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Mapping Educational Leadership Research: A Bibliometric Analysis of Global Collaboration, Intellectual Structure, and Thematic Evolution (2000–2025)

İrfan AYHAN¹

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Abstract

Education leadership research has grown rapidly in the last 20 years and has resulted in a diverse, multinational body of research; however, studies integrating the analysis of collaboration networks, intellectual foundations, and thematic trendlines are still limited. The purpose of this study was to address this gap through an extensive bibliometric analysis of educational leadership research published between 2000 and 2025. Using 5,353 peer-reviewed journal articles from Scopus, the study employed multiple bibliometric techniques (co-authorship, co-citation, citation analysis, and keyword co-occurrence analysis) with VOSviewer to delineate the global structure and growth of the field. The results indicate that the overall collaborative network of authorship is distributed in an extremely dense/collapsed manner, and the dominant regions were Australia, Canada, the UK, and the US, along with a rapidly expanding research cluster in Asia and the Middle East. In terms of intellectual networks, the co-citation analysis produced a stable intellectual core comprised of instructional, transformational, and distributed leadership theories and exposed an increasing integration of social justice, equity, and teacher well-being as areas of research. The citation analysis indicated that foundational research from the early 2000s continues to have a lasting impact on newer research, while more recent research has begun to contain some focus on addressing contemporary problems, such as crisis leadership and digital transformation. The results of the keyword co-occurrence analysis show evidence that there has been a recent thematic shift away from research focused on school reform and instructional leadership and more toward topics of equity, instructional improvement, teacher professionalism, and pandemic-related issues. By integrating multiple bibliometric techniques into a single study, this study provides a multidimensional overview of educational leadership research and valuable insights to education researchers and policymakers, as well as to leadership preparation program developers.

Keywords: bibliometric analysis, co-authorship networks, co-citation analysis, educational leadership, global research trends

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¹ (Corresponding author) Dr. Öğr. Üyesi, Kırşehir Ahi Evran University, Kaman School of Applied Sciences, irfanayhan@gmail.com, Orcid ID: 0000-0002-6111-6555

Introduction

Educational leadership has always been the main factor determining how effective a school is in terms of providing quality instruction for students (Tan et al., 2020). In a variety of settings, educational leaders shape their organizations by promoting professional learning for teachers and facilitating the implementation of policy and reform initiatives (He et al., 2024; Mahmutoğlu et al., 2025). Research repeatedly shows that leadership has a significant impact on both student achievement and institutional improvement as an indirect factor (Leithwood et al., 2019). Recent research emphasizes the multifaceted and relational aspect of leadership that involves more than just having formal authority; it also includes providing instructional leadership, engaging in distributed leadership, and making decisions that are sensitive to context (Sawalhi et al., 2024; Makofane et al., 2025; Sposato, 2025). This body of research also increasingly presents educational leadership as a dynamic, interactive, and collective process between leaders, teachers, and their organizations, and emphasizes the importance of culture, trust, and collaboration (Hamdanah et al., 2025; Harder & Schumann, 2025; Nafsika & Vasileios, 2025).

The body of research on educational leadership has evolved over time, creating various influential theoretical schools of thought, which shape researchers' empirical investigations (Karakose et al., 2024). The initial theoretical framework was instructional leadership. This conceptual framework emphasizes the role of the principal as the leader in the alignment of the curriculum, the quality of the instruction provided by the teachers, and the impact of both on the students' learning outcomes from the school (Papadakis et al., 2024). The next theoretical framework introduced to the educational leadership field was transformational leadership. This conceptual framework expanded the conceptual parameters of the educational leadership field by emphasizing the importance of the leader's vision, motivation, and capacity to build the organisation (Alzoraiki et al., 2024). The most recent theoretical framework emerging in the educational leadership field has been distributed and shared leadership, which has conceptualized leadership as a distributed collective practice which exists in the day-to-day operations and routines of schools (Kielblock, 2025). Each of these theoretical frameworks has adapted continuously and recently through the implementation of large-scale empirical research studies, meta-analyses and cross-national comparisons, resulting in a relative stability of the theoretical framework and a strong foundation for continued contemporary research agendas (Nganga et al., 2025; Sprenger et al., 2025). In addition to these dominant models, more recent strands of literature, particularly those dealing with social justice, culturally relevant leadership and teacher well-being have contributed to the gradual diversification of the intellectual landscape of the educational leadership field (Morrison, 2025; Liu et al., 2025). Since 2000, distributed and transformational leadership models have become more prevalent because of the complexities of today's organizations and the increasing pressures for reform. More recently, technological transformation in schools has resulted in the emergence of digital leadership.

Due to the theoretical advancements that have occurred within the discipline of educational leadership over the years, as well as the growing number of researchers who have utilized bibliometric and scientometric techniques to analyse how research related to this discipline has emerged, developed and been established within

educational leadership (Karakose et al., 2024; Secăreanu et al., 2024; Shaikh & Güngör, 2024). As such, researchers have begun to examine trends in publication patterns, identify leading authors in educational leadership and their respective journals of publication and outline citation patterns in order to establish the intellectual foundation for the field. Existing bibliometric analyses of educational leadership have approached this subject from multiple angles (i.e., some have focused on a very specific topic such as a certain leadership model or limited by a defined time frame), while others have taken advantage of techniques such as co-citation mapping to analyse specific sub-disciplines and still others have compared different countries' publication trends or analysed different educational research journals. Each of these contributions has enriched the overall body of knowledge surrounding educational leadership by providing a partial representation of the discipline, and has further provided researchers with an improved understanding of the essential elements that constitute knowledge in educational leadership and the predominant lines of research within the field (Abdullah et al., 2020; Aboagye & Ayikue, 2025).

Even with the contributions of Hallinger (2014), Hallinger & Chen (2015), Gümüş et al. (2020), and Wang et al. (2021), there continues to be a lack of three interrelated areas in the literature that require further examination. Large-scale analyses of the changing patterns of international collaboration (primarily the increase in collaborative researchers in Asia, the Mideast, and Global South) are not addressed in the current bibliometric analysis. The absorption of more recently established themes such as equity, digital leadership, crisis management, and well-being into the established body of research on educational leadership lacks clarity. Few studies have utilized the three approaches (co-authored, co-cited, and co-keyworded) to provide a complete architecturally coherent perspective of the field over an extended period. Ultimately, the literature does not provide an integrated multi-dimensional perspective on how collaborative networks, theoretical frameworks, and research themes have evolved as an interdependent system during the past quarter-century.

As a result, the gaps listed above will be addressed by providing a systematic bibliometric analysis of 25 years of research in the field of educational leadership. The total amount of published work in the area of education leadership has grown over time, but more recently has had significant growth as a result of many global influences (e.g., changes in accountability, COVID 19). Therefore, it is becoming more important for scholars to understand how collaboration networks, theoretical frameworks, and research themes have evolved during this time. Accordingly, the systematic bibliometric synthesis of the past 25 years of research will help to establish a framework for future researchers to better understand the complexity, scale, and direction of development in the field of educational leadership.

The study aims to gain a systematic understanding of both the world-format of educational leadership research (global structure), bibliography of educational leadership research (intellectual foundations), and change in topics discussed within educational leadership research over time (thematic evolution):

(1) What trends can be identified in the frequency of educational leadership publications in the last 25 years?

(2) What are the prevailing patterns of international collaboration among authors, institutions and countries involved in educational leadership research?

(3) What authors, articles and theoretical frameworks constitute the intellectual core of educational leadership scholarship?

(4) What major themes and emerging trends can be identified through a keyword co-occurrence analysis of educational leadership research?

Method

Research Design

This study employed a bibliometric design methodology to explore the patterns of global cooperation (collaboration) across countries; the intellectual structures of researchers dominant in the field of educational leadership research; and the themes developed over time within the body of research literature produced by researchers engaged in educational leadership research. The period between the years 2000 to 2025 has been chosen as it identifies the post-millennium transformation that has occurred in the field of educational leadership research by documenting the emergence of distributed, transformational, and digital leadership paradigms. Bibliometric analysis is a useful tool for synthesizing large volumes of research literature, as it enables an organized and consistent approach to analyzing the trends and patterns associated with publishing (publication), the structure of published literature (citations), co-authorship between researchers, and the occurrence of key concepts in relation to other published work (Passas, 2024). Multiple bibliometric strategies were integrated into this analysis so that an overall map of the educational leadership research literature could be produced for the last quarter-century. The process of data collection and selection used the PRISMA criteria (Page et al., 2021) as a template to promote clarity and replicability in the manner that studies were identified and selected for use in this analysis.

Data Source and Search Strategy

The bibliographic information was obtained from the Scopus database. In order to prevent inconsistencies caused by duplicate records and/or methodologically inconsistent results when constructing a large-scale collaborative network, the researcher preferred to use only one database as primary data source: The database provides a direct, structured means of exporting bibliographic metadata in a format that is compatible with VOSviewer, which is essential for accurately creating maps of the collaborative networks of authors, co-citing authors and keyword co-occurrences. Using a single, standardised data source has therefore contributed to the reliability of analyses conducted as part of the bibliometric framework and to the technical integration of those analyses with one another. Scopus provides access to articles published in the period of 2000-2025 using a specific search methodology focused on research associated with educational leadership and its associated subdomains. Articles published between 2000 and 2015 provided information on historical trends and patterns over time, and articles published within the last ten (10) years provided evidence of emerging or current trends within the field of educational leadership. The following search criteria were used for the development of the Scopus search query:

"educational leadership" OR "school leadership" OR "educational management".

The search only retrieved articles published in peer-reviewed journals and adhered to established bibliometric data collection standards established by the education sciences. There were no limitations placed on the search regarding the publication language of the articles. The total number of records retrieved in an initial search was 7,215.

Data Screening and Eligibility Criteria

After retrieving data from sources, the researcher screened all titles for relevance to the research project (i.e., conceptual and disciplinary fit). All of the titles included in the study were initially screened to determine whether or not they matched the study objective. If there were insufficient title data to make that determination, the abstract of the article was retrieved and reviewed to make that determination. Screening of titles was conducted by the researcher. The calibration of the inclusion/exclusion criteria consisted of a preliminary review of a random sample of records to ensure consistency in decision-making. This initial review (n=100) was completed on two separate occasions allowing the researcher to identify ambiguous cases and resolve discrepancies prior to discussing them with his colleagues in order to achieve consensus about each item. This iterative process was useful in defining the operational interpretation of the eligibility criteria and developing a systematic and transparent selection process. To be included, publications needed to focus on leadership within an educational context (e.g. schools, school systems, or educational organizations) and leadership must be the primary focus of analysis as opposed to an ancillary concept. Retained studies were those conducted within the field of education or educational administration or educational management.

Records that were excluded included those that contained an examination of leadership in a non-educational setting such as businesses or healthcare without explicit educational relevance; only articles related to higher education administration where leadership was not the primary focus and aligned with the educational leadership theory; and documents that were not refereed (e.g. conference proceedings, editorials, book chapters, notes). This allowed for a consistent level of quality and citation practice across all publications.

After applying these criteria, a total of 1,862 records were excluded, leaving a final dataset of 5,353 publications to be used for all subsequent analyses. See Table 1 below for the PRISMA flow chart:

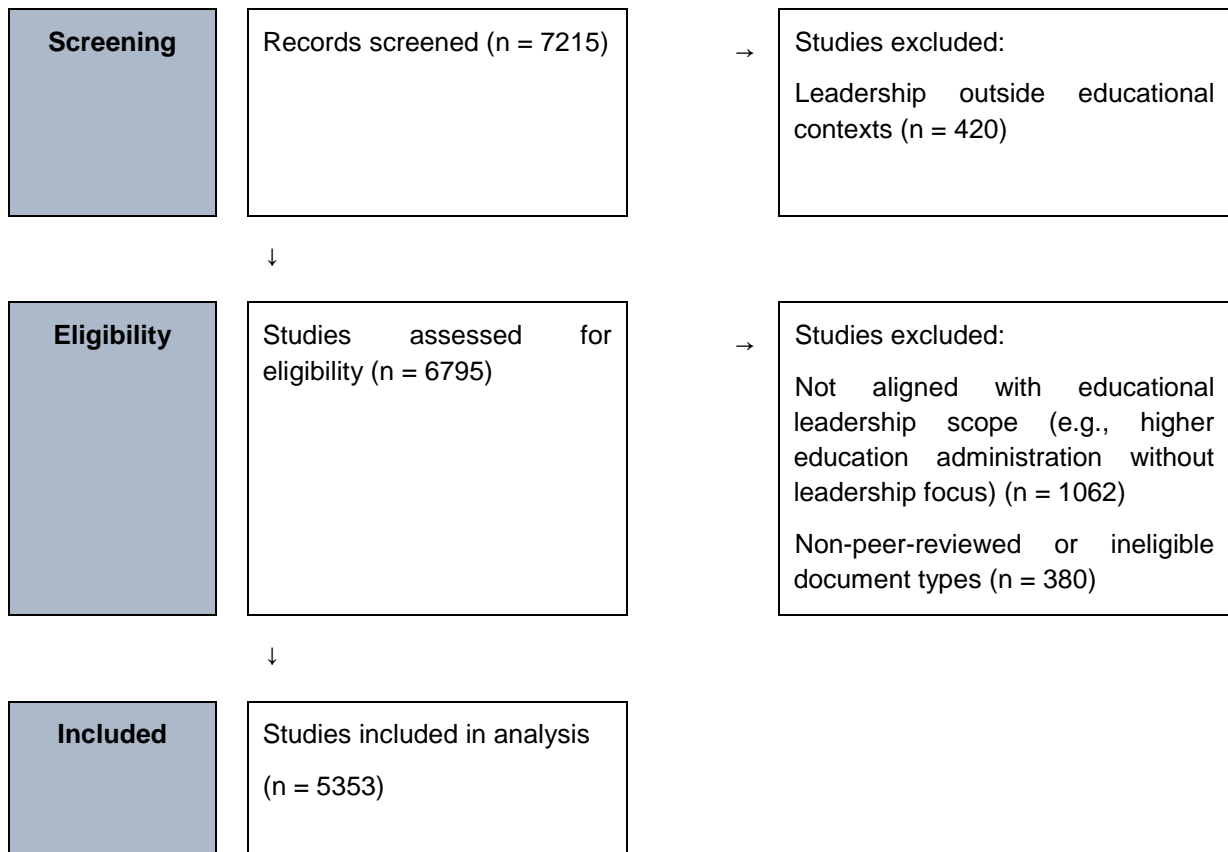
Table 1

PRISMA flow of study selection and screening

Identification	Records identified from: Scopus (n = 7215)
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Table 1
(Continued)



Data Extraction and Availability

The exported dataset from Scopus was in CSV format (comma-separated values) consisting of complete bibliographic metadata about each publication (e.g. authorship, institutional affiliation, country, year published, title of source, abstracts, author keywords, cited references, citation counts). To ensure consistency, the researcher has implemented some minor data cleaning procedures for author names, institutional labels and country identifiers; however, did not change any of the original content of the records. For purposes of transparency and reproducibility, the entire bibliographic dataset used for this study is available as part of the online Supplementary Material, enabling additional researchers to replicate or extend these analyses.

Bibliometric Analysis and Visualization

Bibliometric analyses and visualizations were conducted with VOSviewer (version 1.6.20), which is an analysis and visualization tool for educational/ social science bibliometric research. VOSviewer was used to develop and visualize networks using bibliographic coupling and relational indicators.

The following four main types of analyses were performed. 1) Descriptive analysis was performed to assess annual publication trends and growth in the field of educational leadership. 2) Co-authorship analyses were completed at the author, institution, and country level in order to create global co-authorship networks and identify contributors

and regions of concentration. 3) Co-citation analysis was executed to create foundational works, highly visible authors, and develop the intellectual structure of the field. 4) Keyword co-occurrence analysis was used to identify thematic areas and emerging areas of research.

The thematic patterns within the field were operationally defined through keyword co-occurrence analysis performed by VOSviewer. In order to create a co-occurrence network, author keywords were analyzed, with clusters representing author keywords that consistently co-occur. These clusters serve as thematic areas of research. Analytical standardization of keywords was conducted in preparation for creating networks. This was done through a normalisation of minor misspellings and combining very similar keywords (for example the phrases 'school leader' and 'school leaders' were combined into one single representational form). However, there were no filtering of stopwords during the processing of keywords, nor were there any hierarchical classifications created through author-defined keywords indexed from Scopus metadata. If the stopwords were to be excluded, it would have changed original bibliographic records which would introduce potential bias to the interpretation of the networks. Therefore, readers should view Cluster 4: Educational Leadership and Knowledge Structure as representing the self-referential meta-level discourse of the field (its description and organisation) rather than a meaningful theme. Future research could consider applying more rigorous preprocessing protocols to eliminate such generic keywords from consideration prior to creating a network. To see how themes have changed throughout time, overlay visualization and average year of publication indicators were used to track the frequency of keywords over time to see if there were any changes or trends present. Therefore, the thematic analysis defined in this study is done through algorithmically grouping similar keywords and interpreting the keyword network rather than through a subjective coding process.

VOSviewer also applied its method for normalizing association strengths for all network types. Each social network analysis (SNA) provided minimum thresholds for the purpose of defining and evaluating SNAs with concrete parameters. An author was required to have at least 5 publications to be included in the co-authorship analysis, an institution had to have 10 publications to be included in the institutional co-authorship analysis, and 20 publications had to be published by each country to be included in the network. Additionally, to be included in the co-citation analysis, each document being cited had to have a minimum of 50 citations. A minimum of 20 occurrences of each keyword had to be used in the dataset in order to be included in the keywords' co-occurrence network analysis. These thresholds were used in order to develop a systematic approach to representing those who were influential or who contributed to theme development and to clearly analyse examples of that influence or contribution.

Network Interpretation

Network maps were interpreted according to commonly used indicators of VOSviewer including node size, total link strength, clustering patterns, and spatial distance. Nodes that were larger than others related to how productive or how impactful the work was both on a publication and citation perspective. The strength of the connections reflected how much collaboration or how many citations took place between two nodes that were connected to each other. Clusters were interpreted as collaborative

groups, intellectual domains or thematic groups depending on the purpose of the analysis.

The clusters that were generated from VOSviewer were based on an algorithmic grouping of nodes determined initially by their level of association and level of modularity. The labels that were applied to each of the clusters were done using an interpretive analysis approach. To arrive at the label assigned to the cluster, the researcher reviewed the central or most frequently occurring items within that group (i.e., most frequently cited articles or top keywords) to confirm appropriate labels. In addition to that, if the group did not have a single/primary label, any additional content that was representative of that group could be reviewed for the purpose of assigning that content a label. Although the structure of clustering presented in VOSviewer supports the algorithmic grouping of nodes based solely on their similarities, the naming of those clusters is identified through analytical judgement and is based upon the intent of capturing the dominant group theme of that cluster. To validate that the analytical outcomes were consistent, there was triangulation across author-, institution-, and country-level networks, as well as across co-authorship, co-citation, and keyword analyses, to ensure analytical robustness and conceptual consistency.

For example, the “Central Core Cluster” and the “Asia–Middle East Emerging Collaboration Cluster” were assigned based on the geographical location, the connection strength between the clusters, and through an analysis of the most frequently occurring or most central author or institution contained within each group. Network maps were interpreted using standard VOSviewer indicators, including node size, total link strength, clustering patterns, and spatial proximity. Larger nodes represent higher publication output or citation impact, while stronger links indicate more intensive collaborative, co-citation, or thematic relationships. Clusters were interpreted as representing coherent collaborative groups, intellectual domains, or thematic concentrations, depending on the analysis.

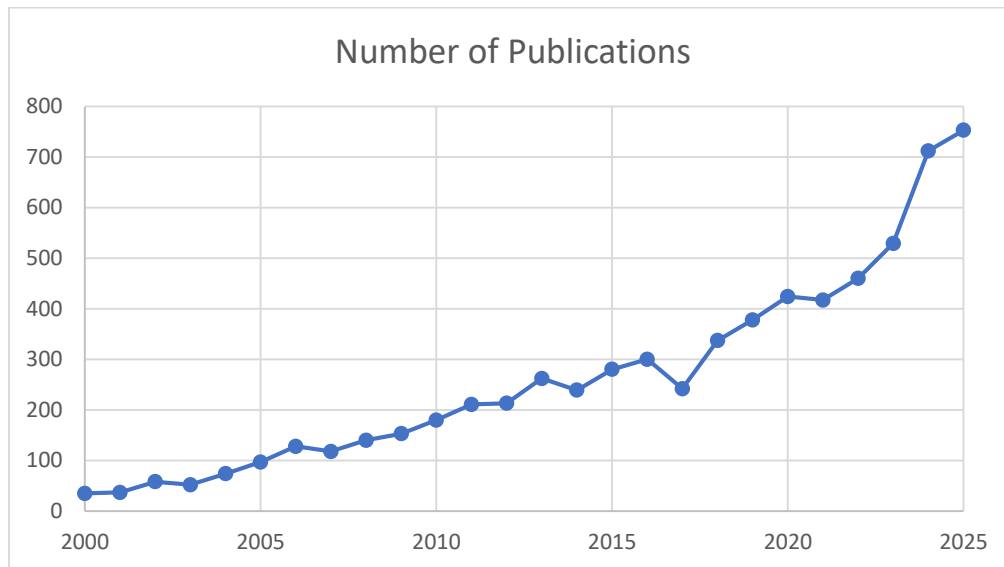
Results

Descriptive Overview of the Dataset

The dataset merges four linked metadata sources: citations, co-citations, co-author relationships, and keyword co-occurrences that depict the published work on educational leadership, which spans from 2000 to 2025. The number of publications about educational leadership has grown consistently since about 2000, and then accelerated substantially since about 2018. This is illustrated in Graph 1 which shows that the peak rate of publication about educational leadership occurs from 2024 to 2025 and indicates increased scholarly interest in the area:

Graph 1

Publication counts by year in Educational Leadership research

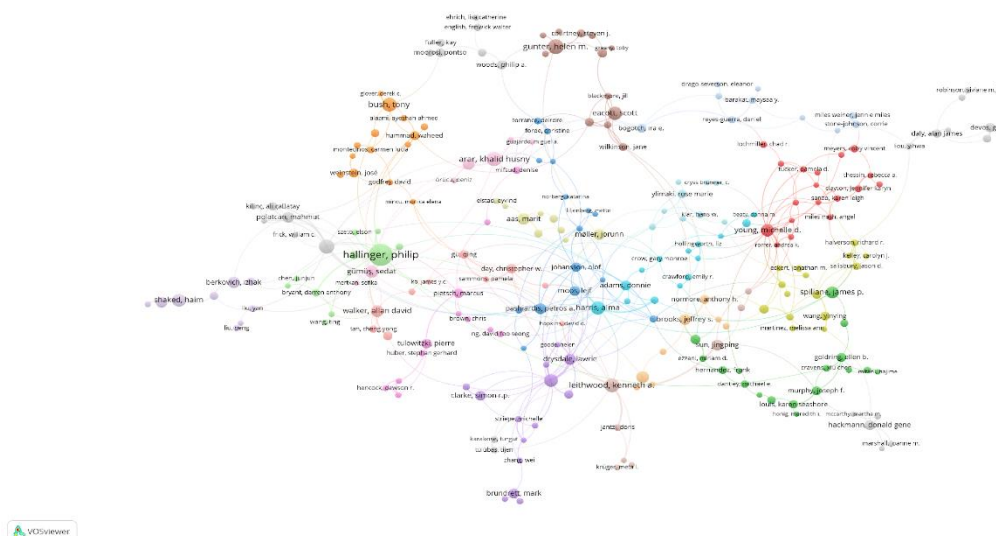


Co-Authorship Network: Global Collaboration Patterns

The collaborative authorship network indicated various regional clusters and highly productive writers serving as central hubs in the field. An illustration of this global scholarly collaborative structure can be viewed through the co-authorship network map, Figure S1 below (and also available on Figshare in higher resolution), which delineates the collaborative authorship patterns at the individual level, formation of clusters and relative importance of prominent contributors at the individual level within the field of interest.

Figure S1

Network visualization of co-authorship



This author-level map aligns with similar mapping for countries and institutions of authors working within this research area and suggests a multi-level geographic landscape of research activity. Table 2 below contains the top 10 authors based on total link strength:

Table 2

Top 10 Authors by Total Link Strength

Rank	Author	Total Link Strength
1	Philip Hallinger	55
2	Mehmet Şükrü Bellibaş	44
3	David Gurr	34
4	Kenneth Leithwood	29
5	Sedat Gümüş	28
6	Alma Harris	28
7	Mahmut Polatcan	28
8	Michelle D. Young	28
9	Lawrie Drysdale	27
10	Khalid Arar	23

The core of the co-author network is known as the Central Core Cluster, which is comprised of the high density or large number of co-authors, which can be attributed both to the fact that its members are primarily located near one another geographically, as well as that they rank highly regarding their position in the co-author network as a whole. This Central Core Cluster, essentially, is comprised of four authors who are the central focus of the co-author network: Philip Hallinger (TLS = 55), David Gurr (TLS = 34), Sedat Gümüş (TLS = 28) and Lawrie Drysdale (TLS = 27) (i.e., they are among the ten authors who have the highest total link strength in the entire dataset) and these authors all have institutions in either Australia (1), Canada (1), the United Kingdom (1) or the United States (1) making them the centre of the network. Altogether, these countries represent the highest total link strength (TLS) and the highest number of publications out of all countries in the dataset. Australia and Canada, in particular, are the largest global node countries, representing the highest TLS and the highest number of publications within the dataset. In addition, these country nodes are supported by prominent institutions, whose centrality is in line with the leading authors' centrality. The institutions of Monash University and University of Melbourne, as well as additional universities in Auckland and numerous institutions located in Hong Kong (including Education University of Hong Kong and Chinese University of Hong Kong) have created an institutional collection which is both dense and expansive. The fact that these institutions are located centrally to the institutional co-authorship map supports the concept that this portion of the network is the global backbone of educational leadership research.

The second distinct region structurally identifiable is the Leadership Theory or North American Cluster. Transformational Leadership Theory is one of the North American Cluster categories, represented by Kenneth Leithwood, Michelle D. Young, and Alma Harris with an average of 29 citations per author for their work collectively. The transformational and instructional leadership theories developed by all three authors together are the main focus of this subnetwork's research. The theoretical homogeneity

of this subnetwork is indicated by the two most frequently co-cited articles in this cluster, which were both written by Leithwood & Jantzi (2006) (5 citations) and Robinson et al (2008), with 12 citations. Most of this research has been conducted at North American universities such as Michigan State University and the University of Wisconsin-Madison, where most of the members of this subnetwork have received their advanced degrees. According to the mapping of the country-level clusters, the United States and Canada share a significant proportion of the same geographic area. Therefore, many institutions are found within the boundaries of both countries (i.e., Michigan State University and/or the University of Wisconsin–Madison), all of which have maintained proximity in space with the authors displayed on the network visualisation, thus forming a small, theoretically-based cluster that is adjacent to but distinguishes itself from the centre.

The Asia–Middle East Emerging Collaboration Cluster can be seen in all three levels of co-authorship analysis, which are author, institution, and country. Mehmet Şükrü Bellibaş (TLS = 44) and Mahmut Polatcan (TLS = 28), who rank second and seventh, respectively, among all authors by total link strength, are currently the major structural anchors of this cluster and demonstrate the rapid growth of research output from this region. The cluster label has been assigned to this cluster based on the geographic position of its constituent nodes. The included nodes in the cluster are Malaysia, China, Hong Kong, Thailand and Türkiye; while these locations are not all contiguous with each other, they were grouped based on collaboration link strength and proximity to one another within the network. At the institutional level, Chulalongkorn University, Mahidol University and several universities in China and Türkiye form a heavily interconnected level of institutional subnetwork; thus, indicating structural confirmation of the cluster's coherence and increasing integration into the international scientific community.

The Middle East / Organizational/Policy Cluster (represented most notably by Khalid Arar) identifies a structurally moderate density region linking numerous parts of the global network. (See figure S1.) For example, countries such as Jordan, Egypt, Bahrain and Lebanon appear to be located within this section of the map forming a collection of nodes, and although they are less connected than those in the core, they nevertheless serve as key catalyst nodes that bridge the regional networks. This bridging function is mirrored at the institutional level (e.g., institutions in Türkiye, Israel and South Africa routinely connect their work with their peers in both Asia and Anglo-dominant nations), and the positions of these institutions between the most established and most emerging clusters of authors correspond with the intermediary role that Arar plays as an author; this contributes significantly to reinforcing this portion of the network as a transition point for facilitating the flow of education leadership research across regions.

Overall, the patterns of connectivity among authors, countries and institutions delineate the primary collaborative structures within the data set. The spatial relationships presented in Figure S1 support that educational leadership research is largely organized with a strong central core, a theoretically homogeneous North American grouping, an emerging Asian/Middle Eastern region and a strategically significant Middle Eastern bridge zone. Thus, integrating author and country/institution data provides a fuller understanding of the author-level clusters and illustrates how multi-scalar forms of collaboration collectively create the global framework for educational leadership research.

Table 3*(Continued)*

Rank	Work	Author(s)	Total Link Strength	Total Citations
5	Instructional Leadership and the School Principal: A Passing Fancy That Refuses to Fade Away	(Hallinger, 2005)	20	3
6	Seven Strong Claims About Successful School Leadership Revisited	(Leithwood et al., 2020)	20	5
7	Towards a Theory of Leadership Practice: A Distributed Perspective	(Spillane et al., 2004)	20	4
8	Principal Leadership and School Performance: An Integration of Transformational and Instructional Leadership	(Marks & Printy, 2003)	18	5
9	Investigating School Leadership Practice: A Distributed Perspective	(Spillane et al., 2001)	14	5
10	The New Work of Educational Leaders: Changing Leadership Practice in an Era of School Reform	(Gronn, 2003)	14	4

Several highly central texts, notably those by Hallinger, Spillane and Leithwood recur throughout the co-citation database, with Hallinger's work from the early 2000s predominating (e.g. Hallinger & Kantamara, 2001; Heck & Hallinger, 2005). Hallinger's work on "instructional leadership" and "educational change" is corroborated in terms of spread and significance, likely reflecting its stature as a core contribution to the theory of school improvement. Spillane's initial publications—the ones that stabilize the concept of distributed leadership and suggest the pattern for other studies to follow—are also central (Spillane et al., 2004; Spillane et al., 2008). The essence of these texts can also be seen in Halverson's contributions (with Spillane and Diamond) that explore the interplay of centralization and distribution among the elements of school leadership.

Many of Leithwood's publications reveal clues to the basic structure of school improvement research, e.g., Leithwood & Jantzi (2006), and with other co-authored works by Jantzi and Robinson, whose work on the effects of school leadership is a significant component of the field, including the meta-analytical study of leadership effects (Robinson et al., 2008), and, of course, the classic work of school organization and capacity building, such as the one by Sebring and Bryk (2000) and others. In sum, the co-citation patterns indicate a stable structure that is built on the backbone of instructional leadership, distributed leadership and school improvement.

Clustering and Intellectual Domains

The structure of the co-citation network illustrates a clear theoretical landscape made up of ten specific clusters, which combine to represent the theoretical underpinnings of current research in educational leadership.

Table 4
Major Co-Citation Clusters and Representative Works

Cluster	Dominant Empirical Focus (Data-Driven)	Representative Co-Cited Works
Cluster 1	Leadership Effects, Learning Theory & Qualitative Inquiry	Bush; Hattie; Marzano; Stake; Yin; Vygotsky; Patton
Cluster 2	School Effectiveness, Evaluation & Applied Research Methods	Edmonds; Grissom; Marzano; Braun & Clarke; Miles & Huberman; Merriam & Tisdell
Cluster 3	Change Leadership, Teacher Development & Professional Learning	Fullan (2005, 2007); Hallinger (2005); Harris (2008); Hargreaves; Cherkowski
Cluster 4	Distributed Leadership Theory & Conceptual Analysis	Gronn (2008); Mayrowetz; Hatcher; Leithwood & Mascall; Murphy
Cluster 5	Transformational, Ethical & Instructional Leadership Effects	Leithwood; Robinson (2008); Brown & Treviño; Starratt; Day et al.
Cluster 6	Moral, Sustainable & Collective Leadership	Fullan (2001, 2003); Freire; Hargreaves & Fink; Leithwood & Riehl; Alston
Cluster 7	Critical, Culturally Responsive & Social Justice Leadership	Bogotch; Theoharis; Khalifa; Ishimaru; Love; Spillane et al. (2001)
Cluster 8	Foundational & Classical Leadership Models	Burns; Gronn (2003); Spillane et al. (2004); Robinson (dup. ed.); Leithwood, Harris & Hopkins
Cluster 9	Integrated Instructional–Transformational Leadership Models	Marks & Printy; Spillane (2006); Geijsel et al.
Cluster 10	Instructional Leadership Models & Empirical Comparison	Hallinger (2003); Pietsch & Tulowitzki

Empirical and methodological foundations of educational leadership research can be seen in Clusters 1 & 2. The connection between the theoretical framework and research design through citation frequency is evident in the central position of Bush, Hattie, and Marzano (Cluster 1) and Edmonds and Grissom (Cluster 2) within each cluster's citations. Cluster 1 brings together literature relating to the impact of leadership, learning theory, and qualitative research methods. Cluster 1 contains the work of Bush, Hattie, Marzano, Vygotsky, and other major leaders in educational leadership research, and also contains key methodological contributors such as Stake, Yin, and Patton. Cluster 2 focuses on the effectiveness of schools, evaluating schools, and the application of research methods, combining classical works on school effectiveness (e.g. Edmonds, Grissom) with qualitative and mixed-methods approaches to data analysis proposed by Braun and Clarke, Miles and Huberman, and Merriam and Tisdell. The two clusters together comprise the foundational empirical and methodological components of educational leadership research.

Clusters 3, 4, & 5 illustrate the most influential theoretical traditions of educational leadership with regard to their impact in the real world. Not only do these clusters reflect a high level of citation density within the larger co-citation network, but also the high total link strength value that accompanies the central works within these clusters. For instance, the works of Spillane et al. (2004; TLS = 20; Cluster 4) and Robinson et al. (2008; TLS = 23; Cluster 5) are among the most highly co-cited within this dataset (see Table 3). The key emphasis of cluster 3 is on change leadership, teacher development, and professional learning based on the transformational reform works of Fullan, Hallinger, Harris, and Hargreaves. The key emphasis of cluster 4 is the conceptual and

theoretical examination of distributed leadership, which is framed by the seminal contributions made by Gronn, Leithwood and Mascall, and Murphy to this area. The dominant concepts about transformational, ethical, and instructional leadership are included in cluster 5, where numerous widely published empirical syntheses and normative frameworks provide foundational support for Leithwood, Robinson, Brown & Treviño, Starratt, and Day et. al. in connection to their research on the effectiveness of different types of leadership.

Clusters 6 & 7 portray the common and growing inclusion of educational leadership information. Around cluster 7 — whose internal cohesiveness is best illustrated by the works of Theoharis (2007; 769 citations) and Khalifa et al. (2016; 709 citations), two of the most cited works from the entire set of literature examined in this research — there is a strong structural foundation for concluding that social justice and cultural responsiveness have developed into a separate subfield within educational leadership research. Cluster 6 emphasizes moral, sustainable and collective leadership; the theoretical and conceptual bases are derived from the ethical and social scholarship of Fullan, Freire, Hargreaves & Fink, and Leithwood & Riehl. Cluster 7 is unique in that the entire body of literature is based on culturally responsive, social justice and equity leadership, with foundational literature written by Bogotch, Theoharis, Khalifa, Ishimaru and Love. The internal coherence of this cluster indicates the continued development of social justice leadership as an established field of study within the larger body of literature on educational leadership.

Clusters 8, 9, and 10, on the other hand, demonstrate the integration and foundational elements of educational leadership research. Cluster 8 has the most classical foundational-type works in the overall co-citation network with the works of Burns, Gronn (2003; TLS = 14) and Spillane et al. (2004; TLS = 20) as central nodes. In contrast, both Cluster 9 and Cluster 10 have been defined by the co-citation proximity of Marks and Printy (2003; 836 citations) and Spillane (2006); thus, clearly linking empirical work to instructional and transformational leadership (basic components used to create the name of the cluster itself) was evident. The key foundation of cluster 8 is represented by the classical and foundational models of educational leadership that form the key conceptual vocabulary used by researchers today. This is demonstrated by the prominent works of Burns, Gronn, Spillane, Robinson, and Leithwood, Harris, and Hopkins. The key integration of instructional and transformational leadership theorists is captured in cluster 9, where key empirical evidence and theoretical articulations about the connections between both perspectives are provided by Marks & Printy, Spillane, and Geijsel et. al. The focus of cluster 10 is on instructional leadership models and the empirical comparison of the different models, led by Hallinger's model-based research and contributed to by Pietsch and Tulowitzki through their empirical research on the comparative merits of the models.

Collectively, these ten clusters align with the established theoretical lineages and methodological traditions of the educational leadership field. The internal relationships and external connections among all of the authors in the co-citation network confirm that the co-citation network shows the canonical architecture of the intellectual contributions that have been identified through previous synthesis studies (Hallinger & Kantamara, 2000) on educational leadership research. Thus, the co-citation network provides a systematic way of documenting the major domains of educational leadership research,

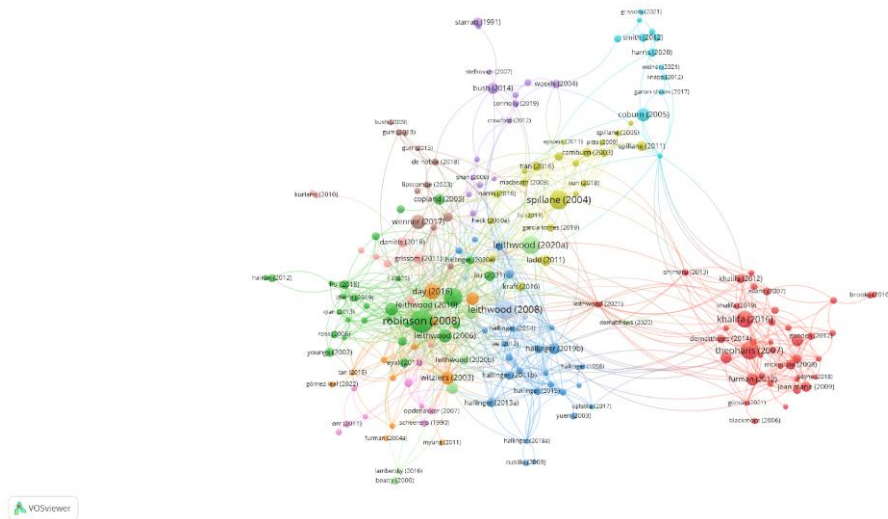
including their empirical focus and the significant theoretical and conceptual influences that continue to impact the body of knowledge in this field.

Citation Analysis: Influential Documents and Trends

Citations for a small number of publications show consistently high levels of citations across the entirety of the dataset. Document-level citation networks illustrate the citation linkages between major publications within the field, as shown in Figure S3 (also available on Figshare in high definition), displaying clusters of citations to documents over time.

Figure S3

Network Visualization of Citations (Documents)



Together, these publications—shown in Table 5 below- constitute the core group of highly referenced documents over the study period.

Table 5
Top Cited Documents in the Dataset

#	Title	Authors	Citations	Year
1	The Impact of Leadership on Student Outcomes: An Analysis of The Differential Effects of Leadership Types	(Robinson et al., 2008)	1366	2008
2	Seven Strong Claims About Successful School Leadership	(Leithwood et al., 2008)	975	2008
3	Towards A Theory of Leadership Practice: A Distributed Perspective	(Spillane et al., 2004)	908	2004
4	Principal Leadership and School Performance: An Integration of Transformational and Instructional Leadership	(Marks & Printy, 2003)	836	2003
5	Seven Strong Claims About Successful School Leadership Revisited	(Leithwood et al., 2020)	810	2020
6	Social Justice Educational Leaders and Resistance: Toward A Theory of Social Justice Leadership	(Theoharis, 2007)	769	2007
7	Culturally Responsive School Leadership	(Khalifa et al., 2016)	709	2016

Table 5
(Continued)

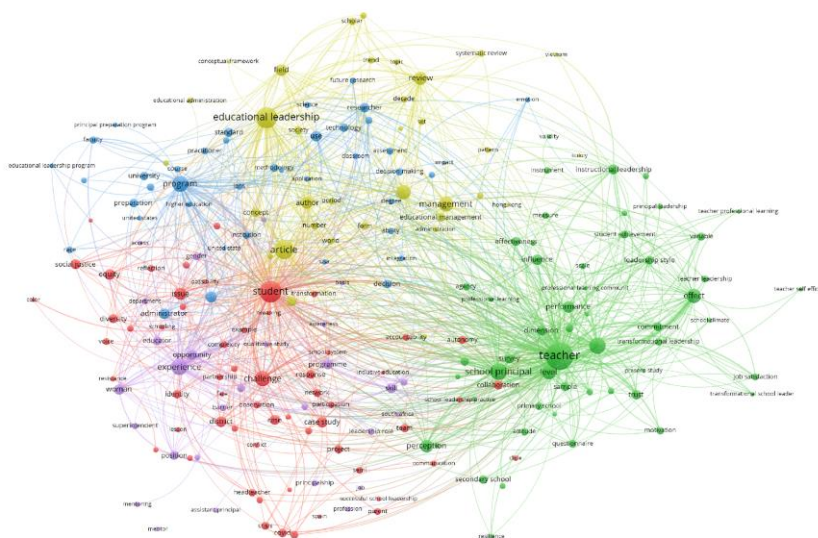
#	Title	Authors	Citations	Year
8	The Impact of Leadership on Student Outcomes	(Day et al., 2016)	605	2016
9	The Theoretical and Empirical Basis of Teacher Leadership	(Wenner & Campbell, 2016)	519	2017
10	Shaping Teacher Sensemaking: School Leaders and The Enactment of Reading Policy	(Coburn, 2005)	447	2005

Of all the published works in the data set, the majority were published from 2003-2020 and include a substantial amount of high citations for many records between 2004-2008 and again between 2016-2020. Many of the publications producing high citation numbers between 2016-2017 continue to generate high citation counts while there were also a number of recent publications from 2019-2021 that also achieved citation counts greater than 200. Thus, there is evidence that the data set contains a significant number of highly cited documents that have occurred over approximately 20 years, with high citation patterns continuing to occur for both earlier and more recent publication years.

Keyword Co-Occurrence Analysis: Thematic Areas and Emerging Topics

The keyword co-occurrence network is further represented in terms of clusters, with each cluster representing different thematic groups of literature. The thematic structure of the literature is visually represented in Figure S4 (also available on Figshare in high definition) of the keyword co-occurrence network that plots clusters of frequently co-occurring keywords and their respective prominence during the period of this study.

Figure S4
Network Visualization of Keyword Occurrence



Top 20 keywords from this analysis are shown in Table 6 below:

Table 6
Top 20 Keywords from Keyword Co-Occurrence Analysis

Keywords	Cluster	Links	Total Link Strength	Occurrences	Avg. Pub. Year
teacher	2	213	36206	2181	2018,66
student	1	212	25075	1359	2017,78
educational leadership	4	213	16935	1285	2014,70
article	4	212	15643	1083	2015,54
school principal	2	212	15118	855	2019,53
experience	5	213	15462	805	2018,32
relationship	2	213	14384	794	2019,14
program	3	211	14549	758	2016,64
challenge	1	211	10199	695	2018,73
management	4	211	10036	643	2016,53
literature	4	212	11312	608	2018,59
effect	2	212	11279	594	2018,97
level	2	213	11526	543	2018,43
review	4	211	9835	521	2019,29
perception	2	213	7714	475	2017,37
author	4	213	8930	441	2015,05
issue	1	210	7465	429	2014,27
field	4	211	7157	396	2016,07
performance	2	207	6099	395	2018,66
educational leader	3	204	6059	365	2018,67

Many of the highest frequency keywords in Cluster 2 (leadership & professional practice) within the keyword co-occurrence network include teacher, principal, relationship, effect, and instructional leadership. Many of these keywords are clustered based on their recent publication trends between the late 2010s and early 2020s. There are also a number of high-performance and result-oriented keywords like student achievement, dimension, and variable that appear in this cluster.

Cluster 1 (Equity & Contemporary Issues) contains keywords like COVID, pandemic, student, challenge, case study, district and equity. This cluster has a fairly wide distribution of keywords over a large temporal period. However, the majority of these keywords are more recent ones that are related to pandemic-related research. The keywords social justice, project, network, case and crisis illustrate very current themes in our world today. Most of the publications centered on this cluster occurred between 2014 and 2021.

Cluster 4 (Educational Leadership & Knowledge Structure) contains conceptual and publication-related keywords such as educational leadership, article, management, literature, author, field, and review. There are those keywords in the cluster which are highly connected to the other keywords for their role in the foundational literature for the

field. Most of the publications tagged within this cluster were published between 2015 and 2021.

Cluster 3 (Programmatic & Institutional Roles) contains a number of keywords associated with program, educational leader, administrator, preparation, use, and university. Most of the keywords in this cluster are associated with the mid-2010's publications. Several of the most recently published keywords include recommendation, institution, decision-making and application, which demonstrate the continuing trend toward focusing on institutional roles and decision-oriented topics.

Cluster 5 contains terms related to gender, experience, position, skill, opportunity, and leadership development. In addition to these, it includes regional and demographic terms, such as head, job, mentor, and profession. Most of the publications associated with Cluster 5 are dated from 2015 to 2019.

The time-series analysis of the clusters indicates that the most recent concentration of keywords is found in Cluster 1: Equity and Contemporary Issues and Cluster 2: Leadership & Professional Practice, especially when it comes to terms associated with instructional leadership, research conducted during the pandemic, and student outcomes. More significantly older terms (2014-2016) appear more frequently in Cluster 3: Programmatic & Institutional Roles and Cluster 4: Educational Leadership & Knowledge Structure than in Cluster 1 and Cluster 2. Examples of these types of terms are related to programmatic, conceptual, and methodological terminology. Cluster 5 shows a rather equal distribution of terms with most appearing between 2015 and 2019.

Educational leadership research is increasingly focusing on contemporary issues. Keywords related to these issues include equity, COVID, pandemic, and social justice. This focus has resulted in an increase in attention regarding social and global issues as a result of the response to the COVID-19 pandemic and the impact of COVID-19 on education (Cluster 1). Keywords associated with improving leadership practices and how those practices have a direct impact on student achievement are instructional leadership, student achievement, and leadership development (Cluster 2). Teacher self-efficacy, professional development for teachers, and transformational leadership have had a large impact on leading educational organizations to an inclusive and competency-based frame of reference for educational leadership (Cluster 2 and Cluster 5). The research related to school climate, collaboration, and school culture is leading scholars to examine the effect of the organizational environment and interpersonal dynamics on the effectiveness of leadership in educational organizations (Cluster 2). Collectively, the topics described above indicate that the field of educational leadership has extended the scope of the academic discipline to include concepts related to equity and the professional development of teachers while pursuing the systemic improvement of educational organizations due to the emergence of global issues.

Implications for Theory Development and Future Research

The findings from the study indicate a strong theoretical foundation in educational leadership research based on hierarchical, transformational and distributed leadership. While there is a solid, cumulative base of knowledge, the educational leadership field may not be expanding new paradigms to the same degree, as evidenced by the emergence of more equity, culturally responsive leadership and digital transformation

theories. These new areas of study will complement the areas of leadership that are well-established, but remain peripherally located in the theoretical framework.

The global collaboration patterns demonstrate that while there are many examples of collaborative research occurring around the world, the majority of educational leadership researchers rely on either Anglo-American or predominantly Anglo-American networks to produce their theoretical contributions. However, there is also an increasing trend toward international collaboration between researchers from Asia and the Middle East, which will redistribute leadership theory and provide opportunities for developing leadership practices that are more contextually relevant and culturally responsive compared to traditional theories based on universalism.

The analysis of the evolution of concepts in educational leadership research shows an emergent awareness of more complex, multifaceted issues of performance and purpose of educational leadership through increased emphasis on teacher well-being, equity, crisis management and digital governance. This broadening of conceptual understanding suggests that researchers are expanding the scope of their research to respond to the challenges posed by systemic pressures and global upheavals, generating the need to incorporate organizational, psychological, technological, and sociopolitical perspectives into future research frameworks to limit fragmentation within individual thematic subfields.

As a result, the evidence shows that while the educational leadership research field continues to develop increased diversity of themes, there is sufficient stability in the core theoretical framework for continued success. The major challenge facing educational leadership researchers moving forward will be to ensure that new paradigms emerging within educational leadership are integrated with the existing foundational theories so that they maximize coherence and minimize the fragmentation of conceptual foundations. Bibliometric evidence suggests that the future of educational leadership research will be shaped by both the introduction of innovative themes and the integration of theoretical foundations across increasingly complex subject matters.

Discussion

The findings of this research suggest that educational leadership research is an expanding area of study worldwide; it is diverse in theory and evolving regarding themes. When examined in concert with newer empirical and conceptual work, there are some divergences and, conversely, there are some opportunities for convergence between all the research studies. All these converging and diverging points serve to illustrate both the stability and transformation that are evident in the area of research.

Global Collaboration Patterns in Light of Current Literature

This research provides the first large-scale empirical evidence of the co-authorship and network structure of education leadership research globally. The analysis includes a total of 5,353 documents over a period of 25 years, and illustrates that education leadership research is both centrally structured and emergently developing. On one hand, the Anglo-American literature base dominates publication volume and density of collaboration, while an alternate Asia–Middle East cluster is showing

increasing levels of coherence and connectivity as it develops structurally. This emerging understanding of education leadership research provides an architectural description (rather than just a geographical or cultural one) of both continuing and emerging challenges to the dominance of the Western world in education leadership research (see Hallinger & Chen, 2015; Gümüş et al., 2020). This finding is consistent with existing literature that demonstrates how strongly influential the Anglo-American institutional ecosystems are in helping form the leadership-related research agendas of these scholars and institutions. For instance, there is a body of empirical research examining leadership preparation programs and culturally-competent leadership development occurring at institutions in the United States; this research clearly illustrates that the continuing dominance of both Western frameworks and collaborative networks in shaping professional/scholarly identities of these leaders (Xia et al., 2025). A review of empirical studies examining crisis-oriented leadership within Australia and Ghana has demonstrated the continuing coordination of multi-actor systems that are grounded in already-established Western leadership and management traditions (Tangonyire, 2023; Sum, 2024).

However, it can be inferred that the increasing visibility of the Asia-Middle East collaboration cluster within this analysis would indicate a growing body of research coming from these regions. Scholarship from Türkiye and China has increased focus on culturally-rooted leaders' behaviours, as well as teacher commitment and culturally-embedded management practices. Examples include studies examining paternalistic leadership and teacher commitment in Türkiye (Bellibaş et al., 2024), and studies examining the psychological and organisational determinants of teacher attitudes and job satisfaction in Indonesia and China (Mustakim & Kamal, 2021; Shang et al., 2022). A number of studies in Türkiye additionally describe the culturally-embedded antecedents to teacher leadership behaviour (Bolat, 2023), and Middle Eastern research into the relational leadership process and impact on teacher learning highlights culture as a significant factor (Alazmi & Hammad, 2021). The Asia/Middle East Region shows signs of a shift from the periphery of engaging in global theories and research and becoming more actively engaged by having more cohesiveness, both in terms of institutional structures and collaborative networks.

At the same time, global integration of educational leadership practices is still very limited. For example, research in Nepal indicates that persistent gender-based barriers hinder female leaders from progressing along leadership pathways, indicating that Global South contexts are not yet sufficiently connected to more global academic discussions (Khanal et al., 2025). A similar pattern can be found in the special education literature in Peru, where studies indicate that systemic issues associated with leadership preparation and professional organisational support are creating clear divergences between global leadership frameworks and behaviours and their localised implementation (Cuenca & Cáceda, 2017; Saldaña Pardavé & Esteban Rivera, 2025). These findings reinforce the argument that emerging regional clusters continue to face structural and institutional barriers that limit their integration into consolidated global networks.

Intellectual Structure and Theoretical Anchors

The findings from the co-citation analysis of the academic literature provide not only some information on which works have been cited most frequently but also how the literature on educational leadership has formed a cohesive intellectual structure as a systems approach to the theorisation of various domains of educational leadership. The ten clusters identified by the co-citation analysis indicate that the research domain of educational leadership is characterised by a stable, hierarchically structured body of knowledge (i.e., with instructional, transformational, and distributed forms of leadership forming the fundamental core) and the presence of an expanding peripheral body of knowledge related to equity-oriented and social justice-based frameworks. Significantly, the network analysis conducted as part of this report illustrates that social justice and culturally responsive leadership (i.e., Cluster 7) — as represented by Theoharis (2007) and Khalifa et al. (2016) — have sufficient internal density to qualify as a "self-contained" intellectual subfield and not simply as a marginal aspect of the field; this finding corroborates both the qualitative assessments provided in the previous narrative reviews and the quantitative assessments conducted as part of this study. The evidence from recent literature strengthens the basis for the connections. The trajectories of the theoretical frameworks are built upon highly co-cited works identified in this analysis, including Hallinger (2003, 2005), Leithwood and Jantzi (2006), Spillane et al. (2004), and Robinson et al. (2008). These models continue to provide a structure for empirical inquiry as exemplified by investigations examining the connection between distributed leadership and student engagement along with distributed leadership and school climate which lend further credibility to the continued value of core theoretical models (Emiru & Berhanu, 2025). Additionally, ongoing research into transformational leadership's impact on teacher well-being, as well as the effect of transformational leadership on adaptability within schools, demonstrates the ongoing relevance of these theoretical frameworks to empirical inquiries today (Fang et al 2025).

At the same time; social justice, inclusion, and culturally responsive education leadership are growingly important (evidenced by the work of Theoharis, 2007 and Khalifa, et al., 2016 among the most frequently cited works in the co-citation clusters), there are also many studies supporting these constructs. Social justice pedagogy is being researched in early childhood education (Atha, 2025); the connection between students feeling a sense of belonging in their schools and leadership that uses culturally responsive practices shows leadership's role in fostering an equitable, affirming identity for students within school environments (Ma, et al., 2025; Stark & Daulat, 2025). This fast-growing field is developing alongside a new cluster within this study, "Critical and Social Justice Leadership", which suggests equity-based leadership research has become a cohesive subfield grounded in numerous foundational academic works supporting a foundation of ongoing scholarly research.

However, the tension between theory and practice is also clearly seen in the literature. Research on DEI restriction within U.S. hispanic-serving institutions, for example, demonstrates how larger social and political contexts can negatively impact the ability of organizations to utilize equity-based leadership (Asamoah et al., 2025). Such differences indicate that while the intellectual construct of the field exhibits increasing acceptance for equity and social justice paradigms, the actual practice of those paradigms is not yet uniform globally or across all organizations.

Citation Concentration and Emerging Scholarly Trends

In addition to identifying the most-cited documents, this citation analysis reveals that the citation patterns have evolved over time in ways that have not been previously documented in the bibliometric literature on educational leadership. For documents published from 2016–2020, particularly those related to teacher leadership, culturally responsive practices and the influence of leadership on student outcomes, their citation counts are approaching those of the foundational texts published in the early 2000s. Thus, a second tier of canon texts is being created in the field. This also indicates that growth in the volume of research has led to a theorized qualitative shift in directing the field towards more teacher-centered and equity-based perspectives. This pattern is further bolstered by articles that report the impact of stress on teacher performance across pre, during, and post-pandemic conditions (Vicente 2016); the relationship between horizontal trust and teacher culture on school processes (Wills 2016); and the impact that various leadership styles have upon teacher engagement and adaptability (Fang et al 2025). As a whole, the studies provide a compelling case for the increasing importance of themes such as teacher-centeredness and well-being within leadership research. These findings build on the expansive leadership-effects research conducted by Leithwood, Day, et al. and indicate an evolution from leader-outcome models toward much more sophisticated and nuanced psychological and organizational theories.

The study of both digital leadership as well as integrating technology into schools is gaining increased attention. There is a growing body of literature exploring the use of technology to improve school management (Marin Suelves et al., 2025); the development and implementation of AI-based approaches to governance in higher education (Flori et al., 2025); and tools that measure digital leadership for the Malaysian context (Tahir et al., 2025), demonstrating the increased growth in the area of educational leadership that is related to technology. However, there are still additional gaps. For example, implementation-oriented research in non-traditional environments such as second chance schools shows that technological tools aren't being fully utilised, illustrating divergence in the levels of adoption of digital leadership practices in the various types of educational settings (Tegousi & Drakopoulos, 2025). Such variations demonstrate that although the conceptual discourse surrounding technology-based leadership is growing, the actual utilisation of these technologies is heavily dictated by the contextual environment of use.

Thematic Evolution and Shifting Research Priorities

Keyword co-occurrence analysis provides the most temporally specific evidence of research evolution for educational leadership over the past 25 years through analysis of the average publication year of each keyword cluster. Specifically, keyword clusters that are earlier in time (Cluster 3: Programmatic & Institutional Roles, Cluster 4: Educational Leadership & Knowledge Structure) are primarily found within the years 2014–2016, whereas clusters that are more recent in time (Cluster 1: Equity & Contemporary Issues, Cluster 2: Leadership & Professional Practice) were published within the years 2018–2021. The temporal stratification of clusters illustrates that there has been a substantial reorientation of research priorities within the field as opposed to simply the expansion of research topics, and this would not have been evident via

traditional literature review methods. Educators' leadership styles and methods were the primary focus of most publications since the beginning of this decade (Fang et al, 2025; Ma et al, 2025; Özçınar & Sabancı Bayramoğlu, 2025), while many recent empirical research articles have focused on the effects of crisis leadership and issues related to pandemics (Alsharefeen & Al-Deaibes, 2025). Similarly, numerous studies have looked at issues related to equity through culturally responsive leadership practices, social justice pedagogies, and inclusion (Stark & Daulat, 2025; Ma et al, 2025; Atha, 2025; Saldaña Pardavé & Esteban Rivera, 2025).

All these topics suggest an increasing breadth of Educational Leadership research, where there is a combination of traditional performance-oriented models with increasing numbers of equity-based, well-being, and technology-driven frameworks. This expanding diversity mirrors the trends seen in the keyword searches made during the course of this study and reflects the evolution of educational leadership research; although the trends indicate an expansion of themes and topics, the field is still rooted in long-standing theoretical frameworks.

Educational Leadership research, as defined in this study, is currently experiencing a period of formal maturation through simultaneous consolidation and diversification of theory. The persistence of a strong intellectual core — as defined by significant contributions from leading scholars such as Hallinger, Leithwood, Spillane, and Robinson — highlights both the continuing development of cumulative knowledge, as well as the reliance on various leadership constructs (e.g., instructional, transformational, distributed). At the same time, evidence of expanding collaborative networks beyond the traditional Anglo-American centres and increasing prominence of clusters in equity, culturally responsive leadership, crisis management, teacher wellbeing, and digital governance suggests that the field continues to renegotiate the boundaries of conceptualisation. This duality of structure and function indicates that there is not a disconnection, but an adaptive evolution; while foundational frameworks related to leadership-effect continue to provide structural coherence, new paradigms are arising to address the current educational, technological, and sociopolitical environment. As it relates to the development of theory, this suggests a requirement for integrative scholarship that can link existing frameworks with new context-based constructs, which can provide greater conceptual connectivity among the various subfields. In terms of research agendas, findings provide indications of collaborative opportunities between regions, as well as comparative studies to diversify the theoretical assumptions held within earlier frameworks. Finally, for practitioners or policymakers, the change to more multidimensional definitions of leadership, which incorporate performance, equity, well-being and resilience within systems, will be the result of a fundamental shift in the thematic structure within Educational Leadership. Thus, the bibliography referenced in this study not only represents evidence of research publication patterns, but also represents the continued evolution of educational leadership through an increasingly complex and globally connected body of scholarly work.

Conclusion

This study provides a comprehensive overview of developments in educational leadership research as an evolving and dynamic discipline that is characterized primarily by three elements: theories of school transition as instructional or transformational leadership; theories of school improvement that consist primarily of distributed leadership; and an ongoing integration of these two forms of leadership into one cohesive framework. The findings support the conclusion that future work in educational leadership will involve collaboration, visions, and instructional strategies, and will thus have both a coherent way to maintain the organization as well as a consistent means for the development of professional development for educators. Finally, the research indicates that there are changing paradigms within educational leadership that are focused on equity, wellbeing, and digitally mediated practices, thereby highlighting a shift in the understanding and expectations of educational leadership denoting that it is no longer sufficient to operate solely based on traditional definitions of efficiency and accountability. As the demands on schools continue to increase, school and system leaders are expected to not only manage complex organizational cultures but also provide support for teacher professional learning and wellbeing and be adaptive to discipline-specific crises and technological developments occurring in their school or system. The patterns identified in this research concerning the manner in which educational leadership is being utilized across countries further indicate that there is a wealth of knowledge related to educational leadership existing throughout the world, particularly in Canada and the US, and that by enhancing cross-national collaboration and sharing knowledge about emerging research hubs in Asia and the Middle East, educational leaders may have a broader application of knowledge as they develop their leadership practices, have an opportunity to design policy, and make informed decisions.

With this comprehensive overview of the evolution of educational leadership research, it is essential that the limitations associated with this research are duly noted. First, the research utilized bibliometric data from the Scopus database, which while one of the largest databases of bibliometric literature, does not provide all of the bibliographic records of international scholarship, specifically as it relates to journals from the Global South, non-English publications, and scholarship from the Global South. As a result, this study may not capture the full spectrum of the contributions of scholarship in educational leadership from throughout the world. Secondly, bibliometric methods capture the relational structures of academic research by measuring the extent to which works created new knowledge through citations, co-authorship, etc.; however, bibliometric data does not measure the intrinsic quality of the study nor does it measure whether the study is methodologically rigorous or contextually valid. Thirdly, utilizing author-defined keywords and bibliographically indexed metadata may provide an oversimplified representation of complex theoretical constructs or overlook complex developments that are not indexed or captured as keywords. Finally, while this study provides an overview of the evolution of educational leadership research and scholarship from its inception through 2025, bibliometric analyses are generally time-sensitive and will not represent the future state of research and scholarship within the field of educational leadership.

Future researchers may benefit from expanding their research methodologies by employing additional bibliometric databases and enhanced geographic region-based searches to include an even greater representation of the global educational leadership

landscape. Mixed-method reviews that utilize bibliometric mapping combined with systematic/qualitative analyses could provide a more thorough understanding of how the dominant theories are applied, as well as how innovations or adaptations of the dominant theories occur, across different educational contexts. In addition, thematic analyses that specifically focus on emerging areas of educational leadership such as digital/AI-informed leader practices, crisis management, and leader support for teacher wellbeing would provide further insight about how prioritized changes are evolving the landscape of educational leadership. Finally, future studies should also examine how the ideas identified through bibliometric analyses as influential within the field of educational leadership correspond to the extent to which these ideas are being implemented through leader preparation programs, policy frameworks, and school-level management practices. Collectively, these potential areas of future development will provide the educational leadership field with the ability to continue to effectively respond to the challenges facing education, while providing a theoretical basis for, and maintaining the relevance of, educational leadership research and scholarship.

Declarations

Availability of data and material

The dataset used in this study and online supplementary documents are available via Figshare (<https://figshare.com/s/a877ae76fd7cc046bbf3>).

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