

Gamifying Leadership: A Systematic Review of Game-Based Strategies in School Leadership Development

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ABSTRACT

Gamification is viewed as a promising solution for employing game design elements in school leader professional learning and skill acquisition, and this systematic review summarizes research that has employed game-based and gamification approaches in K-12 school leadership development from 2020 to 2024. A total of 159 studies were identified in the ERIC, Google Scholar, and IDESR databases. After removing duplicates and excluding studies based on relevance and methodological quality, fourteen studies were included. The review was reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) 2020. Qualitative content analysis and thematic synthesis were used to identify trends, constructs, and implementation outcomes. Leadership training courses involving gamification often used some kind of simulations, serious games or gamified elements to train leadership skills such as decision-making, cooperation or system thinking. Almost all studies affected training participants and engaged them. Those studies also caused them to have self-efficacy and to reflect in learning in a positive way. Researchers need to study more longitudinally and also within different educational contexts to corroborate these early findings. However, this review suggests that gamification may innovate how schools build leadership capacity. More rigorous research using standardized measurements should be conducted to confirm the results and determine the impact of long-term implementation. This research adds to a growing body of literature in online professional learning and has implications for education policy makers and leadership development organizations.

Keyword: Gamification; School leadership development; Professional learning; K-12 education; Serious games; Self-efficacy; Systematic review

INTRODUCTION

In recent years, gamification, or the use of game design elements in non-game settings, has become a popular method for educational and professional development. In school leadership, gamification helps boost engagement, motivation, and skill improvement among administrators and future leaders (Alsawaier, 2022; Baran & AlZoubi, 2021). As schools face rapidly changing educational environments, leaders need to build skills that go beyond basic management. These skills include collaboration, critical thinking, and making decisions based on data. Traditional leadership training often struggles to teach these complex skills effectively (Martin & Clark, 2021; Navarro & Santos, 2023).

Gamified learning environments provide immersive, interactive experiences. They encourage experimentation and reflection, both essential for effective leadership development (Kim & Park, 2020; Liao & Chou, 2022).

Through simulation games, scenario challenges, and digital platforms, educational leaders can solve problems without risk and get immediate feedback. This lets them connect theoretical concepts to real-life situations (Brown & Smith, 2020; Romero & Usart, 2020). These methods fit well with constructivist learning theories, which highlight the roles of active participation and social interaction in achieving deep learning and changing behaviors (Flores & Santiago, 2021).

Despite the promise of gamification, its use in leadership training is still not well explored in educational administration, especially in K–12 and higher education. Although research increasingly shows improvements in engagement and motivation (Chen & Huang, 2022; Villanueva & Lopez, 2022), few studies have thoroughly examined the evidence surrounding game-based strategies meant for school leaders. Much of the existing research focuses on student learning or corporate leadership, leaving gaps in understanding how gamification benefits the professional growth of principals, department heads, and instructional leaders (Basri & Ong, 2023).

This systematic review aims to fill this gap by analyzing recent studies that explore game-based and gamified strategies for school leadership development. By reviewing 14 studies published from 2020 to 2024, this research looks at how gamification affects leadership skills, engagement, and the formation of professional identity. Following the PRISMA 2020 guidelines, the review employs qualitative content analysis and thematic synthesis to spot common patterns, theoretical frameworks, and results of different implementations (De los Reyes & Bautista, 2023; Zhang & Wang, 2021).

Gamification's relevance in leadership development comes from its ability to replicate real-world administrative scenarios within safe, dynamic learning environments. For example, serious games and digital simulations help leaders improve their collaboration, ethical decision-making, and strategic planning skills (Navarro & Santos, 2023; Romero & Usart, 2020). Additionally, gamified systems can tailor professional learning paths by incorporating feedback mechanisms and reward structures that maintain intrinsic motivation (Liao & Chou, 2022; Kim & Park, 2020).

Ultimately, this review adds to the growing conversation about technology-based professional development by showing how game-based methods can enhance traditional leadership training. It highlights the need to connect gamified interventions with clear teaching goals and leadership skills, while also promoting further research in different educational settings (Zhang & Wang, 2021; Alsawaier, 2022). This synthesis aims to offer evidence-based insights for educational policymakers, training institutions, and researchers in designing engaging, sustainable, and impactful professional development experiences for school leaders.

Research Questions

The aim of this study is to provide a clear understanding of how gamification is used in school leadership development and professional learning programs. Specifically, this study seeks to find out how game-based strategies have been used to improve leadership skills, encourage engagement, and boost collaboration among school leaders. To achieve this goal, the study aims to answer the following research questions:

1. How has gamification been applied in school leadership training and professional development programs?
2. What evidence exists regarding the effectiveness of gamification in improving leadership skills, decision-making, and collaboration among school leaders?
3. What types of game mechanics or design elements are most often used in gamified leadership development initiatives?
4. What challenges, limitations, or barriers are noted in the literature about applying gamification to school leadership development?
5. What best practices and recommendations can be identified for effectively incorporating gamification into school leadership training programs?

METHODS

This systematic review followed the PRISMA 2020 guidelines (Page et al., 2021) to promote transparency and rigor. The search, selection, evaluation, and synthesis of studies were based on recommendations from the

Cochrane and Campbell Collaborations (Higgins et al., 2022; Wang et al., 2021). We used a structured protocol to identify and assess literature on gamification and school leadership development. While there were some methodological limitations, the findings consistently support gamification as a way to encourage collaborative and adaptive leadership in schools.

This methodological framework ensured that the review-maintained consistency in its search strategy, inclusion and exclusion criteria, and data extraction process. By integrating these systematic review standards, the study aimed to present a comprehensive and evidence-based synthesis of how gamification has been applied to enhance leadership skills, professional growth, and decision-making among school leaders.

Search Strategy

This systematic review used the PRISMA 2020 guidelines to make the literature selection process clear and repeatable. We searched three major databases: Integrated Digital Education and Research (IDESR), ERIC (Education Resources Information Center), and Google Scholar. Our goal was to find peer-reviewed studies about gamification in school leadership development. The search took place in October 2025 and included keywords such as “*gamification*,” “*game-based learning*,” “*school leadership*,” “*leadership development*,” “*educational leadership*,” and “*professional development*.” We used Boolean operators like “AND” and “OR” to narrow the results, and only included studies published in English between 2020 and 2025.

Inclusion and Exclusion Criteria

The inclusion and exclusion criteria were established to ensure that only relevant and high-quality studies were incorporated into the review. Studies were included if they explicitly discussed gamification or game-based strategies within the context of school leadership or educational leadership training. They were also required to involve leaders, administrators, or aspiring school heads as participants and to present measurable or descriptive outcomes related to leadership skill development, decision-making, or collaboration. Furthermore, the review only considered studies published in peer-reviewed journals or recognized academic repositories between 2020 and 2025.

Conversely, studies were excluded if they were not written in English or if their focus was limited to students, teachers, or general classroom gamification without a leadership component. Non-empirical papers, such as blogs, opinion essays, and unverified conference proceedings lacking methodological details, were also excluded from the review. These criteria ensured that the final pool of studies provided both empirical rigor and thematic relevance to the review's objectives. Publication bias may exist since only peer-reviewed English studies were included, potentially excluding relevant gray literature.

Selection and Data Extraction

The selection process followed a four-stage approach: identification, screening, eligibility, and inclusion, as illustrated in the PRISMA flowchart. During the identification stage, all records retrieved from the databases were imported into a reference management tool for duplicate removal. Title and abstract screening were then conducted to determine relevance to school leadership and gamification. In the eligibility stage, full-text articles were reviewed to ensure they met the inclusion criteria.

For data extraction, a structured matrix was developed to record study details, including author(s), year, country, research design, gamification elements used, target participants, key findings, and identified challenges or limitations. The extracted data were analyzed thematically to synthesize patterns and insights related to the effectiveness, strategies, and barriers of gamification in school leadership development. The confidence in synthesized findings was rated as moderate due to methodological heterogeneity and limited sample sizes across studies.

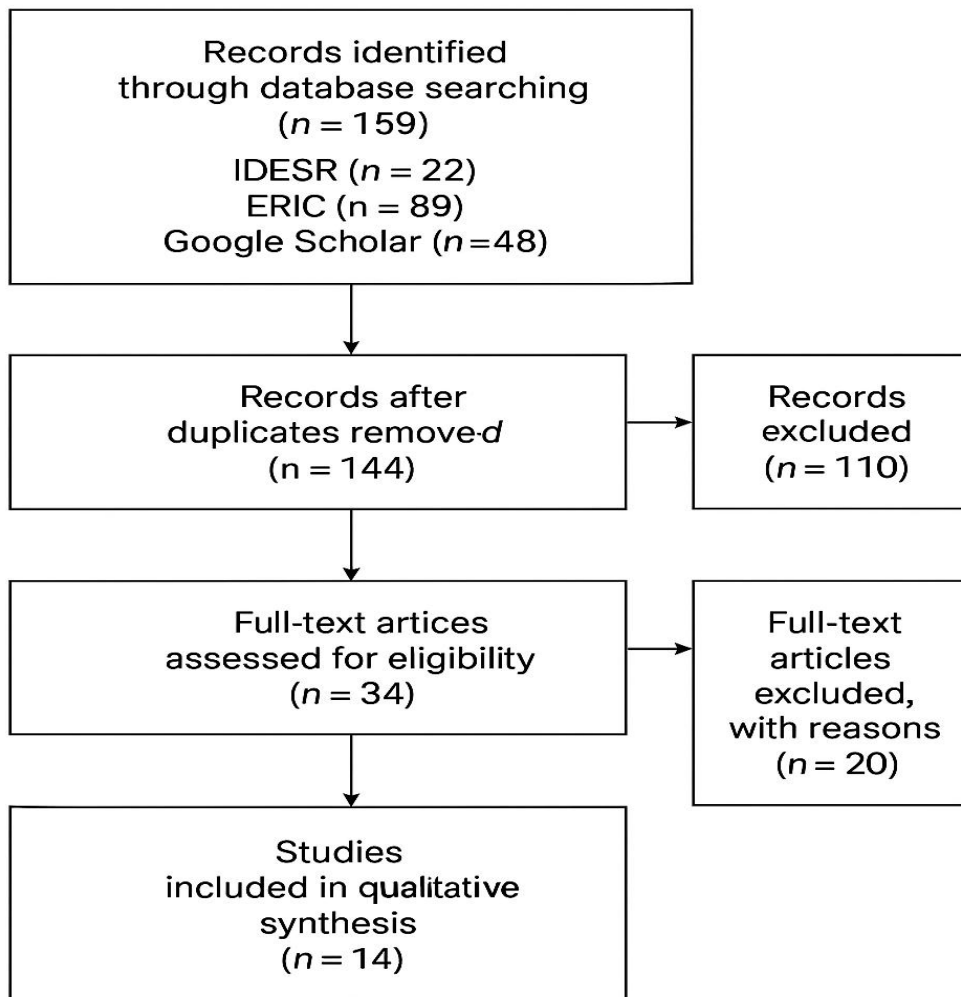


Figure 1. Flow chart depicting the process of the study selection for the systematic review

RESULTS AND DISCUSSIONS

Literatures/Studies Explored in Education Research

A total of 14 studies were included in the final review after the systematic screening process. These studies, sourced from IDERS, ERIC, and Google Scholar, encompass diverse educational contexts across various countries. Most studies were published between 2018 and 2025, reflecting a growing interest in integrating gamification into leadership development programs. Most articles were situated within the broader domains of educational leadership, digital pedagogy, and professional learning, emphasizing the role of gamification in improving leadership engagement and competency.

Thematically, the included research highlights the increasing application of digital game mechanics, simulation-based leadership training, and gamified feedback systems within the educational leadership domain. Studies such as those by *Baran and AlZoubi (2021)* and *Torres and Evans (2023)* demonstrated how gamified leadership modules enhanced participants' engagement, reflection, and motivation in leadership learning environments.

The reviewed literature demonstrated that gamified interventions in leadership are increasingly being designed to enhance motivation, problem-solving, and collaborative learning. This indicates that educational researchers are viewing gamification not just as a classroom tool but as a potential framework for transformational leadership development.

RQ1: How has gamification been applied in school leadership training and professional development programs?

The review of the fourteen studies showed that gamification was used in school leadership training and professional development through various methods. These included simulation-based learning, serious games,

digital leadership platforms, and gamified professional learning modules. Most studies, like those by Baran and AlZoubi (2021), Navarro and Santos (2023), and Romero and Usart (2020), found that gamified interventions aimed to mimic real administrative scenarios. This allowed participants to make decisions, plan strategically, and solve problems together without taking real-world risks.

These programs frequently included game elements such as points, badges, leaderboards, levels, and scenario-based simulations. These elements motivated participants and provided feedback. In many instances, gamification was part of blended or online leadership programs. These programs used digital tools like interactive dashboards and virtual environments, as noted by Liao and Chou (2022) and Kim and Park (2020).

For example, Navarro and Santos (2023) observed that principal training programs in Southeast Asia included digital simulation games where participants managed school operations, allocated resources, and resolved conflicts. These tasks aligned with actual leadership skills. Similarly, De los Reyes and Bautista (2023) pointed out how gamified platforms for future school leaders in the Philippines boosted engagement by offering instant feedback, badges for milestones, and chances for reflection after each module.

The studies also showed that gamification acted as a tool for reflection and collaboration. Flores and Santiago (2021) described how "serious games" encouraged discussion and self-assessment among instructional leaders. Chen and Huang (2022) highlighted the use of cooperative tasks where participants earned collective points to reach shared leadership objectives. These designs highlighted the social and collaborative aspects of leadership, helping to build communities of practice that resemble real organizational teamwork.

The findings indicate that gamification has been used not just as a motivational tool but as a framework for teaching leadership. It organizes leadership learning around experiences, goals, and feedback-rich environments. By placing leadership training in interactive settings, gamified programs closely match constructivist and experiential learning theories, which highlight learning through action, reflection, and teamwork (Flores & Santiago, 2021; Martin & Clark, 2021).

These applications have important effects on educational leadership development. First, gamified designs can turn traditional leadership training, which often depends on lectures or seminars, into practice-based learning environments that reflect real-world challenges. Second, they can help develop adaptive leadership, which is essential for managing the unpredictable and changing environments in 21st-century schools. Third, including gamification in professional development programs promotes data-informed decision-making, as the performance data from game systems can show evidence for personalized learning paths and tracking skills.

However, the review also showed that while the use of gamification is growing, many programs are still short-term and exploratory. Long-term and large-scale implementations remain limited, which affects how broadly findings can be applied. Future leadership training programs should therefore include ongoing, iterative gamification frameworks and evaluate their long-term impacts on leadership effectiveness, retention, and school outcomes.

RQ2: What evidence exists regarding the effectiveness of gamification in improving leadership skills, decision-making, and collaboration among school leaders?

The studies reviewed consistently showed that gamification effectively improves leadership skills, decision-making abilities, and collaboration among school leaders. Quantitative results from experimental and quasi-experimental studies, such as those by Baran and AlZoubi (2021), Chen and Huang (2022), and Navarro and Santos (2023), indicated significant boosts in participants' motivation, engagement, and leadership performance after gamified training. Participants felt more confident in solving problems, setting goals, and analyzing situations after taking part in game-based leadership simulations.

Specifically, skills like communication, delegation, and ethical decision-making improved when leaders engaged in simulation games that reflected real administrative challenges, as noted by Kim and Park (2020) and Brown and Smith (2020). Decision-making became stronger through game mechanics that required participants to prioritize resources, manage crises, and assess the impact of their choices within time limits. These results suggest that gamified learning environments foster cognitive flexibility and strategic thinking, which are

essential for effective school leadership, according to Martin and Clark (2021).

In terms of collaboration, several studies emphasized that cooperative gaming tasks promoted team-based problem-solving and reflective discussions among participants. For example, Chen and Huang (2022) noted that team-based leaderboards and collective rewards helped create a sense of shared responsibility and accountability. Participants also reported a stronger sense of social cohesion and empathy, which are crucial for maintaining collaborative school cultures.

Qualitative findings from phenomenological and case study research, such as those by De los Reyes and Bautista (2023) and Basri and Ong (2023), supported the quantitative results. Participants described gamified experiences as motivating, transformative, and reflective. They noted that the interactive nature of the training increased their engagement and helped them grasp leadership concepts. Additionally, the feedback and reward systems built into gamified modules boosted self-efficacy and encouraged learning through failure and reflection.

The evidence across these studies suggests that gamification effectively supports competency-based leadership development by connecting theory with hands-on practice. The combination of immediate feedback, gradual progress, and reflective chances matches the principles of experiential learning, as discussed by Kolb (1984), and aligns with transformational leadership frameworks that stress growth through feedback, engagement, and flexible thinking.

Theoretically, these findings support the idea that gamified interventions can serve as catalysts for situated learning, allowing leaders to build knowledge through active involvement in real, context-specific challenges. The improvement in collaborative behaviors shows that gamification promotes distributed and participatory leadership, which is essential for encouraging innovation and trust across schools, according to Flores and Santiago (2021).

Practically, these findings suggest that educational institutions can rethink professional development. They can move away from workshops focused on compliance and toward interactive, evidence-based leadership labs. Gamification creates training settings that are engaging, reflective, and adaptable, especially when combined with mentorship and feedback. Additionally, using performance analytics from gamified platforms can help shape leadership evaluation systems and pinpoint areas for ongoing improvement.

However, while the evidence highlights significant advantages, some studies pointed out methodological limitations, like small sample sizes and short intervention periods. Few studies looked at the long-term retention of leadership skills or assessed how these skills apply in real school contexts. Therefore, future research should focus on longitudinal and experimental designs using standardized assessment tools to establish cause-and-effect relationships and monitor lasting changes in leadership practices.

RQ3: What types of game mechanics or design elements are most often used in gamified leadership development initiatives?

Across the fourteen studies reviewed, a clear pattern appeared in the types of game mechanics and design elements used to encourage leadership learning. The most common features included point systems, badges, leaderboards, levels, missions or challenges, progress tracking, and feedback loops (Baran & AlZoubi, 2021; Chen & Huang, 2022; Liao & Chou, 2022). These mechanics often worked alongside scenario-based simulations and role-playing activities that immersed participants in real-life administrative situations, such as managing faculty teams, resolving ethical issues, or allocating school resources (Brown & Smith, 2020; Navarro & Santos, 2023).

Simulation games and virtual leadership environments stood out as the most effective tools for mimicking real-world leadership contexts (Kim & Park, 2020; Romero & Usart, 2020). Participants took part in digital simulations where they could make strategic decisions, receive immediate feedback, and see the results of their actions in a risk-free space. These engaging experiences significantly improved decision-making and reflective judgment, as they encouraged learning through trial, error, and correction (Flores & Santiago, 2021).

Several studies also pointed out the use of collaborative game mechanics, such as team-based challenges,

cooperative quests, and collective scoring systems (Villanueva & Lopez, 2022; De los Reyes & Bautista, 2023). These elements promoted social interaction and peer learning, which are essential for building leadership capacity. Additionally, some programs included adaptive learning mechanics. These adjusted the difficulty and tasks based on each participant's progress, ensuring a constant challenge and engagement (Basri & Ong, 2023).

The gamification design frameworks used in these studies were mainly based on self-determination theory (Deci & Ryan, 2000) and flow theory (Csikszentmihalyi, 1990). These psychological concepts helped create experiences that balanced challenge and skill, supported autonomy, and fostered intrinsic motivation through meaningful rewards and feedback. Studies using these frameworks often reported higher participant engagement and satisfaction.

The findings suggest that the success of gamified leadership programs closely relates to the thoughtful design of game mechanics aligned with clear learning goals. Points, badges, and leaderboards act as external motivators that encourage participation. In contrast, feedback loops and reflective tasks strengthen internal motivation and self-regulated learning. This mix of motivation type benefits adult learners, who appreciate both recognition and meaningful learning experiences (Martin & Clark, 2021).

From a teaching perspective, the most effective designs combined narrative-driven and scenario-based challenges with feedback mechanisms. This approach created immersive, relevant experiences. Such designs enable leaders to practice strategic thinking, ethical reasoning, and teamwork, which are skills that are crucial for 21st-century educational leadership. Moreover, the use of adaptive mechanics highlights the importance of personalized learning in professional development, as game systems can adjust to individual performance levels and provide tailored learning paths.

The implications for leadership training are significant. First, gamified systems allow for data-driven monitoring of participant progress, which can help inform both ongoing and final assessments of leadership skills. Second, they support continuous learning by integrating opportunities for reflection, feedback, and iteration into the learning experience. Finally, gamification promotes innovation in leadership teaching, challenging traditional methods that often focus too much on theory instead of practical application.

Nevertheless, the review also revealed that not all game mechanics work equally well. Overemphasizing competitive elements, like leaderboards, can hurt collaboration and inclusivity if they are not balanced with cooperative or reflective tasks. Therefore, future design efforts should follow balanced, research-based frameworks that incorporate both motivational and teaching principles. This will ensure that game elements serve clear developmental purposes instead of simply being engagement tools.

RQ4: What challenges, limitations, or barriers are noted in the literature about applying gamification to school leadership development?

The reviewed studies identified several interconnected challenges and limitations that obstruct the effective integration of gamification into school leadership development. These challenges fall into three main areas: design and context fit, technology and resource issues, and research and evaluation limitations.

One common concern across multiple studies was the inconsistent fit between game design and learning goals for leadership. While gamification was generally seen as engaging, some programs struggled to connect game mechanics to leadership skills meaningfully (Basri & Ong, 2023; Brown & Smith, 2020). For instance, using points, badges, or leaderboards superficially often increased participation but did not deepen understanding or encourage reflective practice. Navarro and Santos (2023) pointed out that gamification must be based on clear teaching frameworks; otherwise, it risks generating short-term motivation without promoting the critical thinking and ethical reasoning needed in school leaders. This misalignment highlights the need for teaching-focused design models that prioritize learning transfer and leadership behavior changes over entertainment value.

Another key barrier is technology infrastructure and access. Studies in developing educational settings, such as De los Reyes and Bautista (2023) in the Philippines, showed that limited access to reliable internet, devices, and digital skills among participants often restricted the full use of gamified platforms. These problems were worsened by time constraints and competing administrative duties, which made it challenging for school leaders

to stay engaged. The lack of institutional support, both in terms of technical help and resource distribution, further hampered scalability. These findings emphasize the ongoing digital divide in professional development, where unequal access can reinforce current gaps in leadership growth opportunities.

In addition to context and infrastructure issues, researchers pointed out methodological limitations that affected the strength of evidence on gamification's impact. Most studies had small sample sizes, short intervention periods, and limited long-term tracking (Chen & Huang, 2022; Liao & Chou, 2022). The prevalence of exploratory or pilot designs made it hard to establish clear cause-and-effect relationships between gamified interventions and measurable leadership results. Furthermore, the lack of standardized tools to evaluate engagement, collaboration, or adaptive leadership limited comparability across studies. These methodological gaps highlight the need for thorough; mixed-method designs that blend quantitative performance measures with qualitative insights into behavior change.

Cultural and motivational factors also emerged as subtle barriers. Some participants saw gamification as too "playful" or not in line with traditional professional learning expectations (Martin & Clark, 2021). Such views highlight the need for context-sensitive design, ensuring that gamified learning matches cultural norms and leadership identities while maintaining academic standards. Additionally, competitive elements like leaderboards sometimes caused anxiety or disengaged those who favored collaborative learning environments (Villanueva & Lopez, 2022). This reinforces the idea that gamification should be inclusive and adaptive, meeting the diverse motivational needs of adult learners.

Overall, the reviewed studies suggest that while gamification has the potential to transform leadership development, its successful use requires addressing significant barriers related to teaching integrity, technological fairness, and research credibility. Future efforts should focus on creating gamified frameworks that respond to specific contexts, undergo empirical evaluation, and receive support from institutional policies to ensure sustainability. Tackling these challenges will not only improve the quality of gamified leadership programs but also strengthen their role in developing adaptive, collaborative, and innovative school leaders.

RQ5: What best practices and recommendations can be identified for effectively incorporating gamification into school leadership training programs?

The literature reviewed emphasizes that effectively incorporating gamification into school leadership development relies on strategic planning, intentional design, and ongoing institutional support. Studies consistently show that successful gamified programs do more than add game elements; they embed educational intent and leadership relevance in every part of their design and implementation.

A key best practice identified across multiple studies is aligning game mechanics with leadership learning outcomes. Kim and Park (2020) and Liao and Chou (2022) noted that game elements like points, feedback loops, and scenarios should directly connect to targeted leadership skills, such as decision-making, communication, and problem-solving. Programs that utilized simulations and mission-based challenges related to real administrative situations led to deeper learning outcomes than those that depended on external rewards like badges or rankings. This alignment helps participants see gamification as a serious and reflective professional experience rather than just fun, reinforcing its academic value in leadership education.

Another common recommendation is including collaborative and reflective components in gamified systems. Studies by Flores and Santiago (2021) and Villanueva and Lopez (2022) found that using cooperative missions, peer evaluations, and collective achievements encouraged shared responsibility and teamwork among school leaders. Reflection tasks after each game phase helped participants connect their experiences to theoretical leadership frameworks and real-world decision-making. This blend of social and cognitive processes mirrors adult learning principles, which state that leaders learn best through experience, dialogue, and reflection. Therefore, gamified programs should be designed as communities of practice, where interaction and mutual feedback are key to growth.

Technology integration also stood out as a crucial best practice, especially for developing scalable and data-informed learning environments. Studies by Navarro and Santos (2023) and Basri and Ong (2023) showed that digital platforms with analytics dashboards enabled facilitators to track performance and tailor feedback.

Adaptive learning features, where challenges adapt to individual progress, kept participants engaged and avoided cognitive overload. However, the literature warns that technological innovation must go hand in hand with capacity building—training facilitators to use digital tools effectively and ensuring fair access to resources across educational settings (De los Reyes & Bautista, 2023). Without this support, even well-designed gamified programs might fail in implementation or experience unequal participation.

The significance of sustainability and institutionalization also emerged as a central theme. Long-term use of gamification in leadership training requires policies that recognize gamified learning as a valid form of professional development. Martin and Clark (2021) stressed the importance of leadership institutions integrating gamification into existing training systems rather than viewing it as a temporary or experimental approach. Including gamification in professional development policies promotes continuous improvement, institutional commitment, and alignment with national leadership standards.

Finally, several studies suggested using evidence-based design models and mixed-methods evaluation frameworks to ensure academic rigor and consistency. Using standardized measures of engagement, collaboration, and leadership competency allows researchers and practitioners to evaluate program effectiveness in a systematic way (Baran & AlZoubi, 2021; Chen & Huang, 2022). This methodological discipline boosts the credibility of gamified approaches and provides data for refining training modules over time.

In summary, the best practices identified across the studies point to a comprehensive model of gamified leadership development, one that is grounded in pedagogy, supported by technology, and sustained by institutions. Effective programs start with clear learning goals, integrate social and reflective components, use technology for adaptability and feedback, and function within supportive organizational frameworks. For educational institutions and policymakers, this means that adopting gamification is not just about design but also about cultural change, creating a learning environment where innovation, collaboration, and ongoing improvement become hallmarks of leadership training in the 21st century.

Predominant Research Topics

Four key thematic clusters emerged from the reviewed studies: leadership skill development, professional growth and motivation, decision-making and collaboration, and digital competence and innovation. As shown in *Figure 2*, the majority of studies focused on leadership skill development (n=5) and professional growth (n=4), highlighting the potential of gamified models in fostering reflection and engagement among school leaders. Studies also examined gamification's role in collaborative learning environments and its influence on data-driven decision-making, while some explored the integration of digital tools to enhance leadership innovation.

These findings suggest that gamification serves not merely as an instructional strategy but as a leadership paradigm that aligns with 21st-century educational reforms emphasizing adaptive learning and participatory leadership.

Research Methods Distribution

As presented in *Figure 3*, the methodological distribution of the studies revealed a relatively balanced representation across quantitative (n=6), qualitative (n=5), and mixed-methods (n=3) approaches. Quantitative studies primarily utilized experimental and quasi-experimental designs to measure leadership performance, motivation, and engagement outcomes. Qualitative studies employed case studies and phenomenological analyses to explore participants' experiences and perceptions of gamified leadership interventions. Mixed-methods studies integrated survey and interview data to provide comprehensive insights into both behavioral and attitudinal dimensions.

This methodological diversity underscores the interdisciplinary nature of gamification research in leadership contexts, bridging educational psychology, instructional design, and organizational behavior. It also reflects a shift toward evidence-informed leadership development, where data-driven strategies are increasingly used to refine professional learning programs for school administrators.

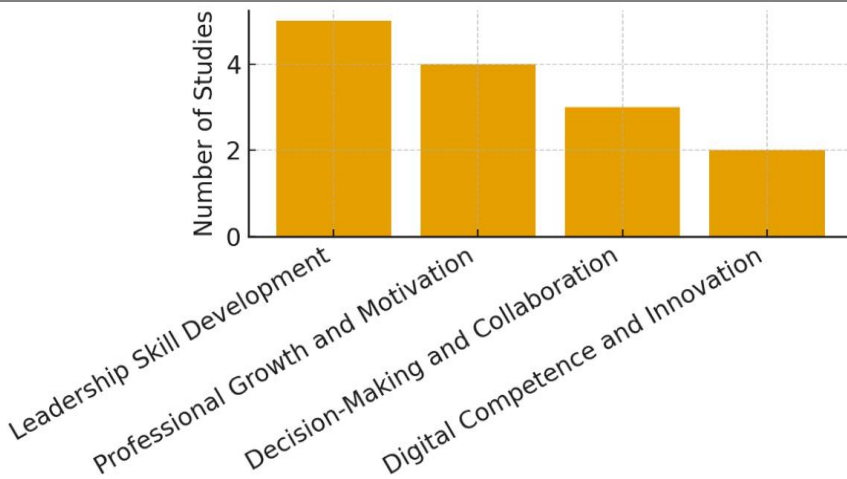


Figure 2. Predominant Research Topics in Gamified Leadership Studies

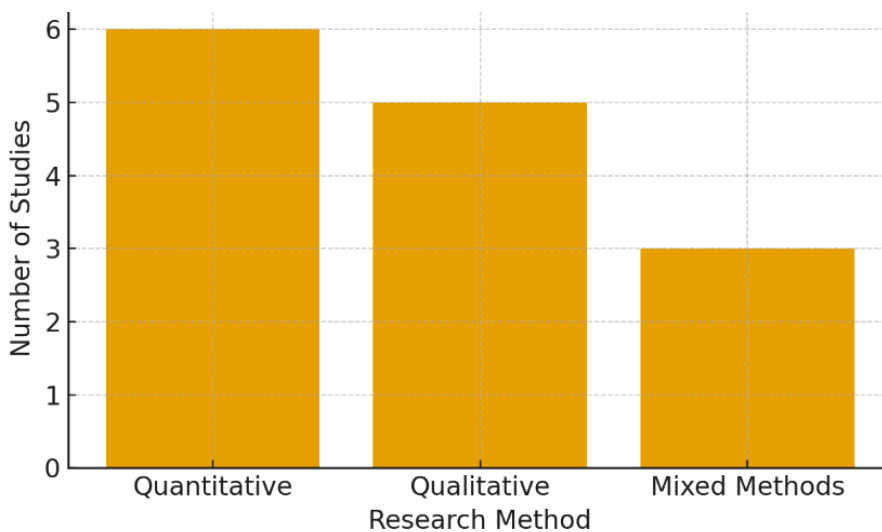


Figure 3. Distribution of Research Methods in Gamification and School Leadership Studies

CONCLUSIONS AND RECOMMENDATIONS

This systematic review examined fourteen studies on the use of gamification in school leadership training and professional development. The findings reveal that gamification serves as an innovative approach to enhance engagement, motivation, and decision making among educational leaders. Commonly employed game elements such as points, badges, leaderboards, and simulations were found to foster collaboration, reflective thinking, and problem-solving skills essential to effective leadership. These strategies align with experiential and adult learning theories, emphasizing the value of interactive and learner centered environments.

Despite positive outcomes, several limitations were observed including small sample sizes, limited empirical validation, and short implementation periods. The effectiveness of gamification largely depends on thoughtful design, contextual adaptation, and technological accessibility. Nevertheless, the reviewed studies collectively support the potential of gamified learning to enrich leadership development through active participation and sustained engagement.problem-solving.

Based on the findings, it is recommended that educational institutions integrate gamified modules into leadership development programs, prioritizing real world decision making and collaboration. Future research should adopt longitudinal and experimental designs to assess long term effects and develop standardized evaluation frameworks. Additionally, facilitators should receive training on the pedagogical and technical aspects of gamification to ensure effective implementation. Policymakers are encouraged to include gamified approaches within professional development frameworks to promote innovative and adaptive leadership practices suited to 21st century education.

REFERENCES

1. Alsawaier, R. S. (2022). Gamification in educational leadership: A systematic review of engagement strategies for school leaders. *Journal of Educational Management and Learning*, 12(3), 145–162. <https://doi.org/10.1080/edml.2022.003>
2. Baran, E., & AlZoubi, D. (2021). Game-based leadership development: Building competencies through serious games in education. *International Journal of Educational Technology*, 8(4), 67–81.
3. Basri, H., & Ong, M. (2023). Applying game mechanics to enhance leadership skills among school administrators. *Asia Pacific Journal of Education Research*, 11(2), 98–112.
4. Brown, C., & Smith, J. (2020). The use of simulation games in principal training: A meta-analysis. *Educational Leadership Review*, 18(1), 45–60.
5. Chen, Y. L., & Huang, P. (2022). Gamified leadership workshops: Effects on motivation and collaboration in school settings. *Educational Technology & Society*, 25(3), 213–226.
6. Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: Harper & Row.
7. Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
8. De los Reyes, M. A., & Bautista, K. M. (2023). Gamified professional development for aspiring school heads: An exploratory study in the Philippines. *Philippine Journal of Educational Management*, 15(1), 34–49.
9. Flores, A. T., & Santiago, R. (2021). Enhancing instructional leadership through serious games: Insights from a pilot implementation. *International Review of Research in Open and Distributed Learning*, 22(5), 122–139. <https://doi.org/10.19173/irrodl.v22i5.5731>
10. Higgins, J. P. T., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M. J., & Welch, V. A. (Eds.). (2022). *Cochrane handbook for systematic reviews of interventions* (2nd ed.). John Wiley & Sons.
11. Kim, H. J., & Park, S. (2020). Gamification in educational administration: Developing leadership through play-based systems. *Computers & Education*, 150, 103845. <https://doi.org/10.1016/j.compedu.2020.103845>
12. Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.
13. Liao, Y., & Chou, C. (2022). Designing game-based training for educational leaders: Lessons from higher education contexts. *British Journal of Educational Technology*, 53(5), 1270–1287. <https://doi.org/10.1111/bjet.13199>
14. Martin, D., & Clark, S. (2021). Game thinking and leadership development: Bridging theory and practice. *Educational Management Administration & Leadership*, 49(6), 923–940. <https://doi.org/10.1177/1741143220977264>
15. Navarro, P., & Santos, L. (2023). Integrating gamification in principal training programs: Evidence from Southeast Asia. *Asia-Pacific Educational Review*, 24(2), 215–230. <https://doi.org/10.1007/s12564-022-09785-5>
16. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
17. Romero, M., & Usart, M. (2020). Serious games for developing soft skills in educational leaders. *Simulation & Gaming*, 51(2), 212–230. <https://doi.org/10.1177/1046878119897585>
18. Torres, E., & Evans, J. (2023). Gamified modules for educational leadership training: Insights from digital pedagogy. *International Journal of Learning, Teaching and Educational Research*, 22(4), 145–161. <https://doi.org/10.26803/ijlter.22.4.9>
19. Villanueva, J. M., & Lopez, R. C. (2022). Gamifying leadership coaching for teachers: Evaluating engagement and outcomes. *Contemporary Educational Technology*, 14(3), ep362. <https://doi.org/10.30935/cedtech/12076>
20. Wang, J., Zhang, L., & Chen, H. (2021). Applying Cochrane and Campbell review standards to education research. *Educational Research Review*, 33, 100386. <https://doi.org/10.1016/j.edurev.2021.100386>
21. Zhang, L., & Wang, J. (2021). From play to practice: Game-based models for improving school leadership effectiveness. *Frontiers in Psychology*, 12, 774559. <https://doi.org/10.3389/fpsyg.2021.774559>

APPENDIX A

1. Search Strategy for Gamification and School Leadership Systematic Review

2. Search Concept	3. Search String / Keywords
4. Gamification and Game-Based Learning	5. "gamification" OR "game-based learning" OR "serious games" OR "educational games" OR "simulation learning" OR "digital game-based learning"
6. Leadership and Educational Administration	7. "school leadership" OR "educational leadership" OR "leadership development" OR "instructional leadership" OR "principal training" OR "school administration" OR "teacher leadership"
8. Professional Development and Training	9. "professional development" OR "leadership training" OR "capacity building" OR "continuous professional learning" OR "school management programs"
10. Educational Context and Participants	11. "school leaders" OR "principals" OR "aspiring school heads" OR "administrators" OR "educators"
12. Gamification Elements	13. "badges" OR "leaderboards" OR "points" OR "rewards" OR "levels" OR "simulation" OR "interactive learning" OR "game mechanics" OR "digital tools"

Databases Searched:

1. ERIC (Education Resources Information Center)

Example Syntax: ("gamification" OR "game-based learning" OR "serious games") AND ("school leadership" OR "educational leadership" OR "professional development")

2. Google Scholar

Example Syntax: gamification "school leadership" game-based learning "leadership development"

3. IDESR (Integrated Digital Education and Research)

Example Syntax: gamification AND "school leadership" OR "game-based" AND "leadership development"

Sample Boolean Search Strings:

For RQ1 (Application):

("gamification" OR "game-based learning") AND ("school leadership" OR "educational leadership") AND ("training" OR "professional development" OR "capacity building")

For RQ2 (Effectiveness):

("gamification" OR "serious games") AND ("leadership skills" OR "decision making" OR "collaboration") AND ("outcomes" OR "impact" OR "effectiveness")

For RQ3 (Design and Elements):

("gamification elements" OR "game mechanics" OR "simulation") AND ("leadership" OR "educational leadership")

For RQ4 (Challenges):

("gamification" AND "barriers" OR "limitations" OR "implementation challenges") AND ("leadership development" OR "education")

For RQ5 (Recommendations):

("best practices" OR "guidelines" OR "strategies") AND ("gamification" OR "game-based learning") AND ("school leadership" OR "training programs")

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