Received: September 2, 2025
Revised: October 22, 2025
Accepted: October 22, 2025
Published: October 22, 2025

Mapping the Knowledge Domain: A Bibliometric Analysis of Instructional Leadership and Student Achievement in Secondary Schools

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To cite this article (APA): Raji-Afolabi, S.O. and Osho A, H. (2025). Mapping the Knowledge Domain: A Bibliometric Review of Instructional Leadership and Student Achievement in Secondary Schools. *Elicit Journal of Education Studies,* 1(1), 1-14.

ABSTRACT

Purpose: This study maps the intellectual landscape of research on instructional leadership (IL) and its relationship with student achievement in secondary schools. It examines publication trends, influential authors, conceptual structures, and thematic evolution to provide a comprehensive overview of the field.

Design/Methodology/Approach: A bibliometric review was conducted using 385 peer-reviewed articles retrieved from Scopus (1983–2025). Bibliometric techniques, including performance analysis, citation analysis, co-authorship mapping, keyword co-occurrence, and thematic evolution, were applied with the aid of VOSviewer to identify intellectual structures and emerging research frontiers.

Findings: The results reveal exponential growth in IL research since 2005, with strong representation in high-impact journals. Seminal contributions by Hallinger and Leithwood provide the foundation of the field, while newer scholars such as Bellibaş and Gümüş expand global perspectives. Five major clusters were identified, focusing on leadership models, student outcomes, school effectiveness, evidence-based approaches, and leadership preparation. The field has shifted from principal-centred to distributed and context-sensitive models of leadership.

Practical Implications: Findings highlight the indirect role of IL in improving student achievement through teacher capacity building, professional learning communities, and supportive policy contexts.

Novelty and Contribution: This review offers a systematic mapping of IL scholarship, providing a consolidated knowledge base and guidance for future research and practice in secondary education.

Practical and social implications: Finally, the abstract should conclude with a statement on the practical and social implications of the findings, outlining how the results can be applied in real-world contexts and identifying the potential beneficiaries of the research.

Keywords: Instructional Leadership, Student Achievement, Bibliometric Analysis, Knowledge Mapping, School Leadership

1.0 INTRODUCTION

The pursuit of improved student achievement remains a central goal of educational systems worldwide. The role of school principals and other educational leaders in shaping the learning environment and influencing teacher effectiveness has been a subject of extensive research (Hallinger & Lee, 2013) .

Their role is shifting from a managerial emphasis to a focus on leading learning, a concept encapsulated in the construct of instructional leadership. Instructional leadership is a critical factor in promoting student achievement within secondary schools (Gümüş et al., 2022; Parveen et al., 2023) . Instructional leadership involves a range of practices, including setting clear goals, managing resources, fostering a positive school climate, and supporting teacher development (Ahmad et al., 2024; Hallinger, 2018).

Recent research emphasises the importance of instructional leadership in addressing achievement gaps and promoting equitable outcomes for all students (Mitchell et al., 2015). Principals who demonstrate strong instructional leadership can positively impact student learning, particularly in schools with diverse student populations (Mehnaz et al., 2022) . Moreover, effective instructional leadership is linked to improved teacher motivation, commitment, and self-efficacy, which in turn, contributes to enhanced student performance (Papadakis et al., 2024).

A bibliometric review offers a systematic approach to mapping the intellectual landscape of instructional leadership research (Ozdemir, 2019). By analysing publication trends, citation patterns, and keyword networks, bibliometric methods can reveal key themes, influential authors, and emerging research areas (Wollscheid et al., 2025) . Such reviews are valuable for identifying research gaps, synthesising existing knowledge, and guiding future research directions (Hidayat et al., 2023).

While the correlation between leadership and student outcomes is well-documented (Quin et al., 2015), the specific pathways through which secondary school principals influence adolescent achievement are complex and mediated by multiple organisational factors. Secondary schools present unique challenges due to their larger size, departmentalised structures, and the specific developmental needs of adolescents (Day et al., 2016)This necessitates a focused examination of leadership within this context.

Several studies have highlighted the impact of instructional leadership on student achievement across different contexts (Lee et al., 2012). For example, a meta-analysis by Karadag (2020) found a medium-level effect of educational leadership on student achievement. Similarly, Wu and Shen (2022) demonstrated a statistically significant positive relationship between principal leadership and student achievement. These findings underscore the importance of effective leadership practices in promoting student success.

However, the relationship between instructional leadership and student achievement is complex and multifaceted (Zhang et al., 2024). Factors such as school socioeconomic status, teacher quality, and school climate can mediate or moderate this relationship (Liu et al., 2024) . Additionally, the specific instructional leadership practices that are most effective may vary depending on the context and the needs of the students (Kaparou & Bush, 2016).

Numerous literature reviews have synthesised findings on instructional leadership ((Hallinger & Lee, 2013), yet few have employed bibliometric methods to provide a macroscopic, data-driven overview of the entire knowledge domain. Bibliometrics offers a rigorous, quantitative approach to analyse the bibliographic data of a research field, mapping its intellectual and social structure (Donthu et al., 2021).

This study addresses the need for a comprehensive overview of instructional leadership research in secondary schools (Tanjung et al., 2024). By employing bibliometric techniques, this review aims to map the knowledge domain, identify key research trends, and highlight areas for future investigation (Tkachenko et al., 2024). The findings of this review will inform educational leaders, policymakers, and researchers seeking to enhance instructional leadership practices and improve student outcomes in secondary schools. The specific research questions are:

1. What are the publication trends and key contributors (authors, journals, countries) in research on instructional leadership and student achievement in secondary schools?
2. What are the foundational and most influential documents that have shaped this knowledge domain?
3. What are the major conceptual themes and clusters that define the current intellectual structure?
4. How has the focus of research evolved over the past decade, and what are the emerging frontiers?

2.0 METHODOLOGY

This study adhered to a systematic bibliometric review protocol following the guidelines suggested by Donthu et al. (2021) and Zupic and Čater (2015).

2.1 Data Collection and Search Strategy

A systematic and transparent data collection process was conducted to establish a robust corpus of literature focused on instructional leadership and student achievement. To ensure comprehensive coverage of high-quality, peer-reviewed sources, the Scopus database was selected for this study based on its extensive indexing of social science and education journals (Martín-Martín et al., 2018). The search was performed on August 26, 2025, and restricted to articles published between 1983 and 2025 to capture the most relevant and contemporary research trends.

Although Scopus was selected for its comprehensive coverage and indexing quality in education and social sciences, this choice introduces certain limitations. Relevant studies indexed in other databases such as Web of Science, ERIC, and PsycINFO may not have been captured. Furthermore, restricting the review to English-language publications creates potential linguistic and geographic biases, which may contribute to the overrepresentation of Anglophone scholarship, particularly from the United States. Future reviews could enhance inclusivity by triangulating multiple databases and incorporating non-English literature to ensure a more globally representative knowledge base.

The search strategy employed a structured Boolean query designed to balance recall and precision. The following string was applied to the title, abstract, and keyword fields: ("instructional leadership" OR "leadership for learning" OR "school leadership") AND ("student achievement" OR "academic performance" OR "student success" OR "learning outcomes")

The inclusion and exclusion process was guided by strict relevance to both instructional leadership and student achievement. Articles were included if they explicitly investigated IL constructs (e.g., goal setting, teacher professional development, curriculum leadership) and linked them to student outcomes such as academic performance, achievement, or learning gains. Studies were excluded if (a) leadership was discussed only in general terms without instructional dimensions, or (b) student outcomes were absent or indirectly implied. To enhance reliability, two reviewers independently screened titles and abstracts; disagreements were resolved through consensus discussions. This procedure ensured transparency and reduced the risk of bias in study selection.

Document types were limited to articles published in English. Editorials, conference papers, books, and book chapters were excluded to maintain focus on empirical and synthesis research. The initial search returned 458 documents. Following the removal of duplicates and a thorough screening of titles and abstracts for relevance, excluding studies not explicitly addressing both instructional leadership and academic outcomes, a final corpus of 385 publications was confirmed for analysis as shown in Figure 1.

2.2 Data Analysis

The exported bibliographic records, comprising titles, authors, abstracts, keywords, citations, and references, constituted the raw data for this study. The analysis was conducted utilising the specialised bibliometric software VOSviewer (version 1.6.19), a robust tool designed for the construction and visualisation of complex bibliometric networks (Van Eck & Waltman, 2010). The software's algorithms were employed to perform several key analyses. First, a standard performance analysis was conducted to quantify annual publication growth and identify the most productive contributors in terms of authors, journals, and countries. Second, a citation analysis identified the most globally cited documents, signifying their landmark influence on the field. To map the intellectual structure of the research domain, a co-citation analysis was performed, clustering foundational works that are frequently cited together to reveal the prevailing schools of thought. Furthermore, a keyword co-occurrence analysis was executed to delineate the conceptual architecture of the field; the resulting network maps visualise themes as nodes (where size

denotes frequency) and the relationships between them as links (where thickness denotes strength of association). Finally, a thematic evolution analysis tracked the progression and shift of these keyword clusters.

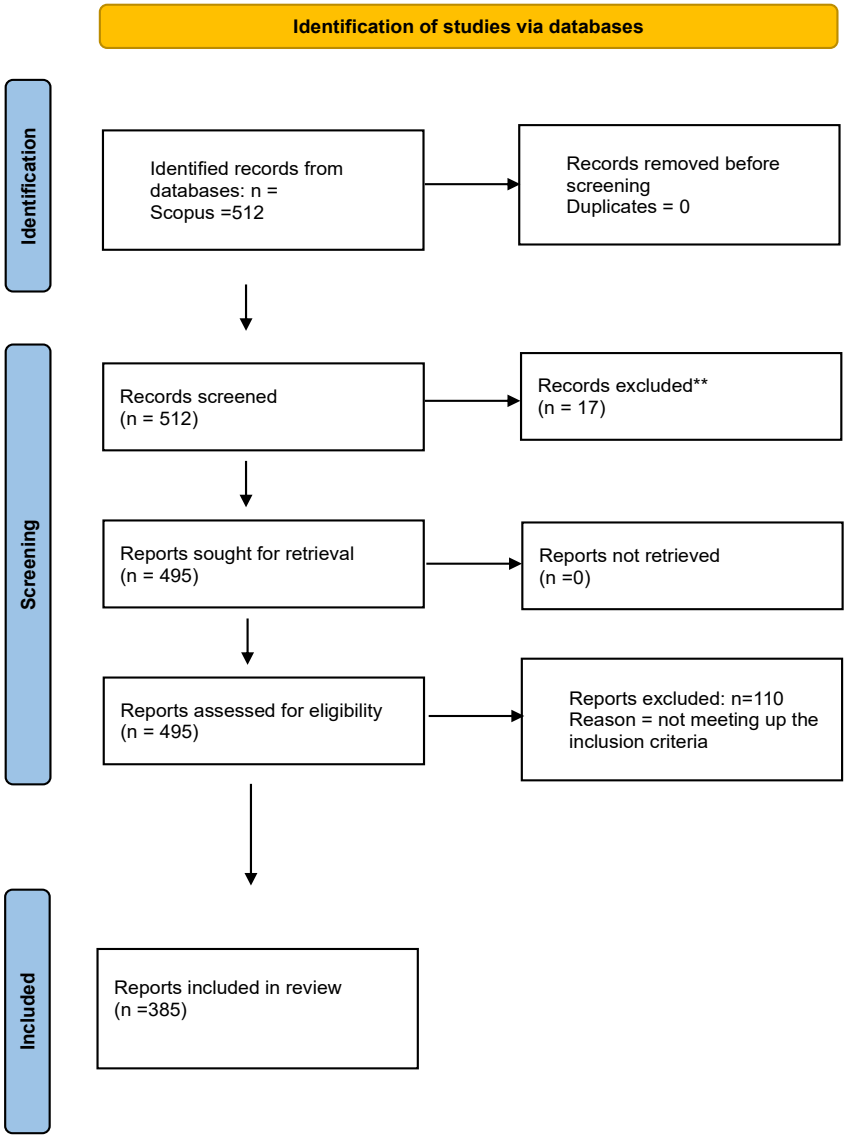

Figure 1. PRISMA flow diagram

3.0 RESULTS

This bibliometric analysis is founded upon a robust and extensive dataset that captures the global scholarly conversation on instructional leadership and student achievement over a significant period. The data characteristics, summarised in Table 1, illustrate both the breadth and depth of the literature constituting this field of study.

The analysis spans a 43-year period from 1983 to 2025, encompassing the foundational works of the field and extending to the most recent contemporary research. The core dataset consists of 384 documents that have garnered a substantial level of academic engagement, as evidenced by a total of 10,437

citations. This translates to a strong average of 27.1 citations per document, indicating that the literature within this domain is not only voluminous but also highly influential and serves as a critical foundation for subsequent research.

The intellectual scope of the field is further demonstrated by the 2,779 references cited within these 384 documents. This signifies that the research is built upon a rich and diverse knowledge base, drawing from a wide array of theoretical and empirical sources. The production of this knowledge is a global endeavour, with contributions from 828 authors affiliated with 414 distinct organisations across 63 countries. This extensive international participation highlights the universal relevance of instructional leadership as a key factor in educational improvement worldwide.

The dissemination of this research is channelled through a vibrant publishing ecosystem, as the documents were published in 154 different source journals. This indicates that the topic is of interest to a broad academic audience across multiple sub-disciplines within education, leadership, and social sciences, rather than being confined to a few niche publications.

Finally, the conceptual structure of the field is mapped through its keywords. The dataset contains 1,018 authors' keywords and 1,018 all keywords, suggesting a rich and varied terminology used by researchers to describe their work. The additional presence of 136 index keywords (typically assigned by databases) provides a more standardised, controlled vocabulary that helps in categorising the core themes within the literature. Together, these keyword sets offer a comprehensive lexicon for analysing the evolution of research trends and focal points in this domain.

Table 1. Data Characteristics

S/N	Description	Results
1	Period	1983-2025
2	Organization	414
3	Source Journal	154
4	Document	385
5	Average Citation Per Document	27.1
6	Citations	10437
7	References	2779
8	All Keywords	1018
9	Authors Keyword	1018
10	Index Keywords	136
11	Countries	63
12	Authors	828

3.1 Performance Analysis and Publication Trends

The longitudinal analysis of publication output, presented in Figure 2, reveals the dynamic evolution of research into instructional leadership and student achievement over a 42-year period from 1983 to 2025. The data, comprising 382 documents, illustrate a field that has transitioned from a nascent area of inquiry to a major focus of educational leadership research.

The historical trajectory can be segmented into distinct eras. The Incipient Phase (1983–2004) was characterised by minimal and sporadic activity. This 22-year period yielded only 38 documents, representing a mere 9.9% of the total literature. Years with no publications were common, and the maximum annual output was five documents, underscoring the field's emerging and peripheral status during this time.

A decisive Period of Steady Growth (2005–2014) followed, marking a clear inflexion point. The decade produced 118 documents, accounting for 30.9% of the total output. This represents a tripling of the cumulative publications compared to the previous two decades. The shift began in 2005 (3 publications) and culminated in 2014 (14 publications), reflecting a growing consensus on the importance of leadership focused directly on teaching and learning, likely driven by global accountability reforms in education.

The most recent decade, from 2015 to 2024, constitutes an era of Accelerated Expansion and Maturation. This ten-year period has been exceptionally productive, generating 216 documents and comprising 56.5% of the entire literature corpus. The peak of 49 publications in 2024 alone, which is 12.8% of the total output in a single year, demonstrates an intense and sustained concentration of scholarly effort. This surge suggests the topic has reached a critical mass, becoming a central and well-established domain within educational research. The current projection for 2025 (28 documents) is incomplete but already aligns with the high levels of activity seen in this most productive phase.

The analysis shows that over 87% of publications were produced after 2005, underscoring the rapid expansion of the field. The peak in 2024, with 49 documents, reflects intense scholarly attention and positions instructional leadership as a central concern in contemporary educational leadership research.

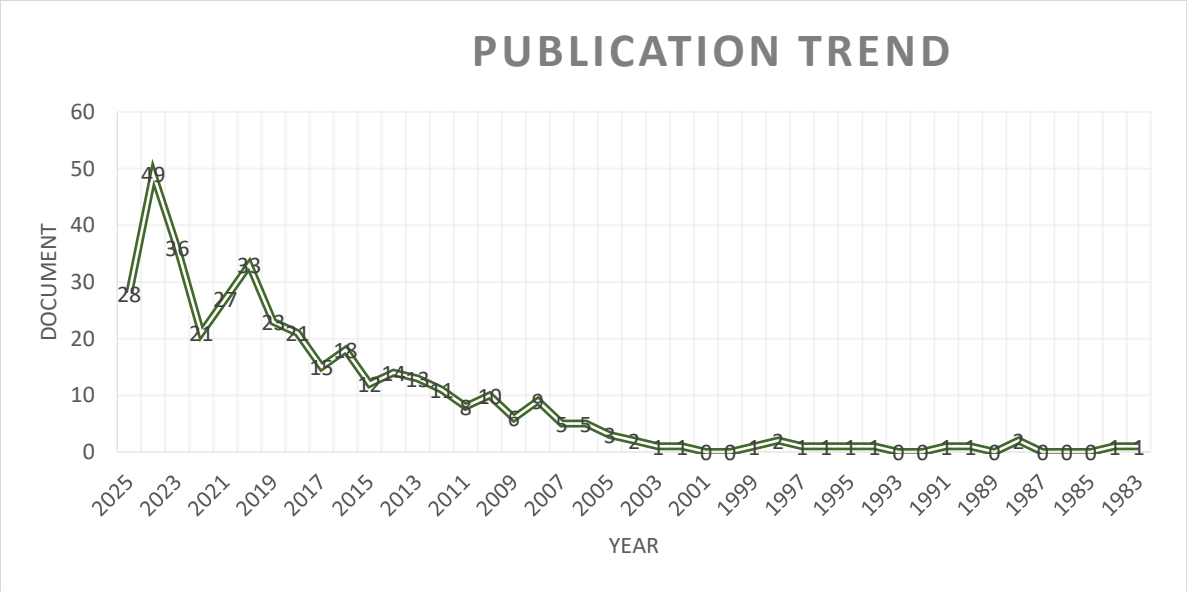

Figure 2. Publication trend in instructional leadership and student achievement

Also, the core intellectual discourse on instructional leadership and student achievement is channelled through a select group of high-impact journals, as detailed in Table 2. The field is predominantly led by premier publications, including *Educational Administration Quarterly*, the *Journal of Educational Administration*, and *Educational Management Administration & Leadership*. A striking feature of the journals listed in Table 2 is their exceptional quality; an overwhelming majority hold a Q1 rank in the Scimago Journal Rank (SJR) indicator. This concentration within top-tier outlets affirms the topic's significant scholarly status and rigorous research foundation. The data in Table 2 effectively map the primary dissemination networks for this critical area of educational leadership research.

Table 2. Topmost Journals

Journal	Document	SJR
Educational Administration Quarterly	27	Q1
Journal of Educational Administration	25	Q1
Educational Management Administration and Leadership	23	Q1
International Journal of Leadership in Education	15	Q1
International Journal of Educational Management	14	Q2
Leadership and Policy in Schools	12	Q1
Education Sciences	10	Q1
Nassp Bulletin	9	Q3
School Leadership and Management	9	Q1

Cogent Education	7	Q2

3.2 Influential and Foundational Publications

Table 3. Top 5 Globally Cited Authors

Rank	Author	Document	Total Citation
1	Hallinger P	6	873
2	Leithwood Keneth A	6	837
3	Bellibas, Mehmet Sukru	7	489
4	Gumus Sedat	7	441
5	Sun, Jingping	4	383

An analysis of the most globally cited authors provides critical insight into the foundational scholars whose work has most significantly shaped the discourse on instructional leadership and student achievement. As presented in Table 3, the ranking is led by Hallinger P. and Leithwood, K. A., each with 6 documents garnering 873 and 837 total citations, respectively. Their seminal contributions, which introduced pivotal conceptual models and empirical evidence, have established a robust theoretical framework for the field and continue to be highly influential.

Further examination of Table 3 reveals the substantial impact of subsequent scholars who have expanded upon this foundation. Bellibas, M. S., and Gumus, S. (each with 7 documents) follow, with 489 and 441 citations, reflecting a strong research output and significant influence, particularly in international and comparative studies. Sun, J., despite a slightly lower document count (4), demonstrates a powerful impact per publication, with 383 total citations. The high citation counts across all five authors confirm the global reach and enduring relevance of their research, underscoring their central role in defining key debates and empirical directions within this domain.

Table 4. Top 11 countries with the highest number of publications

Country	Document
United States	158
Australia	27
South Africa	23
China	20
Canada	18
Turkey	16
Hong Kong	13
Malaysia	11
United Kingdom	11
Germany	9
New Zealand	9

As illustrated in Table 4, the geographical distribution of research on instructional leadership and student achievement demonstrates a pronounced global concentration. The United States is the dominant contributor, with 158 publications, establishing it as the primary nexus for this field of study. This is followed distantly by Australia (27) and South Africa (23), indicating strong Antipodean and emerging regional interest. The presence of diverse nations, including China (20), Turkey (16), and Malaysia (11), reflects the worldwide relevance of the topic, though the field remains heavily influenced by Anglophone and English-publishing countries, suggesting potential linguistic or dissemination biases in the current literature.

3.3 Analysis of Collaborative Networks

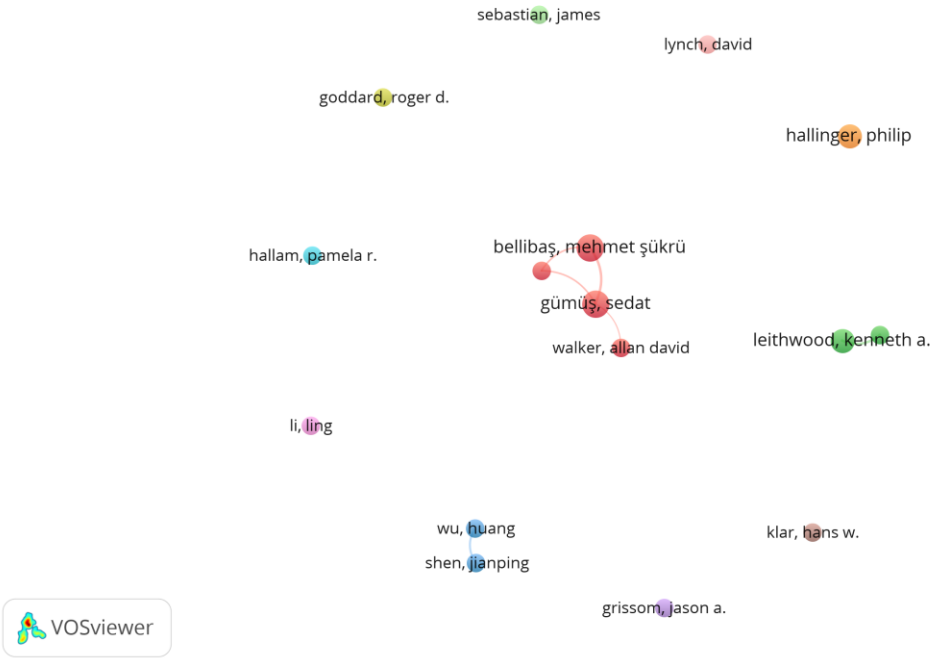

Figure 3. Collaborative network of authors

The visualisation of authors reveals several distinct and significant co-authorship networks, which are critical to the intellectual structure of the field. The most prominent collaborative team appears to be that of Bellibas, M. S. and Gumus, S., who are frequently listed in close association, indicating a strong and productive research partnership that has yielded numerous joint publications. This pattern is common in regions like Turkey, where their work is influential.

Furthermore, the list suggests a broader, interconnected network of leading scholars. The proximity of names like Hallinger, P., Leithwood, K. A., and Walker, A. D. indicates a community of highly cited authors who, while not always direct co-authors, form a central core of the discipline. Their work is foundational and often cited by the other collaborative groups.

Additional clusters, such as Li, L., Wu, M., and Shen, L., point to active research teams, likely based in China, focusing on localised studies of instructional leadership. Similarly, the presence of Klar, H. W. and Grissom, J. A. suggests another node of collaboration, often centred on empirical analysis of leadership effects in American schools.

3.4 Conceptual Structure: Thematic Clusters

As shown in Figure 4, the co-occurrence analysis of keywords revealed five major thematic clusters that collectively define the field's conceptual structure. The green cluster, dominated by terms such as instructional leadership, transformational leadership, and professional development, highlights the centrality of leadership models in building teacher and principal capacity. The red cluster, centered on student outcomes and policy contexts, emphasizes how leadership effectiveness is shaped by educational reforms and accountability frameworks. The blue cluster underscores school reform and trust as drivers of organizational effectiveness, while the yellow cluster signals the rise of evidence-based leadership research, including meta-analyses and comparative studies. Finally, the purple cluster reflects growing attention to leadership preparation and the development of adaptive, collaborative leaders. Together, these clusters confirm the multidimensional and interconnected nature of IL research, illustrating its evolution from principal-centric models to distributed, context-sensitive, and collaborative approaches.

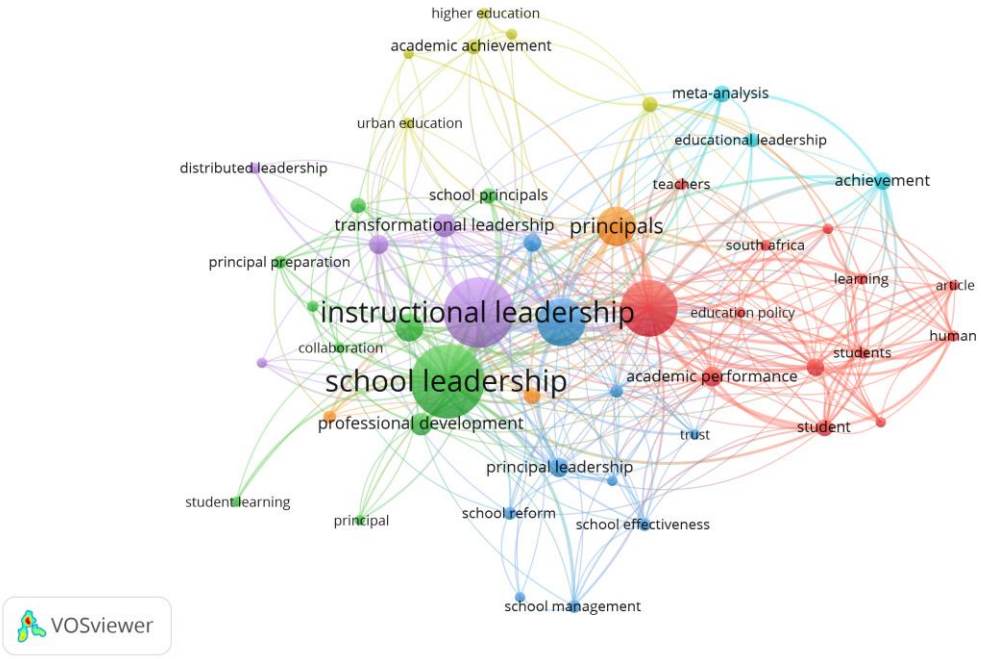

Figure 4. All keywords

3.5 Thematic Evolution and Emerging Frontiers

The thematic evolution of research on educational leadership reflects a gradual shift from traditional concerns with school management to more complex, multidimensional understandings of leadership and its impact. Initially, scholarship was heavily focused on school leadership and management, highlighting the principal's role in maintaining order, discipline, and organisational stability. Over time, this evolved into a strong emphasis on instructional leadership, where the leader's primary responsibility became guiding teaching and learning processes to improve student outcomes. This shift marked a recognition that leadership is not only about administration but also about driving pedagogical quality and supporting teachers in the classroom.

As the field matured, new themes emerged around transformational and distributed leadership, which redefined leadership as a shared and collective practice. These models emphasised collaboration, empowerment, and the development of professional learning communities, reflecting the growing complexity of modern schools. Research also expanded to consider professional development, principal preparation, and teacher capacity building, highlighting leadership as a developmental process rather than a fixed position.

The thematic trajectory further broadened to include student outcomes, educational policy, and contextual influences. This signalled an evolution toward outcome-oriented research, linking leadership practices directly to student achievement, learning, and well-being, while considering policy frameworks and sociocultural contexts, such as regional variations in South Africa and urban education.

Emerging frontiers suggest a stronger reliance on evidence-based approaches, with systematic reviews, meta-analyses, and cross-contextual studies shaping the knowledge base. Future directions are likely to include the integration of digital leadership, equity and inclusion, sustainability, and global perspectives in leadership studies. These emerging themes reflect the reality of twenty-first-century schooling, where leaders must navigate rapid technological change, diverse student populations, and pressing global challenges. The field continues to evolve toward a holistic and context-sensitive understanding of leadership that is both adaptive and future-oriented.

4.0 DISCUSSIONS

This bibliometric review provides a comprehensive picture of the intellectual structure and growth of research on instructional leadership (IL) and student achievement in secondary schools over the past four decades. Several important insights emerge from the analysis, reflecting both the consolidation of IL as a central construct in educational leadership and its ongoing evolution in diverse global contexts.

First, the exponential increase in publications since 2005 highlights the growing recognition of instructional leadership as a key lever for school improvement and student learning. More than 87% of the analysed documents were published after this period, with a peak in 2024, indicating that the field has reached a stage of maturity and international prominence. This aligns with earlier reviews (Hallinger & Lee, 2013; Ozdemir, 2019), which emphasised the shift from management-oriented leadership to learning-centred models. The surge in publications is likely tied to global accountability reforms and policy pressures that increasingly position principals as drivers of teaching and learning quality (Day et al., 2016).

Second, the analysis of influential authors confirms the foundational role of Hallinger and Leithwood in shaping IL scholarship. Their frameworks, which emphasize indirect pathways of leadership influence on learning outcomes (Hallinger & Heck, 1998; Leithwood et al., 2008), continue to serve as reference points for contemporary studies. The presence of newer scholars such as Bellibaş and Gümüş in the top-cited list illustrates how the field is diversifying and expanding into comparative and international perspectives (Gümüş et al., 2022). This suggests that while the theoretical foundation remains stable, the empirical scope is broadening to address varied educational contexts.

Third, the thematic clusters identified through keyword co-occurrence reinforce the multidimensional nature of IL. For example, the cluster on leadership models and capacity building underscores the enduring centrality of instructional leadership and its relationship to teacher professional development (Ahmad et al., 2024). Similarly, the focus on distributed leadership and teacher professionalism reflects a clear move away from "heroic" principal-centric models toward collaborative approaches (Marks & Printy, 2003). This is especially significant in secondary schools where principals cannot directly supervise every instructional process, making distributed leadership critical for sustaining teacher capacity and collective efficacy (Papadakis et al., 2024).

The thematic evolution also highlights a progressive shift in focus, from structural concerns such as school management and reform to outcome-oriented studies linking leadership with student achievement and equity. For instance, earlier research emphasised administrative stability (Lee et al., 2012), while recent scholarship increasingly foregrounds mediating and moderating variables, such as school climate, teacher efficacy, and policy contexts (Liu et al., 2024; Zhang et al., 2024). This reflects a deeper understanding that leadership impacts student learning indirectly and is shaped by complex contextual dynamics (Mitchell et al., 2015).

Geographically, the dominance of the United States in publication output is clear, yet contributions from Australia, South Africa, China, and Turkey signal a widening global conversation. However, the underrepresentation of research from developing regions remains a gap. The bibliometric findings thus support calls for more culturally responsive studies that explore how IL manifests in resource-constrained and non-Western contexts (Parveen et al., 2023; Tanjung et al., 2024). Addressing this gap is essential to avoid reproducing models that may not fully account for contextual diversity.

Finally, the rise of evidence-based and context-sensitive leadership research represents a significant development in the field. The integration of meta-analyses, mixed-methods studies, and comparative reviews (Karadag, 2020; Wu & Shen, 2022) points toward a stronger methodological pluralism. This shift is crucial for unpacking not only whether IL affects student achievement but also how and under what conditions such effects occur. Future research is likely to expand into digital instructional leadership, equity-oriented leadership, and sustainability, reflecting the broader challenges of 21st-century schooling (Wollscheid et al., 2025).

5.0 CONCLUSION

This bibliometric review has systematically mapped the intellectual structure and evolution of research on instructional leadership and student achievement in secondary schools over a four-decade span. The analysis reveals a field that has experienced accelerated growth and maturation, particularly in the last decade, solidifying its status as a central domain within educational leadership research. The enduring influence of foundational scholars like Hallinger and Leithwood is clear, providing a stable theoretical core upon which the field has expanded.

The conceptual mapping through keyword analysis validated the multifaceted and indirect nature of leadership influence, identifying key thematic clusters centered on leadership models, student outcomes, school effectiveness, evidence-based research, and leadership preparation. The temporal evolution of these themes demonstrates a significant shift from heroic, principal-centric models toward more organic, distributed, and contextually adaptive understandings of leadership practice.

In conclusion, the journey of instructional leadership research reflects the growing complexity of the secondary school leader's role. The field has progressed from establishing a basic correlation to exploring the intricate pathways and conditional variables that define successful leadership. This comprehensive cartography not only provides scholars with a clear overview of the past and present but also charts a course for future research aimed at understanding how school leaders can most effectively foster environments where both teachers and students thrive.

Practical Implications

The findings of this bibliometric review offer several actionable insights for educational practitioners, policymakers, and leadership development programs. Firstly, the confirmation of instructional leadership's indirect effect on student achievement underscores the necessity for secondary school principals to move beyond a narrow focus on managerial tasks. Instead, they should strategically invest in building the capacity of their teaching staff. This involves prioritizing high-quality, ongoing professional development that is directly aligned with school improvement goals, fostering collaborative professional learning communities, and empowering teacher leaders. The strong thematic cluster around distributed leadership suggests that effective principals in secondary settings are not solitary instructional experts but rather facilitators of a shared leadership culture.

Secondly, the evolution of the field toward context-sensitive models implies that a one-size-fits-all approach to leadership development is inadequate. Leadership preparation programs and in-service training must equip principals with the diagnostic skills to analyse their unique school context, including socioeconomic status, cultural diversity, and departmental structures, and adapt their leadership practices accordingly. For schools in challenging circumstances, this might mean a greater emphasis on building trust and a positive school climate, while high-performing schools might focus on sustaining innovation and teacher-led instructional coaching.

Finally, policymakers should note the significant role of educational policy as a contextual factor (as identified in the keyword clusters). Policies should be designed to enable, rather than constrain, instructional leadership. This includes providing principals with the autonomy to make site-based decisions about curriculum and professional development, while also creating accountability systems that value the development of teacher capacity and positive learning climates as critical precursors to improved test scores.

Limitations

While this bibliometric analysis provides a comprehensive map of the research landscape, it is subject to several limitations. The primary limitation stems from the database selection and search strategy. Relying solely on Scopus, while a major database, may have excluded influential studies indexed in other databases (e.g., ERIC, PsycINFO). The restriction to English-language articles undoubtedly introduces a linguistic and geographic bias, potentially overlooking significant research published in other languages and from non-Anglophone countries, which is evident in the overwhelming dominance of U.S.-based publications.

Furthermore, the bibliometric method, by its nature, prioritizes quantitative patterns of publication and citation over deep qualitative synthesis. It effectively identifies *what* is being researched and *who* is influential but cannot critically appraise the methodological quality or the nuanced findings of individual studies within the corpus. For instance, the analysis can show a relationship between leadership and achievement is studied, but not the strength or consistency of that relationship across different studies. The keyword co-occurrence analysis is also dependent on the terminology used by authors, which can vary and evolve over time, potentially merging distinct concepts or obscuring emerging ideas that have not yet been consistently named.

Suggestions for Further Research

This review highlights several fertile avenues for future scholarly inquiry. First, there is a clear need for more empirical research from developing contexts and non-Western cultures to balance the current dominance of Anglo-American literature. Such studies would enrich the understanding of how instructional leadership is enacted and mediated in diverse cultural, economic, and policy environments.

Second, the thematic evolution points toward emerging frontiers that require deeper investigation. Future research should explicitly explore the role of digital instructional leadership in secondary schools, examining how leaders integrate technology to enhance teaching and learning. Similarly, the intersection of leadership with pressing issues of equity, inclusion, and social justice warrants focused attention, particularly in terms of leading initiatives that successfully close achievement gaps for marginalised student populations.

Finally, the findings suggest a need for more complex methodological approaches. While the field is becoming increasingly evidence-based, there is room for more mixed-methods studies that combine large-scale quantitative analyses with rich qualitative case studies. Such research would be invaluable for uncovering the causal mechanisms and the "how" of leadership influence—moving beyond confirming that leadership matters to explaining the specific processes and practices that make it most effective in different secondary school contexts.

ACKNOWLEDGEMENT

The authors appreciate the reviewers and editors for their valuable feedback, which greatly improved this manuscript.

FUNDING

The authors declare that no financial support was received for the research, authorship, and publication of this article.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available in public online repositories.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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