamification in History Learning with a Student-Centered Learning Approach

Research findings indicate that the implementation of gamification in history lessons at SMA Negeri 11 Tana Toraja proceeds through five main stages—as illustrated in the gamification implementation model in Figure 1: planning, design, implementation, reflection, and evaluation. These five stages form an integrated learning cycle oriented towards Student-Centered Learning (SCL), in which students play an active role in the learning process.

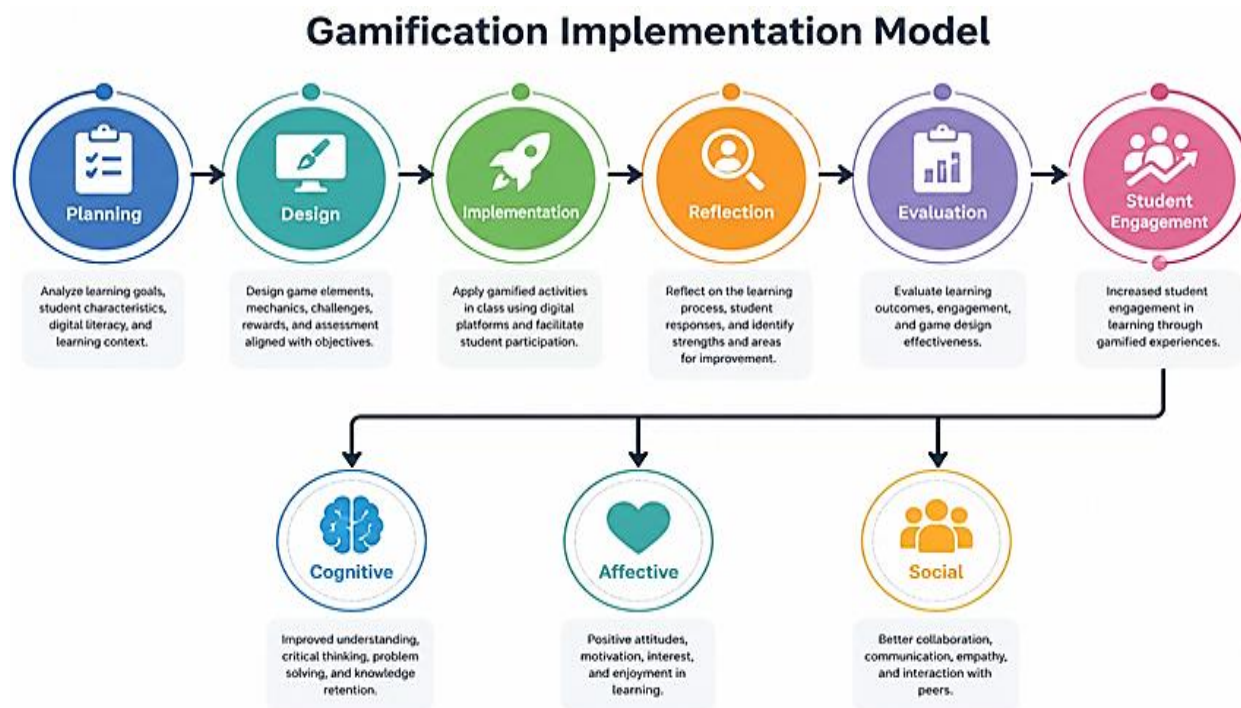


Figure 1. Gamification Implementation Model
Source: Researcher (2026)

1. Planning Stage

At this stage, the teacher conducts an in-depth analysis of learning outcomes (CP), student characteristics, and infrastructure readiness. Observations indicate that gamification is not implemented immediately; instead, the teacher first establishes learning objectives, prepares student worksheets (LKPD), forms study groups, and selects game types suited to the historical content. Interviews confirm that this preparatory phase ensures students engage in collaborative discussions

before interacting with the game. Thus, game elements are positioned as a pedagogical strategy to support Student-Centered Learning rather than mere entertainment.

The findings indicate that the successful implementation of gamification depends on the quality of instructional design rather than the sophistication of digital platforms. This aligns with Sailer & Homner (2020), who explain that the positive impact of gamification is heavily influenced by its integration with pedagogical strategies rather than solely by the use of game elements. Furthermore, gamification designed around learner characteristics and learning objectives yields higher student engagement compared to implementations focused merely on awarding points or rewards (Cal Y. Mayor-Peña et al., 2024). Therefore, enhancing history teachers' competence should focus on developing designs that systematically integrate learning objectives, collaborative activities, and gamification mechanisms

2. Design Stages

Observations indicate that the gamification design phase focuses on creating activities that foster active student engagement alongside platform preparation for QuizWhizzer and Wordwall. The teacher structured the learning process by integrating a Cooperative Learning model, encompassing group formation, worksheets, and game rules, aligned with history learning objectives. For the topic "Under Japanese Tyranny," students discussed historical sources in groups before participating in the quiz, transforming the game into a means of confirming conceptual understanding rather than testing rote memorization. In an interview, the history teacher, Ms. H, stated, "When creating the QuizWhizzer game, I didn't start by drafting questions. I began with the learning objectives, then determined the group discussion activities and worksheets. Only then did I design the game challenges so that students would not just race for grades but also understand the material together". A Grade 11 student remarked, "Before playing, we discuss things within our group first. So, when answering questions, we remind each other of the material we've studied". A Grade 12 student added, "The game makes us want to win, but we have to work together to ensure every group member understands the answers".

These findings indicate that gamification serves as an instructional design that supports Student-Centered Learning by reinforcing academic interaction rather than replacing the learning process. This aligns with Zainuddin et al. (2020), who assert that gamification yields optimal benefits when designed as part of a learning strategy with clear pedagogical goals, rather than as a mere addition of points, badges, or leaderboards. Furthermore, this research demonstrates that such designs can be effectively applied in rural secondary schools by optimizing peer collaboration despite limited technological facilities. Consequently, teacher competency development should focus on enhancing skills in instructional design that systematically integrates learning objectives, Cooperative Learning models, and game mechanisms, rather than merely mastering digital applications.

3. Implementation Stage

Observations across ten sessions indicate that the implementation phase integrates cooperative learning with gamification via QuizWhizzer and Wordwall. Lessons proceed through learning objectives presentation, apperception, group formation, worksheet discussions, and digital quizzes featuring leaderboards, feedback, and rewards. This process transformed passive students into active participants, enhancing cognitive, affective, and behavioral engagement as they collaboratively analyzed historical events. A history teacher explained, "When using QuizWhizzer or Wordwall, I noticed that almost all students were engaged. They discussed the questions with one another because they wanted their groups to achieve the best results. So, it wasn't just about playing; they were genuinely learning together". A Grade X student remarked, "Usually, in history class, we just listen to the teacher's explanations. Now, we have to discuss things before answering questions, so we feel more confident expressing our opinions". A Grade XI student said, "The leaderboard really boosts our enthusiasm. But to win, we have to help each other understand the material rather than relying on just one person". A Grade XII student added, "After the game ends, the teacher reviews the incorrect answers. That helps us identify our mistakes and makes it easier to remember the material".

These findings demonstrate that integrating gamification with a Cooperative Learning model acts as a catalyst for Student-Centered Learning, transforming interactions into a participatory process driven by collaboration rather than solely by competition. This aligns with Qiao et al., (2024), which demonstrated that implementing gamification based on competition, cooperation, and collaboration significantly enhances learner engagement compared to gamification relying solely on competition. Additionally, Sailer & Sailer, (2021), found that using gamified quizzes with immediate feedback and

team leaderboards boosts intrinsic motivation, social interaction, and the quality of the learning process. Unlike previous studies in established digital environments, this research confirms that such pedagogical designs can also be effectively implemented in rural secondary schools with limited resources. Ultimately, sustaining active engagement in history instruction relies on integrating collaborative activities and gamification mechanisms rather than merely utilizing sophisticated digital platforms.

4. Reflection Stage

Observations and interviews indicate that the reflection stage is a crucial component that bridges the gaming experience with meaningful learning. Instead of merely announcing final scores, teachers facilitate class discussions to review quiz answers, identify conceptual errors, and collaboratively summarize historical material. This process encourages students to explain their reasoning, evaluate their understanding, and receive feedback, thereby strengthening cognitive, affective, and behavioral engagement. A history teacher noted: "After the game ends, I don't immediately close the lesson. We review questions that were frequently answered incorrectly so students understand the reasoning behind the correct answers and can correct their understanding". A Grade XI student remarked: "After playing, we review the incorrect answers. That helps me understand why my answer was wrong and makes the material stick better". A Grade XII student added: "Reflection allows us to look beyond just the scores and identify the areas we haven't yet grasped".

These findings align with Alf et al., (2023), which demonstrates that repetitive reflection within game-based learning fosters deeper understanding by connecting gaming experiences with academic concepts. This is further supported by Franco-Mariscal et al., (2023), who emphasize that individual and group reflection are crucial for evaluating learning experiences, refining problem-solving strategies, and transferring knowledge. Unlike previous studies focused primarily on higher education, this research demonstrates that structured reflection is equally effective in secondary schools. Consequently, reflection must be positioned as an integral part of gamification, allocating specific time for debriefing and constructive feedback, rather than a mere concluding activity, to support the continuous development of students' historical thinking skills.

5. Evaluation stage

Research findings indicate that the evaluation of gamification at SMAN 11 Tana Toraja extends beyond measuring academic outcomes to assess the learning process, student engagement, and gamification effectiveness. Teachers utilize game data from platforms like QuizWhizzer and Wordwall not merely to assign grades, but to identify misunderstood concepts, such as historical cause-and-effect relationships, and refine instructional strategies for subsequent sessions.

While elements like leaderboards and immediate feedback boost motivation, teachers balance these competitive features with collaborative activities to prevent undermining student confidence. A history teacher explained: "When reviewing QuizWhizzer results, I don't just look at who achieved high scores; I also examine which questions were answered incorrectly most often. This tells me which topics need to be re-explained. If the focus is solely on winning, some students lose confidence. That is why I also assess group cooperation, active participation in discussions, and the willingness to express opinions". A Grade X student remarked: "If our answers are incorrect, the teacher explains the concept again immediately. This allows us to understand our mistakes and correct them in the next session". A Grade XII student added: "We are assessed not only on quiz scores but also on how we discuss and collaborate within our groups".

Thus, evaluation functions as a continuous improvement mechanism for Student-Centered Learning, ensuring that the success of gamification is measured by the quality of interaction and collaborative skills rather than devolving into a purely competitive activity.

These research findings align with Topu, (2024), who indicated that evaluating gamification implementation requires considering the dimensions of behavioral, emotional, and cognitive engagement; these dimensions provide a more comprehensive picture of learning effectiveness than academic grades alone. That study also showed that elements such as challenges, competition, leaderboards, and reward systems positively contribute to student engagement when evaluated continuously throughout the learning process. These findings are further supported by (Moon et al., 2024), who explained that gamification evaluation should utilize learning process data such as student participation patterns, interaction frequency, and responses to feedback enabling teachers to continuously refine instructional design. Evaluations focused solely on final outcomes are considered insufficient to fully capture the effectiveness of gamification implementation. Additionally, these results extend the findings of Bai et al., (2022), whose meta-analysis demonstrated that gamification effectiveness is

influenced by the quality of the evaluation design and the alignment between game elements and learning objectives. In the context of history instruction at SMAN 11 Tana Toraja, evaluation serves not only to measure learning outcomes but also as a basis for teachers to refine instructional strategies, ensuring that gamification implementation remains adaptive and sustainable. These findings imply that the evaluation of gamification implementation should be designed as an integral part of the learning cycle, rather than merely as an assessment activity at the end of a lesson. History teachers need to utilize evaluation results to identify students' learning difficulties, assess the effectiveness of gamification elements, and improve instructional design for subsequent sessions. Thus, evaluation serves as a quality control mechanism for instruction, supporting the continuous enhancement of student engagement, active participation, and creativity. The study's findings also indicate that the development of gamification-based history instruction should employ authentic evaluation that integrates the assessment of processes, participation, collaboration, reflection, and academic achievement. This approach enables teachers to gain a more comprehensive overview of student progress while ensuring that gamification remains focused on achieving learning objectives rather than merely competing for scores.

Gamification to Increase Student Activity in Learning History

Results from observations, interviews with history teachers and students (Grades X, XI, and XII), and document analysis indicate that implementing gamification through a Student-Centered Learning approach fosters student engagement across three key dimensions: cognitive engagement, behavioral engagement, and social-affective engagement.

1. Cognitive Engagement

Increased cognitive engagement was evident when students did not simply answer questions on platforms like QuizWhizzer or Wordwall but first discussed their answers with group members. Students exchanged opinions, provided justifications based on historical sources, and evaluated various potential answers before reaching a decision. For the topic "Under Japanese Tyranny," for instance, the teacher posed a question regarding the impact of Romusha policies on the lives of the Indonesian people. Before selecting an answer on QuizWhizzer, each group discussed the sources they had studied, ensuring that their responses were the result of collaborative analysis rather than mere rote memorization. Grade XI students remarked, "We usually discuss things first before answering to ensure the answer is correct. If a classmate holds a different view, we look for the reasoning in the material we've studied." These findings demonstrate that gamification not only encourages students to answer questions quickly but also stimulates critical thinking through group discussion.

2. Behavioral Engagement

Active engagement was evident in the increased participation of students throughout the lesson. All students took part in game activities, actively asked questions when encountering difficulties, responded to the teacher's explanations, and participated in group discussions. Observations revealed that the classroom atmosphere became more dynamic compared to conventional lessons. Students who were previously inclined to be passive began to feel confident enough to express their opinions, as the game activities provided equal opportunities for every group member to contribute. A Grade XI student remarked, "Usually, in standard lessons, I rarely ask questions, but with QuizWhizzer, I feel more confident because we discuss things with our friends." The teacher also noted that the use of gamification reduced teacher dominance during the lesson. The history teacher stated, "I act more as a facilitator. It is the students who actively discuss, seek answers, and then explain their reasoning".

3. Social Affective Engagement

The third dimension is evident in the increased cooperation, communication, and enthusiasm among students during the lesson. The competition fostered by the leaderboard did not lead to negative rivalry; instead, it encouraged students to assist one another so their groups could achieve the best results. Observations revealed students sharing tasks, reading historical sources together, and supporting group members who were struggling. Grade XII students remarked, "If a classmate doesn't understand something, we explain it to them first so that everyone can participate in answering." Beyond fostering cooperation, students displayed high levels of enthusiasm from the moment the teacher explained the game rules through to the final reflection activity. These observations indicate that gamification successfully created a more enjoyable learning atmosphere without compromising the substance of the history lesson. Based on these three dimensions, it can be inferred that student engagement did not arise solely from the game elements themselves, but rather from the integration of gamification with a student-centered learning approach. The teacher utilized tools like QuizWhizzer and Wordwall not merely

for assessment, but as integral components of a learning process that encompassed material exploration, group discussion, problem-solving, presentations, and reflection. Thus, gamification served as a facilitator for an active learning environment, providing students with opportunities to think, discuss, collaborate, and construct knowledge independently.

Supporting and Inhibiting Factors in the Implementation of Gamification in History Lessons Using a Student-Centered Learning Approach

1. Supporting Factors

The results of observations, interviews, and documentation indicate that the implementation of gamification in history lessons at SMAN 11 Tana Toraja is supported by several interconnected factors: teacher competence in lesson design, the characteristics of the gamification platforms, student enthusiasm, school support, and the application of a student-centered learning approach via the cooperative learning model.

The first factor is the teacher's pedagogical competence. Teachers do not merely use QuizWhizzer and Wordwall as assessment tools; they integrate these platforms into various stages of the lesson, ranging from the initial engagement (apperception) and group discussions to the final reflection. This planning ensures that gamification activities remain focused on learning outcomes rather than becoming mere games. The history teacher noted, "Before using QuizWhizzer, I align the material, learning objectives, and discussion questions. This way, students aren't just playing; they are actively learning history." The second factor involves the characteristics of the gamification platforms. Features such as leaderboards, feedback mechanisms, automated scoring, and game visualizations provide immediate feedback, allowing students to track their progress throughout the lesson. This encourages students to remain engaged until the activity concludes. The third factor is student enthusiasm. During observations, most students displayed high curiosity when the teacher explained the game rules, actively engaged in discussions before answering questions, and showed a drive to achieve the best results without neglecting group cooperation. A Grade XI student remarked, "We feel more motivated when learning with QuizWhizzer because we can discuss things before answering the questions." The fourth factor is school support, which includes the provision of internet access, LCD projectors, and computer laboratories, as well as school policies that grant teachers the flexibility to develop technology-based instructional innovations. The fifth factor is the implementation of student-centered learning through cooperative learning. Group discussion activities prior to the game allow students to exchange opinions, explain historical concepts, and formulate strategies together. Consequently, the gamification-based competition is not an individual pursuit but rather part of a collaborative process.

2. Inhibiting Factor

In addition to supporting factors, this study also identified several challenges in the implementation of gamification. The first obstacle was limited internet network quality. During some sessions, unstable connections caused delays for some students in accessing the platform, thereby affecting the smooth flow of learning activities. The history teacher noted, "Sometimes the signal is poor, causing some students to be late joining the game." The second obstacle was the disparity in students' digital literacy skills. Not all students had prior experience using digital learning platforms, requiring the teacher to provide technical guidance before the lesson began. The third obstacle was limited instructional time. The teacher had to allocate time to explain game rules, form groups, ensure all devices were connected, and conduct a reflection session after the game concluded. The fourth obstacle was the availability of digital devices. Some students had to share mobile phones, causing the learning process to occasionally proceed more slowly than originally planned. Nevertheless, these challenges did not halt the implementation of gamification. The teacher made various adjustments, such as using small groups, sharing devices, reducing the number of questions, and utilizing the school network as an alternative when personal connections were unstable.

Discussion

Implementation of Gamification

In this study, gamification is understood as a pedagogical strategy designed to support Student-Centered Learning (SCL), rather than merely the use of digital games for entertainment. The success of gamification relies on integrating game elements with learning objectives, collaborative activities, and meaningful feedback to encourage active knowledge construction (González-Fernández et al., 2022; Ghai & Tandon, 2023). Tailoring these elements to learner characteristics provides a personalized and adaptive learning experience (Oliveira et al., 2023). From a constructivist perspective, this

approach aligns with the Zone of Proximal Development, as teacher and peer scaffolding enables students to surpass their independent learning limits (Wahyudi et al., 2025). Consequently, gamification's effectiveness depends heavily on its instructional design and its ability to foster enjoyment and self-confidence, which mediate deeper learning engagement (Aguilos & Fuchs, 2022; Chen & Liang, 2022; Zeng et al., 2024; Noviandy et al., 2024).

Gamification is maximized when integrated with the Cooperative Learning model, a pedagogical approach rooted in social constructivism where students construct knowledge collectively. Systematic reviews and studies confirm that gamification strategies emphasizing group cooperation and team-based leaderboards are more effective at fostering motivation, mutual support, problem-solving abilities, and learning satisfaction than those oriented solely toward individual competition (Ratinho & Martins, 2023; Li et al., 2024; Wang & Wu, 2022).

This synergy is highly relevant in history education, which requires students to analyze sources, interpret events, and construct evidence-based arguments, activities difficult to foster through traditional teacher-centered lectures. Gamification should therefore be positioned not solely as a competitive tool, but as a means to build academic interactions that facilitate collaborative historical understanding. Ultimately, 21st-century history instruction must direct the use of gamification to balance elements of competition, collaboration, reflection, and knowledge construction, ensuring students gain active and sustainable learning experiences.

Student Engagement

Student activeness in learning does not emerge spontaneously; rather, it is the result of student engagement that develops throughout the learning process. In contemporary educational studies, student engagement is viewed as a mechanism explaining how a learning strategy can bring about changes in students' learning behaviors. Thus, increased activeness is not merely influenced by the use of specific media or technology, but by the extent to which a learning strategy fosters cognitive, affective, and behavioral engagement among students. This finding aligns with research by Rohmah, (2022) in vocational high schools, which demonstrated that gamification influences academic achievement by enhancing student engagement, an effect that is further strengthened when moderated by students' learning motivation.

Recent research indicates that gamification is an approach capable of boosting student engagement when designed according to sound pedagogical principles. Chen & Liang, (2022) developed a conceptual model explaining that gamification enhances study engagement by increasing enjoyment and self-efficacy. In this model, game elements do not directly improve learning outcomes; instead, they create an engaging learning experience that motivates students to focus better, participate more actively, and persist in completing learning activities. This demonstrates that student engagement acts as a mediating variable linking gamification design to changes in students' learning behaviors.

This concept reinforces the view that student activeness is a manifestation of previously developed learning engagement. Students with cognitive engagement tend to analyze information, evaluate various potential answers, and connect new knowledge with prior experiences. Simultaneously, affective engagement fosters interest, enthusiasm, and a sense of ownership regarding the learning process, while behavioral engagement is reflected through active participation in discussions, task completion, and interactions with teachers and classmates. Therefore, these three dimensions complement one another in shaping student activeness during the learning process.

The relationship between student engagement and history education is increasingly significant, given that the subject requires not only the mastery of facts but also the ability to think historically. Learners need to analyze historical sources, understand cause-and-effect relationships, compare diverse perspectives, and construct arguments based on available evidence. These activities demand a high level of intellectual engagement; consequently, instructional strategies focused solely on information delivery often fail to foster meaningful learning. In this context, gamification offers a learning environment that encourages students to actively engage in thinking, discussion, and the collaborative resolution of academic challenges.

These findings are supported by research conducted by Bai et al., (2022), which demonstrates that integrating narrative elements (fantasy), challenges, and feedback within gamification enhances the quality of student interaction while deepening the learning process. The study underscores that gamification designs prioritizing the learning experience rather than merely awarding points or rewards generate higher levels of engagement and foster sustained student participation in learning activities. Thus, the success of gamification hinges on its ability to create a meaningful learning experience, rather

than simply an enjoyable atmosphere. del Olmo-Muñoz et al., (2023), on gamification for computational thinking indicates that game elements tailored to students' needs can enhance both computational thinking skills and sustained learning motivation.

In the context of history education, student engagement contributes to the development of historical thinking skills. When students engage in activities such as document analysis, discussions on diverse historical interpretations, or problem-solving based on historical events, they do more than simply recall information; they construct a deeper conceptual understanding. Consequently, active participation during lessons should be viewed as an indicator of high-quality learning engagement, rather than merely a matter of talking frequently or playing games.

This perspective is reinforced by research conducted by Hoke & Risk, (2026), which demonstrates that game-based learning in history education simultaneously enhances both affective and cognitive engagement. Students become more interested in the learning process while also becoming more active in evaluating historical evidence, constructing arguments, and connecting historical concepts to real-life contexts. These findings indicate that student engagement serves as the fundamental basis for developing academic activity oriented toward understanding, rather than just physical participation.

Based on this explanation, the relationship between gamification, student engagement, and active student participation can be understood as a tiered process. Gamification provides an engaging and meaningful learning experience; this experience boosts students' cognitive, affective, and behavioral engagement; and high levels of engagement, in turn, foster active participation across various learning activities. Thus, increased student activity is not a direct consequence of using game elements, but rather the outcome of a learning engagement process fostered through student-centered instructional design.

Supporting and Inhibiting Factors

The successful implementation of gamification is not determined solely by the use of game elements but results from the interaction among pedagogical factors, technology, school organization, and learner characteristics. The most influential component in this study is teacher competence in integrating gamification with a Student-Centered Learning approach. Teachers act as designers of the learning experience, defining learning objectives, selecting appropriate game elements, managing group discussions, providing feedback, and facilitating reflection.

Another supporting factor is the collaborative culture fostered through the Cooperative Learning model. In this study, competition is not positioned as the primary goal but rather as a catalyst for discussion, the exchange of ideas, and cooperation among learners. These conditions demonstrate that gamification is more effective when integrated with pedagogical strategies emphasizing social interaction than when used as an individual activity. This interpretation expands upon previous research which generally focused on enhancing learning motivation by highlighting that the quality of interaction among learners is a crucial factor in the successful implementation of gamification.

Conversely, obstacles such as limited internet connectivity, digital devices, and digital literacy indicate that gamification implementation is heavily influenced by the school context. Recent systematic reviews also report that infrastructure constraints and technological readiness are the most frequent challenges encountered when applying gamification in schools, particularly at the primary and secondary education levels. Therefore, the success of gamification cannot be separated from institutional support, the provision of facilities, and the development of digital competence among both teachers and learners.

The findings of this study offer practical implications: the development of gamification-based history instruction should not focus solely on the selection of digital platforms but also on strengthening teachers' capacity to design student-centered learning, providing supporting infrastructure, and fostering a collaborative classroom culture. In this way, gamification can serve as a sustainable and adaptive pedagogical strategy, even for schools in rural areas with limited resources. Research by Febriansah et al., (2024) on gamification publications in Indonesia indicates that higher education still dominates the implementation of gamification compared to secondary education; thus, research conducted in rural secondary schools like this one makes a significant contribution toward bridging that gap.

CONCLUSION

The implementation of QuizWhizzer-based gamification supports the application of Student-Centered Learning in history education through a systematic process comprising planning, design, implementation, reflection, and evaluation. This implementation not only enhances students' cognitive engagement through critical thinking and historical problem-solving activities but also strengthens affective engagement by boosting motivation and enthusiasm for learning. Furthermore, game mechanisms that foster collaboration enhance social engagement through discussion, teamwork, and interaction among students. Thus, the success of gamification is determined not merely by the use of digital media, but by the alignment of instructional design, learning objectives, and the pedagogical strategies employed by the teacher.

This study contributes to the field of educational gamification by demonstrating that successful implementation stems from a structured pedagogical process rather than the mere inclusion of game elements in instruction. It proposes a gamification implementation model that integrates planning, design, implementation, reflection, and evaluation into a unified process capable of enhancing student engagement across cognitive, affective, and social dimensions. Consequently, the findings broaden the understanding of the relationship between gamification and Student-Centered Learning, particularly within the context of secondary school history education.

The study's findings offer practical implications for teachers, schools, and curriculum developers. For teachers, gamification implementation requires thorough instructional planning to ensure game elements align with learning outcomes and the nature of the historical content. Schools need to provide support by enhancing teacher competence through training focused on digital instructional design and the pedagogical application of gamification tools. Meanwhile, curriculum developers might consider gamification strategies as an approach that supports Student-Centered Learning, thereby fostering active participation, collaboration, and more meaningful learning experiences.

This study has several limitations. First, the research was conducted as a case study at a single school; therefore, the findings cannot yet be generalized to different school contexts. Second, the participants were limited to one history teacher and one class, meaning they do not represent the diversity of instructional practices across various school settings. Third, this study focused on the gamification implementation process and student engagement during instruction, without examining long-term impacts on learning outcomes or historical thinking skills.

Future research is recommended to test the gamification implementation model across various educational levels, subjects, and school characteristics to achieve broader validity. Studies employing mixed-methods approaches or longitudinal designs are also needed to examine the long-term effects of gamification on learning outcomes, historical thinking skills, learning motivation, and student engagement. Furthermore, future research could develop and validate the Gamification Implementation Model produced in this study by considering factors such as teacher competence, technological readiness, school culture, and learner characteristics as variables influencing the successful application of gamification within student-centered learning environments.

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