

Administrative Leadership Practices, Digital Enablement, and Institutional Climate in Educational Institutions: A Systematic Review

Juliet Arinaitwe¹ and P. Janardhana Kumar Reddy²

¹Research Scholar, Department of Education

²Associate Professor & Head (Rtd), Department of Education

Bharathiar University, Coimbatore, Tamil Nadu.

julietarinaitwe7@gmail.com¹, jkreddy451926@gmail.com²

ORCID: 0000-0001-8353-0936¹, ORCID: 0000-0002-0402-0995²

Abstract: *This systematic review synthesises empirical evidence on the relationship between administrative leadership practices, digital enablement, and institutional climate across educational institutions. A structured search and screening process was conducted across major academic databases using predefined inclusion and exclusion criteria. The review identified decision-making, communication, and resource management as the core administrative practices significantly associated with institutional climate outcomes. The findings indicate that these practices are increasingly enacted within digitally enabled environments, including management information systems, digital communication platforms, and electronic resource coordination systems. Digital enablement does not independently determine institutional climate; instead, it restructures and operationalises leadership processes in ways that enhance transparency, responsiveness, coordination, and accountability when strategically aligned with administrative practices. Across different educational levels, positive institutional climate outcomes were more associated with administrative leadership practices supported by coherent digital infrastructures and implementation strategies. The review positions digital enablement as embedded within administrative leadership rather than as a standalone reform initiative. It further highlights the importance of aligning administrative processes and technological systems to strengthen educational practices and institutional effectiveness in contemporary teaching and learning environments.*

Keywords: Administrative leadership practices, Digital enablement, Digital leadership, Institutional climate, Educational institutions, Systematic review

I. INTRODUCTION

Institutional climate has increasingly attracted scholarly attention and has emerged as a central construct in educational administration and leadership research. This prominence stems from its demonstrated association with instructional quality, staff well-being, and institutional performance (See et al., 2024; Naaz, 2020). Within educational institutions, this construct is also referred to as school climate and is commonly defined as the quality and character of institutional life (NSCC, 2007). It is also described as the personality of the school, reflecting the collective perceptions, feelings, and attitudes of stakeholders regarding relationships, safety, academic support, and working conditions across educational institutions (Ullah, Khan, & Kamal, 2022; Domínguez, Ruiz, Huertas, & Alonso-Tapia, 2020; Ngoma, Sakakombe, & Kabeta, 2018). It, thus, represents the shared experiences that shape how teaching, learning, and administrative processes are enacted within educational settings.



Positive institutional climates are often associated with enhanced safety, effective teaching and learning processes, professional collaboration, and supportive working conditions (Kundu & Roy, 2023; Bagga, 2022). Empirical evidence links such climates to the quality of educational leadership, particularly the administrative leadership practices enacted at the institutional level (Kilag et al., 2024; Kilag et al., 2023). Institutional leaders influence the institutional climate through administrative leadership practices, including decision-making, communication, and resource management. These practices shape institutional stability, accountability, and trust, which in turn contribute to conducive institutional environments. They play a critical role in determining how institutional policies are operationalised and experienced by staff and students. Prior studies indicate that such practices contribute to improved staff motivation and performance, institutional commitment, and coherence (Laghari, Hussain, & Khowaja, 2024; Ullah et al., 2022; Perveen & Nawaz, 2021; Lewno-Dumdie, Mason, Hajovsky, & Villeneuve, 2019). Moreover, strong administrative leadership practices support efficient and equitable utilisation of educational resources, thereby reinforcing fairness within institutions (Aboudahr, Olowoselu, & Ganesan, 2023; Sibomana, 2022).

In recent years, particularly following the COVID-19 pandemic, the integration of digital technologies into institutional administration has accelerated globally (Rasdiana et al., 2024). As a result, administrative leadership practices are increasingly enacted through digital systems and technological platforms. School management information systems (SMIS), digital communication tools, electronic record-keeping systems, and data analytics dashboards have transformed administrative processes. They have transformed how educational institutional leaders coordinate operations, communicate with stakeholders, and manage institutional resources by enabling data-driven decision-making, timely communication, and transparent resource management (Liu, Luo, Pang, & Kan, 2025; Banoğlu, Vanderlinde, Çetin, & Aesaert, 2023; Ullah et al., 2022; Forrester, 2019). These developments suggest that digital enablement is an operational addition and an integral dimension of contemporary educational leadership practice.

However, digitalisation alone does not guarantee improved institutional outcomes. Its effectiveness depends on leaders' digital competencies, institutional readiness, and the extent to which it is strategically integrated into administrative leadership processes (Eric, Arrive, Emynorane, & Bien-Aimé, 2025; Zhang & Chen, 2025; Zeng, Cheah, & Abdullah, 2025). While research has examined educational leadership, digital integration, and institutional climate as related but often separate domains, there remains a limited systematic synthesis of how digital enablement intersects with administrative leadership practices in shaping institutional climate across educational institutional levels. Existing studies often focus on digital leadership or instructional technology integration, with less attention to administration-specific leadership practices and their relationship to institutional climate. Furthermore, much of the literature remains context-bound to specific educational levels, limiting cross-level understanding. Therefore, the present systematic review synthesises empirical evidence published between 2016 and 2026 to examine how administrative leadership practices and digital enablement interact in influencing institutional climate across diverse educational settings.

Rationale for the Study

A substantial body of literature has established links between administrative leadership practices and institutional climate across educational settings (Kilag et al., 2024; Kilag et al., 2023; Akram, Shah, & Rauf, 2018). Simultaneously, a growing number of studies have examined the integration of digital technologies into educational leadership and administrative practices (Kaya-Kasicki, Zayim-Kurtay, & Kondakci, 2023; Dexter & Richardson, 2020). Despite these parallel streams of research, a limited systematic synthesis exists that integrates administrative leadership practices, digital enablement, and institutional climate within a unified analytical framework. Existing reviews often focus broadly on digital leadership, instructional technology, or general educational technology adoption, with minimal emphasis on administration-specific practices such as decision-making, communication, and resource management.

Moreover, studies tend to examine leadership practices and institutional climate in isolation from digitalisation, which increasingly mediates administrative processes in contemporary educational institutions. This gap is especially evident in developing and resource-constrained contexts, where disparities in ICT infrastructure, digital capacity, and leadership preparedness may significantly shape how administrative practices are enacted and how institutional climate is



experienced (Uzorka & Kalabuki, 2025; Bigirwa, Ndawula, & Naluwemba, 2022). As educational institutions continue to digitalise administrative functions, there is a need for a comprehensive synthesis that clarifies how digital enablement intersects with leadership practices to shape institutional climate across diverse educational contexts. By addressing this gap, the present systematic literature review contributes to a more integrated understanding of how digitalisation of administrative leadership practices associates with institutional climate in diverse educational settings.

Objectives of the Review

Main Objective

To systematically examine how administrative leadership practices and digital enablement are associated with institutional climate across educational institutions.

Specific Objectives

- To identify the administrative leadership practices examined in relation to institutional climate across educational institutions
- To examine the forms of digital enablement that shape the enactment of administrative leadership practices
- To synthesise evidence on how administrative leadership practices, within digitally transformed contexts, are associated with institutional climate

Research Questions

- Which administrative leadership practices are examined in relation to institutional climate across educational institutions?
- What forms of digital enablement are utilised in administrative leadership practices?
- How are administrative leadership practices in digitally enabled contexts associated with institutional climate?

Conceptual Positioning

Institutional climate reflects shared perceptions of relationships, norms, safety, and organisational practices within educational institutions, usually shaped by leadership behaviours and institutional structures (Kundu & Roy, 2023; Bagga, 2022). Administrative leadership practices, including decision-making, communication, and resource management, continue to be critical determinants of institutional climate across educational institutions. They, thus, influence collaboration, trust, and professional engagement among institutional leaders, staff, learners and parents. Similarly, digital transformation has become a central focus of contemporary educational administrative leadership. Research indicates that leaders in educational institutions are more engaged with digital tools and platforms for both administrative efficiency and intrinsic components of their leadership practice (Uzorka & Kalabuki, 2025; Kelder, Crawford, Al Naabi, & To, 2025). Digital leadership entails using technology to improve information flow, support the data-driven decision-making process, and enable remote coordination. These functions extend traditional administrative leadership into digitally mediated environments.

Furthermore, previous studies show that authentic leader behaviours and digital capabilities jointly contribute to institutional productivity and adaptability (Kelder et al., 2025). This underscores how leadership and digital competence intersect to shape institutional outcomes. Also, leadership that supports digitalisation has been shown to influence trust and structural conditions necessary for innovative and positive institutional climates (Kaya-Kasikci et al., 2023). Thus, digital enablement is an embedded dimension of how administrative leadership practices are enacted in educational institutions. This is because digital tools mediate most leadership functions such as communication, decision-making, resource allocation and coordination. Therefore, in digitally enabled environments, administrative leadership practices may shape institutional climate through both traditional mechanisms and enhanced transparency, responsiveness, and connectedness afforded by technology. Taken together, it can be suggested that administrative leadership practices and digital enablement are intricately connected in shaping institutional climate. This review, therefore, adopts an integrative



lens, examining how administrative leadership practices enacted within digitally evolving educational institutional contexts relate to perceptions of institutional climate.

II. METHODOLOGY

Review Design

The study adopted a systematic literature review design to synthesise evidence on the relationships among administrative leadership practices, digital enablement, and institutional climate across educational institutions. The systematic review approach was considered appropriate as it allows for the structured identification, evaluation, and integration of findings from diverse studies to generate a comprehensive understanding of emerging patterns and conceptual linkages within the field. The review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency, methodological rigour, and replicability in the process of study identification, screening, eligibility assessment, and inclusion. By following PRISMA procedures, the study minimised selection bias and enhanced the credibility and traceability of the synthesis process.

Data Sources

A comprehensive literature search was conducted across different electronic databases, selected for their relevance to educational leadership, administration, and social sciences research. The databases included Scopus, ERIC, and Google Scholar. These databases were chosen to maximise coverage of peer-reviewed studies related to administrative leadership practices, digital enablement in educational administration, and institutional climate across educational institutions. To enhance the breadth of coverage, reference list screening of included studies was also undertaken to identify additional relevant publications. Where necessary, full texts were accessed through institutional repositories and academic networking platforms.

Search Strategy

The search strategy employed a structured combination of keywords and Boolean operators aligned with the three study constructs of the review: administrative leadership practices, digital enablement, and institutional climate. Search terms were developed iteratively and refined to ensure sensitivity and specificity. Key search strings included combinations of:

- “School leaders” OR “school principals” OR “institutional leaders” OR “educational leadership”, AND
- “Administrative leadership practices”, OR “leadership practices”, OR “administrative skills” OR “leadership strategies”, AND
- “Technology-enabled administration” OR “digital administration” OR “digital leadership” OR “management information systems” OR “ICT integration”, AND
- “School climate” OR “institutional climate” OR “organisational climate” or “academic climate”.

Boolean operators (AND, OR) were applied systematically to link the search terms across databases. Searches were limited to peer-reviewed journal articles published between 2016 and 2026 to capture contemporary developments in digitally enabled educational administration and institutional climate research. Where database filters allowed, results were further restricted to studies within the fields of education and social sciences.

Inclusion and Exclusion Criteria

Studies were included if they were:

- Published in English between 2016 and 2026
- Were peer-reviewed journal articles
- Employed quantitative, qualitative, mixed-methods, systematic review, or narrative review designs
- Were conducted within educational institutions
- Examined administrative leadership practises of institutions- leader levels, including head teachers, principals, school leaders, deans, heads of departments, or equivalent roles



- Investigated at least two of the following constructs: administrative leadership practices, digital enablement in administration/leadership, and institutional/school/organisational climate.

Studies were excluded if they:

- Were conference papers, dissertations, reports, or book chapters
- Focused exclusively on classroom-level instructional technology without connection to institutional leadership
- Were conducted outside formal educational institutions
- Did not relate leadership/administrative practices to institutional/school/organisational climate outcomes

Study Selection Process

The study selection process followed PRISMA guidelines. All records identified through database searches were imported into a reference management system, and duplicate entries were removed. Titles and abstracts were screened against predefined inclusion and exclusion criteria. Full-text articles of potentially eligible studies were subsequently assessed for final inclusion. Screening decisions were guided by the eligibility criteria to ensure consistency. Where ambiguity arose, studies were re-examined carefully to determine alignment with the scope of the review.

Data Extraction

Data were extracted using a structured extraction matrix to ensure systematic and consistent recording of information. The following data were captured:

- Author(s) and year of publication
- Country or regional context
- Educational level (primary, secondary, higher education)
- Research design and methodological approach
- Administrative leadership practices examined
- Forms of digital enablement in administrative processes

This structured approach enhanced comparability across studies and supported thematic synthesis.

Data Synthesis

A thematic synthesis approach was employed to analyse and integrate findings across the included studies. The review focused on identifying recurring conceptual patterns, relational linkages, and contextual dynamics among administrative leadership practices, digital enablement, and institutional climate. These were generated through iterative comparison, coding, and abstraction of findings across studies. Specific attention was given to how digital enablement shaped and supported administrative leadership practices and how these practices were associated with institutional climate outcomes across different education institutional levels.

Quality Considerations

To enhance the credibility of the review, only peer-reviewed journal articles were included. During data extraction, study characteristics were documented to provide contextual understanding of the strength of the evidence. Although no formal quality appraisal tool was used to exclude studies, methodological transparency was considered in interpreting findings. Variations in design and content were acknowledged when synthesising results.

Reporting

The findings of the review were reported in accordance with PRISMA guidelines. The study selection process was presented narratively alongside a PRISMA flow diagram, and results were organised thematically in alignment with the review objectives.

III. FINDINGS

PRISMA Study Selection Results

Copyright to IJARSCT
www.ijarsct.co.in



DOI: 10.48175/IJARSCT-38002



The systematic search across the selected databases yielded a total of 300 records. After removing 87 duplicate entries, 213 unique studies remained for title and abstract screening. During this initial screening phase, 110 studies were excluded for not meeting the inclusion criteria. These studies primarily focused exclusively on classroom-level instructional technology, were conducted outside formal educational institutions, or did not address administrative leadership practices in relation to institutional/school/organisational climate. The full texts of 103 articles were subsequently assessed for eligibility. Of these, 76 studies were excluded due to insufficient relevance to one or more of the core constructs of the review, lack of substantive analytical focus, or failure to examine institutional-level leadership roles within educational settings. Finally, 27 studies met the inclusion criteria and were included in the final synthesis. A detailed overview of the study selection process is presented in Appendix 1 (PRISMA flow diagram)

Characteristics of the Studies Included in the Systematic Review

The 27 studies included in the final synthesis were published between 2016 and 2026, reflecting contemporary developments in digitally transforming educational environments. The studies represented diverse geographical contexts, encompassing both developed and developing countries, and were conducted across multiple educational levels, including primary schools, secondary schools, and higher educational institutions. The diversity enhanced the breadth of perspectives captured in the review. In terms of methodological design, most of the included studies employed quantitative approaches, followed by qualitative design, review studies, and then mixed-methods research. The primary units of analysis across studies included institutional-level leaders such as school principals, school leaders, head teachers, deans, and heads of departments. While administrative leadership practices were conceptualised broadly in many studies, the present review focused specifically on decision-making, communication, and resource management as core administrative functions consistently linked to institutional climate outcomes.

Digital enablement was operationalised across studies through the integration of management information systems, digital communication platforms, electronic record-keeping systems, data dashboards, e-governance tools, and other administrative technologies supporting institutional processes. The level of digitalisation varied substantially across contexts, reflecting differences in infrastructure, policy environments, and leadership capacity. Institutional climate outcomes were examined through multiple dimensions, including organisational safety, academic environment, collegiality, institutional culture, collaboration, and working conditions. Although terminologies varied, the underlying construct consistently referred to shared perceptions of institutional functioning and leadership practices. A detailed summary of the characteristics of the included studies is presented in Appendix II. The thematic findings of the review are organised under three main areas: administrative leadership practices in relation to institutional climate, digital enablement in administrative leadership, and integrated relational patterns among administrative leadership practices, digital enablement, and institutional climate.

Administrative Leadership Practices in Relation to Institutional Climate

The administrative leadership practices reported in the included studies were largely concentrated around several core administrative functions. However, three of these functions: Decision-making, communication, and resource management were extracted. These functions emerged in relation to institutional climate across diverse educational institutional levels.

Decision-making practices, including participatory decision-making, policy implementation, and strategic planning, were consistently associated with positive and conducive institutional climate outcomes. Studies reported that inclusive and transparent decision-making processes fostered trust, collective responsibility, and shared ownership among staff members, thereby contributing to more supportive and collaborative institutional environments (Uzorka & Kalabuki, 2025; Adewale, 2025; Ullah, Nawaz, Khoso, & Ghunio, 2023; Rani, Ishaq, Abbas, & Bashir, 2023; Ayeni, 2018). Across contexts, participatory leadership structures were linked to perception of fairness, professional respect, and conducive academic environment (Ullah et al., 2023; Karakose, Polat, & Papadakis, 2021).



Similarly, communication practices emerged as a central determinant of institutional climate. Staff coordination, effective information dissemination, and stakeholder engagement were reported to reduce ambiguity, minimise conflict, and enhance collegial relationships within institutions (Uzorka & Kalabuki, 2025; Adewale, 2025; Elizabeth, Aderanti, & Olanrewaju, 2023; Ullah et al., 2022; Laghari & Jafri, 2022; Perveen & Nawaz, 2021). Institutions characterised by open communication channels demonstrated strong perceptions of psychological safety, institutional stability, and professional cohesion (Asis, 2025; Uzorka & Kalabuki, 2025; Ullah et al., 2023).

Also, resource management practices, including budgeting, provision of professional support, allocation of instructional and operational resources, and administrative coordination, were frequently associated with positive institutional climate indicators (Zhang & Chen, 2025; Ayoro, Onyeike, & Ihechi, 2023; Olaivar & Loayon, 2022; Sibomana, 2022). Adequate resource distribution and organisational support were linked to improved morale, staff satisfaction, and institutional efficiency (Olaivar & Loayon, 2022; Sibomana, 2022). Conversely, poorly enacted resource management practices, such as inadequate professional development opportunities, were associated with perceptions of institutional neglect and unsupportive work environments (Kabuuka, 2022).

Overall, the review evidence indicates that administrative leadership practices shape institutional climate through governance transparency, communication quality, and equitable management of institutional resources. These findings were consistent across diverse educational levels, suggesting that core administrative functions remain foundational determinants of institutional climate in both lower school and higher education settings.

Digital Enablement in Administrative Leadership Practices

Across the included studies, digital technologies were increasingly integrated into core administrative leadership practices, particularly decision-making, communication, and resource management. However, the depth, sophistication, and institutional penetration of digital enablement varied considerably across contexts, reflecting differences in infrastructure, policy environments, and leadership capacity.

Digital-Enabled Decision-Making

Several studies documented the adoption of School Management Information Systems (SMIS), analytics platforms, data dashboards, and electronic reporting systems to support evidence-informed administrative decision-making (Dasruth, Naicker, & Smith, 2024; Banoğlu et al., 2023). These digital systems facilitated access to real-time institutional data, enabling leaders to monitor student performance, attendance trends, staff deployment, and operational indicators more systematically. Across contexts, digital decision-support tools were associated with improved coordination, transparency, and procedure consistency. Uzorka and Kalabuki (2025) reported that the use of digital platforms enhanced interdepartmental collaboration and streamlined governance processes. Similarly, Forrester (2019) emphasised the value of SMIS-driven decision-making models in strengthening institutional quality and inclusive planning processes. Taken together, the reviewed studies suggest that digital systems function greatly as infrastructural supports for structured, inclusive, and data-informed administrative leadership, which is key to conducive institutional climates.

Digital Communication Practices

Digital communication platforms such as email systems, electronic circulars, online staff portals, virtual meeting platforms, and messaging applications were widely reported as central mechanisms for administrative coordination (Eric et al., 2025; Adewale, 2025; Rasdiana et al., 2024; Dasruth et al., 2024). These technologies were described as reducing delays in information flow, enhancing accessibility, and promoting administrative transparency. Several studies highlighted that digitally mediated communication enabled more inclusive participation in institutional discussions, particularly through virtual meetings and collaborative platforms (Uzorka & Kalabuki, 2025; Asis, 2025; Dasruth et al., 2024). Rasdiana et al. (2024) further reported that leadership engagement in digital communication environments was associated with increased professional collaboration among staff. Across educational levels, digital communication platforms appeared to strengthen responsiveness and connectivity within institutional systems.



Digital-Enabled Resource Management

Digitalisation was also embedded in institutional resource management processes through e-budgeting systems, electronic procurement platforms, digital risk management systems, electronic record-keeping systems, and inventory tracking applications (Eric et al., 2025; Okunlola & Naicker, 2025; Dasruth et al., 2024; Karakose et al., 2021). These systems were reported to improve monitoring, accountability, efficiency, and compliance with regulatory standards. Electronic record management systems were commonly used for staff documentation, student information management, financial records, and institutional reporting (Maryani, Anggraeni, Akbari, & Suriansyah, 2026; Eric et al., 2025; Rasdiana et al., 2024). Digitalisation of administrative workflows was associated with reduced manual workload, improved coordination, and enhanced operational transparency.

Overall, digital enablement emerged as an infrastructural layer reshaping how administrative leadership practices are enacted. Across decision-making, communication, and resource management domains, digital systems facilitated efficiency, transparency, coordination, and data-informed governance. However, the extent to which these technologies translated into broader institutional climate improvements appeared contingent upon contextual factors such as infrastructure availability, digital literacy, and leadership competence.

Integrated Relationship Among Administrative Leadership Practices, Digital Enablement, and Institutional Climate

Although most of the included studies did not employ formal association analysis, the synthesis revealed consistent relational patterns linking administrative leadership practices, digital enablement, and institutional climate. Across contexts, administrative leadership practices appeared more strongly associated with positive institutional climate outcomes when enacted within digitally enabled administrative environments (Zeng et al., 2025; Kaya-Kasikci et al., 2023; Perveen & Nawaz, 2021). Communication emerged as one of the most prominent digitally enabled administrative functions associated with improved coordination, management processes, and institutional stability (Adewale, 2025; Zeng et al., 2025). For example, Asis (2025) reported that digital-driven communication strategies enhanced stakeholder engagement and administrative responsiveness. Digitally supported decision-making systems were associated with increased transparency, structured governance, and collaborative institutional practices (Forrester, 2019). No wonder, Uzorka and Kalabuki (2025) urged university leaders to embrace digitally-driven solutions to foster collaboration and effective decision-making.

Several studies emphasised that digital administrative leadership behaviours contributed to the development of institutional digital culture, fostering innovation, professional collaboration, and adaptive organisational practices (Zeng et al., 2025; Rasdiana et al., 2024; Banoğlu et al., 2023). Also, it was noted that digitally enabled practices function as mechanisms that translate leadership intentions into observable administrative actions, thereby shaping perceptions of institutional climate (Zeng et al., 2025; Liu et al., 2025; Işık, 2023). Likewise, digital-oriented administrative leadership behaviours were associated with improvements in work environments through enhanced decision-making, strategic planning, and equitable resource allocation, contributing to staff professional growth, efficacy, and trust (Işık, 2023; Kaya-Kasikci et al., 2023).

Importantly, the reviewed literature indicates that positive institutional climate outcomes were not attributed to technological tools alone. Rather, climate improvements were linked to how digital systems were integrated into leadership processes, including implementation strategies, leadership competence, and contextual alignment (Liu et al., 2025). This suggests that digital enablement functions as an infrastructural operational layer through which administrative leadership practices are enacted, rather than as an independent determinant of institutional climate. Across the diverse contexts, evidence suggests that administrative leadership practices and digital enablement operate in dynamic interaction. Digital systems appear to amplify, structure, and sometimes constrain leadership actions, thereby influencing how institutional climate is perceived and experienced by stakeholders.



Summary of the findings

Collectively, the findings across the included studies indicate that administrative leadership practices are greatly associated with institutional climate across educational settings. However, these practices are increasingly enacted within digitally enabled administrative environments that reshape decision-making processes, communication structures, and resource coordination mechanisms. Digital enablement does not independently determine institutional climate; rather, it appears to strengthen, structure, and operationalise administrative leadership practices in ways that enhance transparency, responsiveness, collaboration, and trust. Across the different educational institutional levels, positive institutional climate outcomes were more associated with leadership practices that were supported by coherent digital systems and aligned implementation strategies. These integrated patterns underscore the interdependent nature of administrative leadership practices and digital transformation in shaping contemporary institutional climates.

IV. DISCUSSION

This systematic review synthesised evidence on how administrative leadership practices and digital enablement are associated with institutional climate across educational institutions. The discussion is structured around the three thematic areas identified in the results: administrative leadership practices in relation to institutional climate, digital enablement in administrative leadership, and integrated relational patterns among administrative leadership practices, digital enablement, and institutional climate.

Administrative Leadership Practices in Relation to Institutional Climate

The synthesis of the reviewed studies highlights the central role of administrative leadership practices in shaping institutional climate, particularly through decision-making, communication, and resource management. These practices were associated with variations in institutional climate across diverse educational institutional contexts. They emerged as foundational administrative functions through which institutional leaders influence institutional safety, professional relationships, academic environments, working conditions, and institutional support systems.

The strong association between participatory and operative decision-making practices and positive institutional climate suggests that inclusive administrative leadership structures play a key role in fostering institutional trust and collective responsibility. Across diverse educational levels, institutions that embedded effective decision-making skills reported stronger perceptions of fairness, professional respect, and supportive academic environments (Ullah et al., 2023; Rani et al., 2023). These findings align with broader educational leadership perspectives that emphasise shared and effective decision-making as a mechanism for fostering collective ownership and professional commitment, as reflected in prior empirical evidence (Asis, 2025; Dasruth et al., 2024; Ullah et al., 2023). The findings imply that decision-making processes influence institutional climate by ensuring the quality of policy implementation and enhancing recognition of staff voices and contributions. When the institution's decision-making process is transparent and strategically coordinated, it reinforces legitimacy and strengthens institutional cohesion.

Similarly, communication practices emerged as foundational institutional climate-shaping mechanisms. Open and structured communication channels were linked to reduced ambiguity, improved psychological safety, and enhanced collegiality (Elizabeth et al., 2023; Ullah et al., 2022; Laghari & Jafri, 2022; Perveen & Nawaz, 2021). The consistency of this pattern across studies suggests that communication quality directly influences relational trust, institutional stability, and enhanced collaboration. Educational institutions characterised by effective information dissemination and stakeholder engagement were more likely to demonstrate professional cohesion and administrative clarity (Asis, 2025; Uzorka & Kalabuki, 2025). Conversely, communication gaps were linked to tension, disengagement, and fragmented school climates. No wonder, studies by Dasruth et al. (2024) and Ullah et al. (2023) suggested improvement in school leadership communication practices for better work and academic environments. This indicates that communication operates both as a co-ordinational tool and a symbolic indicator of leadership responsiveness.

Resource management practices further highlighted the structural link between administrative leadership and institutional climate. Efficient budgeting, equitable allocation of resources, proper record keeping, and provision of professional



support were associated with improved working conditions and staff morale (Ayoro et al., 2023; Olaivar & Loayon, 2022; Sibomana, 2022). These findings suggest that resource management informs institutional priorities and commitment to professional growth. In contrast, inadequate professional development opportunities, insufficient and poorly allocated resources, and weak administrative coordination were linked to perceptions of institutional neglect (Kabuuka, 2022), thereby undermining institutional climate stability. Thus, resource management practices shape institutional climate not only through resource allocations, but also the perceptions of institutional competence and fairness they generate.

Importantly, the synthesis yields a consistency of associations between administrative leadership practices and institutional climate. This cross-level consistency strengthens the argument that institutional climate is structurally embedded within leadership administrative processes, rather than in a specific institution type or level. These observations align with broader educational leadership literature, which emphasises that administrative leaders play a decisive role in establishing organisational norms, expectations, and professional relationships within schools (Elizabeth et al., 2023; Ullah et al., 2023; Ullah et al., 2022). The review further suggests that administrative leadership practices are managerial tasks and strategic actions that directly influence how stakeholders experience the institutional environment. However, the effectiveness of these administrative leadership practices is dependent on the mechanisms through which they are enacted, particularly in modern contexts, characterised by growing administrative complexity and digitalisation. Taken together, therefore, these practices operate as interconnected pillars through which institutional climate is constructed, sustained, and experienced by institutional members.

Digital Enablement in Administrative Leadership

The blend of the reviewed studies indicates that digital enablement has become an integral part of contemporary administrative leadership practices. Digital technologies appear to reshape how core administrative functions, including decision-making, communication, and resource management, are enacted within educational institutions. The findings suggest that digital enablement enhances transparency and coordination, thereby influencing conditions that underpin institutional climate.

In relation to decision-making, the integration of school management information systems, data dashboards, social media, and electronic reporting platforms reflects a broad shift towards data-informed leadership. Digital decision-support systems are associated with improved evidence-based and inclusive administrative decisions and interdepartmental coordination (Dasruth et al., 2024; Banoğlu et al., 2023). By providing access to real-time data on student performance, attendance, resource allocation, and staffing, these tools appear to reduce reliance on subjective judgment and enhance transparency in planning processes. This aligns with Forrester (2019), whose review highlighted that digital decision-making models strengthen leadership effectiveness, planning, and institutional quality assurance. Additionally, Uzorka and Kalabuki (2025) noted that evidence-based decision-making practices are linked to supportive collaborations and coherence across institutional departments. Thus, structured and data-driven decision-making improves perceptions of fairness, accountability, and institutional competence, which are connected to trust and stability within educational institutions.

Digital communication practices also illustrate how administrative leadership processes are shaped by digitalisation. The widespread adoption of email systems, online staff portals, collaborative applications, and virtual meetings reflects an institutional shift towards digitally mediated coordination (Adewale, 2025; Eric et al., 2025; Rasdiana et al., 2024). These platforms were associated with improved responsiveness, accessibility, and inclusiveness in institutional interactions. Furthermore, studies indicated that virtual communication environments expanded participation in discussions and strengthened professional collaborations (Uzorka & Kalabuki, 2025; Asis, 2025; Dasruth et al., 2024). Such patterns suggest that digital communication technologies may contribute to institutional climate by enhancing connectivity, organisational clarity, openness, and collective engagement. However, the effectiveness of these platforms is dependent on leadership engagement and digital competence, indicating that digitalisation alone does not automatically strengthen institutional cohesion.



Digitalisation within resource management practices further reflects a structural transformation of administrative leadership workflows. The adoption of e-budgeting systems, electronic procurement systems, and digital inventory management systems was linked to improved monitoring, regulatory compliance, and operational transparency (Eric et al., 2025; Okunlola & Naicker, 2025; Karakose et al., 2021). Electronic record-keeping systems, including digital staff records and student information systems, were reported to lessen administrative workload and enhance coordination across administrative units (Maryani et al., 2026; Dasruth et al., 2024). These findings suggest that digital resource management systems reinforce perceptions of institutional accountability and procedural fairness, since they encourage transparency and efficiency.

However, disparities in digital infrastructure and institutional readiness were noted across contexts, suggesting that digital enablement does not produce uniform institutional outcomes. Thus, digital administrative leadership practices do not automatically translate into improved organisational outcomes. Notably, the synthesis indicates that digital enablement functions as an infrastructural layer, rather than a leadership substitute. Across decision-making, communication, and resource management, digital systems support efficiency and transparency, but their effectiveness on institutional climate is contingent upon contextual factors. Unsurprisingly, several studies caution that the benefits of digital systems depend on leaders' capacity to align digital tools with the institutional goals (Uzorka & Kalabuki, 2025; Dasruth et al., 2024; Banoğlu et al., 2023). This indicates that digital technologies amplify administrative leadership processes when embedded within coherent governance structures, but may have a limited impact in the absence of strategic implementation and institutional capacity.

Overall, the findings suggest that digital enablement is redefining operationalisation of administrative leadership practices by improving governance efficiency, enhancing data visibility, systemising resource coordination, and promoting staff collaborations. These skills shape the practical environment through which institutional climate is experienced. Their contribution, however, is neither automatic nor universally transformative, but largely depends on the alignment between technological systems, administrative practices, and institutional capacity.

Integrated Relationship Among Administrative Leadership Practices, Digital Enablement, and Institutional Climate

The synthesis of the reviewed studies revealed a patterned and interdependent relationship among administrative leadership practices, digital enablement, and institutional climate. Although most studies did not employ formal statistical association models, consistent relational trends suggest that the effectiveness of administrative leadership practices on institutional climate is increasingly shaped by the degree to which they are enacted within digitally structured administrative environments.

Across contexts, administrative leadership practices such as decision-making and communication appeared to generate stronger positive institutional climate outcomes when supported by digital infrastructures (Zeng et al., 2025; Kaya-Kasikei et al., 2023; Işık, 2023). This pattern suggests that digital enablement modifies how administrative leadership practices are structured, operationalised, and experienced within institutions for tangible administrative activities. In digitally integrated institutional environments, communication processes become more transparent, responsive, and inclusive, thereby reinforcing stability and collaboration among stakeholders within the institutions (Adewale, 2025; Zeng et al., 2025). For instance, technology-driven communication strategies were shown to enhance stakeholder engagement and administrative responsiveness (Asis, 2025). This indicates that digital platforms can extend the relational reach of administrative leadership.

Similarly, digitally supported decision-making systems appear to strengthen structured leadership and collaborative planning processes (Forrester, 2019). Relatedly, Uzorka and Kalabuki (2025) emphasised the need for educational leaders to embrace digitalisation to foster evidence-based decision-making. This pattern reflects an emerging consensus that digital systems reinforce collaborative and transparent administrative structures, thereby strengthening the link between leadership practices and institutional climate. There is also an emerging pattern demonstrating the role of digital administrative behaviours in cultivating institutional digital environments, which broadens cultural transformation within



institutions. Studies suggest that digitally oriented administrative leadership practices promote dynamic, innovative, adaptive, and supportive work environments (Rasdiana et al., 2024; Banoğlu et al., 2023). In this sense, digital practices translate leadership intentions into visible administrative actions, shaping how institutional climate is interpreted and experienced (Liu et al., 2025; Işık, 2023).

Improvements in work environments, professional growth, efficacy, and staff trust were particularly evident where digital systems were strategically integrated into decision-making and resource allocation processes (Işık, 2023; Kaya-Kasicki et al., 2023). Digital enablement, therefore, systematises data access and procedural workflows, thus reducing ambiguity and enhancing accountability. These outcomes may positively shape perceptions of fairness and institutional coherence. Importantly, the review evidence demonstrates that digital tools alone do not produce positive institutional climate outcomes. Institutional climate improvements were associated with how digital systems were embedded within leadership processes, including implementation strategies, leadership competence, and contextual alignment (Liu et al., 2025). This suggests that digital enablement operates as an infrastructural layer that shapes the execution and visibility of administrative leadership practices. Where digital systems are strategically aligned with administrative processes, they appear to amplify transparency, coordination, and professional engagement. Conversely, where integration is weak or misaligned, digitalisation may have a limited influence on institutional climate.

Overall, the discussion indicates that administrative leadership practices and digital enablement function in dynamic interaction. Digital systems structure can sometimes constrain leadership action, while leadership competence determines how effectively those systems are enacted. Institutional climate, therefore, emerges not from digitalisation or administrative leadership in isolation, but from the alignment between administrative governance processes and digital infrastructures. The synthesis indicates a stronger link between administrative leadership practices and positive institutional climate outcomes when implemented through effective digital-enabled systems. This integrated perspective underscores the need to view digital enablement as embedded within administrative leadership practice rather than as a parallel reform initiative.

Limitations

The inclusion of a heterogeneous mix of quantitative, qualitative, mixed-methods, and review studies limited direct comparability of findings and precluded formal meta-analysis procedures.

Also, although review studies were included to enrich conceptual understanding, there remains a possibility of overlap with primary studies. However, care was taken to use review articles for thematic interpretation rather than data aggregation.

Contextual differences across diverse educational levels, national policy environments, and digital infrastructural readiness may limit the generalisability of the findings to specific institutional settings.

V. CONCLUSION

This systematic review synthesises evidence on the interconnected relationship among administrative leadership practices, digital enablement, and institutional climate across educational settings. The findings illustrate that decision-making, communication, and resource management remain key determinants of institutional climate. However, these practices are increasingly carried out within digitally structured administrative environments. Digital enablement does not independently shape outcomes of the institutional climate. Instead, it reorganises how administrative leadership practices are executed, enhancing transparency, coordination, and accountability when strategically aligned with administrative processes. Positive institutional climate results were more consistently linked to institutions where digital systems were coherently integrated into administrative leadership practices. The review, therefore, concludes that institutional climate in modern educational contexts arises from the alignment between administrative leadership processes and digital infrastructures. Future research should further investigate longitudinal and context-sensitive dynamics of digital governance to deepen understanding of how digital enablement in administrative leadership practices influences institutional environments over time.



Educational Implications

Strengthening institutional climate requires aligning administrative leadership practices with coherent digital systems. Thus, institutions should integrate digitalisation into decision-making, communication, and resource management processes to enhance transparency, coordination, and accountability.

Building digital administrative competence among institutional leaders is essential to ensure that technology enhances governance effectiveness and institutional climate.

There is, thus, a need for policy interventions that prioritise both administrative competence and meaningful technology integration for stable and supportive institutional environments.

Authorship Contribution

Arinaitwe Juliet: Writing the original draft, conceptualisation and methodology, data curation, editing, and writing of the final manuscript.

P. Janardhana Kumar Reddy: Guiding, reviewing and editing.

Declaration of Conflicting Interest

The authors declare that no conflict of interest influenced the work reported in this paper.

Funding

The authors declare that no funding was received for the research, authorship, or publication of this article.

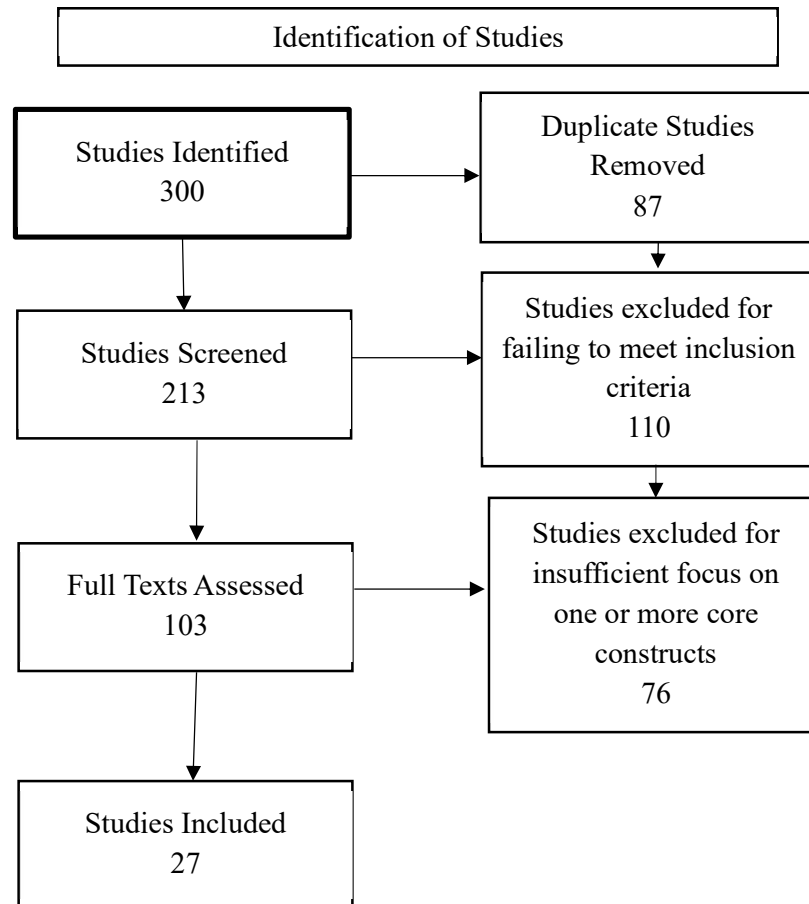
Data Availability

No primary data was used for the research described in the article

Appendix I

Figure 1: *PRISMA Flow Chart*





Appendix II

Table 1: *Characteristics of the Included Studies*

No.	Author and Year	Country	Educational Level and Leadership Role	Research Design	Administrative Leadership Practice	Digital Enablement in Administrative Leadership
	Adewale (2025)	Uganda	Head teachers/ Secondary schools	Systematic Review	Communication	ICT and digital Communication
	Zhang & Chen (2025)	China	Deans/ University	Qualitative	Decision-making, Communication	ICT
	Uzorka & Kalabuki (2025).	Uganda	University	Qualitative	Decision-making, Communication	Digital platforms
	Forrester (2019)		Administrators	Review	Decision-making	SMIS



Rasdiana et al. (2024)	Indonesia	Senior school	high	Quantitative	Communication	Digital communication
Elizabeth et al. (2023)	Nigeria	Principals/ Secondary schools		Quantitative	Communication	
Ullah et al. (2022)	Pakistan	Head teachers/ Secondary school		Qualitative	Effective communication	
Zeng et al. (2025)	Global	Principals/ Educational setting		Systematic Review	Resource allocation, Communication	Digital leadership
Liu et al. (2025)	Global	School leaders		Systematic Review	Communication Decision-making Resource management	ICT-Integrated platforms
Sibomana , (2022)	Rwanda	Principals/ Secondary school		Quantitative	Resource management, Communication	
Laghari & Jafri (2022)	India	Head teachers/ Secondary school		Quantitative	Effective Communication	
Banoğlu et al. (2023)	Turkey	Principals/ Schools	K-12	Quantitative	Data-driven decision-making	Technology leadership
Olaivar & Loayon s (2022)	Philippine	Head teachers/ Elementary schools		Quantitative	Resource management	
Işık, (2023)	Turkey	Principals/ Diverse levels of schools		Mixed-methods	Effective resource allocation	Technological leadership behaviours
Perveen & Nawaz (2021)	India	Head teachers/ Secondary Schools		Quantitative	Communication	
Kaya-Kasikci et al. (2023)	Turkey	School leaders/ Schools		Quantitative	Decision-making, resource management	Technology leadership
Rani et al. (2023)	Pakistan	Head teachers/ Elementary schools		Quantitative	Decision-making	
Ayeni, (2018)	Nigeria	Principals/ Secondary Schools		Quantitative	Decision-making	
Kabuuka, (2022)	Uganda	School leaders/ Primary schools		Mixed	Human resource management	



Ayoro et al. (2023)	Nigeria	Principals/ Secondary schools	Quantitative	Resource management	
Dasruth et al. (2024)	South Africa	Principals/ Primary schools	Qualitative	Communication Resource-allocation Decision-making	Digital leadership
Okunlola & Naicker (2025)	Nigeria	Principals/ High school	Quantitative	Decision-making	Digital leadership
Karakose et al. (2021)	Turkey	Principals/ University	Qualitative	Communication, Decision-making, Resource management	Digital transformation leadership
Eric et al. (2025)	Madagascar	Principals/ Elementary schools	Qualitative	Communication, record keeping	Technology usage in school management
Maryani et al., (2026)	Indonesia	Principal/ Senior high schools	Qualitative	Record keeping	Management Information Systems
Ullah et al. (2023)	Pakistan	Head teachers/ Secondary education	Mixed methods	Communication, Decision-making	
Asis, (2025).	Philippines	Head teachers/ Elementary schools	Quantitative	Communication	Technology-driven leadership

REFERENCES

1. Aboudahr, S., Olowoselu, A., & Ganesan, S. (2023). Qualitative Analysis of Teachers' Perceptions on Headteacher Leadership and Administrative Roles in Schools. *International Journal of Academic Research in Business & Social Sciences*, 13(3).
<https://doi.org/10.6007/ijarbs/v13-i3/16481>
2. Adewale, S. (2025). A Systematic Review of leadership Strategies for Enhanced technology Usage among teachers in secondary schools. *Interdisciplinary Journal of Education*. <https://doi.org/10.53449/9ys35j39>
3. Akram, M., Shah, A. A., & Rauf, A. (2018). Head teachers' instructional leadership practices and school climate at secondary schools. *Journal of Arts and Social Sciences*, 5(2), 63-83.
4. Asis, M. (2025). Technology-Driven Strategies in Transformational Leadership: Practices of School Heads in Public Elementary Schools. *International Journal of Sustainability and Advanced Integrated Research*, 1(2), 47-54.
<https://www.ijairs.com/index.php/ijairs/article/view/23>
5. Ayeni, A. J. (2018). Principals' decision-making strategies and teachers' productivity in secondary schools in Ondo Central Senatorial District of Ondo State, Nigeria. *Global Journal of Management and Business Research: Administration and Management*, 18(10), 18-30.



6. Ayoro, R. A., Onyeike, V. C., & Ihechi, F. J. (2023). Principals' Educational Resource Management and Teachers' Job Performance in Private Secondary Schools in Delta State, Nigeria. *European Journal of Education Studies*, 10(9).
7. Bagga, M. K. (2022). The psychological safety of Indian school teachers: where the mind is without fear. *Education and Self-Development*, 17(4), 14-21.
<https://eandsjournal.kpfu.ru/en/wp>
8. Banoğlu, K., Vanderlinde, R., Çetin, M., & Aesaert, K. (2023). Role of school principals' technology leadership practices in building a learning organisation culture in public K-12 schools. *Journal of School Leadership*, 33(1), 66-91.
9. Bigirwa, J. P., Ndawula, S., & Naluwemba, E. F. (2022). Technology leadership practices of end users and the adoption of e-learning in midwifery institutions in Uganda. *Journal of medical education and curricular development*, 9, 23821205221096376.
<https://journals.sagepub.com/doi/abs/10.1177/23821205221096376>
10. Dasruth, J., Naicker, S. R., & Smith, C. (2024). Teachers' perceptions of principals' digital leadership practices in a school district in a developing country. *Social Sciences & Humanities Open*, 10, 101192.
<https://www.sciencedirect.com/science/article/pii/S2590291124003899>
11. Dexter, S., & Richardson, J. W. (2020). What does technology integration research tell us about the leadership of technology? *Journal of Research on Technology in Education*, 52(1), 17-36.
<https://www.tandfonline.com/doi/abs/10.1080/15391523.2019.1668316>
12. Domínguez, A. Q., Ruiz, M. Á., Huertas, J. A., & Alonso-Tapia, J. (2020). Development and validation of the School Climate Questionnaire for Secondary and High School Teachers (SCQ-SHST). *Anales de Psicología/Annals of Psychology*, 36(1), 155-165.
13. Elizabeth, A. O., Aderanti, R., & Olanrewaju, A. K. (2023). Principals' Administrative Skills and Teachers' Productivity in Public Senior Secondary Schools, Alimosho Local Government, Lagos State, Nigeria. *Canadian Journal of Educational and Social Studies*, 3(4), 12-24.
14. Eric, R. R., Arrive, J. T., Emynorane, R. H., & Bien-Aimé, W. D. (2025). The Role of Technology in School Resource Management: A Study on Public Elementary Schools in Madagascar. *Jurnal Ilmiah PENDAS: Primary Educational Journal*, 6(2), 1-8. <https://jurnal.unram.ac.id/index.php/pendas/article/view/9114>
15. Forrester, V. V. (2019). School management information systems: Challenges to educational decision-making in the big data era. *arXiv preprint arXiv:1904.08932*.
<https://arxiv.org/abs/1904.08932>
16. Işık, M. (2023). Investigation of school administrators' technological leadership behaviours in the context of teachers' professional development. *Malaysian Online Journal of Educational Technology*, 11(4), 238-257.
<https://doi.org/10.52380/mojet.2023.11.4.530>
17. Kabuuka, I. (2022). Human Resource Management Practices and Teachers' Performance in Universal Primary Education Schools of Kyankwanzi District, Uganda. *Human Resource Management*, 13(2).
18. Karakose, T., Polat, H., & Papadakis, S. (2021). Examining teachers' perspectives on school principals' digital leadership roles and technology capabilities during the COVID-19 pandemic. *Sustainability*, 13(23), 13448.
<https://www.mdpi.com/2071-1050/13/23/13448>
19. Kaya-Kasikci, S., Zayim-Kurtay, M., & Kondakci, Y. (2023). The role of leadership in developing a climate of technology integration in public schools. *Teaching and Teacher Education*, 132, 104234.
<https://doi.org/10.1016/j.tate.2023.104234>
20. Kelder, J. A., Crawford, J., Al Naabi, I., & To, L. (2025). Enhancing digital productivity and capability in higher education through authentic leader behaviours: A cross-cultural structural equation model. *Education and Information Technologies*, 30(12), 17751-17767. <https://link.springer.com/article/10.1007/s10639-025-13422-x>



21. Kilag, O. K., Uy, F., Sasan, J. M., Calunsag, J., Pareja, J. Y., Timtim, J. M., & Pansacala, J. A. (2024). Leadership styles and school climate: Implications for educational outcomes. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRISE)*
22. Kilag, O. K. T., Diano Jr. F. M., Malbas, M. H., Mansueto, D. P., Villar, S. P., & Arcillo, M. T. (2023). The role of servant leadership in creating a positive school climate. *Science and Education*, 4(5), 933-942.
23. Kundu, A., & Roy, D. D. (2023). How do teachers innovate? Role of efficacy for innovation and school climate perception. *Psychology in the Schools*, 60(12), 4885-4903.
<https://onlinelibrary.wiley.com/doi/abs/10.1002/pits.22987>
24. Laghari, M. A., Hussain, S., & Khawaja, N. (2024). Katz's Theory Implicating Head Teachers' Managerial Skills. *International Research Journal of Management and Social Sciences*, 5(1), 241-257.
25. Laghari, M. A., & Jafri, I. H. (2022). Headteachers' Managerial Skills and Teachers' Performance at Public Secondary Schools. *International Research Journal of Education and Innovation*, 3(1), 66-75.
26. Liu, T., Luo, Y. T., Pang, P. C. I., & Kan, H. Y. (2025). Exploring the impact of information and communication technology on educational administration: A systematic scoping review. *Education Sciences*, 15(9), 1114.
<https://www.mdpi.com/2227-7102/15/9/1114>
27. Maryani, B., Anggraeni, S., Akbari, M., & Suriansyah, A. (2026). Integration of Technology and Resource Management in the Modern Education System. *JP (Jurnal Pendidikan): Teori dan Praktik*, 11(1), 21-27.
<https://journal.unesa.ac.id/index.php/jp/article/view/47324>
28. National School Climate Council & National School Climate Centre. (2007). National School Climate Standards. In the *National School Climate Standards*. National School Climate Centre.
<https://schoolclimate.org/wp-content/uploads/2021/05/school-climate-standards.pdf>
29. Naaz, I. (2020). Comparison of student teachers' perception of institutional climate in government and private teacher education institutions. *Our Heritage*, 68(48), 223-233.
<https://www.researchgate.net/profile/Ishrat-Naaz>
30. <https://www.researchgate.net/profile/Ishrat-Naaz>
31. Ngoma, C., Sakakombe, L., & Kabeta, R. (2018). Influence of Head Teachers' Leadership Style on School Climate: Perspectives of Head Teachers and Teachers. *International Journal of Science and Research*, 1241-1246
32. Okunlola, J. O., & Naicker, S. R. (2025). Principals' Digital Leadership Competencies in the Fourth Industrial Revolution: Teachers' Perspectives. *Education Sciences*, 15(6), 656. <https://www.mdpi.com/2227-7102/15/6/656>
33. Olaivar, D. R., & Loayon, L. D. (2022). School Heads' Human Resource Management Practices, Teachers' School Engagement, and Teaching Performance. *International Journal of Research*, September 10(9), 27-41.
34. Perveen, S., & Nawaz, H. (2021). Effects of Communication Skills of Head Teachers on School Climate. *Pal Arch's Journal of Archaeology of Egypt/Egyptology*, 18(6), 594-606.
35. Rani, M., Ishaq, A., Abbas, F., & Bashir, R. (2023). Empowering Education: Unravelling the Administrative Role of Head Teachers in. *ResearchGate*.
https://www.researchgate.net/publication/374534354_Empowering_Education_Unraveling_the_Administrative_Role_of_Head_Teachers_in
36. Rasdiana, N., Wiyono, B. B., Imron, A., Rahma, L., Arifah, N., Azhari, R., Elfira, N., Sibula, I., & Maharmawan, M. A. (2024). Elevating teachers' professional digital competence: synergies of principals' instructional E-Supervision, technology leadership and digital culture for educational excellence in the Digital-Savvy era. *Education Sciences*, 14(3), 266. <https://doi.org/10.3390/educsci14030266>
37. See, B. H., Gorard, S., Soufi, N. E., Ledger, M., Morris, R., Maude, K., & Ivarsson-Keng, N. (2024). A structured review of the potential role of school leaders in making teaching more attractive. *Educational Review*, 1-25.
<https://doi.org/10.1080/00131911.2024.2392565>



38. Sibomana, I. (2022). Perceptions of teachers on the instructional leadership behaviours of secondary school principals in Rwanda. *Educational Management Administration & Leadership*, 50(1), 64-80.
39. Ullah, N., Nawaz, K., Khoso, F. J., & Ghunio, A. (2023). Evaluating the influence of school leadership on cultivating a positive educational environment in secondary education in Balochistan, Pakistan. *Journal of Arts & Social Sciences*, 10(1), 219-227.
40. Ullah, R., Khan, M. Z., & Kamal, S. A. (2022). Evaluating the impact of head management skills on the school working climate at the secondary education level. *Journal of Social Sciences Development*, 1(1), 75-90.
<https://www.jssd.org.pk/index.php/jssd/article/view/15>
41. Uzorka, A., & Kalabuki, K. (2025). Educational leadership in the digital Age: An exploration of Technology's impact on leadership practices. *Social Sciences & Humanities Open*, 11, 101581.
<https://www.sciencedirect.com/science/article/pii/S2590291125003092>
42. Zeng, M., Cheah, K. S., & Abdullah, Z. (2025). The influence of school principals' digital leadership on teachers' competency in integrating artificial intelligence: a systematic thematic review. In *Frontiers in Education* (Vol. 10, p. 1655967). Frontiers Media SA.
<https://www.frontiersin.org/journals/education/articles/10.3389/feduc.2025.1655967/full>
43. Zhang, Y., & Chen, D. (2025, June). Enhancing faculty members' technology-enhanced teaching practices through leadership. In *Frontiers in Education* (Vol. 10, p. 1586296). Frontiers Media SA.
<https://www.frontiersin.org/journals/education/articles/10.3389/feduc.2025.1586296/abstract>

