

Leadership style and higher education performance: A bibliometric analysis of research trends and evolution

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Abstract: This study aims to map the development of research on leadership styles and higher education performance through a bibliometric analysis of scientific publications indexed in Scopus. The dataset comprised 2,872 articles published between 2019 and 2024. Bibliometric methods were employed to identify publication trends, patterns of scholarly collaboration, dominant themes, and the conceptual evolution shaping the relationship between leadership style and institutional performance in higher education. The findings indicate that leadership studies in higher education are no longer confined to leadership typologies but have expanded into broader dimensions, including organizational dynamics, human resource management, institutional culture, and organizational communication. The principal finding confirms that communication constitutes a central element of leadership practice, as it plays a vital role in articulating institutional vision, fostering a conducive working culture, and aligning actions across academic and administrative units. In addition, leadership effectiveness is influenced by external factors, including government policy and institutional context. This study concludes that communication serves as a strategic mechanism linking leadership to the improvement of higher education performance. The implications of this study highlight the importance of strengthening leaders' communication competence as a foundation for developing adaptive and sustainable governance in higher education institutions.

Keywords: *Bibliometric analysis, Communication, Higher education, Leadership, Performance.*

1. Introduction

Over the past decade, the dynamics of organizational communication in higher education have been transformed by technological change, globalization, and increasingly complex stakeholder demands [1]. As knowledge-based organizations, higher education institutions rely on communication effectiveness to achieve academic, administrative, and social goals. According to Mathew [2], this complexity is evident in the range of stakeholders involved, from students, lecturers, and administrative staff to the broader community, each with different communication needs and expectations. In the digital era, this transformation has been further accelerated by the adoption of new information and communication technologies [3]. Digital platforms have diversified communication channels for coordination and engagement, while increasing the volume and velocity of information flows. The COVID-19 pandemic has intensified digitalization, requiring higher education institutions to adapt to virtual communication models for teaching, coordination, and stakeholder engagement. This rapid shift has reshaped communicative routines and expectations by sustaining interaction, feedback, and continuity at a distance. These developments have changed not only how information is disseminated but also how messages are interpreted, negotiated, and acted upon across institutional levels. As a result, the

structure and dynamics of organizational communication have been reconfigured, with mediated interactions now shaping internal alignment and institutional responsiveness to external expectations.

Prior scholarship [4] underscores that robust internal communication strategies are pivotal for strengthening employee engagement and sustaining a positive organizational culture. In higher education, where governance is complex and work units are highly differentiated, internal communication becomes a core coordination mechanism that aligns academic and administrative priorities, supports participation, and stabilizes shared meaning. Evidence also indicates that employee engagement in universities is strongly shaped by the quality of internal communication, which subsequently influences overall institutional performance [5]. Leadership and communication are likewise tightly coupled in organizational life [6]; accordingly, higher education leaders require a clear vision and the communicative capacity to articulate that vision consistently, transparently, and dialogically to diverse stakeholders. Research by Appelbaum et al. [7] further shows that successful organizational change in higher education depends on leadership communication that manages resistance and builds support for change initiatives. Advances in communication technology add a further dimension to these dynamics by multiplying channels and accelerating feedback cycles. Social media use in organizations has expanded opportunities for collaboration and knowledge sharing [8] while digital organizational communication has reshaped how colleges interact with internal and external stakeholders, generating new challenges and new possibilities for communication management [9].

Furthermore, Allen [10] highlighted the importance of strategic communication in building and sustaining a college's reputation in the digital age. They argue that colleges should adopt a holistic and integrated approach to communication to manage stakeholder perceptions, coordinate messaging across units, and strengthen institutional legitimacy. Men and Yue [4]. Additionally, strategic communication in higher education should reflect the sector's distinctive characteristics, including commitment to the academic mission, faculty autonomy, and social responsibility. Given the complexity and fluidity of organizational communication in higher education, bibliometric analysis becomes an invaluable tool for tracing how scholarship in this area develops over time and for informing future research priorities. As explained, Ghorbani et al. [11] bibliometric analysis enables researchers to identify trends, recurring patterns, and gaps in the academic literature. García-Lillo et al. [12] It also emphasizes that bibliometric methods can illuminate a research field's intellectual structure and evolution. Donthu, et al. [13] underlined the need for a systematic procedure in conducting bibliometric analyses to secure the reliability and validity of the findings, and they suggested combining multiple bibliometric indicators with visualization techniques to map the research landscape comprehensively. Ellegaard and Wallin [14] added that bibliometric analysis can help identify the most influential researchers, institutions, and journals within a given field.

To date, bibliometric work on leadership styles in higher education has synthesized publication trajectories and linked them to a range of educational factors, particularly outcomes for employees and organizations; however, it has not yet explicitly mapped organizational communication as the conceptual node through which leadership style is translated into higher education performance within the same knowledge domain [15]. Complementary studies on university communication and PR document the expanding institutional role of communication functions, including work demands increasingly oriented toward reputation and visibility, suggesting that strategic communication should be treated as a performance-relevant capability rather than a peripheral support activity [16]. At the same time, empirical evidence from HEIs associates internal communication with employee engagement and downstream outcomes such as job satisfaction and employee loyalty, yet these findings continue to develop as a relatively separate literature cluster from leadership style research and from institutional performance indicators [5]. Because bibliometric standards require systematic mapping procedures and database choices that are attentive to coverage, a further gap persists: an integrated, cross-database bibliometric analysis that traces the co-evolution of leadership style, organizational communication

(internal, digital, strategic), and higher education performance within a unified research map remains unavailable [13, 17].

This study aims to analyze the development of organizational communication research in higher education through a bibliometric approach. Using bibliographic data from Web of Science, Scopus, and Google Scholar, it describes the field's conceptual evolution, identifies key research trends, and presents a consolidated picture of the existing literature [17]. The analysis employs bibliometric tools such as VOS viewer and the Bibliometric R-package to deliver comprehensive network visualization and analysis, enabling the systematic mapping of relationships among themes, sources, and scholarly communities. It also supports a transparent synthesis by organizing dispersed studies into interpretable patterns and trajectories across time. Through this approach, the study provides insights into both the historical foundations and contemporary directions of organizational communication research, while also clarifying how the literature has diversified alongside institutional change. Importantly, the mapping is used to pinpoint areas that require further investigation, including the integration of digital communication tools, the role of diversity and inclusion in communication strategies, and the impact of organizational communication on higher education performance. These insights are particularly salient given higher education's increasingly complex and dynamic landscape, where stakeholder expectations and digital mediation intensify demands for coordination, legitimacy, and institutional effectiveness [18].

The results are expected to contribute to a clearer understanding of organizational communication in higher education and to inform discussions about the field's future development. Effective organizational communication is widely regarded as the foundation of institutional success because it structures information flow, shapes decision-making processes, and sustains stakeholder engagement across academic and administrative domains. As stated by Type [19], deeper knowledge of internal communication practices in universities can support the design of strategies that are more effective and more responsive to the needs of diverse stakeholders. The findings also carry strategic implications for higher education institutions and their leadership. By charting conceptual evolution, this study highlights the theoretical foundations and emerging paradigms that have shaped the domain, offering a basis for developing innovative communication strategies aligned with institutions' unique goals and challenges [20]. The study further identifies the most influential researchers, institutions, and journals, thereby providing an evidence-based benchmark for academic excellence and collaboration. By recognizing leading contributions and positioning them within the mapped landscape, higher education leaders can foster partnerships that enhance research productivity and scholarly impact. Such benchmarking can help communication units and leaders prioritize evidence-informed initiatives and collaborative projects.

2. Materials and Methods

This study positions bibliometric analysis as the appropriate design to systematically map the evolution of themes, intellectual structures, and research trajectories in organizational communication within higher education across a one-decade horizon [13]. Employing bibliometric mapping permits transparent reconstruction of knowledge development, scholarly influence, and thematic convergence while remaining within established empirical boundaries. Selecting Web of Science and Scopus as principal data sources is methodologically justified because both serve as dominant citation databases with differing coverage profiles and indexing policies, differences that materially affect corpus composition and the interpretation of findings [21]. The use of Scopus is further defensible due to its structured metadata curation and formal quality-assurance mechanisms, which bolster the reliability of citation metrics and network analyses [22]. Google Scholar is incorporated as a complementary source to broaden disciplinary and publication coverage, albeit with caution, since the heterogeneity of its indexed materials and variability in indexing standards can compromise metric consistency [23]. Observed disparities in citation patterns among Google Scholar, Web of Science, and Scopus underscore the imperative for data harmonization and for interpreting bibliometric indicators comparatively rather

than treating them as substitutes [17]. This approach thus enhances analytical rigor and interpretive validity.

Search strings, databases, and retrieval procedures are systematically reported to ensure transparency and reproducibility [24]. The dataset is built using predefined inclusion and exclusion criteria, with a structured screening flow documenting decisions from identification to inclusion [25]. Screening is conducted in two steps: title and abstract review, followed by full-text appraisal, consistent with integrated systematic review and bibliometric practice [26]. Any language restriction (e.g., English-only) is treated as an eligibility criterion and disclosed because it can introduce language bias and reduce retrieval sensitivity [27]. Impact indicators such as the h-index and h-type variants are reported descriptively and interpreted cautiously due to limited discrimination and sensitivity to publication volume [28]. Bibliographic records are imported, cleaned, analyzed, and visualized in a reproducible pipeline using bibliometrix (R) to examine productivity, collaboration, and conceptual structures [29]. VOSviewer maps keyword co-occurrence and collaboration networks [30], while CiteSpace traces patterns and emerging trends through visual analytics [31]. Cross-database integration applies deduplication and metadata normalization to avoid distortions in networks and metrics [32]. Reporting also clarifies the limits of journal-level metrics (e.g., impact factor) for evaluating article or author quality [33].

3. Result

In an evolving global academic landscape, research on leadership in higher education has undergone a profound transformation from 2019 to 2024. This intellectual journey is not simply about number crunching but rather a reflection of increasing complexity in higher education, governance, and strategy worldwide.

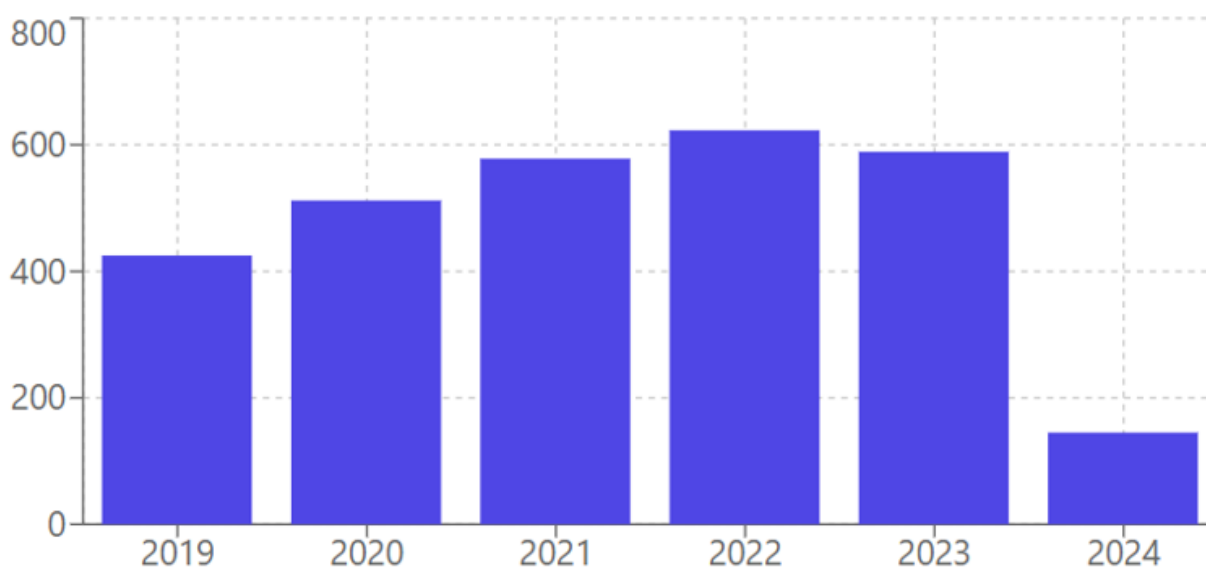


Figure 1.
Article distribution for the 2019–2024 period.

This publication trajectory began in 2019, when 425 articles documented the early consolidation of academic leadership discourse. Rather than representing a numerical count alone, this output signaled the emergence of an international conversation as higher education institutions started to reconsider leadership concepts amid digital transformation and growing global uncertainty. In 2020, the volume rose to 512 articles. This increase suggests not only greater scholarly productivity but also a heightened

response to the disruptions created by the global pandemic, which compelled the education sector to adapt rapidly. Under these conditions, higher education leaders were required to reassess conventional leadership modalities, integrate digital technologies into institutional practice, and develop more flexible governance arrangements. Within this evolving landscape, Harvard University emerged as a prominent contributor, consistently producing between 30 and 38 articles per year. Its role appears significant not only in terms of publication volume but also in shaping discussions on transformational leadership. Other institutions, including Stanford University, the University of Oxford, and the Massachusetts Institute of Technology, likewise formed an influential cluster of scholarship. Their respective emphases on technological orientation, international perspective, and innovation contributed to a multidimensional body of thought that expanded the understanding of leadership in higher education.

It is also evident that the geographical profile of this scholarship shifted during the period under review. Although earlier work was dominated by institutions in North America and Europe, the corpus indicates the growing prominence of Asian contributors. Tsinghua University, for instance, was not merely present in the dataset but appeared to offer a distinctive perspective on academic leadership grounded in an Asian frame of reference. The highest publication volume was recorded in 2022, with 623 articles, reflecting the intensity and complexity of global challenges confronting higher education. In 2023, output declined to 589 articles; however, this reduction is better interpreted not as contraction but as a sign of maturation and specialization in the discourse, with researchers placing greater emphasis on analytical depth and thematic refinement than on volume alone. Within this trajectory, the transformation of the field appears to have been driven by several interrelated factors, including the digitalization of education, demographic change, global labor market pressures, and the far-reaching consequences of the COVID-19 pandemic. As a result, academic leadership is no longer framed simply as structural management. Instead, it is increasingly understood as an adaptive practice requiring emotional intelligence, technological competence, and global awareness in responding to institutional change and external uncertainty.

The geographical distribution of this literature also points to a reconfiguration of intellectual influence. Although North America still accounts for 55-60% of publications, the growing contribution of Asia indicates a broader distribution of knowledge production rather than reliance on a single regional center. Within this shift, Tsinghua University stands out as a visible contributor, offering an additional perspective on academic leadership from an Asian context. This pattern suggests that interpretive authority in leadership research is becoming more internationally distributed. Emerging themes likewise reflect the complexity of the contemporary higher education environment, particularly values-based leadership, collaborative approaches, technology integration, and diversity awareness. In this evolving discussion, academic leaders are no longer positioned merely as administrators but as actors who shape social and intellectual transformation. Looking ahead to 2024, the 145 published articles currently recorded in the dataset, although still partial, signal continuing momentum in the field. Taken together, these publications suggest that leadership in higher education is increasingly understood not in terms of authority alone, but in terms of the capacity to mobilize collective potential. Across 2019-2024, this body of research reflects an ongoing process of adaptation, resilience, and changing vision in response to institutional and global transformation.

3.1. Citation Analysis

The table summarizes several education journals by presenting the number of retrieved documents, accessed sites, and total links associated with each title. Within this set, the *International Journal of Leadership in Education* records 55 articles, indicating that it serves as a highly active outlet for scholarship on educational leadership and related debates in the field. This volume suggests substantial scope for publishing and disseminating research, ideas, and practical insights concerning leadership in educational settings. In addition to its article count, the journal also shows 27 links, the highest figure among the journals listed, which may be read as evidence of strong visibility and wide engagement among researchers, practitioners, and other readers interested in leadership issues in education. By

contrast, the journal identified as having the highest citations is Sustainability (Switzerland). Although its position in the table is not defined by the largest number of articles in this specific comparison, the journal is associated with 888 citations, a figure that points to the considerable academic reach and influence of the work published in it. Taken together, these patterns indicate that journal prominence in this literature may be reflected not only in publication volume but also in linkage intensity and citation impact.

Table 1 presents several education journals by reporting the number of documents, total links, and citation counts associated with each title in the dataset. Within this comparison, the International Journal of Leadership in Education records the highest total links, with 27, in addition to a strong document count, indicating notable visibility and connectivity in the educational publication landscape; the journal is also a recognized outlet for scholarship on educational leadership. Beyond the journals discussed in detail, the table also includes other established titles with distinct profiles.

Table 1.
The most cited articles.

Journal (source)	Documents	Citation	Total Link
International Journal of Leadership in Education	55	490	27
Cogent Education	53	51	12
Sustainability (Switzerland)	52	888	2
Studies in Higher Education	48	535	18
Journal of Higher Education Policy and Leadership Studies	41	81	5
Higher Education	33	271	16
Journal of Applied Research in Higher Education	32	173	5
Educational Management, Administration and Leadership	30	398	20
International Journal of Educational Management	30	155	14
Education Sciences	30	208	2
Frontiers in Education	30	164	2
Journal of Higher Education Theory and Practice	30	61	1

For example, although Cogent Education does not occupy the top position in either document volume or citation count, it records 12 links, suggesting a meaningful level of visibility and network presence within the academic community; its scope also includes educational leadership and management. Studies in Higher Education shows a strong publication profile with 48 documents and 535 citations, reinforcing its importance as a platform for higher education research. Meanwhile, the Journal of Higher Education Policy and Leadership Studies has fewer documents than several other journals, yet its 81 citations suggest that its articles exert a meaningful scholarly influence within the relevant research community.

Higher Education also warrants attention, as its 33 documents and 271 citations indicate that it remains an important reference point for scholarship and practice in higher education. The journal's standing within the field is consistent with its profile as a major international outlet for higher education studies. Meanwhile, journals such as the Journal of Applied Research in Higher Education, Educational Management Administration and Leadership, International Journal of Educational Management, Education Sciences, Frontiers in Education, and the Journal of Higher Education Theory and Practice display distinct profiles in terms of document volume, citation count, and total related links, suggesting differentiated yet meaningful positions within the scholarly publication landscape. Although these journals may appear less comprehensive than several leading titles in the table, they still make an important contribution to broadening the range of outlets through which educational research is disseminated. Viewed comparatively, the data make it possible to assess the relative position of each journal within the wider landscape of educational scholarship. For example, the International Journal of Leadership in Education remains particularly prominent, with 55 papers, a figure that places it above most other journals in the table, which generally fall within the range of 30 to 50 papers, thereby

The central cluster on the map presents the key concepts of “human leadership,” organization, communication, performance, and “higher education.” This configuration indicates that leadership in higher education cannot be understood separately from organizational dynamics, communication competence, and institutional performance. In this context, effective leadership requires the ability to foster a conducive organizational culture, manage human resources appropriately, and communicate institutional vision and goals comprehensively. Closely related clusters, including “management,” employee, internal communication, and “organizational communication,” further show that the literature does not focus solely on leadership styles at the top level but also addresses managerial dimensions and internal communication processes that shape higher education performance more broadly. These interconnections suggest that effective leadership depends on strong synergy between leaders and employees in creating a supportive and productive work environment. At the same time, clusters associated with “culture,” “trust,” and “government” indicate that leadership effectiveness and higher education performance are also influenced by external conditions, particularly organizational culture and government intervention. Accordingly, leadership in higher education should be viewed not as an isolated managerial function but as a multidimensional practice embedded in broader social, economic, and political contexts.

The appearance of concepts such as “COVID-19” and “pandemic” on the map further indicates that research on the impact of leadership styles has extended to highly contemporary issues, particularly the demands of crisis response that require resilient and adaptive forms of leadership. In this context, universities are expected to develop leadership models capable of responding rapidly to external change, institutional disruption, and emerging uncertainty. This pattern suggests that the literature has moved beyond static understandings of leadership and has increasingly engaged with the problem of how higher education institutions sustain continuity, coordination, and decision-making under pressure. Overall, the visualization demonstrates the thematic complexity of leadership in higher education. Research in this field does not focus solely on leadership style as an isolated variable but also incorporates organizational dynamics, communication processes, human resource management, and broader contextual conditions that shape leadership effectiveness and institutional performance. The map, therefore, indicates that leadership should be understood as a multidimensional practice embedded in both internal organizational processes and wider environmental pressures. A close reading of this conceptual structure can offer valuable insights for the advancement of theory, professional practice, and policy development in higher education leadership.

4. Discussion

4.1. Evolution of Leadership Research in Higher Education

The bibliometric results indicate a fundamental transformation in higher education leadership research, reflecting broader changes in the global higher education landscape. Analysis of 2,872 articles indexed in the Scopus database shows a marked increase in research output, rising from 425 articles in 2019 to a peak of 623 in 2022. The geographical distribution of publications remains dominated by North America, which accounts for 55-60% of the total output, while Harvard University consistently contributes 30-38 articles annually. Together with strategic collaborations involving Stanford, Oxford, and MIT, this pattern suggests a progressively broader distribution of knowledge production in higher education leadership. In contrast to earlier studies that concentrated primarily on individual leadership traits and styles, more recent scholarship reflects a paradigmatic shift toward a more complex and systemic understanding of leadership. Referring to the research of Appelbaum et al. [7], this development is not merely methodological but signals a deeper recognition that leadership effectiveness in the contemporary era requires the integration of organizational, technological, cultural, and contextual dimensions. Our findings further suggest that traditional hierarchical and bureaucratic leadership models are becoming less relevant within increasingly complex institutional dynamics. As emphasized by Men and Yue [4], collaborative and inclusive approaches are now essential because they enable the rapid mobilization of collective organizational resources, knowledge, and responsiveness.

4.2. Evolution of Leadership Research in Higher Education

The COVID-19 pandemic acted as a catalyst that accelerated transformation in higher education leadership practice. Analysis of publication patterns during this period indicates the emergence of a “crisis-adaptive leadership paradigm,” which emphasizes the need for organizational arrangements that support rapid adaptation and sustained innovation. In line with Leonardi [3], this paradigm reflects the growing expectation that leadership should remain flexible under conditions of disruption while preserving institutional continuity. Publication data show a marked increase from 425 articles in 2019 to 512 in 2020, suggesting that the pandemic generated an immediate and substantial scholarly response to crisis conditions in higher education. Consistent with Zajac and Kraatz [9], this shift also highlights how digital transformation reshaped institutional interaction with both internal and external stakeholders by altering communication flows, coordination mechanisms, and governance practices. These changes were not limited to technical infrastructure; rather, they reconfigured organizational roles, authority relations, and decision-making processes across the university environment. Research associated with Mathew [2] similarly suggests that digitalization opened new forms of collaboration and knowledge exchange that challenged conventional hierarchies. Our findings, therefore, indicate that higher education leaders need digital leadership capabilities extending beyond technical competence to include an understanding of the social, ethical, and organizational implications of digital transformation in increasingly complex institutional settings.

4.3. Emerging Leadership Paradigms

Our bibliometric analysis points to the emergence of three salient leadership paradigms across the field. The first is the “quantum leadership” paradigm, which recognizes the non-linear and interconnected character of organizational dynamics in higher education and frames institutions as adaptive complex systems [13]. The second is regenerative leadership, which moves beyond conventional sustainability-oriented thinking. Rather than privileging growth and efficiency alone, this perspective emphasizes systemic transformation that generates positive effects for the institution and the wider society over time. The third is “ambidextrous leadership,” which highlights the capacity to manage the tension between stability and change. As identified by Nguyen and Ha [5], higher education leaders need to preserve core academic values while simultaneously promoting innovation and adaptation. In addition, the decline in publication output from 623 articles in 2022 to 589 in 2023 should not be read as weakening scholarly interest; instead, it suggests a maturing discourse marked by greater analytical depth and thematic refinement. In this regard, Ghorbani et al. [11] emphasize the importance of “contextual intelligence” in responding to such complexity. Taken together, these patterns indicate that contemporary leadership research in higher education increasingly privileges systemic, adaptive, and context-sensitive approaches over narrower, static models of institutional leadership.

4.4. Proposed Integrative Framework

Based on the synthesis of bibliometric findings, we propose an integrative framework that offers a comprehensive approach to understanding and developing contemporary higher education leadership. This framework not only responds to current challenges but also anticipates future needs.

- **Crisis Adaptability:** This dimension goes beyond conventional crisis management. The analysis shows that the ability to detect changes early and flexibility in decision-making are becoming increasingly crucial. In line with the findings of García-Lillo et al. [12], crisis adaptability requires the development of 'dynamic capabilities' that enable institutions to survive and thrive in uncertain conditions. Mobilizing resources quickly and building organizational resilience are key indicators of leadership effectiveness.
- **Digital Justice:** Our analysis reveals that digital transformation risks deepen existing inequalities. Referring to Treem and Leonardi [8], digital justice is not just about providing infrastructure but includes systematic efforts to ensure meaningful participation of all stakeholders in the digital

environment. This involves developing comprehensive digital literacy and effective digital divide mitigation strategies.

- **Cultural Sensitivity:** In the context of the globalization of higher education, cultural sensitivity has become a core competency of leadership. Ellegaard and Wallin [14] emphasize that leadership effectiveness is highly dependent on understanding and responding to cross-cultural dynamics. Our findings demonstrate the importance of developing an inclusive approach that recognizes and leverages diversity as a source of innovation and creativity. Martín-Martín et al. [17] caution that effective leadership practices in one cultural context may not be equally effective in another. This is particularly relevant given the increasing contribution of research from Asian institutions, such as Tsinghua University, which brings different perspectives to understanding higher education leadership.
- **Temporal Intelligence:** Conventional literature needs to address the temporal dimension of leadership. Our analysis reveals that a sophisticated understanding of temporality is increasingly important. Mitra [6] identified that balancing short- and long-term needs and strategic timing in implementing change are critical factors for successful higher education leadership.
- **Regenerative Capacity:** Our findings suggest that institutional sustainability requires more than operational efficiency. Benda et al. [18] emphasize building capacity for continuous renewal and regeneration. This includes leadership development at all organizational levels, innovation in learning and research, and positive contributions to the broader ecosystem.

4.5. Research Limitations and Future Directions

The literature also highlights a persistent dilemma for higher education leaders in balancing commercial imperatives with social and academic responsibilities, while the most recent dataset, which records 145 articles in 2024, suggests that research in this area is still developing and continues to explore possible responses to these tensions. Although our bibliometric analysis offers valuable insights into the structure and evolution of the field, several limitations should be acknowledged. The restriction to English-language publications may exclude important perspectives from other linguistic and cultural settings, and bibliometric mapping, while effective for identifying major trends and patterns, may not fully capture the situated complexity of leadership practice in institutional contexts. These limitations indicate the need for a broader and more interpretive research agenda. Based on the present findings, several priorities for future research can be identified, including longitudinal studies on the effectiveness of different leadership models across contexts, more detailed investigations into how digital transformation reshapes leadership structures and processes, cross-cultural comparative research on variations in effective leadership practice, analyses of the emotional and psychological dimensions of higher education leadership, and critical examinations of the intersections among national policy, institutional dynamics, and leadership practice.

5. Conclusion

Bibliometric analysis of the concept map shows that leadership in higher education has become an increasingly prominent area of inquiry and that its implications for institutional performance are now examined through a broader analytical lens. One of the most important findings is the central role of communication in leadership practice. The main clusters indicate that “human leadership,” “organization,” “communication,” “performance,” and “higher education” are closely interconnected, suggesting that leadership effectiveness in this context depends not only on positional authority but also on the capacity to build a conducive organizational culture, manage human resources appropriately, and communicate institutional vision and goals comprehensively. Beyond this central cluster, the linkages with “management,” “employee,” “internal communication,” and “organizational communication” show that the literature is no longer confined to leadership styles at the upper level of governance. Instead, it also addresses managerial processes and internal communicative dynamics that shape university

performance more broadly. These relationships imply that successful leadership in higher education requires sustained synergy between leaders and employees to create a supportive, coordinated, and productive work environment. Overall, the map demonstrates that leadership is increasingly understood as a multidimensional organizational practice whose effectiveness is closely tied to communication processes across the institution.

The appearance of concepts such as “culture,” “trust,” and “government” in the concept map indicates that leadership effectiveness and higher education performance are shaped not only by internal processes but also by external conditions, particularly organizational culture and government influence. In this sense, leadership in higher education cannot be detached from the social, economic, and political environment within which universities operate. Another finding is the emergence of “COVID-19” and “pandemic” in the map, showing that research on the impact of leadership styles has increasingly addressed crisis-related issues, especially the need for resilient and adaptive leadership during periods of disruption. This bibliometric analysis therefore reveals the multidimensional complexity of leadership in higher education and its implications for theory, practice, and policy. First, the findings confirm the importance of communication competence as a leadership capability. Second, they show that effective leadership is tied to synergy between leaders and employees, as well as to managerial processes and human resource management. Third, the analysis underscores the need for higher education leaders to attend to both internal and external contextual factors that shape leadership effectiveness. Taken together, these findings contribute to the development of leadership theory and practice and to improved higher education performance.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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