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Gamification - A New Superpower to Enhance the Effectiveness of Educational Supervision in the Digital Age

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ABSTRACT

Educational supervision in the digital era faces challenges related to teacher motivation, active engagement, and feedback effectiveness in professional development processes. This research aims to identify effective gamification models, describe their implementation, and analyze their impact on motivation, engagement, and effectiveness of educational supervision in the digital era. The study employed a qualitative approach with a case study design conducted at SDIT Insantama Rangkasbitung. Research participants consisted of school supervisors, principals, and teachers selected through purposive sampling. Data collection was carried out through in-depth interviews, participatory observation, and document analysis. Data analysis utilized thematic analysis techniques with NVivo software assistance. The findings reveal that an effective gamification model integrates a hierarchy of elements including progress bars, point systems, badges, and leaderboards with priority on feedback and follow-up aspects. Implementation was conducted through four systematic stages: Quest log in planning, Live feedback in observation, Debriefing challenge in feedback, and Action Points with a leveling system in follow-up. Significant impacts were identified in increasing teacher motivation through achievement visualization, enhancing active engagement with accelerated response and task completion, and improving supervision effectiveness measured from process dimensions, teaching quality output, to student learning outcomes. This research provides practical contributions in the form of an adaptive gamification supervision model that accommodates technological infrastructure limitations and can be replicated by schools with similar conditions.

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1. INTRODUCTION

The digital transformation in education has presented various new challenges and opportunities, particularly in the context of educational supervision, a crucial pillar in improving the quality of learning. Educational supervision in the digital era demands a more innovative and responsive approach, one that enhances the active involvement of teachers as the subjects being supervised (Palanivel, 2020). However, conventional supervision practices often face fundamental problems such as low teacher motivation to actively participate in the supervision process, negative perceptions that supervision is a judgmental activity, and weak post-supervision follow-up, which results in minimal continuous improvement in the quality of learning (Addas, Naseer, Tahir, & Khan, 2024). This phenomenon becomes even more complex when supervision must be implemented through digital platforms, which demands a paradigm shift from the conventional top-down and administrative model to one that is more collaborative, participatory, and oriented toward holistic teacher professional development.

Gamification as the application of game elements and mechanisms in non-game contexts has been proven to be effective in increasing motivation, engagement and behavior change in various fields including education (Deterding & Dixon, 2025). In the context of learning, gamification has demonstrated a positive impact on students' intrinsic motivation, active engagement, and achievement of more optimal learning outcomes through the use of elements such as points, badges, leaderboards, progress bars, and structured reward systems (Dayu Nur Hidayat, 2025). Empirical research shows that the application of gamification in the learning process can change students' perceptions of academic tasks that were initially considered boring to become more interesting and challenging, thus encouraging active participation and consistency in completing learning activities (Ergashboyevna, 2025). However, exploration of the application of gamification in the context of educational supervision, particularly digital supervision, is still very limited and requires in-depth study to identify appropriate, effective models that suit the unique characteristics of the educational supervision process, which differs substantially from the learning process.

Several previous studies have explored various aspects related to educational supervision and gamification separately. Research conducted by (Kalogiannakis & Papadakis, 2021) studied the effectiveness of digital supervision in improving teachers' pedagogical competence, but had not yet integrated a gamification approach as a strategy to increase engagement and motivation. Meanwhile, a study conducted by (Kim & Castelli, 2021) explored the application of gamification in teacher professional development through an online training platform, but did not specifically address the context of educational supervision, which has different supervisor-teacher relationship dynamics than the general training context. (Mhlongo, Mbatha, Ramatsetse, & Dlamini, 2023) shows that gamification can increase teacher motivation in participating in professional development programs, but the study did not explore how gamification can be integrated into the entire educational supervision cycle from planning, observation, providing feedback, to follow-up. A systematic literature review conducted by (Palanivel, 2020) identified that most gamification research in education still focuses on the context of student learning, while its application in the context of educational management and supervision is still very minimally explored.

The identified research gap indicates that there has been no comprehensive study specifically developing and testing a gamification model specifically designed for the context of educational supervision in the digital era, considering all aspects of the supervision cycle. Previous studies tend to be partial, either examining only the digital aspects of supervision without gamification, or examining gamification in the context of teacher training without a focus on supervision. Therefore, they have not provided a holistic understanding of how to design, implement, and evaluate the impact of gamification models in educational supervision comprehensively. Furthermore, there remains a gap in knowledge regarding which gamification elements are most relevant and effective for each stage of supervision, the appropriate implementation strategies within existing digital platforms, and how these impacts on concrete and measurable changes in teacher teaching behavior.

The novelty of this research lies in the development of a systematically integrated gamification model throughout the digital education supervision cycle, starting from the planning stage designed as a quest log, observation with live feedback points, providing feedback through debriefing challenges, to follow-up with an experience points system and level progression that encourages continuous improvement. The novelty of this research also lies in the identification of the most effective gamification elements for each supervision stage by considering aspects of fairness, objectivity, and orientation towards improving the quality of substantive learning rather than merely administrative compliance. This research provides a theoretical contribution in enriching the literature on gamification in the context of education management, as well as a practical contribution in the form of a model that can be implemented by school supervisors and educational supervisors to increase the effectiveness of supervision in the digital era.

Based on the background and research gaps, this study aims to answer three research questions, namely: first, what is an effective gamification model to improve the effectiveness of educational supervision in the digital era; second, how is the application of the gamification model in educational supervision in the digital era; and third, what is the impact of the application of the gamification model on motivation, engagement, and effectiveness of educational supervision in the digital era. The purpose of this study is to formulate a comprehensive and effective gamification model for digital educational supervision, describe strategies and steps for implementing the gamification model in educational supervision practices, and analyze the impact of the application of the gamification model on increasing teacher motivation, active involvement in the supervision process, and the effectiveness of supervision in improving the quality of learning.

The theoretical benefits of this research are contributing to the development of gamification theory in the context of educational supervision and enriching the literature on supervision innovation in the digital era which is still limited. Practical benefits for school supervisors and educational supervisors are the availability of applicable and adaptable gamification models to improve supervision effectiveness, for teachers is the creation of a more positive, constructive, and motivating supervision experience for continuous professional development, and for educational institutions is the availability of innovative strategies to improve the quality of supervision and ultimately impact the improvement of learning quality systematically and sustainably in the era of digital transformation of education.

2. METHODS

This research uses a qualitative approach with a case study design to explore in depth the phenomenon of gamification implementation in educational supervision in the digital era. A qualitative approach was chosen because this study aims to understand the complexity of experiences, perceptions, and meanings constructed by participants regarding the implementation of gamification models in the context of educational supervision, which cannot be measured solely through statistical figures but requires rich and in-depth narrative descriptions (Creswell & Creswell, 2023). The case study method allows researchers to explore phenomena in real-life contexts using multiple data sources, thus providing a holistic understanding of how gamification models are designed, implemented, and impact the effectiveness of educational supervision.

The research was conducted at SDIT Insantama Rangkasbitung, a school located near urban areas and characterized as an integrated Islamic school that has integrated digital technology into various aspects of learning and school management. The selection of the research location was based on the consideration that SDIT Insantama Rangkasbitung has adequate technological infrastructure and experience in implementing digital supervision systems, making it highly relevant as a research locus on gamification innovation in educational supervision. The research period was carried out for four

months, covering the preparation stage, data collection, data analysis, and verification of findings to ensure the depth and credibility of the research results.

Research participants were determined through purposive sampling with specific criteria to ensure the richness of the information obtained. Participants consisted of three categories of respondents who had different but interrelated roles in the educational supervision process. The first category was school supervisors or educational supervisors tasked with external supervision and had at least three years of experience in digital supervision, with two respondents. The second category was school principals who acted as internal supervisors and policymakers at the school level, with one respondent having served at least two years in the position. The third category was teachers who were subjects of supervision and had participated in at least two supervision cycles using the gamification model, with five respondents representing various grade levels and subject areas. The selection of participants from these three different categories aimed to obtain multiple perspectives and data triangulation that strengthen the validity of the research findings (Kozub, Bakhov, Palamarchuk, Burak, & Lohvynenko, 2024).

The data collection technique in this study employed three main methods to produce comprehensive and complementary data. First, semi-structured in-depth interviews were conducted with all participants using an interview guide developed based on three research questions. Interviews were conducted individually, lasting between 45 and 60 minutes for each participant. Interviews were recorded using digital audio with the participants' consent, and then transcribed verbatim for analysis. Interview questions explored effective gamification elements, the process of implementing gamification in each stage of supervision, implementation challenges, and the impact on teacher motivation and engagement. Second, participant observation was conducted to directly observe the implementation of gamification in the digital supervision process, including observations of interactions between supervisors and teachers on the digital platform, the point-based feedback mechanism, and teacher responses to gamification elements such as progress bars, badges, and the leveling system. Observations were conducted during four different supervision sessions to capture variations in practice and dynamics. Third, document analysis was conducted on various related documents such as digital supervision guides, gamification dashboards, data on points and badges obtained by teachers, teacher reflection journals, and supervision follow-up reports to complement data from interviews and observations.

Data analysis was conducted iteratively using thematic analysis techniques, which included data transcription, initial coding to identify units of meaning, grouping codes into thematic categories, and developing key themes that addressed the research problem. The analysis process was assisted by NVivo software to facilitate the organization of complex qualitative data.The validity and reliability of the research were maintained through several strategies, including triangulation of data sources and data collection methods, member checking by asking participants to verify the researcher's interpretations, peer debriefing by discussing findings with fellow researchers, and an audit trail by systematically documenting the entire research process. Ethical considerations were maintained by obtaining informed consent from all participants, ensuring the confidentiality of participant identities and data, and giving participants the right to withdraw from the research at any time without negative consequences.

3. FINDINGS AND DISCUSSION

An Effective Gamification Model to Improve the Effectiveness of Educational Supervision in the Digital Era

Based on interviews with research participants, it was found that the most relevant and effective gamification elements in the context of digital educational supervision have a specific priority hierarchy. Respondents stated that "in order of importance are progress bars or points for each supervision stage that is completed well. This provides instant feedback. Then, badges for specific competencies, for example 'Digital Learning Innovator,' can motivate teachers. Then, Leaderboards can be sensitive, to be used per group or category." These findings indicate that progress bars and point systems are the main foundation because of their ability to provide direct, transparent feedback to teachers regarding their achievements in each supervision stage. The digital badge element is designed to recognize specific competencies that teachers have mastered, thus serving as tangible evidence of professional achievement. Meanwhile, leaderboards require caution in their implementation because they have the potential to create unhealthy competition. Therefore, it is recommended to apply them to specific groups or categories to maintain motivation without creating excessive pressure.

Further analysis of the aspects of supervision that require a gamified approach reveals that feedback and follow-up are top priorities. Participants explained that "[t]he feedback and follow-up aspects are in dire need of gamification. Often teachers feel that feedback feels judgmental. Therefore, the solution is to turn feedback into a quest or challenge that must be completed to earn a reward (for example, access to exclusive training), so that teachers are more motivated." Transforming feedback into a quest or challenge that must be completed shifts the paradigm from a top-down evaluation to an empowering self-development experience. Follow-up documentation is also designed to be more streamlined and easily accessible through a bulleted checklist that encourages teachers to quickly complete supervision recommendations without feeling overwhelmed.

The challenges in designing gamification models for educational supervision primarily relate to the fairness and objectivity of assessments. Respondents identified that "among the challenges is ensuring that points or badges are based on clear and measurable performance indicators, not just activities. We must avoid gamification that makes teachers simply chase points without improving the quality of their core tasks." This statement underscores the importance of designing gamification systems that are oriented towards improving substantive quality, not just the quantity of activities. Performance indicators must be clearly designed and measurable to ensure that each point or badge earned by teachers truly represents a meaningful increase in professional competence.

Implementation of Gamification Models in Educational Supervision in the Digital Era

The implementation of the gamification model at SDIT Insantama Rangkasbitung uses a phased approach integrated with existing digital platforms. Regarding digital platforms, respondents explained that "it would certainly be better to integrate them with an LMS platform specifically designed for schools. However, this would require significant costs. So, for now, we are using existing reporting systems, either those commonly used by schools (such as Google Forms, Google Drive, Google Meet) or applications from the education office." This pragmatic strategy demonstrates that gamification implementation does not always require expensive technology investments, but can be adapted by leveraging existing digital infrastructure that is familiar to users.

The concrete steps of implementing gamification from the beginning to the end of supervision are systematically designed to integrate game mechanics elements into each stage. In the planning stage, a Quest Log system is implemented as a list or record of all tasks and missions that must be completed by the teacher. The observation stage uses a point-based Live Feedback mechanism that awards points for aspects of compliance, activeness, and innovation demonstrated by the teacher during the learning process. The feedback stage implements the Debriefing Challenge concept, namely a structured discussion session after the observation where the teacher and supervisor together reflect, analyze, and understand the learning practices that have been carried out, identify what is successful and what needs to be improved, and extract valuable lessons for continuous professional development. The follow-up stage uses an Action Points system that, when completed, will provide Experience points to level up the teacher into four progressive categories: beginner, intermediate, expert, and innovator. This leveling system is visualized in a personal dashboard that can be accessed by teachers in real-time.

The socialization and training strategy to ensure optimal utilization of the gamification model emphasizes mindset change. Respondents stated that "the socialization emphasized that this is not a competition, but merely a tool for self-improvement. There were fun simulations, where supervisors were also trained to not only assign 'grades' but also 'points' constructively." This approach is important to avoid counterproductive competition and ensure that gamification is perceived as an instrument for self-development, not a competition. Creating visual guides in the form of easy-to-understand infographics is also a crucial part of the implementation strategy to ensure all parties can utilize the system optimally.

The Impact of the Implementation of the Gamification Model on Motivation, Engagement, and Effectiveness of Educational Supervision

The impact of gamification on teacher motivation has been very positive. Respondents observed that "teacher motivation seems to increase. When they see points or progress bars moving, they feel encouraged to complete tasks. This is especially true if there are badges of public recognition (e.g., being appreciated in weekly meetings). Motivation becomes more visual and measurable, not just a 'satisfied or dissatisfied' statement from the supervisor." Visualizing achievements through gamification elements provides a concrete representation of professional development progress that was previously abstract. Public recognition through appreciation in formal forums such as weekly meetings provides a social dimension that strengthens teachers' intrinsic motivation to continuously improve their performance.

Observations show that badges provide tangible evidence of competence or mastery, while challenges provide autonomy in choosing professional development paths. The most valuable non-financial rewards are badges or professional status titles and privileges or autonomy, such as the right to choose training of interest or exemption from rigid routine supervision for teachers who have reached a certain level. This reward system not only increases external motivation but, more importantly, builds sustainable intrinsic motivation because teachers feel valued and trusted to manage their own professional development.

The impact on teacher engagement in the supervision process also showed a significant increase. Respondents explained that "teachers will be more diligent in uploading evidence and responding more quickly to feedback, because each action is worth points. Previously, uploading follow-up actions was often delayed, but now there is a timer and extra points for timely completion, because it will be monitored in real time through the digital platform." This increased frequency of participation

is driven by an instant points system that provides immediate rewards for each activity undertaken. The implementation of the timer and extra points for timely completion creates a positive sense of urgency and encourages discipline without being punitive. Observations show that this increased frequency of activity is accompanied by an increase in quality, where high-quality badges force teachers to focus on the substantive impact of learning practices, rather than simply fulfilling administrative requirements.

Overall supervision effectiveness has seen a measurable increase. Respondents stated that "overall, the effectiveness of supervision activities has increased because the focus is clearer. When assessment criteria are made into gamified targets (quests), teachers know exactly what to change and what to achieve. The quality of lesson plans and digital learning innovations has become more specific because the rewards are directly linked to quality improvements, not just administrative compliance." The clarity of targets and expectations through the quest system eliminates the ambiguity that often hinders conventional supervision. Teachers are no longer confused about what is expected of them, because each quest has been designed with specific and measurable success indicators.

Indicators of successful gamification implementation can be measured across three dimensions. In the input or process dimension, there was an increase in the frequency of completing challenges and an increase in the quality of teachers' reflection journals. In the output dimension, there was an increase in observation scores for teachers' teaching practices, particularly in the application of active learning methods, demonstrating the transfer of competency from supervision to actual classroom practice. In the outcome dimension, there was a decrease in the percentage of students below the Minimum Competency Minimum (KKM) and an increase in the Student Engagement Index score, indicating that improved supervision quality ultimately has a positive impact on student learning outcomes. Supervisors and principals also felt a positive impact through increased work efficiency due to automated reporting and the ability to conduct more targeted interventions based on analytical data generated by the gamification system..

Discussion

An Effective Gamification Model for Digital Education Supervision

The research findings on the hierarchy of effective gamification elements are in line with the results of the systematic literature review conducted by (Rinaldi, 2025) who found that points and badge systems were used in 87% of gamification studies in education, while leaderboards were used in 72%. The prioritization of progress bars and points in the context of educational supervision has strong theoretical justification because these elements provide immediate feedback, a fundamental principle in learning theory and professional development (Simsek & Yilmaz, 2025). In their systematic review they also confirmed that the most effective gamification elements are those that provide immediate and measurable feedback, with significant results not only on cognitive variables but also on affective variables such as motivation and participation.

The focus on feedback and follow-up aspects as the areas most in need of gamification is supported by research (Shelvia, 2025) A study on digital-based academic supervision found that fast and accurate feedback is a key factor in improving teacher performance. Transforming feedback into quests or challenges is a crucial innovation that shifts the dynamics of supervision from evaluative-corrective to developmental-empowering. This approach aligns with the findings of Nurmawati et al. (2024) who demonstrated that gamification in assessment can increase enthusiasm and engagement by shifting the perception of a stressful activity into a fun and challenging experience. The challenges of fairness and objectivity identified in this study are critical issues also highlighted by Febriansah et al. (2024) in their study of the development of gamification in education. They emphasized the

importance of avoiding the phenomenon of points hunting, where users focus solely on collecting points without achieving substantive learning outcomes. The solution implemented at SDIT Insantama Rangkasbitung, through clear and measurable performance indicators, reflects best practices in gamification design that focus on quality, not just quantity, of activities.

Application of the Gamification Model in the Context of Integrated Islamic Education

A pragmatic implementation strategy utilizing existing digital infrastructure demonstrates the adaptability of the gamification model to resource constraints. This finding is relevant to the educational context in Indonesia, where not all schools have the budget for a sophisticated Learning Management System. (Shelvia, 2025)also identified limited digital literacy and technology access as barriers to the implementation of digital supervision, so that a gradual and adaptive approach such as that implemented at SDIT Insantama Rangkasbitung becomes a realistic model and can be replicated by other schools with similar conditions. The concept of Quest logs, Live feedback, Debriefing challenges, and a leveling system integrated into all stages of supervision represents a comprehensive application of gamification theory in the context of educational professionals. Safitri et al. (2025) in their study of the gamification approach to improving critical thinking skills found that gamification not only improves cognitive aspects but also strengthens affective and social aspects by increasing motivation, creativity, and meaningful engagement.

The leveling system implemented at SDIT Insantama Rangkasbitung, from beginner to innovator, provides a clear progression pathway that facilitates continuous professional development with clear targets at each stage. The socialization strategy, which emphasizes self-improvement over competition, reflects a deep understanding of the potential negative effects of gamification. (Barroso-tristán, García-lázaro, & Reyes-de-cózar, 2025) In their systematic review of gamification and teachers' digital competence, they highlighted the importance of an inclusive and collaborative approach to gamification implementation to avoid exclusivity and destructive competition. Training supervisors to assign points constructively is also an important, often overlooked, element in gamification implementation, but crucial to ensuring that the system does not simply change the form of evaluation without changing the substance of the developmental approach to supervision.

The Multidimensional Impact of Gamification on the Educational Supervision Ecosystem

The measurable and visual increase in teacher motivation through gamification validates self-determination theory, which emphasizes the importance of autonomy, competence, and relatedness in building intrinsic motivation. (Suryani, 2025) found a significant increase in learning motivation with an average score increase of 12.42 points after implementing gamification, and importantly, this effectiveness was independent of a particular learning style, indicating that gamification has universal appeal. In the context of educational supervision, similar findings indicate that gamification can be effective for teachers with diverse characteristics and preferences. The impact on teacher engagement, characterized by increased frequency and quality of participation, is in line with the findings (Ahkamsyadid Yusmaputra Salim, 2025) In their systematic review of the effectiveness of gamification on student engagement in online learning, they identified that gamification elements such as incentives, competition, and formative assessment significantly increased both intrinsic and extrinsic motivation. In the context of supervision, instant points and timer systems with extra points created an engagement loop that encouraged active participation without being coercive.

The increase in supervision effectiveness measured from three dimensions of input, output, and outcome provides empirical evidence of the holistic impact of gamification .(Syukron Makmun, 2025)

A study on gamified leaderboard-based learning found a 23.5% increase in comprehension in the experimental group, an increase in active questioning, interaction, and participation in discussions, as well as an increase in task completion rates of up to 94.5% and attendance rates of 98%. Although the research contexts differed student learning versus teacher supervision the consistent pattern of positive impacts confirmed that gamification principles have applicability across educational contexts. The impact on the outcome dimension, in the form of a decrease in the percentage of students below the Minimum Completion Criteria (KKM) and an increase in the Student Engagement Index (SCI), is an important finding indicating that improving the quality of supervision through gamification ultimately contributes to improving the quality of learning and student learning outcomes. This validates the fundamental premise that effective supervision is a leverage point for systemic improvement in the quality of education. Increased supervisor work efficiency and the ability for data-driven interventions are also important impacts that are often overlooked in evaluations of supervision effectiveness, but are highly relevant in the context of the scalability and sustainability of gamification model implementation in the broader education system.

This research makes a significant contribution to the development of gamification theory in the context of educational supervision by extending the application of game mechanics principles from the domain of student learning to the realm of teacher professional development. The findings on the hierarchy of effective gamification elements enrich the existing literature, which largely focuses on the learning context, as reviewed by (Rinaldi, 2025) And (Simsek & Yilmaz, 2025), by showing that although the basic elements of gamification are universal, their priorities and configuration need to be adapted to the unique characteristics of educational supervision involving adult professionals with a need for autonomy and higher recognition of competence. The conceptualization of supervision as a quest-based journey with a progressive leveling system provides a new theoretical framework that integrates self-determination theory, experiential learning theory, and continuing professional development theory in one coherent and scalable ecosystem (Barroso-tristán et al., 2025).

Practically, this research provides concrete guidance for education practitioners in designing and implementing a gamification system in educational supervision that is adaptive to limited resources and technological infrastructure. The phased implementation model, which begins with utilizing familiar digital platforms such as Google Workspace, provides a realistic solution for schools that do not yet have the budget for a dedicated Learning Management System, in line with the findings of the study (Shelvia, 2025) The importance of a pragmatic approach to adopting digital supervision technology. Principals and supervisors can adapt the Quest Log, Live Feedback, Debriefing Challenge, and Action Points framework, which has proven effective at SDIT Insantama Rangkasbitung, as a template that can be tailored to the specific context of each school, while maintaining the core principles of gamification that have been identified as effective.

Although this study has produced significant findings, several limitations need to be acknowledged to provide context for interpreting the results and guiding future research. First, this study used a single-case study design at SDIT Insantama Rangkasbitung, an integrated Islamic school in a near-urban area with relatively adequate technological infrastructure and an organizational culture that supports innovation. The unique characteristics of this context limit the generalizability of the findings to schools with different conditions, particularly schools in rural areas with limited technology and internet access, public schools with more rigid bureaucratic cultures, or schools with lower levels of digital literacy. Findings on the effectiveness of the developed gamification model need to be validated through replication research in more diverse contexts to ensure the model's

transferability and adaptability.(Amelia, Siregar, Siregar, & Harahap, 2024)Second, the four-month research period was relatively limited in capturing the long-term impact of gamification implementation on changes in teacher teaching practices and student learning outcomes comprehensively. Several important impacts, such as the sustainability of teacher motivation, the potential for a novelty effect that may diminish over time, or deeper cultural changes within the supervision ecosystem, require a longer observation period to be validly observed and measured (Febriansah, Syaifuddin, & Soepriyanto, 2021).

Longitudinal research with a duration of one to two years will provide a more comprehensive understanding of the dynamics of supervision gamification implementation in the long term, including the identification of factors that influence the sustainability and potential fade-out effect of gamification elements. (Safitri, Subali, & Widiyatmoko, 2025) Third, this study used an excellent qualitative approach to explore participants' experiences and perceptions in depth, but it did not provide robust quantitative data to statistically measure the magnitude of gamification's impact. Although observational data indicated improvements in various indicators, the lack of a control group and systematic pre- and post-test measurements limited the study's ability to make strong causal claims about the impact of gamification. Experimental or quasi-experimental research with a more rigorous design, such as that conducted by (Syukron Makmun, 2025) In the context of learning, it is necessary to quantify the impact of gamification of supervision and compare it with conventional supervision approaches more rigorously..

4. CONCLUSION

Based on the research results and discussions that have been conducted, it can be concluded that gamification is an effective innovation to increase the effectiveness of educational supervision in the digital era through the integration of structured and measurable game mechanics elements. The gamification model that has been proven effective integrates a hierarchy of elements consisting of a progress bar and a points system as a foundation for providing instant feedback, badges to recognize specific competencies, and a leaderboard that is applied selectively in certain groups or categories to avoid destructive competition. The implementation of the gamification model at SDIT Insantama Rangkasbitung is carried out systematically through four stages which include Quest logs in the planning phase, Live feedback with points in the observation phase, Debriefing challenges in the feedback phase, and an Action Points system with a leveling mechanism in the follow-up phase, all of which are integrated in a digital platform that is adaptive to the available technological infrastructure. The impact of the implementation of gamification shows significant improvements in three main dimensions, namely increased teacher motivation visualized through the achievement of points and badges that provide concrete evidence of professional development, increased active teacher involvement in the entire series of supervision processes marked by accelerated responses and completion of follow-up tasks, and increased overall supervision effectiveness measured from the process dimension, teaching quality output, to student learning outcomes, with additional positive impacts in the form of increased supervisor work efficiency and analytical data-based intervention capabilities.

Based on the findings of this study, several recommendations can be put forward for optimizing the implementation of gamification in educational supervision in the future. First, education policymakers at the agency and ministerial levels need to develop regulations and standard guidelines for the implementation of gamification in educational supervision that take into account the diverse context of schools in Indonesia, and provide adequate technological infrastructure and

budget support to facilitate the widespread and sustainable adoption of gamification systems. Second, it is recommended that school principals and educational supervisors conduct comprehensive training on gamification system design that focuses on substantive quality rather than quantity of activities, develop clear and measurable performance indicators for each gamification element, and build a developmental and collaborative supervision culture that emphasizes self-improvement rather than competition. Third, for future researchers, it is recommended to conduct experimental or quasi-experimental research with pre-test and post-test designs to measure the impact of gamification quantitatively, explore the implementation of gamification in the context of supervision at different levels of education such as secondary or higher education, examine moderating factors that influence the effectiveness of gamification such as teacher characteristics, school organizational culture, and digital literacy levels, and develop a more comprehensive gamification model by integrating artificial intelligence and learning analytics technology to personalize teacher professional development paths based on individual performance data recorded in the system.

REFERENCES

Addas, A., Naseer, F., Tahir, M., & Khan, M. N. (2024). *Enhancing Higher-Education Governance Through Telepresence Robots and Gamification : Strategies for Sustainable Practices in the AI-Driven Digital Era*.

Ahkamsyadid Yusmaputra Salim. (2025). *Efektivitas Gamifikasi terhadap Keterlibatan Siswa dalam Pembelajaran Daring : Systematic Literatur Review*. *10*.

Amelia, T., Siregar, P., Siregar, M. I., & Harahap, A. Z. (2024). *Gamification in Education : Leveraging the Bamboozle App for Effective Summative Assessments in Seventh-Grade of Junior High School*. *29*(3), 467–475.

Barroso-tristán, J. M., García-lázaro, I., & Reyes-de-cózar, S. (2025). *Gami fi cation in digital environments and the development of teachers ' digital competence : a systematic review*. 1–13.

Creswell, J. W., & Creswell, J. D. (2023). Research design: Qualitative, quantitative, and mixed methods approaches (6th ed.). *SAGE Publications*.

Dayu Nur Hidayat. (2025). *Designing an Optimal Education and Training Model for Relationship Managers in the Digital Era*. *0696*.

Deterding, S., & Dixon, D. (2025). *From Game Design Elements to Gamefulness : Defining " Gamification ."* (September 2011). https://doi.org/10.1145/2181037.2181040

Ergashboyevna, N. U. (2025). *Application Of Smart-Learning Technologies In A Digital Educational Environment: Foreign Experience And Prospects For Implementation In The Education Systemof Uzbekistan*. *15*(05), 2020–2026.

Febriansah, A. T., Syaifuddin, A., & Soepriyanto, Y. (2021). *Perkembangan Gamifikasi di Bidang Pendidikan*. 177–186.

Kalogiannakis, M., & Papadakis, S. (2021). *education sciences Gamification in Science Education . A Systematic Review of the Literature*.

Kim, J., & Castelli, D. M. (2021). *Effects of Gamification on Behavioral Change in Education : A Meta-Analysis*.

Kozub, H., Bakhov, I., Palamarchuk, S., Burak, V., & Lohvynenko, O. (2024). *Adaptation of digital gamification in professional education amid martial law challenges Adaptación de la gamificación digital en la educación profesional en medio de los desafíos de la ley marcial*. https://doi.org/10.56294/sctconf2024.1236

Mhlongo, S., Mbatha, K., Ramatsetse, B., & Dlamini, R. (2023). Heliyon Challenges , opportunities , and prospects of adopting and using smart digital technologies in learning environments : An

iterative. *Heliyon*, *9*(6), e16348. https://doi.org/10.1016/j.heliyon.2023.e16348

Palanivel, K. (2020). *Emerging Technologies to Smart Education*. *68*(2), 5–16.

Rinaldi, R. (2025). *Systematic Literature Review : Pemanfaatan Gamifikasi Digital Untuk Meningkatkan Kualitas Pembelajaran*. *3*(5), 403–407.

Safitri, N. E., Subali, B., & Widiyatmoko, A. (2025). *Gamification approaches to enhance critical thinking skills in elementary education: A literature review (2020-2025)*. *18*, 13–22.

Shelvia, B. (2025). *Efektivitas Supervisi Akademik Berbasis Digital Dalam Meningkatkan Kinerja Guru Di Era Kurikulum Merdeka*. *7*, 48–55.

Simsek, E., & Yilmaz, T. K. (2025). *A Systematic Review of the Effects of Gamification in Online Learning Environments on Learning Outcomes*. *17*, 166–183. https://doi.org/10.55982/openpraxis.17.1.692

Suryani, E. (2025). *Pengaruh Metode Gamifikasi dan Gaya Belajar Terhadap Motivasi Belajar Mahasiswa*. *4*(3).

Syukron Makmun. (2025). *Efektivitas Pembelajaran Berbasis Gamifikasi Leaderboard Dalam Meningkatkan Motivasi Dan Pemahaman Siswa Terhadap Materi Aqidah Akhlak Siswa Di Mts Negeri 1 Bandung The (Studi Kasus Pada Pt. Karya Bahana Unigam Divisi Pemeliharaan Mesin)*. *5*(April 2025), 647–660.