

Gamification Based Learning Innovation for Developing the Competencies of Prospective Elementary School Teachers at MI Roudhotu Tolibin

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Abstrak: Penelitian ini dilatarbelakangi oleh kebutuhan pengembangan kompetensi calon guru sekolah dasar yang semakin menuntut penguasaan pedagogik, kreativitas desain pembelajaran, serta literasi teknologi di era digital. Gamification-Based Learning dipilih sebagai inovasi pembelajaran karena dinilai mampu meningkatkan motivasi, keterlibatan, dan kualitas proses belajar. Tujuan penelitian ini adalah untuk menganalisis implementasi gamifikasi dalam pembelajaran calon guru di MI Roudhotu Tolibin, menilai efektivitasnya terhadap pengembangan kompetensi, serta mengidentifikasi tantangan yang muncul selama proses penerapan. Penelitian ini menggunakan pendekatan kualitatif deskriptif, dengan teknik pengumpulan data melalui wawancara, observasi, dan dokumentasi. Hasil penelitian menunjukkan bahwa gamifikasi efektif meningkatkan motivasi belajar, memperkuat kemampuan pedagogik, serta meningkatkan literasi teknologi calon guru. Selain itu, peserta pembelajaran juga menunjukkan peningkatan dalam keterampilan kolaborasi, komunikasi, serta kemampuan refleksi diri. Meskipun ditemui beberapa hambatan teknis seperti keterbatasan perangkat dan akses internet, inovasi gamifikasi secara keseluruhan memberikan dampak positif terhadap kesiapan calon guru abad ke-21. Implikasi dari penelitian ini menegaskan bahwa gamifikasi dapat dijadikan model pembelajaran inovatif dalam pendidikan calon guru, khususnya dalam mempersiapkan mereka menghadapi tuntutan pembelajaran digital yang semakin kompleks. Penelitian selanjutnya disarankan untuk mengkaji dampak jangka panjang gamifikasi serta penerapannya dalam konteks lembaga pendidikan lain.

Kata Kunci: gamifikasi, kompetensi calon guru, inovasi pembelajaran, literasi teknologi, pendidikan dasar.

Abstract: This study is grounded in the growing need to strengthen the competencies of prospective elementary school teachers, particularly in relation to pedagogical skills, creative instructional design, and technological literacy in the digital era. Gamification-Based Learning was selected as an instructional innovation due to its potential to enhance motivation, engagement, and the overall quality of the learning process. The purpose of this research is to analyze the implementation of gamification in the learning activities of teacher candidates at MI Roudhotu Tolibin, to evaluate its effectiveness in developing teacher competencies, and to identify the challenges encountered during its application. This study employed a qualitative descriptive approach, with data collected through interviews, classroom observations, and documentation analysis. The findings reveal that gamification effectively increases learning motivation, strengthens pedagogical abilities, and improves technological literacy among prospective teachers. Additionally, participants demonstrated enhanced collaboration, communication, and self-reflective skills throughout the gamified activities. Although several technical challenges were identified, including limited devices and unstable internet access, the overall implementation of gamification contributed positively to the readiness of future teachers in facing the demands of 21st-century education. The implications of this study suggest that gamification can serve as a promising innovative learning model in teacher education programs, particularly in preparing prospective teachers to navigate increasingly complex digital learning environments. Future research is recommended to examine the long-term impacts of gamification and its scalability across different educational contexts.

Keywords: gamification, teacher competencies, learning innovation, technological literacy, elementary education.

INTRODUCTION

The rapid advancement of digital technologies has brought significant changes to the landscape of education, including teacher preparation programs.¹ In the context of elementary teacher education, prospective teachers are expected to master not only pedagogical and content knowledge but also digital literacy and innovative instructional strategies aligned with 21st-century learning needs.² One of the emerging approaches that supports these competencies is gamification-based learning, which integrates game elements such as points, challenges, rewards, and interactive activities into non-game environments to enhance engagement, motivation, and learning outcomes.³ At MI Roudhotu Tolibin, the development of prospective elementary school teachers' competencies still faces several challenges, particularly in fostering student motivation, creativity, and the ability to design engaging learning experiences.⁴ These conditions highlight the need for innovative learning models that can strengthen both pedagogical skills and technological adaptability.⁵

Although a wide range of studies have explored the implementation of gamification in education, most research has focused on improving student achievement, motivation, or classroom engagement.⁶ Prior studies primarily examine gamification for subjects such as mathematics, science, or language learning, emphasizing its effectiveness in increasing participation and reducing learning anxiety.⁷ However, limited attention has been given to gamification as a structured model for developing the professional competencies of prospective elementary school

¹ Taufiqurrahman Siddiq Moh Solikul Hadi, Muhammad Arif Robbani, "Konsep Pendidikan Islam di Era Society 5.0 Perspektif Hadist," 3.1 (2021), 28–39.

² Feri Riski Dinata dan Ali Kuswadi, "Kolaborasi Pesantren dan Perguruan Tinggi Islam : Model Manajemen Kemitraan Berkelanjutan," 2.1 (2025), 8–14.

³ Adun Priyanto, "Pendidikan Islam dalam Era Revolusi Industri 4.0," *J-PAI: Jurnal Pendidikan Agama Islam*, 6.2 (2020), 80–89 <<https://doi.org/10.18860/jpai.v6i2.9072>>.

⁴ Dkk Moh. Solikul Hadi, "Efektifitas Instrumen Penilaian Pendidikan Agama Islam Untuk Meningkatkan Kemampuan Berpikir Kritis Dan Kreatif Peserta Didik Di Smk Muhammadiyah Mlati Yogyakarta," *Berkala Ilmiah Pendidikan*, 4.1 (2024), 28–34.

⁵ M Sayyidul Abrori dan Moh. Solikul Hadi, "Integral Values in Madrasah: to Foster Community Trust in Education," *Istawa : Jurnal Pendidikan Islam*, 5.2 (2020), 160 <<https://doi.org/10.24269/ijpi.v5i2.2736>>.

⁶ Feri Riski Dinata, Ali Kuswadi, dan Dwi Novianti, "Peran Deep Learning dalam Optimalisasi Proses Manajemen Pembelajaran di Madrasah Ibtidaiyah," 1.1 (2025), 33–36.

⁷ Feri Riski dan Ali Kuswadi, "Manajemen Pendidikan Kepala Sekolah Dalam Mengaplikasikan Visi dan Misi di SMK Negeri 1 Pakuan Ratu," 1.1 (2024), 7–15.

teachers, especially in Islamic educational institutions such as madrasah ibtidaiyah.⁸ Moreover, previous research rarely investigates how gamification-based learning can cultivate pedagogical creativity, technological integration skills, and instructional design capabilities simultaneously within a teacher-training context.⁹

This research addresses the gap by designing and analyzing a Gamification-Based Learning Innovation specifically tailored for the competency development of prospective elementary school teachers at MI Roudhotu Tolibin.¹⁰ Unlike earlier studies, this research not only evaluates the impact of gamified instructional strategies but also explores how gamification can be integrated into teacher education practices to strengthen digital pedagogy and professional readiness.¹¹ Additionally, the study provides empirical insights into how gamification influences learning behavior, reflective practice, and students' ability to design innovative teaching materials.

The objectives of this study are: (1) to analyze the implementation of gamification-based learning as an innovative instructional model for prospective elementary school teachers at MI Roudhotu Tolibin; (2) to examine its effectiveness in developing essential teacher competencies, including pedagogical knowledge, creative lesson design, and technological literacy; and (3) to identify the challenges and opportunities of integrating gamification into teacher preparation programs. Through this exploration, the study aims to contribute to the advancement of innovative learning models in Islamic elementary teacher education, offering both theoretical implications and practical recommendations for future instructional development.¹²

⁸ Diyah R. Puspitasari, Mustaji, dan Retno Danu Rusmawati, "Model Pembelajaran Inkuiri Terbimbing Berpengaruh Terhadap Pemahaman dan Penemuan Konsep dalam Pembelajaran PPKn," *Jurnal Ilmu Pendidikan dan Pembelajaran*, 3.1 (2019), 98.

⁹ Meyniar Albina dkk., "Model Pembelajaran Di Abad Ke 21," *Warta Dharmawangsa*, 16.4 (2022), 939-55 <<https://doi.org/10.46576/wdw.v16i4.2446>>.

¹⁰ Edi Kurniawan Fahmi Husein, Moh Solikul Hadi, "Strategi Digital Detox untuk Siswa : Efektivitas Pendidikan Islam melalui Program Bimbingan Konseling pada Anak SMA / SMK di Yogyakarta Penerbangan AAG Adisutjipto , penerapan strategi Digital Detox melalui program," 13 (2024), 358-69.

¹¹ Rindiyan Pangestuti dan Riyadhul Janah, "Dopamine detox: Upaya pengendalian kecanduan gadget pada anak di era digital perspektif surah Al-Ashr ayat 1-3," *Tadribuna: Journal of Islamic Management Education*, 3.2 (2023), 19-30.

¹² Moh. Solikul Hadi, M. Sayyidul Abrori, dan Dwi Noviatul Zahra, "Pengembangan Multimedia Interaktif Macromedia Flash Profesional 8 Pada Pembelajaran Al-Qur'an Hadis Kelas X Semester Genap Di Man 1 Yogyakarta," *At-Tajdid: Jurnal Pendidikan dan Pemikiran Islam*, 3.2 (2020), 148 <<https://doi.org/10.24127/att.v3i2.1123>>.

METHODOLOGY

This study employs a qualitative descriptive approach to explore how Gamification-Based Learning Innovation contributes to the development of competencies among prospective elementary school teachers at MI Roudhotu Tolibin.¹³ The qualitative design allows the researcher to understand participants' experiences and learning processes in a natural instructional setting, capturing how gamification shapes motivation, engagement, and pedagogical creativity.¹⁴ The research took place at MI Roudhotu Tolibin, involving prospective teachers who participated directly in the gamified learning activities, along with lecturers and school mentors who facilitated or observed the implementation. Participants were selected purposively to ensure that the data reflected genuine and relevant experiences. The number of participants was adjusted until information saturation was achieved.¹⁵

Data were collected through semi-structured interviews, participant observation, and documentation analysis.¹⁶ Interviews provided insights into participants' perceptions of gamified learning, while observations allowed the researcher to record real-time interactions, engagement with game elements, and learning behavior.¹⁷ Documentation, including learning materials, student tasks, and activity records, supported the triangulation of findings. The data analysis followed an interactive model consisting of data reduction, data display, and conclusion drawing.¹⁸ Through this process, the researcher identified key themes related to the effectiveness of gamification in developing pedagogical, technological, and creative competencies. To ensure trustworthiness, the study applied triangulation of methods, member checking, and continuous engagement with the research setting.¹⁹

RESULTS AND DISCUSSION

Research on Gamification-Based Learning Innovation in developing the competencies of prospective elementary school teachers at MI Roudhotu Tolibin has yielded several key findings as follows.

Increasing Motivation and Learning Engagement of Participants

The implementation of gamification in learning significantly enhances the motivation and engagement of prospective elementary school teachers at MI Roudhotu Tolibin. Gamification creates a learning environment that resembles a game, where

¹³ John W Creswell, *A Mixed-Method Approach, Writing Center Talk over Time*, 2018 <<https://doi.org/10.4324/9780429469237-3>>.

¹⁴ Amrullah, Eka Apriani, dan Muhammad Idris, "Enhancing Pedagogical Competence of Pre-Service Islamic Education Teachers through Peer Assessment and Constructive Feedback," 14.1 (2025), 191-208.

¹⁵ Sugiyono, *Metode Penelitian Kualitatif, Kuantitatif dan RnD* (Bandung: Alfabeta, 2019).

¹⁶ Sugiyono, *Metode Penelitian Kualitatif, Kuantitatif dan RnD*.

¹⁷ Sugiyono, *Memahami penelitian kualitatif* (Bandung: Alfabeta, 2010).

¹⁸ Sugiyono, *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif R & D* (Bandung: Alfabeta).

¹⁹ Creswell.

participants experience enjoyable, active, and challenging learning activities. Elements such as points, levels, badges, rewards, leaderboards, challenges, and quests stimulate participants to stay committed throughout the learning process. They no longer attend merely to receive information, but become active agents in knowledge exploration. Every small achievement is recognized through the reward system, fostering strong intrinsic motivation. Moreover, gamified learning creates a dynamic learning rhythm, reduces boredom, and encourages participants to respond actively, collaborate, and engage in mission-based tasks. Thus, gamification is an effective approach to building long-term motivation and enhancing learner engagement.

Most participants stated that the gamification activities made the learning process more engaging. One participant expressed:

"I became more enthusiastic because every task had points, and I felt challenged to complete the missions. Learning wasn't boring anymore; it felt like a game." (Interview, P1)

This interview finding is supported by observations in which the researcher noted increased participation in discussions, enthusiasm in completing challenges, and active interaction among participants. They appeared more focused and rarely disengaged from the activities. This is also aligned with documentation results: the weekly leaderboard recap showed an increase in task completion rates up to **90%**, compared to the previous conventional format which reached only **65%**.

Development of Pedagogical Competence and Learning Design

Gamification-Based Learning not only adds excitement to the learning process but also contributes significantly to the development of pedagogical competence and instructional design skills among prospective teachers. Through this approach, participants not only understand theoretical concepts but also gain hands-on experience in applying key pedagogical principles such as classroom management, lesson planning, media selection, differentiated instruction, and both formative and summative assessment techniques. They learn to design innovative learning experiences by integrating game elements that align with the needs of elementary school students.

This innovation enables prospective teachers to create contextual, creative, and student-centered learning, thereby encouraging active participation. By practicing the steps of gamified instructional design, they develop pedagogical thinking that aligns

with the demands of the Merdeka Curriculum, such as project-based learning, meaningful learning experiences, and character building. Furthermore, gamification helps them think systematically when structuring learning sequences, balancing cognitive–affective–psychomotor aspects, and designing activities that naturally foster student motivation. As a result, their pedagogical competence becomes more comprehensive, applicable, and ready to be implemented in real classroom settings.

Prospective teachers reported that through gamification, they learned to design creative lesson plans (RPP), educational game flows, and material scaffolding techniques. One participant stated:

“At first, I was confused about how to create a gamification scenario, but over time I learned how to design an engaging learning flow for elementary students.” (Interview, P4)

These findings were reinforced through observations during practice sessions, where participants were more confident in presenting their instructional designs and could clearly explain how the game elements supported learning objectives. This aligns with documentation of their final products including gamified lesson plans, interactive digital media, and challenge cards which demonstrated increased creativity from the initial to the final cycle.

Enhancement of Technology Literacy and Mastery of Digital Media

Gamification-Based Learning requires the use of various technological tools and digital applications, which directly enhances participants' digital literacy. They become familiar with multiple digital learning platforms, including learning management systems (LMS), online quiz applications (such as Kahoot or Quizizz), educational games, virtual simulations, and other interactive media. This exposure gives them real experience in leveraging technology to optimize instruction and deliver content creatively and effectively.

In modern education, technological mastery is a mandatory competency for teachers. Through gamification, prospective teachers not only learn how to operate these tools but also understand how to select, adapt, and integrate digital media according to learning goals. They develop the ability to design attractive and interactive learning activities suitable for elementary students, who are naturally inclined toward visual, explorative, and activity-rich learning. Thus, gamification plays a crucial role in

preparing future teachers to face the demands of educational digitalization and the technological transformation of the 21st century.

Several participants admitted that they initially lacked mastery of digital applications, but gamification encouraged them to learn more quickly. As one participant explained:

"I learned to use Canva, Wordwall, and Genially because the tasks required us to create interactive media." (Interview, P7)

This is supported by observations throughout the learning process, showing that participants gradually became proficient in using laptops and smartphones to create digital materials, upload assignments, and manage points. Documentation of participants' digital media files also showed improvements in layout quality, interactivity, and integration of game elements..

Increased Collaboration, Communication, and Social-Emotional Competence

Gamification also contributes significantly to the improvement of participants' socio-emotional competencies. Many gamified learning activities are designed in teams, collaborative missions, or group challenges. Such activities encourage participants to work together, communicate, share responsibilities, and solve problems collectively. Through these collaborative interactions, they develop effective communication skills, empathy, open-mindedness, and negotiation abilities.

In addition, the healthy competitive atmosphere within gamification trains participants to manage stress, regulate emotions, and build resilience when facing challenges or setbacks. They also learn to appreciate others' achievements, receive feedback positively, and build self-awareness as future educators. These experiences are crucial because successful teaching relies not only on academic mastery but also on socio-emotional intelligence such as understanding students' needs, forming positive relationships, and managing classroom dynamics. Through a socially interactive learning environment, gamification shapes prospective teachers into communicative, collaborative, and emotionally intelligent individuals competencies that are essential for fostering a supportive and inclusive learning atmosphere.

Participants also shared that group work during "team missions" helped them develop collaboration skills. One participant noted:

"In group missions, we had to discuss and divide tasks, so we learned to trust each other." (Interview, P3)

This statement is supported by observational data in which the researcher recorded positive interactions, mutual assistance, and active communication as participants worked through challenges. Documentation in the form of activity photos and videos further demonstrated strong collaborative dynamics among group members.

The findings of this study indicate that gamification-based learning functions effectively as an instructional innovation within the context of teacher education. First, gamification has been shown to significantly enhance participants' motivation and engagement. This result aligns with the Self-Determination Theory (SDT), which posits that game elements such as rewards, challenges, and feedback support learners' basic psychological needs competence, autonomy, and relatedness thereby stimulating intrinsic motivation. Second, gamification encourages participants to develop pedagogical abilities and instructional design skills. By designing game-based learning activities, prospective teachers implicitly learn how to structure engaging lessons, classify material effectively, and build adaptive and creative learning flows. This reinforces previous research demonstrating that gamification not only improves academic outcomes but also enriches teacher candidates' pedagogical capacity in crafting meaningful learning experiences.

Third, from the perspective of technological literacy, the implementation of gamification assists participants in mastering various applications, digital platforms, and techniques for creating interactive instructional media. This process reflects the demands of 21st-century education, in which prospective teachers are expected not only to teach but also to act as designers of innovative digital learning experiences. This improvement is evident from the documented learning products and observed behaviors of participants throughout the instructional activities. Fourth, the challenges that emerged, such as limited access to devices and varying levels of technical proficiency, indicate that digital learning innovations still require adequate infrastructure and continuous training. Nevertheless, these challenges do not diminish the overall effectiveness of gamification; instead, they highlight the importance of guidance strategies, scaffolding, and curriculum adaptation in the implementation of innovative learning models.

Overall, this discussion underscores that gamification-based learning contributes substantially to shaping the competencies of prospective teachers,

particularly in the areas of creativity, pedagogy, and digital literacy. This study reinforces the urgency of transforming teaching and learning in madrasahs and elementary schools to ensure they remain adaptive to technological developments and responsive to the needs of increasingly digital-native learners.

CONSLUTION

This study concludes that the Gamification-Based Learning Innovation implemented at MI Roudhotu Tolibin significantly contributes to the development of essential competencies among prospective elementary school teachers. The findings reveal that gamification enhances students' motivation, engagement, and readiness to participate actively in the learning process. It also strengthens their pedagogical competencies by encouraging them to design creative, structured instructional activities that integrate game-based elements. Furthermore, gamification fosters technological literacy, enabling prospective teachers to utilize digital tools and produce interactive learning media. The collaborative missions and reflective tasks embedded in the gamified learning process also support the growth of communication skills, teamwork, and self-evaluation abilities. Despite several challenges related to technical skills and infrastructure, the overall implementation proves effective and aligns with the needs of 21st-century teacher education. Therefore, gamification has strong potential as an innovative instructional model capable of preparing future teachers to be more adaptive, creative, and competent in designing engaging learning experiences. This research emphasizes the importance of integrating digital-based innovations into teacher education programs and suggests that further studies explore long-term impacts and scalability across broader educational contexts.

DAFTAR PUSTAKA

Abrori, M Sayyidul, dan Moh. Solikul Hadi, "Integral Values in Madrasah: to Foster Community Trust in Education," *Istawa : Jurnal Pendidikan Islam*, 5.2 (2020), 160 <<https://doi.org/10.24269/ijpi.v5i2.2736>>

Albina, Meyniar, Ardiyan Safi'i, Mhd. Alfat Gunawan, Mas Teguh Wibowo, Nur Alfina Sari Sitepu, dan Rizka Ardiyanti, "Model Pembelajaran Di Abad Ke 21," *Warta Dharmawangsa*, 16.4 (2022), 939-55 <<https://doi.org/10.46576/wdw.v16i4.2446>>

Amrullah, Eka Apriani, dan Muhammad Idris, "Enhancing Pedagogical Competence of Pre-Service Islamic Education Teachers through Peer Assessment and Constructive Feedback," 14.1 (2025), 191-208

Creswell, John W, *A Mixed-Method Approach, Writing Center Talk over Time*, 2018

<<https://doi.org/10.4324/9780429469237-3>>

Dinata, Feri Riski, dan Ali Kuswadi, "Kolaborasi Pesantren dan Perguruan Tinggi Islam : Model Manajemen Kemitraan Berkelanjutan," 2.1 (2025), 8–14

Dinata, Feri Riski, Ali Kuswadi, dan Dwi Novianti, "Peran Deep Learning dalam Optimalisasi Proses Manajemen Pembelajaran di Madrasah Ibtidaiyah," 1.1 (2025), 33–36

Fahmi Husein, Moh Solikul Hadi, Edi Kurniawan, "Strategi Digital Detox untuk Siswa : Efektivitas Pendidikan Islam melalui Program Bimbingan Konseling pada Anak SMA / SMK di Yogyakarta Penerbangan AAG Adisutjipto , penerapan strategi Digital Detox melalui program," 13 (2024), 358–69

Hadi, Moh. Solikul, M. Sayyidul Abrori, dan Dwi Noviatul Zahra, "Pengembangan Multimedia Interaktif Macromedia Flash Profesional 8 Pada Pembelajaran Al-Qur'an Hadis Kelas X Semester Genap Di Man 1 Yogyakarta," *At-Tajdid : Jurnal Pendidikan dan Pemikiran Islam*, 3.2 (2020), 148
<<https://doi.org/10.24127/att.v3i2.1123>>

Moh. Solikul Hadi, Dkk, "Efektifitas Instrumen Penilaian Pendidikan Agama Islam Untuk Meningkatkan Kemampuan Berpikir Kritis Dan Kreatif Peserta Didik Di Smk Muhammadiyah Mlati Yogyakarta," *Berkala Ilmiah Pendidikan*, 4.1 (2024), 28–34

Moh Solikul Hadi, Muhammad Arif Robbani, Taufiqurrahman Siddiq, "Konsep Pendidikan Islam di Era Society 5 . 0 Perspektif Hadist," 3.1 (2021), 28–39

Pangestuti, Rindiyan, dan Riyadhul Janah, "Dopamine detox: Upaya pengendalian kecanduan gadget pada anak di era digital perspektif surah Al-Ashr ayat 1-3," *Tadribuna: Journal of Islamic Management Education*, 3.2 (2023), 19–30

Priyanto, Adun, "Pendidikan Islam dalam Era Revolusi Industri 4.0," *J-PAI: Jurnal Pendidikan Agama Islam*, 6.2 (2020), 80–89
<<https://doi.org/10.18860/jpai.v6i2.9072>>

Puspitasari, Diyah R., Mustaji, dan Retno Danu Rusmawati, "Model Pembelajaran Inkuiri Terbimbing Berpengaruh Terhadap Pemahaman dan Penemuan Konsep dalam Pembelajaran PPKn," *Jurnal Ilmu Pendidikan dan Pembelajaran*, 3.1 (2019), 98

Riski, Feri, dan Ali Kuswadi, "Manajemen Pendidikan Kepala Sekolah Dalam Mengaplikasikan Visi dan Misi di SMK Negeri 1 Pakuan Ratu," 1.1 (2024), 7-15

Sugiyono, *Memahami penelitian kualitatif* (Bandung: Alfabeta, 2010)

———, *Metode Penelitian Kualitatif, Kuantitatif dan RnD* (Bandung: Alfabeta, 2019)

———, *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif R & D* (Bandung: Alfabeta)