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Transformational Principal Leadership And The Development Of An Innovation Culture In Secondary Schools: A Systematic Literature Review

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Abstract

This study is motivated by the importance of innovation in 21st-century education, which requires schools to adapt to technological changes and dynamic learning environments. However, the implementation of an innovation culture in schools still varies considerably. As leaders, school principals play a strategic role in creating an environment that supports innovation, particularly through transformational leadership. This study aims to analyze the role of principals' transformational leadership in developing an innovation culture in secondary schools. This research employed a qualitative method using a Systematic Literature Review (SLR) approach toward scientific journal articles published within the last five years (2021–2026). The data were collected from Google Scholar and indexed international journal databases and were analyzed using thematic synthesis. The findings indicate that transformational leadership plays a significant role in building an innovation culture through the dimensions of inspirational motivation, intellectual stimulation, and individualized consideration. This study concludes that principals who implement transformational leadership are able to create a sustainable innovation culture that contributes to improving the quality of learning.

Keywords: Innovation culture; School principal; Transformational Leadersip; SLR

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INTRODUCTION

Education in the twenty-first century requires schools not only to focus on knowledge acquisition but also to foster students' creativity, innovation, and critical thinking skills. Innovation has become a key factor in improving the quality of learning and enhancing school competitiveness. In this regard, school leadership plays a crucial role in guiding change and creating an environment that supports innovation. Transformational leadership is considered particularly relevant because it has the capacity to inspire and promote positive change within educational organizations (Schmitz et al., 2023).

As educational leaders, school principals function not only as administrators but also as agents of change. Transformational leadership enables principals to formulate a shared vision, enhance teachers' motivation, and encourage creativity in the teaching and learning process (Alzoraiki et al., 2024). In the digital era, this role has become increasingly important as schools are required to adapt to technological advancements and the demands of modern learning environments (Qiao et al., 2024). However, evidence from educational practice indicates that the culture of innovation in schools remains unevenly distributed. Many institutions continue to rely on traditional teaching practices and provide limited opportunities for teachers to exercise creativity. This situation is reflected in various educational reports that highlight low levels of innovation resulting from inadequate leadership support (Siswanto et al., 2024).

Numerous studies have demonstrated a positive relationship between transformational leadership and innovation. Al-Husseini et al. (2021) found that transformational leadership enhances innovation through knowledge-sharing practices. Similarly, Vermeulen et al. (2022) reported that transformational leadership influences teachers' innovative behavior through a supportive school climate. Nevertheless, there remains a lack of comprehensive research examining the integration of transformational leadership and innovation culture within the context of secondary schools. Most existing studies have been conducted independently and have not employed a systematic literature synthesis approach (Ali Alshuhumi et al., 2025).

The novelty of this study lies in the application of a Systematic Literature Review (SLR) approach, which integrates findings from recent studies to provide a more comprehensive understanding of the relationship between transformational leadership and innovation culture in schools. This method enables the identification of patterns and trends regarding how transformational leadership contributes to the development of innovation culture within educational institutions (Alzouebi et al., 2025). Based on this background, the study addresses the following research problem: How does transformational school leadership contribute to fostering

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a culture of innovation in secondary schools? Accordingly, the objective of this study is to analyze this relationship and identify the factors that facilitate and hinder its implementation. It is expected that the findings will contribute both theoretically and practically to the advancement of educational management.

Transformational Leadership in Education

Transformational leadership is an approach that emphasizes a leader's ability to facilitate positive change through inspiration, motivation, and the development of individuals within an organization. In the educational context, principals who adopt transformational leadership do not merely perform administrative duties; rather, they act as visionary leaders capable of mobilizing all members of the school community toward shared goals.

This approach focuses on transforming organizational culture, improving educational quality, and strengthening teachers' commitment to the institution. According to Podsakoff et al. (1990), transformational leadership has a significant impact on organizational members' trust and job satisfaction. Furthermore, Cavazotte et al. (2013) demonstrated that transformational leadership enhances individual performance by strengthening self-efficacy and organizational identification. In practice, principals who adopt this leadership style tend to create a more conducive, collaborative, and innovative working environment. Therefore, transformational leadership represents a relevant approach to addressing the challenges of twenty-first-century education, which requires continuous adaptation and innovation.

Dimensions of Transformational Leadership

Transformational leadership consists of four interconnected dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Idealized influence refers to a leader's ability to serve as a role model who is respected and trusted by organizational members. Inspirational motivation relates to the leader's capacity to communicate a clear vision and inspire organizational members. Intellectual stimulation encourages individuals to think critically, creatively, and adapt to new ideas, whereas individualized consideration emphasizes the leader's attention to the needs and potential of each individual.

Zainal and Mohd Matore (2021) found that the implementation of these four dimensions significantly enhances teachers' innovative behavior. Moreover, Schmitz et al. (2023) emphasized that transformational leadership plays an essential role in supporting technology integration in

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teaching and learning. Consequently, these four dimensions not only strengthen the relationship between leaders and organizational members but also provide the foundation for creating an innovative and responsive school environment.

The Concept of Innovation Culture in Schools

Innovation culture in schools refers to a condition in which organizational values, norms, and practices support the continuous development of creativity and renewal. This culture is reflected not only in innovation outcomes but also in the processes that enable innovation to occur. Fuad et al. (2022) identified several essential elements of innovation culture, including openness to change, support for experimentation, and collaboration among organizational members.

Schools with a strong innovation culture generally provide teachers with opportunities to experiment with new instructional methods without fear of failure. Gil et al. (2026) also found that a collaborative climate and an open organizational culture positively influence innovation capabilities in educational settings. These findings suggest that innovation culture cannot be established instantly; rather, it develops through a continuous process supported by multiple stakeholders. In this regard, principals play a significant role in creating and sustaining innovation culture through policies, communication, and leadership practices that encourage creativity.

The Relationship Between Transformational Leadership and Innovation Culture

The relationship between transformational leadership and innovation culture has become a major focus in contemporary educational research. Transformational leadership is believed to create an environment that supports innovation by enhancing motivation, trust, and collaboration among organizational members. Al-Husseini et al. (2021) revealed that transformational leadership influences innovation through the mediating role of knowledge sharing. This finding indicates that leaders promote innovation not only directly but also indirectly by fostering a culture of information and experience exchange.

In addition, Adiebah and Pradana (2022) found that self-efficacy and innovation climate function as mediating variables in this relationship. In other words, the effectiveness of transformational leadership in promoting innovation largely depends on psychological factors and organizational conditions. Therefore, principals should pay attention not only to leadership practices but also to the internal conditions of schools that may facilitate or hinder innovation processes.

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The Role of Digital Transformation in School Innovation Culture

The rapid development of digital technology has brought significant changes to the field of education, including the formation of innovation culture in schools. Digital transformation enables schools to develop more interactive, flexible, and technology-based teaching methods. Fachrudin et al. (2026) stated that digital transformation can strengthen educational networks and improve organizational performance through the effective utilization of information technology.

Furthermore, Qiao et al. (2024) emphasized that digital leadership is a critical factor in improving organizational performance and commitment. In this context, principals are expected to possess the competencies required to utilize technology as a tool for promoting innovation. However, the success of digital transformation depends not only on the availability of technology but also on the existence of a school culture that supports change. Therefore, the integration of transformational leadership and technology utilization is essential for creating adaptive and innovative schools in the digital era.

METHOD

This study employed a qualitative research design using a Systematic Literature Review (SLR) approach. The SLR method was selected to provide a comprehensive analysis of research trends over the past six years (2020–2026) concerning leadership and innovation in schools. Data were collected from reputable academic databases, including Scopus, Frontiers, and Google Scholar, using the keywords *"Transformational Leadership," "Innovation Culture,"* and *"Principal Leadership."* A rigorous article selection process was conducted to ensure that only studies relevant to the secondary education context were included in the analysis, thereby producing a credible and in-depth synthesis of the topic under investigation (Fuad et al., 2022; Zainal & Mohd Matore, 2021). The study specifically focused on identifying patterns in the relationship between transformational school leadership and innovation culture within schools.

The study population consisted of all scholarly articles related to educational management, while the final sample included 22 articles that met the inclusion criteria. These criteria required articles to be published between 2020 and 2026 and to focus on secondary education or general educational settings. The primary research instrument was an SLR protocol based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. The review process involved article identification, title and abstract screening, eligibility assessment through full-text review, and the final selection of studies that met the

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inclusion criteria. Eligible studies were required to be relevant to the research topic, employ a clearly defined scientific methodology, and be published in reputable academic journals. This process ensured the quality and relevance of the data used in the study.

Data collection was conducted systematically to map the relationships between leadership and innovation culture variables in an objective and structured manner (Mokhlis & Abdullah, 2025; Zhou & Niu, 2025). The data were analyzed using qualitative content analysis, whereby findings were categorized into major themes, including dimensions of transformational leadership, indicators of innovation culture, and facilitating and inhibiting factors. The analytical process involved pattern identification, cross-study comparison, and the synthesis of findings to address the research questions. Through a systematic analytical procedure, this study aimed to achieve a high level of reliability in explaining the phenomenon of transformational leadership in secondary schools (Alzouebi et al., 2025; Ripki et al., 2020).

The validity of the findings was maintained through source triangulation and consistency throughout the article selection process. Furthermore, repeated verification of the analytical results was conducted to ensure the accuracy of data interpretation. Through this methodological approach, the study is expected to produce comprehensive and scientifically rigorous conclusions.

Systematic Literature Review Procedure

A Systematic Literature Review (SLR) is a research method used to identify, evaluate, and synthesize findings from previous studies in a systematic, transparent, and structured manner. The implementation of the SLR in this study followed several key stages, as outlined below.

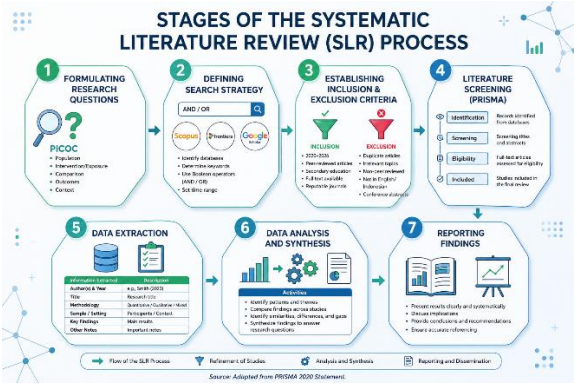


Figure 1. Stages of the Systematic Literature Review (SLR) Procedure

The stages presented in Figure 1 illustrate the systematic procedure adopted in conducting the Systematic Literature Review (SLR). The process can be described as follows:

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Formulating the Research Problem or Research Questions

At this stage, the researcher clearly and specifically defines the focus of the study. The research questions serve as the foundation of the entire SLR process, guiding both the literature search strategy and the scope of the review. Clearly formulated questions facilitate the selection of relevant references and help prevent overly broad discussions.

Examples of research questions in the field of education include:

a. What is the role of transformational leadership in fostering innovation culture in schools?
b. What factors influence the successful implementation of transformational leadership?

Well-defined research questions assist researchers in determining search keywords and establishing literature selection criteria.

Developing the Literature Search Strategy

At this stage, relevant scholarly sources are identified and retrieved from academic databases such as Google Scholar, Scopus, and accredited national journals. Appropriate keywords are determined to improve search accuracy. These keywords are typically derived from the main research variables, such as *"transformational leadership," "innovation culture,"* and *"education."* Researchers may also employ Boolean operators such as *AND* and *OR* to broaden or narrow the search results. This stage is crucial because it directly influences the quality of the evidence included in the review.

Establishing Inclusion and Exclusion Criteria

During this phase, the criteria for selecting and excluding studies are defined. Inclusion criteria are used to identify studies that meet the objectives of the review, such as articles indexed in recognized databases (e.g., Scopus or SINTA), published within the last five years, directly related to the topic, and published in reputable journals.

Conversely, exclusion criteria are used to eliminate studies that do not meet the required standards, such as articles without full-text access or studies that are not directly relevant to the research topic. These criteria ensure that only high-quality and relevant literature is included in the analysis.

Literature Screening Using the PRISMA Framework

At this stage, the identified studies were screened systematically, beginning with the initial search results and ending with the final set of articles included in the review. The screening

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process consisted of four main phases: (1) identification of relevant studies, (2) screening based on titles and abstracts, (3) eligibility assessment through full-text review, and (4) inclusion of studies that met all predefined criteria. This process is commonly presented using a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram to enhance transparency and facilitate understanding of the study selection procedure.

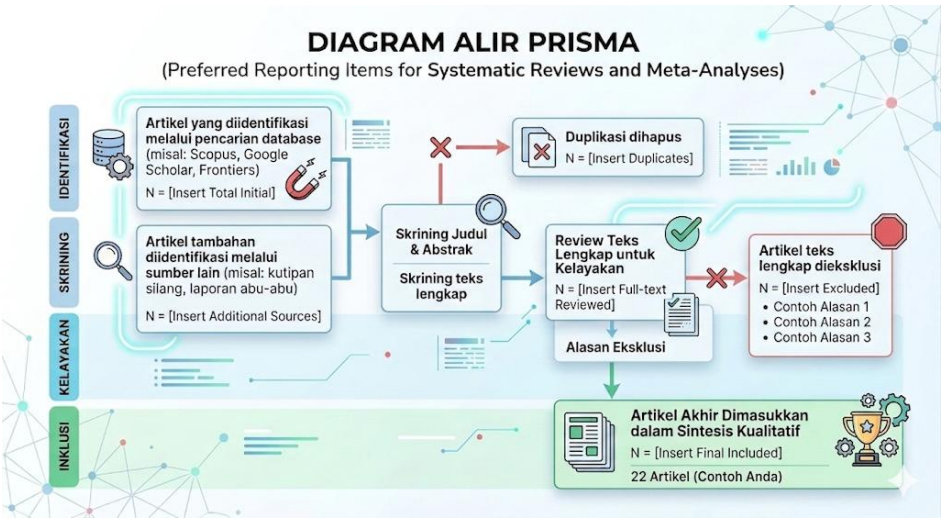


Figure 2. PRISMA Flow Diagram

The PRISMA process in this study can be summarized as follows:

a. **Identification:** Searches were conducted in Scopus, Frontiers, and Google Scholar using the keywords *"Transformational Leadership," "School Innovation Culture,"* and *"Principal Leadership"* for the period 2020–2026. A total of 80 articles were initially identified.
b. **Screening:** Articles were filtered according to the inclusion criteria, including language (English or Indonesian), focus on secondary schools, and full-text accessibility.
c. **Eligibility:** The remaining articles were reviewed in depth to ensure their relevance to innovation culture and principal leadership variables. A total of 31 articles met the eligibility requirements.
d. **Inclusion:** Twenty-two articles with the strongest methodological quality and the most relevant citations were selected for final synthesis (Zainal & Mohd Matore, 2021).

Data Extraction

After selecting the eligible studies, important information was extracted from each article. The extracted data included:

a. Author(s) and publication year

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b. Research title
c. Research methodology
d. Sample or research object
e. Main findings

The extracted information was organized into tabular form to facilitate comparison and analysis across studies. This stage enabled a systematic understanding of the characteristics and findings of the selected literature.

Literature Analysis and Synthesis

At this stage, the findings from the selected studies were analyzed and synthesized. The researcher identified patterns, similarities, and differences across studies, as well as research gaps that had not been adequately addressed in previous investigations. The synthesized findings were subsequently used to answer the research questions established at the beginning of the review. This stage constitutes the core of the SLR process because it generates a comprehensive understanding of the research topic.

Reporting the Findings

In the final stage, the results of the review were systematically presented in the form of a scientific article. The report followed a clear structure consisting of an introduction, methodology, results, discussion, and conclusion. Proper citation of all referenced sources was provided to ensure academic integrity and scientific accountability. By following these stages systematically, the SLR approach is expected to generate a comprehensive, rigorous, and valuable contribution to the advancement of knowledge.

RESULTS AND DISCUSSION

The analysis revealed that the intellectual stimulation dimension of transformational leadership exhibited the strongest relationship with the development of an innovation culture in secondary schools. When principals challenge conventional practices and encourage teachers to integrate digital technologies into instructional processes, innovative teaching behaviors are more likely to emerge. Furthermore, inspirational motivation plays a critical role in providing a clear vision for school improvement, enabling teachers to perceive their work as contributing to broader educational goals rather than merely fulfilling routine responsibilities. Through idealized influence, principals who demonstrate personal commitment to change gain the respect and trust

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of school staff, thereby creating a foundation for organizational openness toward new ideas and innovative practices (Anwar et al., 2024; Zainal & Mohd Matore, 2021).

Another significant finding concerns the mediating role of teacher self-efficacy in the relationship between transformational leadership and innovation. Transformational leadership enhances teachers' confidence in dealing with change and uncertainty. Teachers who perceive strong personal support from their principals are more willing to experiment with innovative instructional approaches and utilize digital platforms creatively. Moreover, a psychologically safe school environment, fostered through individualized consideration by school leaders, enables teachers to learn from mistakes without fear of negative consequences. These findings suggest that innovation culture is not solely dependent on infrastructure and technological resources but is equally influenced by teachers' mindsets and the emotional support provided by school leaders (Adiebah & Pradana, 2022; Mokhlis & Abdullah, 2025).

Within the context of recent studies published between 2024 and 2026, a growing emphasis on transformational digital leadership has emerged. Principals with strong digital literacy are better positioned to integrate technology-oriented values and practices into school activities, thereby accelerating the development of an innovation culture. Digital innovation is no longer limited to the adoption of technological tools; it increasingly involves cultural transformation toward data-informed decision-making, open communication, and collaborative knowledge sharing. Secondary schools that successfully foster innovation are characterized by leadership practices that encourage the formation of digital communities of practice among teachers. Such leadership strengthens collaborative environments in which knowledge sharing becomes a routine professional practice, replacing the traditional culture of professional isolation (Abdullah et al., 2025; Schmitz et al., 2023).

The literature analysis further indicates that organizational support and a collaborative work climate are among the most influential factors facilitating innovation in schools. Conversely, major barriers frequently include excessive administrative workloads and limited opportunities for teachers to reflect on and experiment with new ideas. Resistance to change among more experienced teachers and rigid bureaucratic structures also often impede innovative initiatives proposed by school leaders. These findings highlight the necessity of complementing transformational leadership with organizational restructuring that reduces administrative burdens and provides teachers with greater opportunities for innovation. Effective school leadership should address these challenges by establishing recognition and reward systems for teachers who actively engage in innovative practices (Saron, 2025; Zibenberg, 2026).

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Overall, the findings demonstrate that innovation culture in secondary schools emerges from a dynamic interaction between leadership vision and teachers' psychological responses. Principals function as social architects who create learning environments for teachers in much the same way that teachers create learning environments for students. One important practical implication of these findings is the need to shift principal performance evaluation systems from a primary focus on regulatory compliance toward a stronger emphasis on innovation outcomes and school improvement. Future leadership development programs should therefore incorporate competencies related to change management, digital leadership, and emotional intelligence, enabling secondary schools to become adaptive institutions capable of responding effectively to contemporary educational challenges and ongoing societal transformation (Alzouebi et al., 2025; Gil et al., 2026).

CONCLUSION

This study demonstrates that transformational leadership is a key factor in fostering an innovation culture in secondary schools. The dimensions of intellectual stimulation and inspirational motivation significantly enhance teachers' self-efficacy and promote a collaborative professional environment. Innovation within schools is more likely to emerge when principals provide emotional support, encourage professional autonomy, and articulate a clear vision for digital transformation. The findings further indicate that the successful development of an innovation culture depends not only on technological resources but also on leadership practices that cultivate trust, collaboration, and continuous learning among teachers. Transformational principals play a crucial role in creating organizational conditions that support experimentation, knowledge sharing, and adaptive responses to educational change. As a practical implication, educational institutions and policymakers should prioritize leadership development programs that strengthen transformational leadership competencies and digital literacy among school principals. Such initiatives are essential for building innovative and resilient school ecosystems capable of responding effectively to future educational challenges and ongoing technological advancements.

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