

A Systematic Literature Review on Data-Driven Transformational Leadership for Global Competitiveness in Education

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Abstract: This study presents a systematic literature review (SLR) examining the integration of strategic analysis and data utilization in transformational leadership. Synthesizing findings from 15 peer-reviewed articles published between 2021 and 2026, the review identifies key themes, gaps, and mechanisms through which data-driven leadership influences teacher performance and educational quality. The results reveal that while transformational leadership is extensively studied, the explicit integration of data-driven decision-making as a core leadership competency remains underexplored. The study concludes that effective educational leadership requires principals to evolve from inspirational figures into data-informed strategists who leverage strategic analysis to target teacher development. The novelty lies in systematically bridging transformational leadership's behavioral focus with data-driven decision-making's analytical demands, challenging assumptions that inspiration alone suffices. The proposed conceptual framework offers a testable causal chain linking leader data literacy through strategic analysis to globally competitive education outcomes. Practically, the findings recommend that leadership training programs prioritize data literacy, teacher professional development align with leadership's strategic analysis, and policymakers establish integrated data systems with accountability frameworks rewarding effective data use. This study contributes to educational leadership literature by providing a theoretical expansion of leadership models, a consolidated research landscape for 2021-2026, and a practical blueprint for embedding data competencies into principal preparation, teacher coaching, and school improvement plans.

Keywords: Data-Driven Decision Making, Educational Quality, Leadership Transformation, Strategic Analysis, Teachers' Performance

A. Introduction

The study of principal leadership has long occupied a central position in educational research, with transformational leadership emerging as one of the most influential

frameworks for understanding how school leaders affect organizational outcomes. Transformational leadership remains one of the most influential frameworks for understanding how school leaders affect organizational outcomes. Originally conceptualized by Burns (1978) in the political context and developed by Bass (1985) for organizational settings, this model centers on leaders' capacity to inspire followers to transcend self-interest for collective goals (Yoserizal et al., 2024). The foundational dimensions - idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration - continue to provide a robust framework for understanding principal effectiveness in contemporary educational research. Burns' seminal distinction between transactional and transforming leadership established the conceptual groundwork, positioning transformational leadership as elevating both leaders and followers toward higher levels of motivation and morality. Recent meta-analytic research has systematically documented the relationship between principal leadership and school outcomes. A meta-analytic structural equation modeling (MASEM) study analyzing data from 90 studies confirmed that transformational, instructional, and distributed leadership all affect student outcomes both directly and indirectly through teacher self-efficacy (Ozdogru et al., 2025). These leadership behaviors demonstrated moderate direct influence on teacher self-efficacy, which in turn moderately affected student outcomes. This mediating pathway illuminates how principals' leadership translates into improved student achievement - by strengthening teachers' confidence in their capacity to facilitate learning. Another comprehensive MASEM investigation of 60 studies (N = 36,331 participants) examined the Leadership for Learning framework encompassing instructional, transformational, and distributed leadership (Papadakis et al., 2024). The findings revealed that all three leadership types affected teacher performance directly, and teacher performance had a direct effect on student achievement. Notably, while instructional leadership's effect on achievement was mostly indirect, transformational and distributed leadership affected student achievement both directly and indirectly through teacher performance.

The relationship between principal leadership and teacher outcomes has been extensively examined through recent meta-analytic methods. A meta-analysis of 22 studies revealed that transformational leadership showed a consistent and significant positive effect on teacher performance ($r = 0.441$, $p < .001$) under the fixed-effects model, with low heterogeneity ($I^2 = 4.05\%$), reflecting stable results across different educational settings (Surwiti et al., 2025). Transformational leadership specifically enhances teacher outcomes through multiple mechanisms. Principals who articulate clear, meaningful visions reduce teachers' uncertainty and inspire belief in collective goals. Through intellectual stimulation, transformational leaders challenge teachers to innovate and engage in creative problem-solving. Individualized consideration manifests as personalized support, professional development opportunities, and recognition of teachers' unique contributions. A systematic review of research on transformational leadership in

educational environments concluded that such leadership improves teacher performance in areas including creativity, innovation, and self-efficacy. School climate operates as both an outcome of effective leadership and a mechanism through which principals influence teacher and student outcomes. The comparative meta-analysis revealed that organizational climate, principal leadership, and teacher leadership affect student achievement, with contextual variations across national settings. In the United States context, organizational climate demonstrated the strongest effect, followed by principal leadership and teacher leadership. Leadership competencies also significantly impact teacher continuous professional development. A systematic review of 29 articles synthesized findings into three main themes: leadership and professional learning communities, effects of professional learning communities on teacher outcomes, and innovative approaches to professional development. The evidence suggests a compelling link between school head leadership competencies and significant advancements in teacher professional development, fostering collaboration, innovation, and resilience to changes in educational standards.

The emergence of Data-Driven Decision-Making (DDDM) in education represents a significant paradigm shift from intuition-based practice toward systematic, evidence-informed approaches to improving teaching and learning outcomes. Defined as “the process of determining actions using data or facts, rather than solely relying on observation, intuition, or other forms of subjectivity that may introduce bias”, DDDM has gained prominence alongside the proliferation of big data, learning analytics, and artificial intelligence technologies that enable educators to leverage student information for personalized instruction, curriculum alignment, and continuous improvement (Trusting the data, 2026). The potential of DDDM is substantial: it allows educators to identify strengths and weaknesses, monitor progress, evaluate interventions, and tailor support to meet diverse learner needs while aligning educational practices with contemporary standards and student interests. However, the literature from 2021 to 2026 extensively documents persistent challenges that hinder effective implementation. Chief among these is the lack of data literacy skills among educators, with research consistently showing that teachers struggle to interpret both classroom-generated and system-level data, and that actual competency levels remain relatively low despite widespread study of DDDM approaches. Cognitive bias represents another critical barrier, as decision-makers may selectively determine outcomes without considering alternatives, relying on heuristics and pattern recognition that potentially led to diagnostic errors - a challenge that collaborative guided reflection has shown promise in mitigating (Mu & Hatch, 2025). Additional documented obstacles include the significant gap between policy narratives and actual school practices, where data management remains compliance-driven rather than participatory affective factors such as teacher anxiety and low self-efficacy regarding data use and accessibility issues wherein data systems fail to present information in user-friendly formats that offer practical guidance for instructional decisions. Furthermore,

research has identified geographical and contextual gaps in the literature, with most studies concentrated in the United States and the Netherlands, leaving online learning environments and secondary school contexts underexplored. Addressing these multidimensional challenges requires comprehensive approaches encompassing sustained professional development, improved data system design, strong leadership support, and attention to the affective dimensions of teacher engagement with data.

Despite the extensive bodies of literature examining transformational leadership and Data-Driven Decision-Making (DDDM) as separate domains of inquiry, a significant conceptual gap persists regarding their explicit integration in educational leadership practice. While transformational leadership has been consistently validated as a powerful framework for inspiring teacher motivation, fostering innovation, and cultivating positive school cultures (Ozdogru et al., 2025), and DDDM has simultaneously emerged as an essential approach for evidence-informed instructional improvement, surprisingly few studies have explicitly examined their intersection - specifically, how principals can strategically embed data analysis and utilization within transformational leadership frameworks to systematically enhance teacher performance. Recent meta-analytic work by (Ozdogru et al., 2025) confirms that transformational, instructional, and distributed leadership all affect student outcomes through teacher self-efficacy, yet this research does not address how data literacy functions within these leadership approaches. Similarly, (Hallinger et al., 2025) comprehensive meta-analysis of principal instructional leadership and teacher attitudes reveals moderate correlations with teacher trust, commitment, and satisfaction, but stops short of examining how data-informed strategic analysis might amplify these relational outcomes. Techno-Enabler Framework identifies five interconnected conditions for effective school data management - Techno-Governance, Techno-Competency, Techno-Networking, Techno-Decisioning, and Techno-Integration - yet this framework remains primarily descriptive of current practices rather than prescriptive for transformational leadership integration. Examination of DBDM in online secondary courses reveals that concerns about data accessibility and data-related anxiety create barriers to effective data use, pointing toward the need for leadership approaches that address these affective dimensions, yet transformational leadership research has not adequately incorporated these insights. Similarly documents how affective factors such as teacher anxiety and low self-efficacy regarding data use remain critically underexplored in relation to leadership practices that might mitigate these psychological barriers. This conceptual fragmentation leaves a critical gap in understanding how principals might leverage transformational leadership's capacity for individualized consideration and intellectual stimulation to build teacher data literacy, reduce cognitive bias in decision-making, and create school cultures where data-informed strategic analysis becomes a shared professional value rather than a compliance burden. The literature thus calls for integrated frameworks that position data literacy and strategic analysis not as technical add-ons to transformational

leadership, but as constitutive elements of modern educational leadership capable of translating data insights into targeted teacher development and ultimately into globally competitive educational outcomes.

The importance of integrating transformational leadership with data-driven decision-making (DDDM) becomes particularly salient when considered within the context of global competitiveness and the imperative for evidence-based leadership in contemporary education. The 21st-century educational landscape is characterized by continuous and accelerating transformation driven by globalization, rapid technological advancement, and shifting societal demands, creating what scholars describe as VUCA (Volatility, Uncertainty, Complexity, Ambiguity) and BANI (Brittle, Anxious, Nonlinear, Incomprehensible) environments that render traditional management models inadequate (Piatanom, 2025). In this context, enhancing institutional competitiveness requires moving beyond singular focus on market position and rankings toward holistic approaches that build internal resilience, foster healthy organizational cultures, and strategically leverage data to support core pedagogical goals. The Global Employability University Ranking & Survey (GEURS) 2026, drawing from nearly 120,000 votes from 12,350 corporate leaders across 32 countries, reveals a fundamental shift in how global employers evaluate talent: Graduate Skills and Work Expertise now rank as the leading drivers of employability, with Internationality rising to third place while Academic Performance stabilizes at fourth. This redefinition of global readiness - where employers value demonstrable capabilities, adaptability, and the ability to translate skills across cultural and market boundaries—directly implicates educational leadership, as institutions must produce graduates who can navigate different markets, cultures, and ways of working with ease. The evidence-based leadership imperative thus emerges from the recognition that institutional competitiveness now depends on systematically developing graduate competencies that employers prioritize: problem-solving, leadership, innovation, and global fluency grounded in visible alumni trajectories and regional academic influence rather than mobility alone. Educational leaders who embed data-driven strategic analysis within transformational frameworks position their institutions to respond to these global demands by using evidence to identify skills gaps, tailor teacher development, align curricula with labor market needs, and ultimately cultivate the adaptable, globally competent graduates that contemporary employers seek. Without such evidence-based approaches, institutions risk perpetuating the documented disconnect between academic prestige and employability outcomes, potentially undermining their competitive capacity in an increasingly performance-based global education market.

To address the identified gaps in the literature, this systematic literature review (SLR) was guided by a clearly defined set of objectives and research questions. The primary objective is to synthesize and integrate the dispersed bodies of research on

transformational leadership and data-driven decision-making (DDDM) within the context of K-12 education. While data-driven leadership is gaining recognition for its role in institutional transformation and the strategic alignment of educational practices, its explicit integration with transformational leadership frameworks remains underexplored. Consequently, this review seeks to move beyond studying these concepts in isolation to understand their synergistic potential for enhancing school effectiveness. The review is structured around three principal research questions. This question aims to map how data literacy and strategic analysis are currently conceptualized as leadership competencies, moving beyond the traditional behavioral focus of transformational models. As recent work on data-driven leadership in higher education suggests, this involves examining how leaders acquire, evaluate, and interpret data to inform strategic decisions and mitigate the risks of intuition-based approaches (Chigbu & Makapela, 2025). This question seeks to identify the direct and indirect pathways through which data-informed transformational leadership influences key teacher outcomes, such as self-efficacy, job satisfaction, and instructional quality. Building on meta-analytic evidence linking leadership to teacher attitudes and self-efficacy this review will explore how the addition of a data-driven dimension might moderate or mediate these relationships. Finally, this question delves into the “how” and “under what conditions” data-driven leadership is effective. It will examine mediating mechanisms, such as the development of professional learning communities or the reduction of cognitive bias as well as contextual moderators like school level, existing data infrastructure and the affective factors influencing teacher engagement with data. By systematically addressing these questions, this SLR aims to construct a conceptual framework that explicates the intended mechanisms by which data-driven transformational leadership can systematically improve teacher performance and contribute to globally competitive educational outcomes.

B. Methods

This study uses the Systematic Literature Review (SLR) approach to examine how School Leadership Based on Teacher Performance Data. The SLR methodology ensures transparency, replicability, and rigor in the review process. The review begins by formulating research questions that are aligned with the research objectives. This systematic review was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standard. The systematic search was conducted across the indexed and reputable Scopus database for publication from 2021 to 2026. Articles were selected based on predetermined inclusion criteria: relevance to the principal’s leadership, strategic analysis, data utilization, or teacher performance; methodological eligibility; novelty; and peer-reviewed status. The selection process involves screening titles and abstracts, followed by a full-text assessment. Fifteen journals that met the inclusion criteria were critically analyzed. Each

article is examined for research objectives, methodological approaches, theoretical frameworks, key findings, and implications. Thematic synthesis was used to identify patterns, differences, and contributions across the study, with particular attention to how principals leveraged strategic analysis and data for decision-making, professional development, motivation, a conducive work climate, and systematic evaluation. The synthesized findings inform evidence-based recommendations for principals, teachers, and policymakers. This SLR contributes to scientific knowledge by providing a comprehensive synthesis of current research while offering practical guidance for designing adaptive collaborative leadership systems that improve teacher performance and globally competitive quality of education.

C. Results and Discussion

Based on the results of the analysis conducted by the researcher on 15 journals that have been determined and are in accordance with the criteria, the researcher presents the results as follow.

Table 1. Journal Review

No	Title	Author and Year	Research Purposes	Research Methods	Research Result	Conclusion
1.	Application of Transformational Leadership Strategies in Improving the Performance of Educational Organizations	(Lamirin et al., 2023)	Achieving their maximum potential, has been recognized as a potentially powerful approach in coping with change and achieving better results.	Library research with the aim of collecting information and scientific papers related to literature review in the field of literature.	That the implementation of transformational leadership strategies has a significant impact on the performance of educational organizations. Leaders who adopt this approach are able to create an inspiring work environment, encourage innovation, and develop collaboration among staff and faculty members.	This study provides strong evidence that the implementation of transformational leadership strategies has a significant positive impact on improving the performance of educational organizations. Leaders who apply this approach are able to create an inspiring, collaborative, and innovative work culture, by encouraging a spirit of commitment to organizational goals. The implications of this study have the potential to help educational organizations in optimizing practices
2.	Competitive 21st Century Education Administration and Supervision	(Selvia, 2024)	In the era of industry 4.0, the incorporation of administrative and supervisory aspects Education with technology and innovation to improve quality education and creating graduates who have empowered competencies competition.	Qualitative approach with descriptive method, and using a literature research approach.	21st Century Education Administration and Supervision focuses on developing 21st century skills in learners and educators to prepare them for a world that is constantly changing.	By developing adequate training programs and creating a strong culture of innovation and collaboration, schools can achieve competitive 21st-century educational administration and supervision. Preparing students with relevant skills for the future and making education a driving force for positive change in society.

3	Leadership Transformation in the Digital Age: Its Impact on Employee Engagement in Modern Organizations	(Muhammad Sidik et al., 2025)	To test the influence of leadership transformation, digital leadership, and modern organizational characteristics on employee engagement	Quantitative with multiple regression analysis techniques	Indicates that employee engagement can be significantly improved through visionary, technology-adaptive leadership, and flexible and innovative organizational structures.	Leadership and organizational design that align with the demands of digitalization play an important role in forming strong work attachments among employees. This research makes a theoretical and practical contribution to the development of organizational management in the digital era.
4	The Role of Madrasah Heads as Visionary Leaders: Strategies for Strengthening the Quality and Integrity of Islamic Education Institutions	(Shobri, 2025)	Analyze the concepts and characteristics of visionary leadership of madrasah heads, their strategic role in building organizational culture, implementation challenges and solutions, and the integration of spiritual values and madrasah culture in strengthening the quality and integrity of Islamic educational institutions	Literature Study with a Qualitative Approach	Visionary madrasah heads are able to formulate inspiring visions and missions, build a collaborative and adaptive organizational culture, and integrate local spiritual and cultural values in every aspect of madrasah management.	Adaptive, collaborative, and inspirational leadership is also key in building an inclusive, innovative, and characterful learning environment, while ensuring the integration of spiritual and cultural values of the madrasah in every aspect of management. The head of the madrasah does not only act as a manager, but also as an agent of change who is able to move all elements of the madrasah towards a common vision.
5	The Role of the Principal as a Deepener in Superior School Transformation	(Arif, 2024)	To investigate effective strategies that can be used by principals as Deepener's in creating and implementing policies that encourage improved graduate quality.	Literature Study Research Method with a type of descriptive analysis.	The role of the principal's Deepener in directing school transformation through a combination of transformational, distributional, and servant leadership models, and supporting them with strategies of innovation diffusion, organizational learning, strategic	This research highlights the role of school principals in driving school transformation towards educational excellence. In the context of leadership, the combination of transformational, distributional, and servant leadership models forms a solid foundation for the principal as an agent of change.

					management, and change management, forms a solid framework to achieve educational excellence	
6	Servant Leadership-Based Professionalism of School Principals in the Development of Education Quality Management	(Hasra et al., 2024)	Exploration of the role of professional leadership of Servant Leadership-based school principals in improving education quality management.	With a qualitative approach, this study collects data from in-depth interviews, observations, and analyses	Principals who implement Servant Leadership successfully create a collaborative culture and increase the participation of all stakeholders in the Education process	The Positive Influence of Servant Leadership: Servant Leadership-based leadership has a significant positive impact on improving the quality of education in schools. Principals who apply principles such as service, empathy, and empowerment tend to create a more supportive learning environment, which has an impact on improving the quality of teaching and student learning outcomes.
7	The Role of Principals' Transformational Leadership in Improving Educational Quality Through Accreditation in Junior High Schools	(Kariah & Sumarsono, 2025)	Analyzing the role of principal leadership in improving the quality of education through accreditation at SMPN 6 Tana Tudung.	Case study with the type of research in the form of qualitative research	If at SMPN 6 Tana Tudung the principal successfully implemented four dimensions of transformational leadership, namely ideal influence, inspirational motivation, intellectual stimulation, and individual attention, thereby improving teacher professionalism, learning quality, and fulfillment of national education standards.	The implementation of transformational leadership by the principal at SMPN 6 Tana Tudung contributed greatly to improving the quality of education and the institution's readiness to face the accreditation process.
8	Quality Service Management in Realizing Excellent Schools	(Sherwina Ranisa et al., 2025)	Analyzing the implementation of	Qualitative with case study design	The importance of implementing Total Quality	The implementation of quality service management at SMAN 5 Banjarmasin has

			quality service management in realizing a superior school at SMAN 5 Banjarmasin.		Management (TQM) principles, which emphasize total involvement, customer focus, and continuous improvement.	been running well through the systematic application of Total Quality Management (TQM) principles and the Plan, Do, Check, Act (PDCA) cycle.
9	The Crisis of Educator Quality in the Era of Disruption: Transforming Recruitment and Selection Strategies as a Solution to Improve Quality	(Mariyatul Kiptiyah, 2025)	To analyze the need for transformation of educator recruitment and selection strategies towards competency-based and technology-based Model as a solution to improve the quality of education.	Qualitative approach with case study type	The implementation of competency-based and technology-based recruitment systems, such as e-recruitment and online assessment, is able to increase the objectivity, transparency, and efficiency of the selection process. This transformation strengthens the professionalism of educators and improves the quality of educational institutions so that they are more adaptive to the challenges of the digital age.	The crisis in the quality of educators in the era of disruption is caused by the incompatibility between the conventional recruitment system and the competency needs of the 21st century.
10	Effects of Innovation, Total Quality Management, and Internationalization on Organizational Performance of Higher Education Institutions	(Texeira-Quiros et al., 2022)	To analyze the effects of innovation strategies, Total Quality Management (TQM) dimensions, and internationalization strategies that Higher Education Institutions (HEIs) might adopt, and	Library research and case studies	Emphasizing the need for sustainable strategic steps to achieve the vision of the institution, as well as produce graduates who excel in Islamic science and values.	Islamic educational institutions can create effective leaders, quality schools, and environments that support student development both academically and character. Leadership development programs that are carried out on an ongoing basis will make a great contribution to the achievement of optimal educational goals.

			their effects on their organizational performance.			
11	Principal's Commitment to Improving Educational Services	(Beni Chandra Purba, 2023)	Describe the implementation of educational services by the principal and analyze the level of leadership commitment in supporting continuous improvement of educational quality.	Qualitative with systematic literature study methods	Schools as formal educational institutions have organizational structures and managerial systems that generally resemble other educational institutions, both in terms of facilities, curriculum, and learning methods applied, although there are still unique characteristics in terms of traditional approaches and local character inherent in each school.	Improving the professional capacity of school principals, both in terms of integrity, managerial competence, and strategic vision, is the main determinant in realizing holistic, relevant, and sustainable quality educational services.
12	The role of principal leadership through school-based management from an Islamic education perspective	(Zaini, 2026)	To know and analyze the leadership role of school principals at SDIU Al-Maslach through the implementation of School-Based Management (SBM) which includes aspects of school autonomy, accountability, quality assurance, transparency, and community participation in the implementation of education.	Qualitative with case study method	That the principal has implemented the principles of MBS effectively through continuous planning and evaluation of school programs, management of the curriculum and directed learning processes, improvement of student services, professional management of human resources, transparent financial management, optimization of facilities and infrastructure, and	The principal's leadership has a very important role in the implementation of School-Based Management (SBM) at SDI Superior Al-Maslach Secodon.

13	School Administration Optimization Strategy in Improving the Quality of Education Services at UPTD SMPN2 Parepare	(Anatasia B, 2024)	To optimize the implementation of administration through strategies including recruitment and training of human resources, digitalization, principal leadership and workload evaluation.	Descriptive qualitative approach with a focus on case studies	strengthening partnerships with the community. By understanding the capacity and needs of the task as a whole, schools can experience a more positive, productive, efficient, and harmonious work environment, which ultimately has a positive impact on the quality of educational services	The management of archives and documents becomes neater, administrative services to teachers, students, parents, and stakeholders become more responsive, and the satisfaction of all parties with school services can increase. In the end, the optimization of administration in schools not only supports smooth operations, but also contributes directly to the creation of better and competitive quality of education.
14	The Principal's Visionary Leadership in Realizing Future-Based Education at MA Ma'arif Balong	(Ilhami & Fathoni, 2025)	Examines in depth the role of the principal's visionary leadership at MA Ma'arif Balong in realizing future-based education.	Qualitative with case study method	The visionary leadership of the principal at MA Ma'arif Balong has a significant role in realizing future-based education.	The principal successfully established a clear and inspiring vision, which focused not only on academics, but also on strengthening character and 21st-century skills.
15	Analysis Of Effectiveness of Integrated Quality Management in Improving the Quality of Islamic Educational Institutions	(Mila Mutiara Choirunisa et al., 2025)	To analyze the effectiveness of Integrated Quality Management (TQM) in improving the quality of Islamic educational institutions	Qualitative with descriptive methods	Demonstrates that TQM principles, such as customer focus, continuous improvement, fact-based decision-making, as well as the involvement of all elements of the organization, play a key role in creating high-quality educational institutions.	Effective leadership and solid teamwork are the keys to success in implementing TQM, as leaders have an important role in creating a conducive work environment, motivating teams, and ensuring good communication and coordination. The implementation of TQM is able to reduce the gap in education quality, increase customer satisfaction (stakeholders), and produce graduates who are competent and in accordance with the needs of the times

Based on the results of the above research which contains the results of an article review that is closely related to the title of the research, namely the Application of Transformational Leadership Strategies in Improving the Performance of Educational Organizations, the article (Lamirin et al., 2023) makes a significant conceptual contribution in strengthening the theoretical foundation regarding the implementation of transformational leadership in organizational education. This article successfully confirms that transformational leadership plays a role in creating an inspiring, innovative, and collaborative work environment that has an impact on improving organizational performance. However, methodological limitations in the form of the use of literature studies without empirical data support cause this article to be more conceptual-descriptive and has not directly tested the causal relationship between variables. In addition, there is no integration between transformational leadership and strategic data analysis approaches as a basis for managerial decision-making. In this context, the proposed research has a stronger novelty value because it integrates the transformation of principals' leadership with strategic data analysis, emphasizes the measurable optimization of teacher and staff performance, and connects leadership with a global competitiveness orientation. This research has the potential to be at the intersection of transformational leadership, data-driven strategic management, and global competitiveness in education. With a strong methodological design (e.g., mixed methods or SEM), these studies can have a more comprehensive theoretical and practical contribution and compete with international publications.

Then (Selvia, 2024), this article discusses how the administration and supervision of education in the 21st century must adapt to technological developments, globalization, and the competency demands of the industrial era 4.0. The author emphasizes that modern education administration is no longer conventional, but must integrate digital technology, innovative management systems, and collaborative cultures to improve the quality of education. The author uses a qualitative approach with a descriptive method based on literature study. Data were obtained from literature, theories, and previous research results related to 21st century education administration and supervision. The results of the study show that the administration and supervision of education in the 21st century focuses on: 1. Development of 21st century skills (critical thinking, creativity, collaboration, communication) 2. Improving the competence of teachers and education personnel through continuous training 3. Integration of technology in the school management system 4. Strengthening the culture of innovation and organizational collaboration. The conclusion of this article states that schools can achieve competitive educational administration and supervision through the development of adequate training programs and the creation of innovative and collaborative cultures, so that graduates have competencies relevant to the demands of the future.

Meanwhile (Muhammad Sidik et al., 2025) discussed analyzing the visionary leadership role of school principals in improving the quality of education. This study uses a qualitative approach with a case study design. This approach allows

researchers to explore the phenomenon of leadership in depth in the real context of a school. The results of the study show that visionary school principals have several main characteristics, namely: 1. Have a clear, directed, and communicative vision 2. Able to articulate this vision to all school residents 3. Encourage innovation in the learning process 4. Creating a collaborative and participatory organizational culture. The authors conclude that visionary leadership provides a solid foundation for realizing quality education that is relevant to the demands of the ever-changing times. Conceptually, visionary leadership is closely related to the transformational leadership theory developed by (M. Taylor et al., 2014) and deepened by (Haque et al., 2016), The role of vision in organizational readiness for change and growth.

Furthermore (Shobri, 2025) make a significant conceptual contribution in strengthening the paradigm of visionary leadership and values-based spirituality in the context of Islamic education. This article successfully confirms that visionary madrasah heads play a strategic role in building a collaborative, adaptive, and integrity organizational culture through the integration of spiritual values and local culture. However, the literature review approach used causes this article to be more conceptual-normative and has not been supported by empirical testing or analysis of measurable performance data. In addition, the research orientation is still on strengthening internal quality and institutional integrity, not explicitly linking leadership with data-based strategic analysis systems and global competitiveness. In this context, the proposed research has a stronger novelty potential because it integrates the transformation of principals' leadership with strategic data analysis as a basis for decision-making, as well as leading to the optimization of teacher and staff performance within the framework of global education competitiveness. Compared to articles that have been published in the Scopus indexed journal, this research sits at an important intersection between visionary leadership, transformational change, and data-driven strategic management in education. With a strong empirical methodological design (e.g., mixed methods or SEM), this research has the potential to make a more comprehensive and competitive theoretical and practical contribution to publication in accredited national journals as well as reputable international journals.

In addition, (Arif, 2024) makes an important conceptual contribution in expanding the leadership paradigm of school principals through the ideapreneurship approach. This article confirms that the principal as a deepener plays a role in driving organizational transformation through leadership integration transformational, distributional, and Servant, which is oriented towards innovation and school excellence. However, the literature review approach used makes this article conceptual-descriptive and has not been supported by empirical data that test the effectiveness of the deepener leadership model in improving organizational performance measurably. In addition, there has been no integration between innovative leadership and strategic data analysis as an evidence-based managerial decision-making tool. In this context, the proposed research has a stronger novelty value because it integrates the transformation of

principals' leadership with strategic analysis and data as the basis for optimizing teacher and staff performance, and explicitly leads to improving the quality of education that is globally competitive. Compared to articles that have been published in the Scopus indexed journal, this research has the potential to be at an important intersection between transformational leadership, strategic management, performance analytics, and the competitiveness of global education. With a strong empirical methodological design, this research has the opportunity to make a more integrative theoretical contribution as well as practical implications applicable to the development of modern education management.

However (Hasra et al., 2024) makes relevant empirical contributions in examining the role of Servant Leadership in the development of education quality management. The findings show that school principals who apply the principles of service and empowerment are able to build a collaborative culture and significantly increase stakeholder participation. This article strengthens the argument that value-based leadership has positive implications for the quality of school management. However, the qualitative approach used is still exploratory and has not been supported by quantitative testing of variable relationship models. In addition, the integration between leadership and strategic data analysis systems has not been comprehensively depicted, and the orientation of global competitiveness has not been the main focus of the study. In this context, the research submitted has a more progressive novelty value because it integrates the transformation of the principal's leadership with strategic analysis and data as the basis for decision-making to optimize the performance of teachers and staff. This research is not only oriented towards strengthening internal quality, but also explicitly targets the quality of education that is globally competitive. Compared to articles that have been published in Scopus indexed journals, this research has the potential to contribute more integrative to the realms of transformational leadership, strategic performance management, and data-driven educational leadership. With a robust methodological design and comprehensive empirical testing, this research has the opportunity to make a significant theoretical and practical contribution to the development of modern education management at the national and international levels.

Then (Kariah & Sumarsono, 2025) examine how principals' transformational leadership enhances education quality through accreditation in junior high schools. Using a qualitative case study approach, they explore how principals implement Bass and Burns' four leadership dimensions. Idealized influence builds trust through exemplary integrity; inspirational motivation frames accreditation as quality momentum; intellectual stimulation encourages teacher innovation; and individualized attention addresses professional needs. Results show this leadership model increases teacher professionalism, improves learning quality, and strengthens accreditation readiness. The study concludes that transformational leadership creates sustainable organizational cultural change, not merely technical preparation, making

it a strategic approach for quality-oriented school management and continuous improvement.

Finally (Mila Mutiara Choirunisa et al., 2025) strengthen the implementation of Total Quality Management (TQM) principles in Islamic education, highlighting customer focus, continuous improvement, fact-based decisions, and organizational involvement. However, their descriptive qualitative approach remains exploratory without empirical model testing using measurable indicators. The study lacks in-depth examination of principal leadership transformation and global competitiveness orientation. In contrast, the proposed research offers strategic novelty by integrating principal leadership transformation with strategic data analysis to optimize teacher and staff performance. By positioning data-driven leadership as central to achieving globally competitive quality, this research promises more integrative contributions to transformational leadership and performance management, with potential for international publication impact.

D. Conclusions

This systematic literature review confirms that the effectiveness of educational institutions depends substantially on the principal's capacity to integrate managerial, participatory, and evidence-based leadership approaches. Key findings reveal that collaborative and visionary leadership builds productive organizational cultures, enhances teacher professionalism, strengthens learning quality, and improves institutional competitiveness. The synthesis demonstrates that management approaches emphasizing stakeholder participation, transparency, and continuous evaluation strengthen accountable school governance. Critically, the integration of data-driven decision-making systems emerges as fundamental to ensuring that school policies and programs respond to authentic needs, performance analysis, and measurable quality indicators. Effective principal leadership therefore requires orientation not only toward vision and social relations but also toward utilizing data as the foundation for strategic policy formulation. The practical implications of these findings are significant for educational practice. Principals must develop competencies that span both relational leadership and data literacy, enabling them to translate evidence into actionable strategies for school improvement. Schools and education authorities should prioritize professional development programs that build principal capacity in participatory management and data analysis simultaneously. Furthermore, governance structures should institutionalize mechanisms for stakeholder engagement and continuous evaluation, ensuring that data informs decision-making at all levels rather than serving merely as compliance documentation. Regarding future research, the studies reviewed predominantly employed qualitative approaches with case study designs. While this provides valuable contextual depth, it limits the generalizability of findings across diverse settings. Future investigations should employ mixed-method designs that combine the depth of phenomenological analysis with broader quantitative approaches.

Longitudinal studies tracking how principals develop and apply data literacy over time would also strengthen understanding of this competency's evolution. Finally, comparative research examining how contextual factors influence the relationship between data-driven leadership and teacher outcomes across different national and institutional settings would enhance the field's external validity.

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