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Exploration of the Application of Gamification Methods in Pancasila Education Learning

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Abstract

This study examines the implementation of gamification in Pancasila Education at the senior high school level within a resource-constrained learning environment. It aims to analyze the design and implementation of gamification, identify challenges encountered during its application, and formulate optimization strategies to enhance student engagement and participation. Using a qualitative descriptive case study approach, data were collected through semi-structured interviews, classroom observations, and document analysis involving one Pancasila Education teacher and eight eleventh-grade students at a public senior high school in West Sinjai Regency. Data were analyzed using an interactive thematic analysis model consisting of data reduction, data display, and conclusion drawing. The findings indicate that gamification was implemented through structured stages of planning, implementation, and evaluation, incorporating game elements such as points, levels, challenges, badges, and leaderboards via digital platforms including Kahoot, ZepQuiz, Wordwall, and Bamboozle. The application of gamification enhanced student engagement across behavioral, emotional, cognitive, and social dimensions. However, several challenges emerged, including unstable internet connectivity, limited digital devices, uneven student digital literacy, and learner anxiety related to individual competition. To address these issues, teachers adapted instructional designs by employing group-based leaderboards, hybrid online–offline learning activities, and peer-assisted learning strategies. This study demonstrates that gamification can serve as an effective pedagogical approach in Pancasila Education when supported by adaptive instructional design and contextual sensitivity. The originality of this research lies in its evidence that gamification can be meaningfully implemented in value-based subjects within digitally limited school contexts.

Introduction

Pancasila education plays a fundamental role in shaping the character, national identity, and citizenship competencies of Indonesian students (Afan et al., 2024; Mulyana, 2024; Dewantara et al., 2019). As a subject designed to internalize Pancasila values, learning should ideally not only focus on the cognitive domain but also on the affective and psychomotor domains, enabling students to practice these values in real life. Within the framework of the Independent Curriculum, which emphasizes meaningful, contextual, and student-centered learning, pedagogical strategies are needed that are not only instructive but also facilitate active, collaborative, and reflective participation (Fajrulsyah, 2025; Ni'mah et al., 2024; Mir, 2025). This challenge is increasingly relevant given the characteristics of Generation Z, who grew up

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in a digital ecosystem with a preference for fast-paced, visual, interactive, and competitive learning.

In this context, gamification emerges as a potential learning approach to bridge the gap between curriculum ideals and the reality of classroom practice (Lampropoulos et al., 2022; Ghoulam et al., 2024). Gamification, as the integration of game elements such as points, levels, badges, leaderboards, and challenges into the learning process, has been proven in various studies to increase student motivation, engagement, and retention (Profil et al., 2024; Rahman et al., 2018; Alsawaier, 2018) . Its application enables Pancasila Education learning to be more lively, dynamic, and enjoyable, and encourages students to be cognitively and socially active. Through the game structure, students are encouraged to compete healthily, work collaboratively in groups, and complete academic challenges gradually, in line with constructivist and behaviorist principles that emphasize reinforcement, experiential learning, and the process of meaning-making (Jasmin et al., 2025) .

The normative basis for the need for interactive and participatory learning is firmly established in various national education regulations. Law Number 20 of 2003 affirms that education must develop the nation's abilities, character, and civilization with dignity. The National Education Standards and Process Standards in various derivative regulations also mandate inspiring, challenging, and enjoyable learning, while also providing space for exploration for students. Minister of Education, Culture, Research, and Technology Regulation Number 26 of 2022 even explicitly emphasizes that Pancasila Education must be implemented in a participatory and contextual manner in accordance with current developments (Pendidikan et al., nd) . Thus, the implementation of strategies such as gamification is not merely optional, but part of meeting the process standards and curriculum objectives set by the state.

However, the reality in schools still shows a gap between normative ideals and learning practices in the field. Although some teachers have utilized digital tools such as LCDs, PowerPoint presentations, and Google Forms, the pedagogical approach used still tends to be conventional, teacher-centered, and dominated by lecture methods. As a result, students are given little space to actively participate, ask questions, express opinions, discuss, and explore the material in depth. This situation has implications for low student interest, motivation, and active participation in Pancasila Education learning, resulting in this subject often being perceived as boring, normative content.

Initial observations conducted in August 2025 at a senior high school in West Sinjai District indicated that gamification had been attempted, but not yet systematically and comprehensively. Game elements were applied only to specific materials, resulting in a significant impact on classroom dynamics. Student engagement in discussions, collaboration, and Q&A sessions was not consistently evident. Teachers' pedagogical unpreparedness, limited digital resources, and varying student technological literacy skills were factors that influenced the effectiveness of gamification implementation in the classroom (Kajian et al., 2024; Sambo et al., 2025; Robandi et al., 2025; Ruhama et al., 2025).

The gap between curriculum ideals, pedagogical needs, and actual learning practices highlights the importance of research exploring how gamification is actually perceived, implemented, and responded to by teachers and students (Profil et al., 2024) . Phenomenological research is relevant because it captures the subjective experiences and meanings constructed by participants while interacting with gamification strategies in Pancasila Education learnin (Adzibah et al., 2025; Mursidi, 2025; Handayani, 2025). Through this perspective, the dynamics of gamification implementation can be more comprehensively understood, including

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successes, obstacles, and opportunities for optimization (Jasmin et al., 2025; Uwakwe et al., 2025; Yadav et al., 2025).

Furthermore, research on gamification in the context of Pancasila Education remains limited, particularly at the secondary school level and within the Merdeka Curriculum framework (Mila & Zuhdi, 2025; Pratiwi, 2025). Most previous studies have focused on digital platforms or their general motivational impact, while real-world context-based analyses that consider teacher readiness, infrastructure conditions, school learning culture, and the characteristics of Generation Z students are still limited. Therefore, this study fills this gap by providing an empirical analysis based on authentic teacher and student experiences.

This research specifically aims to describe the implementation of gamification in grade XI of SMAN West Sinjai District, identify the obstacles encountered, and formulate optimization strategies to ensure gamification becomes an effective and sustainable learning approach. By examining the implementation dynamics in depth, this research is expected to provide theoretical contributions to the development of gamification studies in Pancasila Education, while also providing practical implications for teachers, schools, and policymakers in supporting learning innovation in the digital era.

Methods

The current study was designed as a qualitative descriptive case-study research to examine the application of gamification in the teaching of Pancasila Education in the high-school level. The qualitative paradigm was sought to methodically describe instructional practices, in-classroom processes, and situational filming which are in tandem with the implementation of gamification in a real school setting. Rather than a rendering of the ontological perceptions of the lived experiences of the participants, the study focused on the documentation, interpretation and explanation of pedagogical processes and the observable learning interactions as they naturally occurred in the classroom.

The research was set in one of the senior high schools in the West Sinjai Regency. The sample size included one Pancasila Education teacher and eight students in the 11 th grade, who were selected purposely because of their direct exposure to learning activities based on gamification. The purposive sampling was to be used to represent the range of digital literacy and classroom engagement rates, thereby allowing a solid insight into gamification application within heterogeneous students. The choice of the research site was based on the fact that the introduction of gamification was implemented, but it was not systematically institutionalized as of yet, which predetermined the identification of the site as an ideal setting to evaluate both the instructional practices and barriers to its implementation.

Triangulation of qualitative methodologies (semi-structured interviews, classroom observation, and documentary analysis) was used to amass data. The teacher and a sample of students were given semi-structured interviews to explore their views of gamification, teaching goals, the extent of engagement, and the difficulties they faced in the process. Classroom observations were completed to examine how the elements of gamification were operationalized, how the students reacted to the competitive and collaborative activities, and how the teacher was handling the various interactions in the classroom. The researcher was a moderate participant-observer during the inquiry ensuring that he could observe the classroom processes in detail but with limited disruptive effect on the teaching and learning processes.

Lesson plans, instructional modules, assessment tools, and digital learning media implemented in the process of gamification-based instruction were assessed as tools of documentation. These documents were not considered as secondary data; these were systematically compared to

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classroom practices in order to determine the alignment of the instruction design and implementation. The comparative analysis enabled the researcher to identify similarities and differences between the pre-laid out gamification strategies and their implementation in the classroom.

The analytic stage used an interactive thematic analysis protocol that was based on the Miles and Huberman model and it included data reduction, display and drawing of conclusions. This was first coded to identify similar patterns regarding design of gamification, student involvement, instructional adjustment and technical, non-technical constraints. Interview data were supported by observational data to determine how much the participants in the interview were congruent to the way they acted in the classroom. Integrative analysis of documentation results that followed added to interpretive coherence and contextual validity.

Credibility was strengthened through the use of method triangulation, source triangulation and member checking. Interview data, observation data, and document data were carefully contrasted to ensure consistency. The participants were chosen to evaluate preliminary interpretations thus making sure that the research was able to capture classroom realities. By taking these steps, the study aimed at providing plausible, open and contextually supported information on the application of gamification in Pancasila Education.

Results and Discussion

This section presents the empirical findings of the study based on in-depth interviews, classroom observations, and document analysis. The results are organized thematically to reflect how gamification was implemented in Pancasila Education learning, the obstacles encountered during its application, and the adaptive strategies developed by teachers and students within the context of a resource-constrained school environment.

Profile of Research Informants

The study involved one Pancasila Education teacher and eight Grade XI students selected through purposive sampling. The informants represent diverse levels of digital literacy and engagement in gamification-based learning activities, allowing for a nuanced understanding of implementation dynamics across different learner profiles.

Table. 1 Profile of Research Informants

Code	Role	Class	Digital Experience	Involvement in Gamification
G1	Teacher	XI	High	Designer and main facilitator
S1	Student	XI Science	High	Highly active and competitive
S2	Student	XI Science	Moderate	Active in group work
S3	Student	XI Social	Low	Initially passive, later engaged
S4	Student	XI Social	Moderate	Responsive to group-based games
S5	Student	XI Science	Low	Passive during individual leaderboard
S6	Student	XI Social	High	Actively assisted peers
S7	Student	XI Science	Moderate	Preferred collaborative competition
S8	Student	XI Social	Low	Required technical assistance

To provide contextual clarity and strengthen the transferability of the findings, the study involved one Pancasila Education teacher and eight Grade XI students who actively participated in gamification-based learning activities. The informants were selected purposively to represent diverse levels of digital experience and learning engagement.

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Tabel 2. Indicators of Changes in Student Engagement After Gamification Implementation

Aspect of Engagement	Before Gamification	After Gamification	Data Source
Classroom participation	Dominated by a few students	More evenly distributed	Observation
Willingness to respond	Hesitant, silent	Voluntary responses increased	Observation, interviews
Group interaction	Limited discussion	Active collaboration	Observation
Learning enthusiasm	Easily distracted	Focused and enthusiastic	Observation
Emotional response	Boredom, anxiety	Enjoyment and curiosity	Interviews
Learning confidence	Fear of making mistakes	Increased confidence	Interviews

Classroom observations revealed a noticeable shift in student engagement patterns following the implementation of gamification. Prior to gamification, participation was largely dominated by a small number of outspoken students, while the majority remained passive listeners. After gamification was introduced, participation became more evenly distributed, with students showing increased willingness to answer questions and engage in group discussions. These changes were particularly evident during quiz-based and scenario-driven game activities, where students demonstrated heightened focus and enthusiasm compared to conventional lecture-based sessions.

These changes in classroom dynamics were further reflected in students' own accounts of their learning experiences during gamification-based activities.

"Previously, I mostly stayed silent and only listened to the teacher's explanation. After the games were introduced, I became more willing to answer because the atmosphere felt more relaxed and I was not afraid of making mistakes." (S3)

"When we use games like Kahoot or Wordwall, I can focus better. It feels like playing while learning, so I don't get bored easily." (S1)

Dimensions of Student Engagement Observed

Further analysis shows that student engagement during gamification manifested across multiple dimensions rather than as a single behavioral outcome.

Table 3. Dimensions of Student Engagement During Gamification

Engagement Dimension	Observable Indicators	Empirical Evidence
Behavioral engagement	Answering quizzes, completing challenges	Observation
Emotional engagement	Enjoyment, reduced boredom	Student interviews
Cognitive engagement	Strategy discussion, problem-solving	Observation
Social engagement	Peer assistance, collaboration	Observation

As shown in Table 3, the interaction between students during gamification-based Pancasila Education was multidimensional instead of reduced to observable interaction only. Behavioral engagement is also indicated by the active participation of the students in quizzes and challenges whereas the emotional engagement is seen in the form of greater enjoyment that

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comes along with the decreased boredom during learning activities. Engagement of cognition is also seen when the students give out strategies, question about answers and trying to give solutions to problems together and not on the surface. This means that they are engaging in deeper mental activity than superficial involvement. Moreover, social involvement is also exhibited by peer assistance, group decision-making, and group problem-solving. Such results suggest that gamification induced holistic engagement through concurrent activation of behavioral, emotional, cognitive, and social aspects of student learning, which are always manifested in classroom observations, and student interview results.

Variation in Engagement Intensity Among Students

Despite the overall positive trend, engagement levels varied among students. Some learners demonstrated consistently high engagement, while others required time and peer support before becoming actively involved.

Table 4. Levels of Student Engagement Intensity

Engagement Level	Student Characteristics	Observed Pattern
High	Digitally confident, competitive	Led discussions and activities
Moderate	Socially engaged, cautious	Active mainly in group settings
Low	Low confidence or digital literacy	Initially passive, gradually engaged

Table 4 will outline the heterogeneity of the extent of student involvement that will be experienced in gamification activities of instruction. The degree of participation, though reported to be high by most of the learners in comparison to the traditional teaching and learning modes, had a significant individual difference. High-engagement participants were typically more successful in digital competencies, took group conversation and interaction initiatives, and showed a tendency to be competitive motivation in gamified assignments. However, people in the moderate engagement band exhibited a stronger commitment to collaborative situations but they expressed a less strong tendency towards independent action. In their turn, low-engagement people actually had a passive behavior in the first place, which can be explained by the lack of digital literacy or low self-efficacy to a great extent. However, through observation, one has seen that such students gradually developed more and more involvement when they had peer support and group-oriented activities. These trends suggest that gamification is not a consistent driver of increased engagement and that learner individual characteristics mediate the degree of engagement.

Implementation of the gamification method in Pancasila Education learning in class XI of SMAN, West Sinjai Regency

The results of the study show that the application of the gamification method in learning Pancasila Education in class XI of SMAN West Sinjai Regency takes place through three main stages, namely planning, implementation, and evaluation which are designed systematically to increase student activity, motivation, and understanding.(Shofiyah and Anwar, 2024)These three stages not only illustrate formal learning mechanisms but also reflect the dynamics of teacher and student experiences that directly influence the design and practice of gamification in the classroom. However, the gamification plans created by teachers are not only based on theory but also stem from real-life experiences that students tend to quickly lose focus when learning is conducted conventionally. Teachers revealed that children quickly become bored with simple discussions, so they prepared gamification games that included a points system, levels, and learning missions to give them a sense of challenge. Teachers prepared teaching

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materials in the form of modules, lesson plans, and digital media that contained gamification elements such as points, badges, leaderboards, levels, and prizes.(Basic, 2022). Furthermore, school facilities such as Wi-Fi, projectors, and digital devices also support the implementation of this strategy, allowing teachers to develop both offline and online versions of gamification due to obstacles such as unstable school internet connections. Thus, gamification planning is an adaptive response to limited infrastructure and student behavior, which is then formulated into a flexible gamification learning design.

Table 5. Implementation Stages of Gamification

Stage	Gamification Practices	Observed Impact
Planning	Designing missions, points, and rules	Learning became goal-oriented
Implementation	Quizzes, challenges, group-based games	Increased interaction and motivation
Evaluation	Feedback and leaderboard reflection	Reduced anxiety through group format

During the implementation phase, gamification activities were conducted through interactive quizzes, Pancasila value puzzles, scenario-based challenges, and group games that emphasized collaboration and healthy competition. The use of platforms such as Kahoot, ZepQuiz, Wordwall, and Bamboozle demonstrated that teachers strive to create an engaging and challenging learning environment. Field data showed that game elements such as points and levels provided a motivational boost for students. Some students stated that the presence of points made them more enthusiastic about participating, as they felt they were pursuing a level and striving for a higher ranking. However, field experience also revealed important emotional dynamics. When the leaderboard was displayed individually, some students felt embarrassed or pressured when ranked lower. One student stated that she felt embarrassed when her score appeared and was low, which led to her becoming passive. This affective response prompted the teacher to reflect on changing the competition structure from individual to group, thereby minimizing emotional stress and increasing collective motivation. This change demonstrates that the gamification design evolved organically based on the direct experiences of students and teachers, rather than simply following general guidelines from the literature. In the closing stage, the teacher reflects, provides formative feedback, and strengthens character through game-based closing activities.(Putri et al., 2025).

Table 6. Teacher Pedagogical Adaptation Decisions

Classroom Issue	Teacher Decision	Pedagogical Rationale
Student anxiety	Shift to group leaderboard	Protect student self-esteem
Internet instability	Hybrid online–offline activities	Maintain learning continuity
Uneven digital skills	Peer-assisted grouping	Ensure inclusive participation
Time constraints	Simplified challenges	Instructional efficiency

These adaptations were not pre-designed but emerged from ongoing reflection on student responses and classroom conditions.

Negative and Contradictory Student Responses

In line with qualitative rigor, the study also identified several negative and contradictory cases that complicate the overall findings. Although gamification generally enhanced student engagement, not all students responded positively, particularly during the early stages of implementation and individual competitive settings.

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Table 7. Negative and Contradictory Cases

Case	Description	Analytical Implication
S5	Anxiety during individual leaderboard	Gamification may demotivate some students
S8	Difficulty operating platforms	Digital literacy mediates effectiveness
Early sessions	Passive participation	Adaptation requires time

Table 7 records the adverse and opposing results that were witnessed in the use of gamification in Pancasila Education. Although all general data show an increase in student engagement, some part of the learners showed the opposite of this general trend. Indicatively, L1 learners who expressed less confidence levels expressed increased anxiety when individual leaderboards were publicly displayed, which was linked to reduced engagement in further activities. Further, the respondents who were not well digitally literate initially struggled to navigate the gamification platforms and this behavior was observed as passive behavior in the first few sessions. These examples demonstrate that gamification is not a universally driving method, but its effectiveness will depend on the emotional preparedness of learners, their digital skills, and their knowledge of competitive learning environments. This multiplicity of contradictory cases eventually enhances the methodological soundness of the study due to the complexity and contextual variability of gamification-based learning.

Observed Behaviors Aligned with Pancasila Values

Although the study did not measure value internalization directly, observations revealed student behaviors aligned with core Pancasila values during gamification activities.

Table 8. Observed Behaviors Aligned with Pancasila Values

Pancasila Value	Gamification Activity	Observed Behavior
Cooperation	Group challenges	Shared decision-making
Responsibility	Mission completion	Task accountability
Fairness	Rule-based scoring	Acceptance of outcomes
Respect	Turn-taking in games	Reduced conflict

Table 8 provides a summary of classroom behaviours that were observed during gamification activities that were in agreement with the core values of Pancasila. Even though the internalization of these values was not directly measured in the study, observational data leads to concluding that learning based on gamification did create interactional contexts that promoted cooperation, responsibility, fairness, and mutual respect among students. The use of group based challenges made decisions to be done as a group and since they had a common responsibility to complete the tasks and the use of a rule based scoring systems made the players accept the results and play fairly. Moreover, interpersonal conflict was alleviated with the help of turn-taking and peer support during the games and respectful participation was promoted. These results show that gamification promoted value-consistent practices in classroom interactions, in particular, in the case of learning activities that were designed and regulated by explicit rules collaboratively.

Tabel 9. Student Behavioral Responses to Different Gamification Elements

Gamification Element	Dominant Student Response	Observed Impact
Points system	Increased motivation	Encouraged task completion
Levels & challenges	Sense of progression	Sustained attention

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Individual leaderboard	Anxiety among low-ranking students	Reduced participation for some
Group-based leaderboard	Collective motivation	Improved collaboration
Badges/rewards	Positive reinforcement	Boosted confidence

Different gamification elements elicited varied emotional and behavioral responses from students. While points, levels, and challenges generally fostered motivation and sustained attention, the use of individual leaderboards produced mixed reactions. Several students expressed discomfort and anxiety when their scores were publicly displayed, leading to reduced participation. In response, the teacher modified the competition format into group-based leaderboards, which resulted in increased collaboration and reduced emotional pressure. This adaptive design decision emerged directly from classroom experiences rather than pre-planned instructional models.

A more in-depth analysis of these findings indicates that the gamification design implemented by teachers aligns with modern pedagogical principles, particularly constructivist and behaviorist theories. From a constructivist perspective, gamification-based learning provides a space for students to construct knowledge through active, contextual, and meaningful learning experiences. Challenges, puzzles, and scenario-based games enable students to develop an understanding of Pancasila values through situations that resemble real-life situations. Engagement in discussions, collaboration, and problem-solving strengthens the social aspect of knowledge construction, as emphasized by Vygotsky regarding the importance of social interaction in learning. Meanwhile, from a behaviorist perspective, gamification elements such as points, badges, leaderboards, and prizes serve as reinforcement that can change students' learning behavior. Awarding points and recognizing achievements reinforces positive responses such as courage to answer questions, focus, and active participation in class activities.(Dr. Hj. Baiatun Nisa et al., nd)This aligns with Thorndike and Skinner's principle that behavior tends to be repeated when given pleasurable reinforcement. Thus, the gamification approach explicitly combines two distinct theoretical foundations that work synergistically to enhance learning engagement.(Functionalistic et al., 2025).

Table 10. Changes in Student Engagement Across Digital Literacy Levels After Gamification Implementation

Digital Literacy Level	Initial Engagement	Engagement After Gamification	Notable Observation
High	Active	Highly competitive and supportive	Assisted peers
Moderate	Moderately active	More confident and participatory	Preferred group games
Low	Passive	Gradually engaged with support	Needed technical assistance

Student engagement varied according to levels of digital literacy. Students with high digital experience quickly adapted to gamification platforms and often assisted peers during activities. Those with moderate digital literacy demonstrated increased confidence over time, particularly in collaborative game settings. Students with low digital literacy initially appeared passive and hesitant; however, with peer support and simplified instructions, they gradually became more involved in learning activities. These findings indicate that gamification does not uniformly affect all students, but its effectiveness can be enhanced through collaborative and inclusive design.

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Students' engagement with gamification also differed according to their level of digital literacy, as reflected in their personal experiences during classroom activities.

> "At first, I was confused about how to play, so I just watched my friends. But after they helped me and explained it slowly, I started to participate." (S8)

> "I am already familiar with these kinds of applications, so I also helped my friends who had difficulties, so our group could keep going." (S6)

This study also shows that the success of gamification implementation depends not only on the game elements themselves, but also on the quality of teacher planning in balancing fun and depth of material. When teachers are able to contextualize Pancasila material with students' lives, gamification is not just a game, but a means to strengthen the essence of character education. This is relevant to Keller's ARCS (Attention, Relevance, Confidence, Satisfaction) theory, where well-designed gamification can attract attention, provide relevance, build student confidence, and generate learning satisfaction.(Pauziah, 2025). Furthermore, the evaluation process through reflection and formative feedback shows that gamification plays a role not only in cognitive aspects, but also in affective and social aspects. Strengthening character traits such as cooperation, sportsmanship, and responsibility emerged as significant non-technical impacts.(Aini and Husna, 2025).

On the other hand, this discussion also revealed that gamification implementation still requires managerial and technological support from schools. The availability of internet networks, digital devices, and teachers' readiness to master learning platforms are crucial for smooth implementation. This finding aligns with previous research, which emphasized that the success of gamification depends not only on teacher creativity but also on the availability of facilities, digital access, and a school culture that supports pedagogical innovation. Therefore, gamification implementation cannot be understood simply as the use of technology, but rather as a pedagogical approach that requires an adaptive and collaborative educational ecosystem.(Putra et al., 2025).

Overall, this study confirms that gamification can be an effective learning strategy in the context of Pancasila Education, especially for Generation Z students, who are characterized by speed, dynamism, and responsiveness to visual and interactive stimuli. If carefully designed and contextualized with Pancasila values, gamification not only increases student engagement but also deepens students' understanding and internalization of those values. However, its sustainable implementation requires teacher readiness, technological support, and integration aligned with the Independent Curriculum to optimally achieve learning objectives.

Obstacles in implementing gamification methods

Tabel 11. Main Obstacles Identified During Gamification Implementation

Category	Specific Obstacle	Observed Impact
Technical	Unstable internet	Interrupted game flow
Technical	Limited devices	Reduced individual participation
Non-technical	Student shyness	Reluctance to compete individually
Non-technical	Uneven digital literacy	Slower task completion
Pedagogical	Teacher workload	Increased preparation time

The implementation of gamification faced both technical and non-technical challenges. Unstable internet connections frequently disrupted digital activities, forcing teachers to switch to offline alternatives. Limited access to devices also constrained student participation. From a non-technical perspective, differences in digital literacy and student confidence influenced

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engagement levels. Teachers reported increased workload in designing and managing gamified lessons, highlighting the need for institutional support to sustain innovation.

Both teachers and students described a range of technical and non-technical challenges that influenced the effectiveness of gamification in classroom practice.

> "When the internet connection suddenly becomes unstable, the game stops and the classroom atmosphere is disrupted. I have to quickly find an alternative so the lesson can continue." (G1)
>
> "Preparing gamified lessons takes more time, but once it works, students are far more active compared to conventional teaching methods." (G1)
>
> "Sometimes I feel shy when I have to answer individually and make mistakes. But when it is done in groups, I feel more confident." (S2)

In implementing the gamification method in Pancasila Education learning in grade XI of SMAN West Sinjai Regency, several technical and non-technical obstacles were found that impacted the effectiveness of the learning process. From a technical perspective, the main obstacle lies in the school's limited digital infrastructure. Unstable internet connections often disrupt the smooth running of quizzes and games based on digital platforms such as Kahoot, ZepQuiz, Wordwall, and Bamboozle. This situation results in the learning process being forced to stop, and in some cases, teachers are forced to switch activities to offline methods such as manual quizzes or written discussions. Furthermore, not all students have adequate devices, so some must share devices with classmates, which reduces the intensity and speed of their participation in gamification-based activities. Limited equipment such as projectors and computers, as well as the lack of other supporting facilities, also often slows the progress of digital-based learning activities.(Aminullah et al., 2025).

In addition to technical barriers, there are also a number of non-technical obstacles that are no less significant. In the early stages of gamification implementation, some students expressed shyness, fear of making mistakes, and a lack of confidence, especially when scores or rankings were publicly displayed on a leaderboard. Differences in digital literacy levels also posed a challenge, as not all students had the same experience operating gamification applications and platforms.(Faradina et al., 2025)Some students take longer to understand game flow, app navigation, and assignment instructions. For teachers, adapting to gamification technology and design requires pedagogical readiness, technical skills, and sufficient time to learn the platform. Teachers' workload in designing gamification learning tools also increases because they must align game elements with learning objectives and Pancasila Education values. However, these non-technical obstacles can be gradually minimized through outreach, simple technical assistance, collaboration within learning communities, and internal school training. Overall, these obstacles demonstrate that gamification implementation requires comprehensive support, both in terms of infrastructure and human resource readiness, for optimal learning.

Optimization Strategy for Implementing Gamification in Pancasila Education Learning

The results of the study indicate that in implementing the gamification method in Pancasila Education learning in grade XI of SMAN West Sinjai Regency, there are various technical and non-technical obstacles that affect the effectiveness of the learning process. From a technical perspective, limited digital infrastructure is the most dominant obstacle. The school's unstable internet connection causes frequent disruptions to learning activities based on digital platforms such as Kahoot, ZepQuiz, Wordwall, and Bamboozle. Interactive quizzes, which should be fast and dynamic, are disrupted, forcing teachers to temporarily stop learning or switch to offline methods such as written quizzes and manual discussions. Furthermore, not all students have

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adequate devices; some have to share with friends, thus reducing the smoothness and intensity of their participation in gamification activities. Limited supporting devices such as projectors, laptops, and other technical facilities also contribute to obstacles in optimal gamification implementation. From a non-technical perspective, it was found that some students at the beginning of the implementation showed shyness, fear of making mistakes, and lack of confidence, especially when the leaderboard displays scores openly. Differences in digital literacy levels between students contribute to variations in how quickly they understand game flow, application navigation, and assignment instructions. Meanwhile, teachers need more time, technical skills, and pedagogical readiness to understand gamification applications and adapt game elements to Pancasila Education learning objectives.

Upon further analysis, these findings suggest that these barriers are not isolated but rather a consequence of an imbalance between innovative pedagogical design and the readiness of the educational ecosystem. From a constructivist perspective, technical barriers such as limited devices and internet connections hinder students' active exploration of digital learning environments.(Prinanda, 2025; Panjaitan & Christantini, 2025; Hanip et al., 2025). Constructivism emphasizes the importance of rich, interactive learning experiences to encourage students to construct knowledge; however, when digital devices cannot function optimally, these opportunities are diminished. This situation suggests that gamification-based active learning requires a conducive environment and adequate resources for full student engagement. From a behaviorist perspective, non-technical barriers such as shame, anxiety, and fear of mistakes can arise from unequal reinforcement, especially when leaderboards publicly display score differences. Reinforcement in gamification is supposed to provide positive reinforcement, but if not designed with pedagogical sensitivity, it can actually trigger negative responses in students with low self-esteem. This suggests that the competitive element in gamification must be balanced with inclusive and supportive reward mechanisms.

The discussion also revealed that non-technical barriers, such as differences in digital literacy levels, are part of the challenges of transitioning to 21st-century learning. According to the literature review, integrating technology into learning often requires not only devices but also adequate digital navigation skills. Learners unfamiliar with gamification platforms tend to experience additional cognitive barriers because they must simultaneously learn content and operate applications. Therefore, the technology adaptation process requires a scaffolding approach, providing gradual support until learners are able to operate the application independently.(Inayah, 2025)For teachers, the increased workload in designing gamified learning tools clearly illustrates that pedagogical innovation requires more complex instructional design competencies. Teachers are not only required to master Pancasila Education material but also to understand the dynamics of game elements, gamification flow, and the alignment between digital activities and learning outcomes. This demonstrates that the success of gamification is closely related to teachers' readiness as designers of learning experiences, not simply users of digital applications.(Firnando, 2024).

Furthermore, the discussion emphasized that the identified technical and non-technical barriers reflect the need for systematic institutional support. Inadequate digital infrastructure and limited facilities indicate the need for school investment in stable internet access, the provision of additional devices, and policies that support the digitalization of learning. Meanwhile, non-technical barriers such as shyness, lack of confidence, and differences in digital literacy indicate that the success of gamification is strongly influenced by students' psychological readiness and digital competence. Training programs, mentoring, and learning communities in schools are important factors in overcoming these barriers and strengthening a collaborative learning culture within the school environment.

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Overall, this research shows that implementing gamification in Pancasila Education requires more than just providing digital games or applications. It also requires adequate facilities, teacher capacity, student digital literacy, and a school culture that supports innovation. The technical and non-technical challenges that arise indicate that gamification requires a holistic approach that simultaneously considers pedagogical, psychological, technological, and managerial aspects. With comprehensive support, these obstacles can be minimized, making gamification an effective, meaningful, and relevant approach to the learning needs of today's generation.

Implications And Novelty

Novelty (Research Novelty)

The main novelty of this research lies in its focus on the implementation of gamification in Pancasila Education learning at the high school level in the context of schools with limited digital facilities and geographical conditions, such as SMAN West Sinjai Regency. Unlike previous research that emphasized the effectiveness of gamification in STEM-based learning or exact subjects, this study presents a new perspective on how gamification can be adaptively applied to values-, morals-, and character-based subjects such as Pancasila Education.(Syukri, 2025; Nisa, 2025).

The novelty of this research lies not in the claim that gamification in Pancasila Education is an underresearched area, but rather in how it refines existing understanding through a phenomenological analysis of teachers' pedagogical design decisions in the context of a digitally challenged school like SMAN West Sinjai Regency. Rather than emphasizing the technical barriers widely reported in the literature, this research identifies specific, experience-based instructional design adaptations, such as adjusting the reward system to align with Pancasila values, modifying the leaderboard into a collaborative form to protect student self-esteem, and designing “character missions” that encourage prosocial behavior during gamification activities. The research also reveals that teachers developed hybrid forms of gamification combining online and offline activities that were not solely driven by technological limitations, but rather by efforts to maintain the continuity of the learning experience and students' emotional engagement. By demonstrating how these strategies emerge from the lived experiences of teachers and students and influence learning dynamics, this research offers a model of values-based adaptive gamification that can be replicated in resource-constrained schools. It is this contribution that is at the core of the novelty of the research: not in the context, but in the adaptation mechanisms, design decisions, and implementation patterns that enrich the theory of gamification in value-based subjects.

Research Implications

The results of this study provide several important theoretical and practical implications for the development of gamification-based Pancasila Education learning. Theoretically, this study strengthens the relevance of constructivism and behaviorism theories in the context of values-based learning, as the findings indicate that gamification elements such as points, badges, challenges, and leaderboards can encourage students to actively construct understanding while receiving positive reinforcement that increases their discipline and learning engagement. This study also expands the application of the TPACK framework by demonstrating that the integration of technology, pedagogy, and content can remain effective even when schools face limited digital resources, provided that teachers are able to adapt by choosing lightweight platforms, combining online and offline activities, and managing internet usage time appropriately.(Prasetyaningtyas et al., 2025; Rosida & Rahmawati, 2025)From a social

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cognitive theory perspective, this study confirms that observational learning mechanisms and increased student self-efficacy can be achieved through the use of leaderboards displaying peer achievements, thereby increasing students' confidence and motivation to participate. Practically, this study demonstrates the need for teachers to improve their gamification design competencies, not only in operating the application but also in designing rules, games, and motivational strategies that align with the characteristics of Pancasila values. Teachers also need to prepare alternative activities when internet connections are unstable, so that learning can continue without sacrificing the essence of gamification. For schools, this study demonstrates the need to improve digital facilities, strengthen internet networks, and provide regular training for teachers to maintain the sustainability of learning innovations. Furthermore, this study emphasizes the importance of principal support in providing collaborative spaces through learning communities so that teachers can exchange experiences and mutually improve their competencies. For policymakers, this study underscores the importance of expanding digital literacy programs and gamification training for teachers, especially in character-based subjects, to support a more equitable implementation of the Independent Curriculum. Overall, this study provides a theoretical and practical foundation that can form the basis for developing further studies on the long-term impact of gamification on character, intrinsic motivation, and learning success in schools with limited digital infrastructure.

Conclusion

The results of the study indicate that the application of gamification in Pancasila Education learning at SMAN 6 Sinjai and SMAN 14 Sinjai significantly increased student engagement through the use of game elements such as points, levels, challenges, badges, and leaderboards, making the learning process more engaging, interactive, and motivating. This increase in engagement was evident in aspects of student attention, participation, interaction, cooperation, and initiative in participating in learning activities. However, several obstacles were identified, such as limited devices, internet connection, and teacher skills in designing gamification. However, these obstacles can be overcome through flexible classroom management, the use of alternative media, and teacher competency improvement. Based on these findings, it is recommended that teachers continue to develop gamification designs relevant to the learning outcomes of the Independent Curriculum, participate in digital media development training, and utilize gamification platforms optimally. Schools need to provide adequate infrastructure support so that learning innovation can be sustainable, while students are expected to improve discipline, responsibility, and collaborative skills. Further research can expand the focus on aspects of intrinsic motivation, character, and effectiveness of various gamification models so that the study of gamification in Pancasila Education becomes more comprehensive and can strengthen the development of innovative learning strategies at the high school level.

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