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From Passive to Active: Implementing AI-Supported Gamification Learning in Islamic Cultural History Learning

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Abstract:

Islamic Cultural History (SKI) instruction in Madrasah Aliyah continues to face challenges in fostering student engagement due to the predominance of teacher-centered learning practices. This study aimed to explore the implementation of AI-supported gamification learning in SKI instruction to transform students from passive to active learners while identifying the pedagogical mechanisms underlying this transformation. A qualitative case study design was employed. Data were collected through participant observation, semi-structured interviews, documentation, and reflective journals, and were analyzed using the interactive model of Miles, Huberman, and Saldaña. The findings indicate that Artificial Intelligence functioned as an instructional enabler that assisted teachers in designing instructional materials, learning media, gamified activities, and assessments without replacing their pedagogical role. The implementation of AI-supported gamification learning progressively enhanced students' behavioral, emotional, and cognitive engagement, as evidenced by greater participation in discussions, stronger learning motivation, increased self-confidence, improved critical thinking and collaboration, and deeper understanding of Islamic Cultural History. These findings suggest that the educational value of Artificial Intelligence lies not in the technology itself but in its capacity to support structured, adaptive, and student-centered instructional design. This study contributes to the literature on student engagement, gamification learning, and Artificial Intelligence in Education by proposing a pedagogical model for enhancing active learning in Islamic Cultural History instruction within the context of twenty-first-century education.

Keywords: Artificial Intelligence in Education; Gamification Learning; Student Engagement; Islamic Cultural History; Student-Centered Learning

Introduction

The digital transformation of education requires a shift in the learning paradigm from teacher-centered learning to student-centered learning (Yanuarini & Masykur, 2024). This transition extends beyond the integration of technology, emphasizing its role in creating meaningful learning experiences that enhance student engagement, motivation, and competency achievement (Jaiswal, 2020). According to Fredricks, Blumenfeld, & Paris (2004), student engagement comprises three interrelated dimensions: behavioral, emotional, and cognitive engagement. Therefore, effective learning should not merely ensure students' attendance but should actively promote their physical, cognitive, and emotional participation to achieve holistic learning outcomes, encompassing cognitive, affective, psychomotor, and twenty-first-century competencies.

Islamic Cultural History (Sejarah Kebudayaan Islam/SKI) learning in Madrasah Aliyah continues to face challenges related to low levels of student engagement during the learning process (Adawiyah, Sariyatun, & Musaddad, 2026). Classroom observations indicate that although most students attend lessons, many remain passive, primarily listening to the teacher, participating minimally in discussions, and frequently losing concentration or even falling asleep due to heavy academic workloads and extracurricular commitments. This challenge is particularly evident in Islamic boarding school-based madrasahs, where students must balance the academic demands of formal schooling with additional religious learning responsibilities in the pesantren environment. Moreover, SKI instruction remains predominantly lecture-based, relying on memorization and individual assignments, thereby providing limited opportunities for exploration, collaboration, and meaningful learning experiences. Consequently, students' learning motivation, competency achievement, critical thinking, communication, collaboration, psychomotor skills, and internalization of Islamic historical values have not been optimally developed. From Vygotsky's constructivist perspective, as discussed by Hung and Thuy (2026), knowledge is constructed through social interaction, experience, collaboration, and reflection. Therefore, SKI instruction should be redesigned to adopt a more student-centered approach that promotes active participation while fostering the development of twenty-first-century competencies.

Based on these findings, an instructional innovation is needed to accommodate the characteristics of Generation Z students, who are accustomed to digital, visual, interactive, and personalized learning environments while possessing diverse learning needs (Wajdi, Susanto, Sumartana, Sutiarmo, & Hadi, 2024). However, the use of digital media alone is insufficient to enhance student engagement unless it is supported by pedagogical strategies that actively encourage student participation (Seo et al., 2021; Syaleh & Sartika, 2026). One promising approach is gamification, which incorporates game elements such as challenges, collaboration, rewards, and feedback to enhance motivation, engagement, and meaningful learning experiences (Jun and Lucas 2024; Ramírez Ruiz, Vargas Sanchez, and Boude Figueredo 2024). To maximize its effectiveness, this study employs Artificial Intelligence (AI) as an instructional tool that assists teachers in designing, orchestrating, and personalizing learning activities adaptively while preserving their central role as instructional designers (Lameras & Arnab, 2022; Tang, 2024). The integration of gamification and AI is expected to transform students from passive recipients into active learners, strengthen behavioral, emotional, and cognitive engagement, and support the achievement of learning competencies as well as the internalization of Islamic historical values.

The significance of this study lies in the need to transform Islamic Cultural History

(SKI) instruction in accordance with the twenty-first-century learning paradigm, which emphasizes active student engagement and holistic competency development (Nasucha, Khozin, & Thoifah, 2023). If passive instructional practices persist, students may acquire only lower-level cognitive knowledge through memorization without developing critical thinking, communication, collaboration, creativity, psychomotor skills, or the internalization of Islamic historical values, which constitute the core objectives of SKI learning (Soubra, Al-Ghouti, Abu-Dieyeh, Crovella, & Abou-Saleh, 2022; Wittayakom, Kanjanavisutt, & Wongwanich Rumpagaporn, 2024). Such conditions may also reduce learning motivation, widen the gap between the characteristics of Generation Z students and current classroom practices, and hinder the implementation of student-centered learning. Therefore, investigating the implementation of gamification supported by Artificial Intelligence (AI) is essential to provide empirical evidence on how adaptive, interactive, and contextual pedagogical strategies can enhance student engagement, transform students from passive to active learners, and promote more comprehensive achievement of learning competencies in Islamic Cultural History.

Several studies have demonstrated that the integration of gamification and Artificial Intelligence (AI) positively influences student engagement, learning motivation, academic achievement, adaptive learning, and the development of critical thinking skills (Alenezi, 2023; Dahri et al., 2025; Kassenkhan, Moldagulova, and Serbin, 2025;). However, previous research has primarily focused on evaluating effectiveness, developing conceptual frameworks, or examining teachers' perceptions, while providing limited insight into the implementation of AI-supported gamification in Islamic Cultural History (SKI) instruction at Madrasah Aliyah, particularly in facilitating the transformation of students from passive recipients to active learners. Accordingly, this study addresses this gap by exploring the implementation of AI-supported gamification as an adaptive pedagogical strategy to enhance student engagement and improve competency achievement in SKI learning.

Based on the identified phenomena, theoretical foundations, and research gap, the conceptual framework of this study is presented in Figure 1.

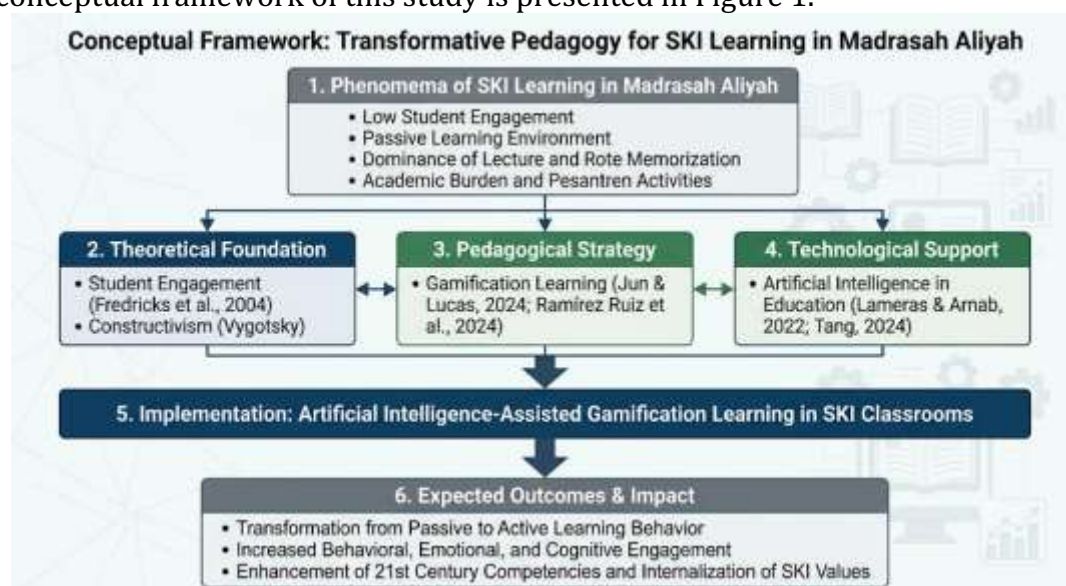


Figure 1. The Conceptual Framework

Drawing upon the preceding discussion, this study aims to explore the implementation of gamification through the use of Artificial Intelligence (AI) in Islamic Cultural History (SKI) instruction at Madrasah Aliyah, with particular emphasis on the transformation of students from passive recipients to active learners and the dynamics

of student engagement that emerge throughout the learning process. Theoretically, this study is expected to enrich the literature on the integration of student engagement, constructivism, gamification, and Artificial Intelligence in Education within the context of Islamic education. Practically, it proposes an AI-supported gamification model for SKI instruction that serves as an adaptive, contextual, and innovative pedagogical strategy to enhance student engagement, improve learning competency achievement, and provide practical guidance for teachers and Madrasah Aliyah administrators in designing instruction that aligns with the demands of twenty-first-century education.

Methods

This study employed a qualitative case study design to explore the implementation of gamification supported by Artificial Intelligence (AI) in Islamic Cultural History (SKI) instruction at Madrasah Aliyah. The study was conducted at MA Mahrusiyah Lirboyo, Kediri City, Indonesia, over a three-week period from July 6th to July 27th, 2026, beginning at the start of the academic term. The participants were eleventh-grade students who served as the primary participants in the implementation of AI-supported gamification. A qualitative case study design was selected because it enables an in-depth understanding of the design, implementation, and evolving dynamics of student engagement within an authentic educational setting (Creswell & Creswell, 2018). In this study, the researcher assumed a dual role as both teacher and primary research instrument (*human instrument*), responsible for designing gamified instructional materials, utilizing AI as an instructional tool, facilitating the learning process, and critically reflecting on the implementation (Moleong, 2018).

Data were collected through participant observation, semi-structured interviews, documentation, and a reflective journal (Sugiyono, 2021). Participant observation was conducted throughout the instructional process to capture students' behavioral, emotional, and cognitive engagement. Semi-structured interviews were carried out to explore students' learning experiences, perceptions of the gamification approach, and perceived changes in their engagement during the learning process. Documentary data included lesson modules, instructional materials, AI prompts and outputs, student worksheets, quiz results, photographs, classroom videos, and other supporting documents. In addition, the researcher's reflective journal documented the instructional design process, the use of AI, the implementation of gamification, and the challenges and adjustments encountered throughout the study.

Primary data were obtained from classroom activities, student participants, observation records, interview transcripts, and the researcher's reflections, while secondary data consisted of instructional materials and supporting documents related to the implementation process. Data were analyzed using the interactive model proposed by Miles, Huberman, & Saldaña (2014), which comprises data condensation, data display, and conclusion drawing and verification. A thematic analysis was employed to identify patterns in the implementation of AI-supported gamification, the dynamics of student engagement, and the factors facilitating or constraining the learning process. To ensure the credibility of the findings, data were validated through methodological and source triangulation, member checking, and researcher reflexivity to minimize potential bias throughout the research process.

Results and Discussion

Findings

AI-Supported Gamification Learning Design in Islamic Cultural History (SKI) Instruction

The design of the AI-supported gamification intervention began with classroom observations, field notes, and interviews with teachers and students to identify instructional needs. The preliminary findings indicated that Islamic Cultural History (SKI) instruction was predominantly delivered through lectures, note-taking, textbook reading, and individual exercises, resulting in relatively low levels of student engagement. Most participants (DJ, FA, DI, IG, and RM) described the learning process as monotonous, offering limited opportunities for discussion and encouraging students to participate only when directly prompted by the teacher. These findings reflected low levels of behavioral, emotional, and cognitive engagement, highlighting the need for a more student-centered instructional design.

In response to these identified needs, Artificial Intelligence (AI) was employed as an instructional design tool to support the development of learning materials, while the teacher retained the primary role as the learning facilitator. Lesson modules were initially developed using ChatGPT and subsequently refined with Gemini and Claude AI to improve their organization and alignment with the *Merdeka Curriculum*. Gemini Canvas was used to develop activity-based student worksheets, game-based assessment tasks, and web-based learning applications using HTML, CSS, and JavaScript. In addition, Gemini AI generated infographics and instructional illustrations that functioned as advance organizers. Although AI provided automated feedback through the gamified system, conceptual reinforcement remained the teacher's responsibility to ensure contextualized explanations and meaningful understanding. The principal outcome of this design process was the development of the gamified learning activity entitled *Ottoman Grand Strategy: 30-Minute Challenge* for the topic of the Ottoman Empire. AI supported the creation of the game narrative, challenge scenarios, assessment mechanisms, user interface, and leaderboard system, resulting in a cohesive and engaging learning experience.

The workflow illustrating the use of multiple AI platforms in the development of the instructional materials is presented in Figure 2.

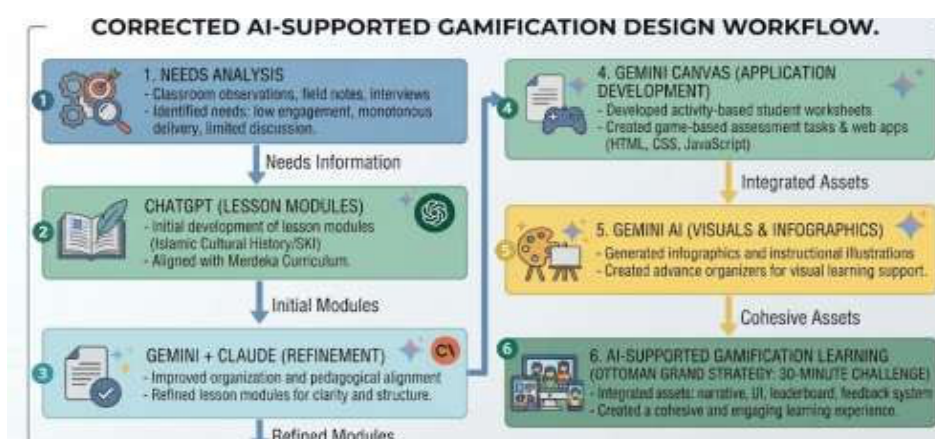


Figure 2. AI-Supported Learning Design Workflow

The gamification design consisted of four sequential phases. The first phase (*Lobby*) focused on group formation and role assignment, with students assuming the roles of Chief Architect, Recorder, Detail Analyst, and Spokesperson to ensure active participation by all group members. The second phase (*Speed Run*) involved a time-

limited quiz designed to activate prior knowledge and enhance students' attention and focus. The third phase (*War Room*) engaged students in decision-making simulations based on historical events from the Ottoman Empire, requiring them to analyze historical sources, participate in collaborative discussions, and solve problems collectively. The fourth phase (*Courtroom*) fostered critical thinking through evidence-based historical debates and argumentation. The learning activities concluded with a leaderboard, group awards, and a reflective session on the moral and educational values of Islamic history, providing both formative feedback and opportunities for reflection. The overall structure of the gamification design is illustrated in Figure 3.

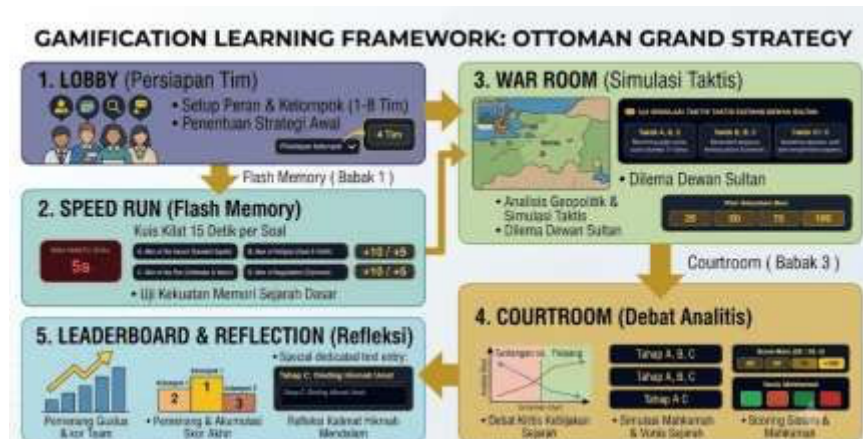


Figure 3. AI-Generated Gamification Design (*Ottoman Grand Strategy*)
The gamification design was subsequently implemented as a web-based learning application entitled *Ottoman Grand Strategy: 30-Minute Challenge*. As shown in Figure 4, the application integrates role assignment, learning challenges, a point-based scoring system, and a leaderboard into a unified interactive learning environment.

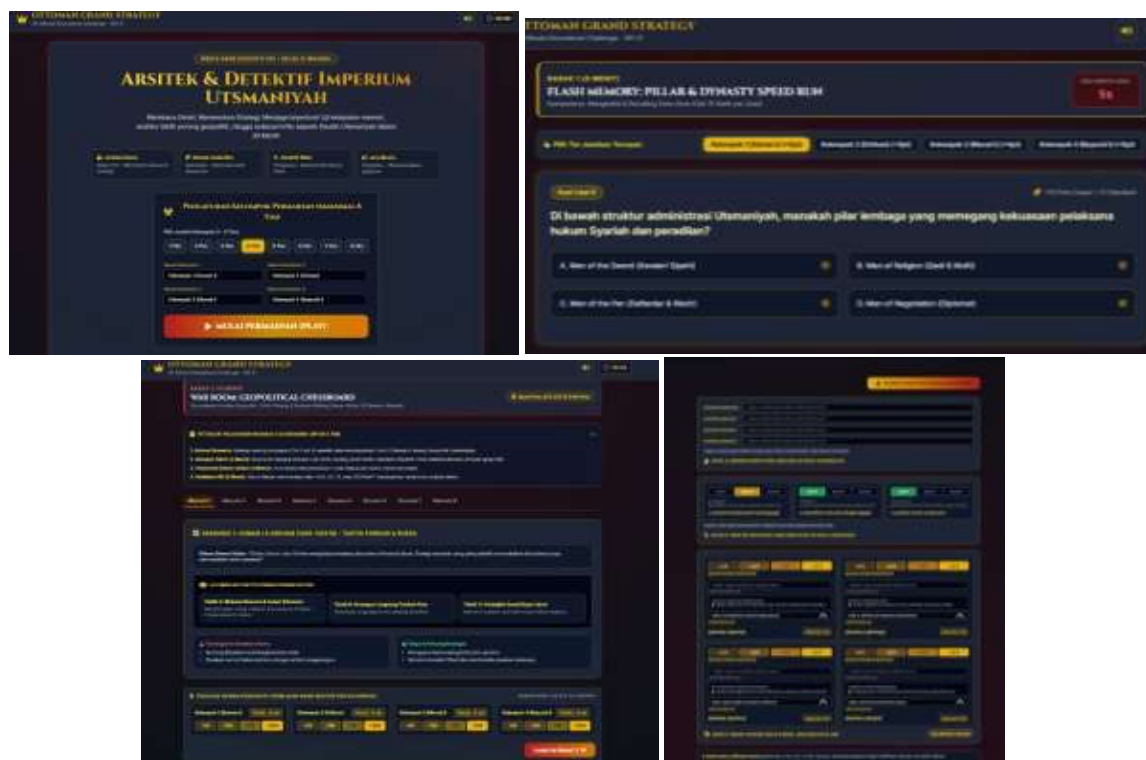


Figure 4. AI-Generated Gamification (Screenshot)

Student Engagement Transformation: From Passive Participation to Active Learning

The implementation of AI-supported gamification demonstrated a gradual improvement in student engagement across three instructional sessions. Classroom observations indicated that these changes did not occur immediately but emerged through students' adaptation to the new learning approach. During the first session, many students were still familiarizing themselves with the game mechanics, group role assignments, and challenge completion procedures. Consequently, participation in questioning, expressing opinions, and reflective activities remained relatively limited. By the second and third sessions, however, student participation became increasingly widespread. Students showed greater familiarity with the gamified learning activities, engaged more actively in group discussions, and demonstrated higher levels of involvement throughout each stage of the learning process. A summary of the observed changes across the three dimensions of student engagement, based on classroom observations and interviews, is presented in Table 1.

Table 1. Summary of Student Engagement Transformation During the Implementation of AI-Supported Gamification

Dimension	Summary of Findings
Behavioral Engagement	Increased participation in classroom discussions, greater willingness to answer questions, more consistent completion of learning challenges, and more balanced role distribution within groups.
Emotional Engagement	Increased enthusiasm, learning motivation, enjoyment, and self-confidence throughout the learning process.
Cognitive Engagement	Improved ability to explain historical concepts, justify responses with evidence, solve problems collaboratively, and relate historical events to real-life contexts.

Behavioral Engagement

The most substantial improvement was observed in behavioral engagement. Classroom observations indicated a gradual increase in students' participation, reflected in greater attentiveness to the teacher's explanations, more active involvement in group discussions, increased willingness to answer questions, and timely completion of learning challenges. By the third instructional session, nearly all groups participated actively in the gamified activities, while the distribution of responsibilities among group members became more balanced than in the initial session.

These observational findings were supported by the interview data. One participant reported becoming more actively involved in classroom discussions and increasingly willing to answer questions, despite not always being confident in the correctness of the responses. As student explained, *"I became more active in discussions and was more willing to answer questions. Even though my answers were not always correct, I felt much more confident than before."* (DJ). A similar experience was reported by another student, who explained that although previously inclined to remain passive, participation in the group activities encouraged greater confidence in expressing personal opinions during discussions (RM). In addition, several participants noted that the point system, learning challenges, and sense of responsibility toward their group motivated them to participate more actively throughout the learning process.

Emotional Engagement

Improvements were also evident in emotional engagement. Classroom observations indicated that students' enthusiasm increased from the second instructional session onward and remained consistent throughout the implementation. The classroom atmosphere became more dynamic, with students appearing to enjoy the learning activities and demonstrating higher levels of motivation when participating in quizzes and completing learning challenges. Students also showed greater self-confidence, although some still required encouragement from the teacher and their peers before feeling comfortable speaking in front of the class.

These findings were further supported by the interview data. One participant stated, *"I felt happier, more enthusiastic, and less likely to become bored. The classroom atmosphere was also much more engaging."* (DI). Another participant explained, *"The learning activities made me feel more comfortable expressing my opinions because every group member was given an opportunity to contribute."* (RM). Several participants also reported that the gamified learning activities were more enjoyable than the previous lecture-based approach, which increased their motivation to participate actively throughout the entire learning process.

Cognitive Engagement

The cognitive engagement dimension was reflected in students' growing ability to connect new content with their prior knowledge, develop solutions through collaborative discussions, and explain historical concepts in their own words. Classroom observations revealed that, during the initial session, most students were primarily focused on completing the game tasks, with limited evidence of critical reasoning and reflection. By the third instructional session, however, students were able to provide clear justifications for their responses, present the outcomes of group discussions more systematically, and relate historical events to values relevant to contemporary life.

The development of cognitive engagement was further supported by the interview data. One participant stated, *"The teacher often asked us to explain the reasons behind or the lessons learned from historical events. This encouraged me to think more deeply rather than simply memorizing historical facts."* (IG). A similar perspective was expressed by another participant, who explained that group discussions helped students understand the meaning and significance of historical events rather than merely memorizing historical figures and events (RM). In addition, several participants reported that the learning materials were easier to remember because they were presented through a combination of reading activities, group discussions, quizzes, and learning challenges.

The synthesis of the observational and interview findings revealed a gradual transformation in student engagement throughout the implementation. The learning process began by stimulating students' curiosity through AI-supported learning media, quizzes, and gamified challenges. As students became familiar with the game mechanics, interaction and collaboration among groups increased, leading to more active participation in discussions and task completion. This process was accompanied by higher levels of learning motivation, greater confidence in expressing ideas, and improved understanding of the subject matter through collaborative problem-solving and reflective thinking. By the end of the implementation, the observed changes extended beyond increased classroom participation to include stronger self-confidence, greater responsibility toward group tasks, and deeper cognitive engagement with Islamic Cultural History (SKI) content. Overall, these findings suggest that AI-supported gamification facilitated a progressive transformation of student engagement, shifting students from passive participation toward more active behavioral, emotional, and cognitive engagement.

Mechanisms and Educational Contributions of AI-Supported Gamification in SKI Learning

Based on the classroom observations and interview findings, AI-supported gamification transformed student engagement through a process that began with strengthening instructional design and subsequently enhanced the quality of students' learning activities. Across the three instructional sessions, AI was not used as a substitute for the teacher but rather as an instructional enabler that assisted in designing learning scenarios, transforming content from textbooks and scholarly articles into concise summaries, presentations, videos, infographics, student worksheets, and gamified learning activities. Nevertheless, all AI-generated materials were carefully reviewed and adapted by the teacher to ensure alignment with the intended learning outcomes, instructional objectives, and classroom characteristics before implementation.

The implementation resulted in increasingly well-structured gamified learning activities across the three instructional sessions. During the first session, many students were still adapting to the game mechanics, whereas by the third session, learning challenges, group discussions, and task completion were carried out more smoothly, with more balanced participation across groups. Classroom observations further indicated improvements in students' participation during discussions, task completion, and engagement in gamified activities, accompanied by greater attentiveness to the teacher's explanations and an enhanced ability to explain historical concepts in their own words.

The interview data further corroborated these findings. Prior to the implementation, most participants described Islamic Cultural History (SKI) instruction as being predominantly lecture-based, which tended to encourage passive learning. Following the introduction of AI-supported gamification, however, students became more actively involved in discussions, quizzes, and learning challenges. One participant stated, *"I became more active in discussions and was more willing to answer questions. Even though my answers were not always correct, I felt much more confident than before."* (DJ). Another participant explained, *"I paid much closer attention to the learning process because quizzes or challenges could appear at any time."* (FA). These findings indicate a gradual improvement in behavioral engagement, reflected in increased participation, sustained attention, and a stronger sense of responsibility toward collaborative learning tasks.

The improvement in behavioral engagement was accompanied by positive changes in students' emotional and cognitive engagement. Classroom observations revealed consistent increases in students' enthusiasm, enjoyment, and interest in learning across the three instructional sessions, while the interview findings indicated that the more interactive learning environment enhanced students' confidence in expressing their opinions. In terms of cognitive engagement, students moved beyond memorizing historical events to connecting the content with the lessons derived from history and their relevance to contemporary life. As one participant remarked, *"We did not just memorize historical stories; we also understood their meaning."* (DJ). Similarly, another participant explained that the teacher frequently encouraged students to identify the lessons that could be learned from historical events and apply them to present-day life (RM).

The findings further suggest that this instructional approach contributed to the development of twenty-first-century competencies. Classroom observations demonstrated improvements in communication, collaboration, critical thinking, and creativity through group discussions, learning challenges, and presentations. Moreover, the learning process facilitated the internalization of core values embedded in Islamic Cultural History, including cooperation, responsibility, deliberation, respect for diverse

perspectives, and the ability to draw meaningful lessons from historical events. Taken together, these findings informed the development of a conceptual synthesis illustrating the mechanism through which AI-supported gamification transforms student engagement. The proposed conceptual framework is presented in Figure 5.

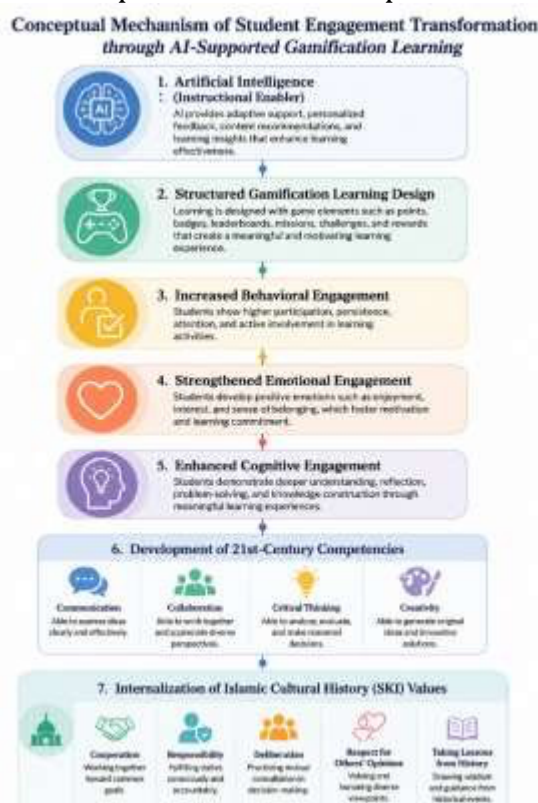


Figure 5. Conceptual Mechanism of Student Engagement Transformation through AI-Supported Gamification Learning

Analysis

AI-Supported Gamification Learning Design in Islamic Cultural History (SKI) Instruction

The use of Artificial Intelligence (AI) in this study strengthened the quality of instructional design by supporting the development of lesson modules, student worksheets, visual learning materials, gamified learning activities, and a web-based learning application, all of which were carefully reviewed and adapted by the teacher to align with the intended learning outcomes and students' characteristics (Umar, Suhendi, Murtadlo, Harjati, & Harun, 2026). These findings reinforce the role of AI as an instructional enabler rather than a substitute for the teacher, emphasizing that the pedagogical value of AI ultimately depends on the teacher's ability to design and orchestrate meaningful learning experiences. This finding is consistent with the work of Lamerias and Arnab (2022) and (Tang, 2024), who argue that AI contributes most effectively when it supports adaptive, student-centered instructional design.

The gamification design, structured through the sequential phases of *Lobby*, *Speed Run*, *War Room*, and *Courtroom*, demonstrates that game elements do more than increase students' interest in learning; they establish a coherent sequence of learning activities that promotes collaboration, problem-solving, evidence-based argumentation, and reflection (Wedayanthi, Adiwijaya, & Kusuma, 2026). These characteristics reflect the principles of student-centered learning, in which students construct understanding

through active participation rather than passively receiving information from the teacher (Tsay, Kofinas, and Luo 2018; Yanuarini and Masykur 2024). Furthermore, Vygotsky's social constructivist perspective, as discussed by Hung and Thuy (2026), suggests that learning becomes more meaningful when knowledge is constructed through interaction, discussion, and shared experiences. Accordingly, the gamification mechanism functioned not only as an engaging instructional strategy but also as a collaborative learning environment that facilitated knowledge construction while strengthening social interaction among students.

Integrasi AI dan gamifikasi juga memperlihatkan bahwa teknologi memperoleh makna pedagogis ketika diorientasikan untuk mendukung strategi pembelajaran, bukan sekadar digitalisasi materi. Elemen seperti pembagian peran, *challenge*, *leaderboard*, dan umpan balik digunakan untuk mengorganisasi aktivitas belajar sehingga setiap peserta didik memiliki kesempatan berpartisipasi secara aktif. Kondisi ini menguatkan argumentasi Jun dan Lucas (2024) serta Ramírez Ruiz et al. (2024) bahwa efektivitas *gamification* terletak pada kemampuannya menciptakan pengalaman belajar yang menumbuhkan motivasi dan partisipasi melalui desain aktivitas yang terstruktur.

Berbeda dengan penelitian sebelumnya yang lebih banyak menyoroti pengaruh AI atau *gamification* terhadap hasil belajar, penelitian ini menunjukkan bahwa kontribusi utama AI terletak pada transformasi proses perancangan pembelajaran. Dengan kata lain, peningkatan *student engagement* diawali oleh desain pembelajaran yang lebih adaptif, interaktif, dan kontekstual sebelum tercermin pada perubahan perilaku belajar peserta didik.

The integration of AI and gamification further demonstrates that technology acquires pedagogical value only when it is intentionally employed to support instructional strategies rather than merely digitizing learning materials (Kalogiannakis, Papadakis, & Zourmpakis, 2021). Game elements, including role assignments, learning challenges, leaderboards, and feedback mechanisms, were designed to structure learning activities in ways that provided every student with opportunities for active participation. These findings support the arguments of Jun & Lucas (2024) and Ramírez Ruiz et al. (2024) who contend that the effectiveness of gamification lies in its capacity to create meaningful learning experiences that foster motivation and participation through well-designed instructional activities.

In contrast to previous studies, which have primarily examined the effects of AI or gamification on learning outcomes (Alenezi 2023; Dahri et al. 2025; Kassenkhan et al. 2025), the present study demonstrates that AI's primary contribution lies in transforming the instructional design process. Specifically, the enhancement of student engagement was initiated by the development of more adaptive, interactive, and contextual learning designs, which subsequently translated into observable changes in students' learning behaviors.

Student Engagement Transformation: From Passive Participation to Active Learning

The observed shift in student engagement from passive to active participation indicates that AI-supported gamification not only transformed the nature of classroom activities but also reshaped the ways in which students interacted with learning materials, teachers, and their peers (Wu, Abdul Halim, & Mohd Saad, 2024). The gradual progression observed across the three instructional sessions suggests that student engagement develops through continuous adaptation to new learning experiences rather than emerging as an immediate response (Getman, Boitcov, Adamovich, & Costley, 2025). This pattern is consistent with the student engagement framework proposed by

Fredricks et al. (2004), which conceptualizes behavioral, emotional, and cognitive engagement as interconnected dimensions that evolve dynamically within learning environments that promote active participation.

The improvement in behavioral engagement was evident as students became increasingly willing to participate in discussions, express their opinions, complete learning challenges, and assume responsibility within their groups (Gomes et al., 2023). These findings indicate that game elements, including clearly defined goals, challenges, role assignments, and rewards, created a structured learning environment that encouraged meaningful participation rather than superficial involvement. This finding supports the arguments of Jun and Lucas (2024), Ramírez Ruiz et al. (2024), and Wijesekara (2025), who contend that gamification enhances student engagement by fostering a stronger sense of ownership over the learning process.

The development of emotional engagement further demonstrates that a more interactive learning environment contributed to increased enthusiasm, motivation, and self-confidence among students (Li, Chen, & Deng, 2024). These findings suggest that technology does not automatically enhance student engagement; instead, its pedagogical value depends on its integration with instructional strategies that promote collaboration, provide meaningful feedback, and create enjoyable learning experiences. This interpretation is consistent with the findings of Jaiswal (2020), Syaleh and Sartika (2026) and Seo et al. (2021), who emphasize that the contribution of technology to student engagement is fundamentally determined by the quality of the instructional design implemented by teachers.

At the same time, the improvement in cognitive engagement indicates that students progressed beyond merely memorizing historical facts to constructing deeper understanding through discussion, argumentation, and reflection on the values embedded in Islamic history (Maryati & Ulandari, 2025). This process reflects Vygotsky's social constructivist perspective, as discussed by Hung & Thuy (2026), which views knowledge as being constructed through social interaction and collaborative learning. Accordingly, the gamified challenges functioned not merely as competitive activities but as pedagogical tools that facilitated meaning-making, collaborative problem-solving, and the development of deeper conceptual understanding.

These findings also extend previous research, which has largely reported the positive effects of AI and gamification on learning motivation and academic achievement (Alenezi 2023; Dahri et al. 2025; Kassenkhan et al. 2025). The present study demonstrates that the transformation of student engagement occurs through a clearly identifiable process, beginning with students' adaptation to the game mechanics, progressing to active participation, and subsequently developing into stronger emotional and cognitive engagement. This finding supports the study by Shofia, Mohtarom, Ma'ruf, Kirom, & Islahuddin (2026), which reported that gamification gradually transformed students' engagement into more active participation compared with conventional instructional approaches. Overall, these findings suggest that AI serves as an instructional enabler, enabling teachers to design more interactive learning experiences, while the transformation of student engagement ultimately depends on the quality of student-centered pedagogical design.

Mechanisms and Educational Contributions of AI-Supported Gamification in SKI Learning

Within the context of Islamic Cultural History (SKI) instruction, Artificial Intelligence (AI) functioned as an instructional enabler that strengthened teachers' pedagogical capacity rather than replacing their role (Saputra, Neliwati, Pristiawan, &

Siregar, 2025). AI was utilized to design instructional scenarios, develop learning resources, and integrate gamified learning activities, all of which were aligned with the intended learning outcomes and students' characteristics. This role is consistent with the concept of Artificial Intelligence in Education (AIED), which positions AI as a tool for supporting adaptive instructional design under the guidance and pedagogical control of teachers (Lameras and Arnab 2022; Tang 2024). Accordingly, improvements in instructional quality were not driven by the presence of AI alone but by teachers' ability to orchestrate technology within student-centered pedagogical strategies.

This mechanism also explains why the enhancement of student engagement occurred progressively rather than instantaneously. The gamification structure, which integrated learning challenges, collaboration, feedback, and reflection, created a learning environment that consistently encouraged students to participate and gradually develop behavioral, emotional, and cognitive engagement. This pattern reinforces the student engagement framework proposed by Fredricks et al. (2004), which conceptualizes these three dimensions as interrelated and mutually reinforcing. It also supports Vygotsky's social constructivist perspective, as discussed by Hung & Thuy (2026), which emphasizes social interaction and collaborative experiences as the foundation of knowledge construction. In this context, gamification did more than enhance students' motivation; it provided a learning environment in which students actively constructed understanding through discussion, negotiation of meaning, and reflection on historical events.

The contribution of this instructional approach extended beyond enhancing student engagement. Collaborative learning activities, the completion of gamified challenges, and group presentations fostered the development of communication, collaboration, critical thinking, and creativity as essential twenty-first-century competencies (Claire, Jacqueline, Prudence, & Philogene, 2025). At the same time, these activities reinforced the internalization of core values embedded in Islamic Cultural History (SKI), including deliberation (*musyawarah*), responsibility, cooperation, and the ability to draw meaningful lessons from historical events. These findings support the argument of Nasucha et al. (2023) that twenty-first-century learning should integrate competency development with students' character formation.

Previous studies have generally reported that the integration of AI and gamification enhances learning motivation, academic achievement, or student engagement (Alenezi 2023; Bachiri, Mouncif, and Bouikhalene 2023; Dahri et al. 2025; Kassenkhan et al. 2025). The present study extends this body of literature by elucidating the pedagogical mechanism that links the use of AI, gamification design, the transformation of student engagement, and the subsequent development of twenty-first-century competencies alongside the internalization of Islamic Cultural History values. This sequence of findings suggests that AI generates meaningful educational impact only when it is integrated into a systematic, contextual, and student-centered instructional design, rather than being employed merely as a supporting technology.

Conclusion

This study demonstrates that the implementation of AI-supported gamification transformed Islamic Cultural History (SKI) instruction into a more student-centered learning environment by strengthening the quality of instructional design. Rather than replacing the teacher's pedagogical role, Artificial Intelligence (AI) functioned as an instructional enabler, assisting teachers in developing more adaptive learning materials, instructional media, learning activities, and assessment strategies. The implementation facilitated a gradual transformation of student engagement, beginning with

improvements in behavioral engagement and subsequently extending to emotional and cognitive engagement. These changes not only increased students' active participation but also fostered the development of twenty-first-century competencies while reinforcing the internalization of Islamic Cultural History values through collaborative, reflective, and problem-based learning activities. These findings suggest that the pedagogical impact of AI is achieved through well-structured, student-centered gamification design rather than through the use of technology alone.

From a theoretical perspective, this study extends the literature on the integration of student engagement, constructivism, gamification, and Artificial Intelligence in Education by explaining the pedagogical mechanisms underlying the transformation of student engagement in Islamic Cultural History (SKI) instruction. From a practical perspective, the findings propose an AI-supported instructional model that can serve as a reference for teachers and madrasah administrators in designing learning environments that are more adaptive, contextual, and meaningful. Although this study was conducted within the context of Islamic Cultural History instruction at a single Madrasah Aliyah, thereby providing an in-depth understanding of the case under investigation, the proposed model has the potential to be adapted and evaluated across different subjects, educational levels, and learning contexts to further establish its applicability and broader validity.

References

- Adawiyah, R. R., Sariyatun, & Musaddad, A. A. (2026). Needs Analysis of an SRL-Based E-Magazine Learning Medium in Islamic Cultural History Learning at MA Annaim Ajisoko. *MJP Journal of Education and Teaching Learning*, 4(1), 519–529. <https://doi.org/10.59211/mjpetl.v4i1.222>
- Alenezi, A. (2023). Teacher Perspectives on AI-Driven Gamification: Impact on Student Motivation, Engagement, and Learning Outcomes. *Information Technologies and Learning Tools*, 97(5), 138–148. <https://doi.org/10.33407/itlt.v97i5.5437>
- Bachiri, Y.-A., Mouncif, H., & Bouikhalene, B. (2023). Artificial Intelligence Empowers Gamification: Optimizing Student Engagement and Learning Outcomes in E-learning and MOOCs. *International Journal of Engineering Pedagogy (IJEP)*, 13(8), 4–19. <https://doi.org/10.3991/ijep.v13i8.40853>
- Claire, M. J., Jacqueline, M., Prudence, N., & Philogene, M. (2025). Integrating Collaborative Learning Strategies in the Curriculum: Enhancing Critical Thinking and Communication Skills in Primary Education. *European Journal of Education Studies*, 12(3), 14–39. <https://doi.org/10.46827/ejes.v12i3.5848>
- Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th Edition). Sage Publications.
- Dahri, N. A., Yahaya, N., Al-Rahmi, W. M., Almuqren, L., Almgren, A. S., & Alshimai, A. (2025). The Effect of AI Gamification on Students' Engagement and Academic Achievement in Malaysia: SEM Analysis Perspectives. *IEEE Access*, 13, 70791–70810. <https://doi.org/10.1109/ACCESS.2025.3560567>
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*, 74(1), 59–109. <https://doi.org/10.3102/00346543074001059>
- Getman, A., Boitcov, M., Adamovich, K., & Costley, J. (2025). The role of engagement strategies and path-dependency in online learning. *Innovations in Education and Teaching International*, 62(4), 1305–1319. <https://doi.org/10.1080/14703297.2024.2413440>

- Gomes, S., Costa, L., Martinho, C., Dias, J., Xexéo, G., & Moura Santos, A. (2023). Modeling students' behavioral engagement through different in-class behavior styles. *International Journal of STEM Education*, 10(1), 1–15. <https://doi.org/10.1186/s40594-023-00407-w>
- Hung, P. T., & Thuy, N. T. (2026). Developing a “Learning and Creativity Ecosystem” Model in Primary Schools in the Mekong Delta Region of Vietnam. *International Journal of Education and Social Science Research*, 9(2), 103–115. <https://doi.org/10.37500/IJESSR.2026.9207>
- Jaiswal, P. (2020). Integrating Educational Technologies to Augment Learners' Academic Achievements. *International Journal of Emerging Technologies in Learning*, 15(2), 145–159. <https://doi.org/10.3991/ijet.v15i02.11809>
- Jun, M., & Lucas, T. (2024). Gamification Elements and Their Impacts on Education: A Review. *Multidisciplinary Reviews*, 8(5), 1–7. <https://doi.org/10.31893/multirev.2025155>
- Kalogiannakis, M., Papadakis, S., & Zourmpakis, A.-I. (2021). Gamification in science education: A systematic review of the literature. *Education Sciences*, 11(1), 1–36. <https://doi.org/10.3390/educsci11010022>
- Kassenkhan, A. M., Moldagulova, A. N., & Serbin, V. V. (2025). Gamification and Artificial Intelligence in Education: A Review of Innovative Approaches to Fostering Critical Thinking. *IEEE Access*, 13, 98699–98728. <https://doi.org/10.1109/ACCESS.2025.3576147>
- Lameras, P., & Arnab, S. (2022). Power to the Teachers: An Exploratory Review on Artificial Intelligence in Education. *Information*, 13(1), 1–38. <https://doi.org/10.3390/info13010014>
- Li, Y., Chen, D., & Deng, X. (2024). The impact of digital educational games on student's motivation for learning: The mediating effect of learning engagement and the moderating effect of the digital environment. *PLOS ONE*, 19(1), 1–21. <https://doi.org/10.1371/journal.pone.0294350>
- Maryati, A., & Ulandari, T. (2025). The contribution of SNC Civilization House in enhancing Generation Alpha's understanding of Islamic cultural history in Rejang Lebong. *Waraqat: Jurnal Ilmu-Ilmu Keislaman*, 11(1), 168–185. <https://doi.org/10.51590/waraqat.v11i1.1319>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook*. Sage Publications.
- Moleong, L. J. (2018). *Metodologi penelitian kualitatif*. Remaja Rosdakarya.
- Nasucha, M. R., Khozin, & Thoifah, I. (2023). Synergizing Islamic Religious Education and Scientific Learning in the 21st Century: A Systematic Review of Literature. *Jurnal Pendidikan Agama Islam (Journal of Islamic Education Studies)*, 11(1), 109–130. <https://doi.org/10.15642/jpai.2023.11.1.109-130>
- Ramírez Ruiz, J. J., Vargas Sanchez, A. D., & Boude Figueredo, O. R. (2024). Impact of Gamification on School Engagement: A Systematic Review. *Frontiers in Education*, 9, 1–10. <https://doi.org/10.3389/feduc.2024.1466926>
- Saputra, A., Neliwati, Pristiawan, E., & Siregar, P. (2025). Islamic Education Teachers' Competencies in Managing Artificial Intelligence-Based Learning. *International Journal of Graduate of Islamic Education (IJGIE)*, 7(2), 729–743. <https://doi.org/10.37567/ijgie.v7i2.4880>
- Seo, K., Dodson, S., Harandi, N. M., Roberson, N., Fels, S., & Roll, I. (2021). Active Learning with Online Video: The Impact of Learning Context on Engagement. *Computers & Education*, 165(104132). <https://doi.org/10.1016/j.compedu.2021.104132>

- Shofia, A. N., Mohtarom, A., Ma'ruf, A., Kirom, A., & Islahuddin. (2026). Low-cost gamification in Islamic religious education: A six-stage educational domino game model for student engagement. *Al-Ishlah: Jurnal Pendidikan Islam*, 24(1), 36–46. <https://doi.org/10.35905/al-ishlah.v24i1.17143>
- Soubra, L., Al-Ghouti, M. A., Abu-Dieyeh, M., Crovella, S., & Abou-Saleh, H. (2022). Impacts on Student Learning and Skills and Implementation Challenges of Two Student-Centered Learning Methods Applied in Online Education. *Sustainability*, 14(15), 1–22. <https://doi.org/10.3390/su14159625>
- Sugiyono. (2021). *Metode penelitian kuantitatif, kualitatif, dan R&D* (Cetakan ke-3). Bandung: Alfabeta.
- Syaleh, H. I., & Sartika, N. S. (2026). Digital Learning Technologies and Student Engagement: Evidence from Primary and Secondary Education. *Journal of Education et Didactica*, 2(2), 1–22. <https://doi.org/10.67171/z0b0c987>
- Tang, K. H. D. (2024). Implications of Artificial Intelligence for Teaching and Learning. *Acta Pedagogia Asiana*, 3(2), 65–79. <https://doi.org/10.53623/apga.v3i2.404>
- Tsay, C. H.-H., Kofinas, A., & Luo, J. (2018). Enhancing student learning experience with technology-mediated gamification: An empirical study. *Computers & Education*, 121, 1–17. <https://doi.org/10.1016/j.compedu.2018.01.009>
- Umar, Suhendi, Murtadlo, G., Harjati, P., & Harun, M. (2026). Artificial Intelligence-Enhanced Instructional Media Design: Phenomenological Insights from Pre-Service Islamic Education Teachers. *Jurnal Iqra' : Kajian Ilmu Pendidikan*, 11(1), 193–211. <https://doi.org/10.25217/ji.v11i1.6999>
- Wajdi, M., Susanto, B., Sumartana, I. M., Sutiarto, M. A., & Hadi, W. (2024). Profile of Generation Z Characteristics: Implications for Contemporary Educational Approaches. *Kajian Pendidikan, Seni, Budaya, Sosial Dan Lingkungan*, 1(1), 33–44. <https://doi.org/10.58881/kpsbsl.v1i1.8>
- Wedayanthi, L. M. D., Adiwijaya, P. A., & Kusuma, I. K. N. (2026). Gamified pedagogy for fostering deep learning in English as a foreign language higher education. *Berkala Ilmiah Pendidikan*, 6(2), 301–311. <https://doi.org/10.51214/bip.v6i2.2006>
- Wijesekara, O. (2025). Game-based learning and gamification in digital education: A systematic review of engagement strategies. *International Journal of Recent Advances in Engineering and Technology*, 14(1), 254–264. <https://doi.org/10.65521/intjournalrecadvengtech.v14i1.1863>
- Wittayakom, S., Kanjanavisutt, C., & Wongwanich Rumpagaporn, M. (2024). Online Training by Active Learning Approaches: A Systematic Literature Review. *Higher Education Studies*, 14(4), 53–72. <https://doi.org/10.5539/hes.v14n4p53>
- Wu, Z., Abdul Halim, H., & Mohd Saad, M. R. (2024). Artificial intelligence (AI) and gamification in blended learning: Enhancing language and literacy in Shanxi, China. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 9(12), 1–20. <https://doi.org/10.47405/mjssh.v9i12.3159>
- Yanuarini, D., & Masykur, M. (2024). Educational Transformation in the Digital Era. *PPSDP International Journal of Education*, 3(1), 68–76. <https://doi.org/10.59175/pijed.v3i1.189>

