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**EXPLORING THE LANDSCAPE OF EDUCATIONAL LEADERSHIP RESEARCH:
ABIBLIOMETRIC ANALYSIS (2013-2022)**

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Article Info	ABSTRACT
<p>Article history: Received: 8 Dec 2023 Revised: 20 Dec 2023 Accepted: 15 Jan 2024 Published: 1 April 2024</p>	<p>This bibliometric analysis investigates the trajectory of educational leadership research over the past decade (2013-2022). Employing advanced bibliometric methodologies, the researcher systematically examines a comprehensive dataset of scholarly articles to uncover key trends, emerging themes, and influential contributors within the field. The analysis encompasses diverse dimensions, including citation patterns, co-authorship networks, and journal impact factors. The findings reveal the evolution of research themes, the impact of seminal works, and the collaborative dynamics that have shaped the educational leadership landscape. Insights derived from this study not only provide a retrospective overview but also offer valuable foresight into potential future directions for research and practice in educational leadership. This analysis serves as a vital resource for scholars, practitioners, and policymakers seeking to comprehend and contribute to the ongoing development of educational leadership scholarship. Initially, 578 articles were collected for evaluation based on the keywords 'Leadership' and 'Educational.' Various tools were employed for this analysis, including Microsoft Excel for frequency analysis, VOS Viewer for data visualization, and Harzing's Publish or Perish for citation metrics and further analysis. The authors utilized bibliometric analysis to assess a total of 576 scholarly documents related to educational leadership, all of which were indexed in SCOPUS and published between 2013 and the end of 2022. In addition to conducting a descriptive analysis to explore fundamental characteristics of the knowledge base, the review also employed citation and co-citation analyses to examine authors, journals, and documents. Author co-citation analysis was employed to uncover the underlying intellectual structure within the educational leadership literature. The results of this study were analysed using bibliometric indicators, e.g., language, subject area, research trends by publication year, top countries, most influential institution, citation analysis, authorship analysis, and keyword analysis. The results show an increasing growth rate of literature on educational leadership from 2013 to 2022. The United States was the largest contributor to research on educational leadership, followed by the United Kingdom.</p>
<p>Keywords: bibliometrics, citation analysis, educational, leadership, Scopus Database</p> <p></p>	

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INTRODUCTION

The topic of leadership has been around for hundreds of years. It can be traced back to the philosophers of ancient Greece. However, the discussion of leadership and the need for effective leaders has reached a peak in today's world, where the success of individuals, organisations, and sectors is largely dependent on the success of their leaders (Bolden, 2004). Educational leadership refers to the process of guiding, directing, and facilitating the learning and growth of students, teachers, and staff (Philip Hallinger & Bryant, 2013). Education leaders play a critical role in the overall success of their institution. Also, they must support and guide teachers and staff, as well as create a positive and collaborative learning environment. In addition to managing day-to-day operations, education leaders must be able to anticipate and respond to changing trends and developments in education. They must stay abreast of the latest research and best practices and be prepared to adapt and develop their approach to meet their institution's changing needs. Kruse (2013) defines leadership as 'a process of social influence that maximises the efforts of others to achieve a goal' (p. 2). At the beginning of the 20th century, when scientific management theory was introduced to improve the quality and quantity of outcomes in business, attention began to be paid to educational leadership. After scientific management theory, some other theories from the business sector, such as Fayol's theory of management functions and Weber's bureaucratic management theory, also influenced how leadership was perceived in education (Lunenburg, 2003). However, scholars have also been aware that the particular characteristics of education and schools should be considered when considering educational leadership (Bush, 2003). This consideration has contributed to educational researchers developing specific leadership models applicable to schools and other educational institutions, especially in recent decades. As a result, different leadership models from other fields, specific to the education sector, have long been developed, discussed, implemented, and researched in educational settings.

Hence, this paper aims to present the trend of the previous study on educational leadership and map it with the global development of the field. The remainder of this paper is organised as follows. First, a literature review is presented on the overview of bibliometric analysis and previous studies on related educational leadership papers. Second, the methods covered in this study are presented. The following analysis and findings section displays the results obtained from the documents gathered in the Scopus database. The conclusion section discusses the summary, limitations, and recommendations for future research.

In addition, future research areas can be identified, as research trends usually lead to curriculum development and redesign. Hence, this article conducts a bibliometric analysis on educational leadership, centering around three primary research inquiries. The initial inquiry aims to understand the progression and distribution trends of research within the domain of educational leadership. The second objective is to identify the key thematic areas that have attracted considerable focus in educational leadership research. The last investigation focuses on recognizing the primary contributors to research in educational leadership, examining the nature of their collaborative efforts.

Bibliometric studies are gaining popularity as one of the approaches to show the trend of studies (Ahmi & Mohamad, 2019). Several bibliometric studies have been conducted in the context of educational leadership research (Table 1). A bibliometric analysis of 3,558 articles in the 'leadership and care category' was conducted by Aydogdu (2022) using the Web of Science (WoS) database. The analysis involved data processing and visualisation using the Bibliometrics Package in R software. The study encompassed articles published by 10,255 authors from 184 sources between 1982 and 2021. These articles contained a total of 5,828 author keywords. Prominent author keywords included 'leadership', 'nursing', 'nurse', 'evidence-based practice', 'management', 'nursing leadership', and 'patient safety'. The study revealed that early years focused on trending topics such as 'new roles', 'faculty practice', and 'research implementation', whereas recent years witnessed the emergence of trends such as 'systematic review', 'older adults', and 'COVID-19'. The number of studies in leadership and care in nursing has consistently grown over the years, indicating an active area of research in nursing. Notably, topics related to nurses' job satisfaction, teamwork, and retention have received

significant attention, while patient-centred and fundamental care-related themes have been comparatively less explored.

Furthermore, a study by Cruz and Kim (2023) investigated published articles in sport psychology over the past three decades and focused on coach leadership studies. The study employed bibliometric analysis, with the written content of the publications serving as the unit of analysis. The main objective was to explore the intellectual foundation and examine the structural connections among various research elements on coach leadership. The study found that the most significant concepts identified were coaches (100%) and athletes (59%), followed by study, sport, support, motivation, and behaviours. The relevant concepts identified in each journal were quite similar and encompassed coaches, athletes, behaviours, study, support, and team. The study also revealed a consistent growth in publications related to coach leadership since 1990, with 76% of all published articles utilising quantitative research methods. The top countries actively involved in coach leadership research were the United States, Canada, the United Kingdom, and Belgium. Coach leadership studies primarily concentrate on behaviours, perceptions of coaches, and the relationships between leadership and psychological outcomes. While each journal shares a similar rationale for publishing papers on coach leadership, they also exhibit distinct characteristics. Employing bibliometric analysis as an alternative methodology enables the synthesis of large volumes of relevant data, facilitates the mapping of current knowledge, and identifies potential directions for future research.

Table 1: Previous articles on Educational Leadership related studies and bibliometric analysis

Author	Domain / Search Strategy	Data Source & Scope	TDE	Bibliometric Examined	Attributes
<u>Filiz Kantek, Hande Yesilbas, and Tanguil Aytur Ozen</u> (2022)	‘leadership’, ‘nursing’, ‘nurse’, ‘evidence-based practice’, ‘management’, ‘nursing leadership’, and ‘patient safety’.	Web of Science Core Collection (WoS CC) 1982–2021	3,558	-research focus, thematic trends and evolution of research on leadership and care in nursing. -the number of studies on leadership and care in nursing has gradually increased -nurse-related themes such as job satisfaction, teamwork and retention -fewer studies on patient-based and fundamental care-based themes.	
Cruz, Angelita Bautista, Kim, and Hyun-Duck (2023)	‘coach leadership studies’, ‘coaching’, and ‘leadership’.	WoS Master Journal List 1990-2021	660	-most relevant concepts -top countries involved in the area -publication countries -coaches (100%) and athletes (59%), followed by study, sport, support, motivation, and behaviours. -concentrate on behaviours, perceptions related to coaches, and the relationships between leadership and psychological outcomes.	
Ulrich and Smallwood (2012)	Global Leadership	SCOPUS 1972-2016	327	-two sequential phases analysis -most cited articles, most published first authors, country bases of first	

authors, and frequently publishing journals
-thematic content analysis isolates two dominant overarching themes: global leadership development and global leadership effectiveness.

*TDE : Total Documents Examined ; WoS : Web of Science

This paper presents a bibliometric analysis of Educational Leadership by focusing on three main research questions (RQs):

RQ1. What is the progress and distribution pattern of research in educational leadership?

RQ2. Which keyword areas have received significant attention in research on educational leadership?

RQ3. Who are the primary contributors to educational leadership research and how have they collaborated?

METHODOLOGY

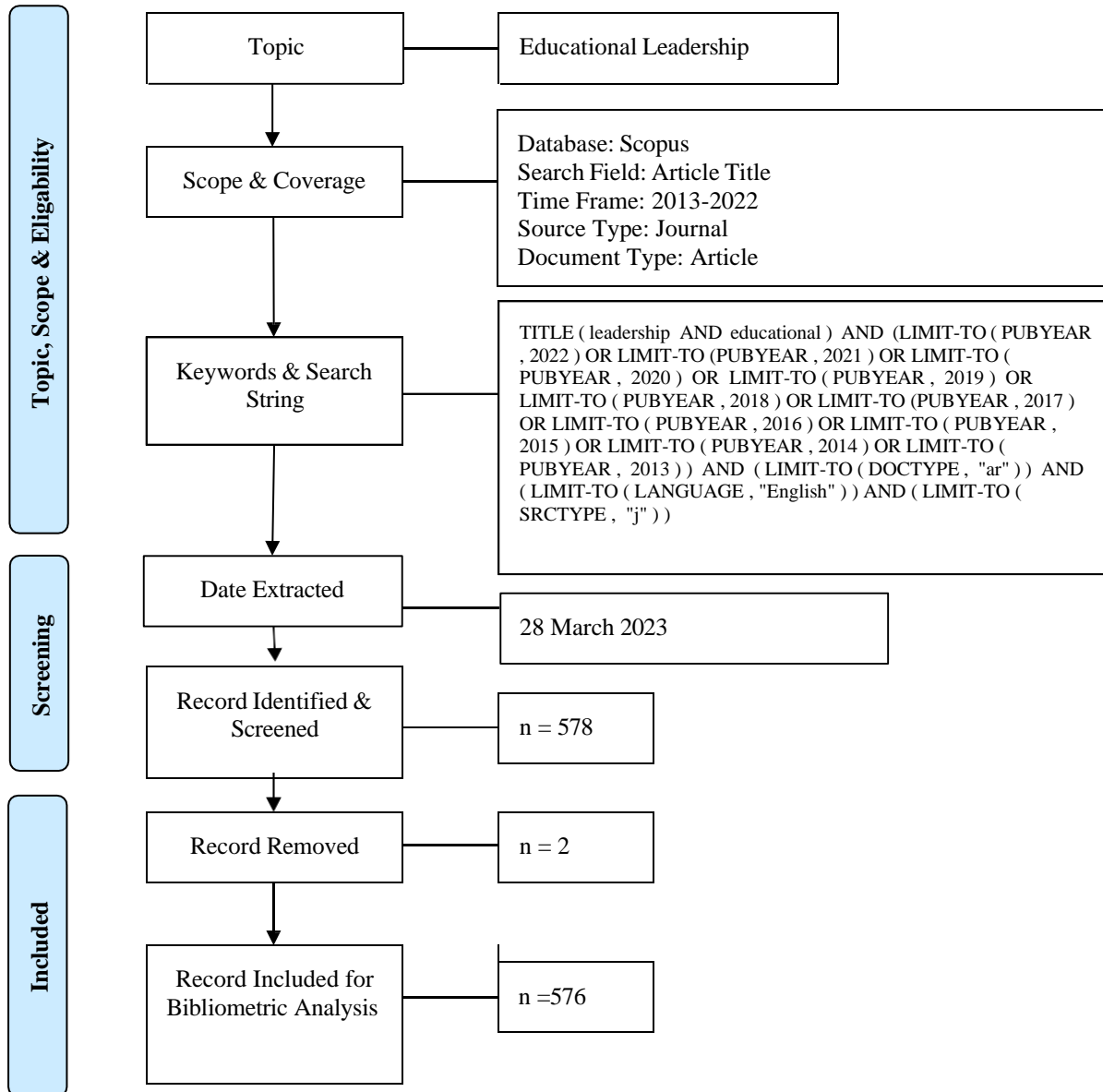
In order to address the research questions of the study, various aspects of the literature on educational leadership were examined. The investigation encompassed the evolution and dissemination of educational leadership, focusing on analysing the languages used in documents and identifying research trends across publications over the years. Notable findings from significant contributions in educational leadership research included key data points, such as the top countries contributing to publications, the most influential institutions, the active source titles, and citation and authorship analysis. The primary objective of this study was to gain a deeper understanding of the research trends in educational leadership, particularly in terms of its international scope and collaboration. However, it is important to note that the current data will require scrutiny for researchers to provide meaningful recommendations for future studies in educational leadership research.

The systematic review followed the modified PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines, as established by Moher et al. (2009) and Zakaria et al. (2021). The Scopus search engine was used with the search term 'educational leadership'. The search results were then filtered using Scopus subject filters, considering the search field, time frame, source type, and document type to eliminate irrelevant papers. The initial search yielded a total of 576 documents (refer to Figure 1). Upon reviewing the abstracts of all the documents, further exclusions were made based on topical relevance. Following the screening process, the final database contained 576 documents specifically related to educational leadership.

The Scopus index was selected as the repository for searching and extracting documents due to its ability to provide precise citation search results and its extensive coverage across various fields of study, including physical sciences and medicine (Hallinger & Kovačević, 2019). The data utilised in this research is based on the Scopus database as of March 28, 2023. The keywords 'educational leadership' were employed to search for relevant articles, which were expected to appear in the article's keyword list, abstract, and title. However, the titles of the publications were not given significant attention since some laboratory experiments did not explicitly include the keywords 'educational leadership' in their titles, even though the articles' content pertained to the research field and the study's objectives. The Scopus search engine was used to retrieve articles about 'educational leadership'. Scopus subject filters were used to narrow down the search. The search focused on published journals and articles from 2013 to 2022, obtained from the Scopus database. This time frame enabled the search engine to identify the earliest studies published within the past ten years. The review targeted papers and journals, limiting the document and source categories. The scope and coverage of this study were determined based on factors such as the search field, time frame, source type, and document type to exclude irrelevant papers. As a result, the search produced a total of 576 documents. Subsequently, further

exclusions were made by assessing the subject relevance by examining abstracts for all items in the list. Following the document screening process, a final database consisting of 576 documents related to educational leadership was retained.

Figure 1: Flow diagram of the search strategy



RESULT AND DISCUSSION

In this section, we will display the findings concerning our three research questions. Based on the data obtained from the Scopus database, the research design focused on analysing the bibliometric attributes of documents, including languages, subject areas, and research trends based on the year of publication. It also examined the most influential countries, institutions, and journals in educational leadership. Most results were presented as percentages and frequencies, while the co-occurrence of author keywords, country-based citation analysis, co-authorship, and co-citation was visualised using VOS viewer. The data analysis was structured according to the research questions (RQs).

RQ 1: What is the progress and distribution pattern of research in educational leadership?

To address RQ1, we examined the publication trend in the field by considering the languages of the documents and research trends based on the year of publication. We calculated the relevant data using percentages and cumulative percentages derived from the information collected through the SCOPUS database. Table 2 displays the findings, indicating that English was the predominant language, accounting for 100% of the total of the 576 publications on educational leadership research. Typically, research papers composed in English tend to enjoy increased visibility within scientific community journals. This is largely due to English being widely acknowledged as the common language in the field of leadership. Despite the researcher's initial intent to confine the language to English exclusively, eight documents were prepared in bilingual formats, resulting in their availability in Spanish, Persian, French, Portuguese, and Turkish. However, the proportion of papers written in these two languages remained notably low, accounting for only 1.37% or less. As a result, the total number of publications reached 585 (refer to Table 2), surpassing the overall number of publications from 2013 to 2022 (refer to Table 3), which stood at 576.

Table 2: Languages

Language	Total Publications (TP)*	Percentage (%)
English	576	100.00
Spanish	4	0.69
French	1	0.17
Persian	1	0.17
Portuguese	1	0.17
Turkish	1	0.17
Total	584	100.00

*One document has been prepared in dual languages.

Table 3 presents the number of publications on educational leadership from 2013 to 2022. It is worth noting that two years witnessed a significant publication surge over the decade. Specifically, in 2019, 72 documents were published, while the number increased to 84 in 2022. The year 2020 saw the highest productivity, with 99 documents, whereas the lowest productivity occurred in 2014, with only 28 documents. Overall, there was a gradual increase in publications between 2013 and 2022, indicating a growing interest in educational leadership research and its potential for further advancements (refer Figure 2).

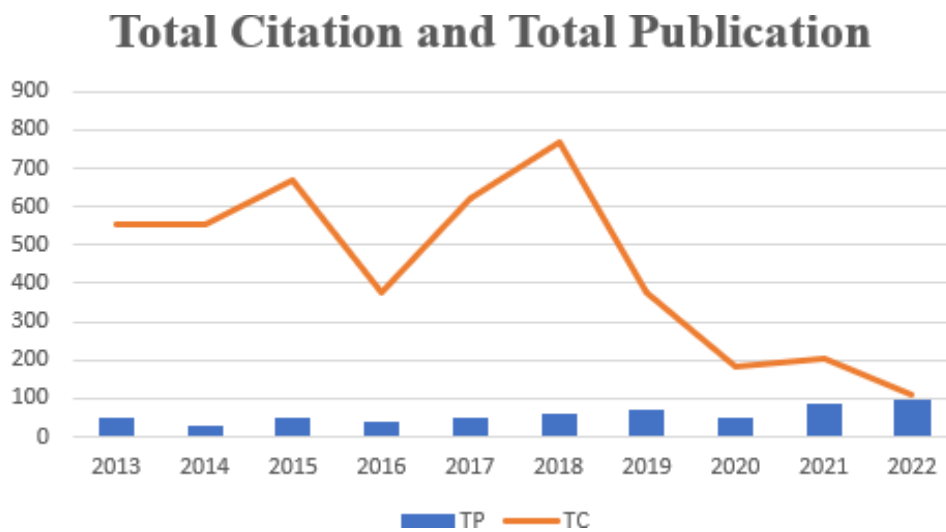
Table 3: Number of Educational Leadership Research Publications by Year

Year	TP	NCP	TC	PCP	CCP	h	g
2013	49	46	552	11.27	12.00	13	20
2014	28	28	553	19.75	19.75	13	23
2015	50	48	670	13.40	13.96	17	24
2016	37	35	376	10.16	10.74	10	17
2017	48	43	621	12.94	14.44	14	23
2018	58	51	767	13.22	15.04	16	26
2019	72	58	379	5.26	6.53	10	15
2020	51	44	185	3.63	4.20	8	19
2021	84	56	205	2.44	3.66	6	9
2022	99	39	111	1.12	2.85	6	7
Total	576	448	4,419	93.19	103.17	113	183

Notes: TP = total number of publications; NCP = number of cited publications; TC = total citations; PCP = proportion of cited publications; CCP = citations per cited publication; h = h-index; and g = g-index.

Publications released in 2019 garnered the highest number of citations per publication, registering at 58, while those from 2014 exhibited the lowest count with 28 citations per publication (refer to Figure 2). In terms of productivity, the year 2015 stood out with the highest h-index, reaching 17 for authors. Additionally, the h-index, introduced by Hirsch in 2005, serves as an indicator estimating the importance, significance, and overall impact of researchers' cumulative contributions. Widely adopted to measure scientific performance, the h-index is now incorporated into major bibliographic databases like SCOPUS and Web of Science (Van Eck & Waltman, 2017).

Figure 2: Total Publications and Citations by Year



RQ2: Which keyword areas have received significant attention in research on educational leadership?

The second research question (RQ) in this study focuses on identifying the main topic areas using subject areas, top keywords, and co-occurrence analysis. In order to address RQ2, we analysed the citation networks of 576 articles, considering both the subject areas in which the documents were published and the top keywords through co-occurrence analysis. Co-occurrence analysis of keywords is a valuable method for content analysis, providing insights into the strength of association between keywords found in the literature (Shmagun et. al., 2020). Subsequently, the materials were categorised based on their subject areas, as presented in Table 4.

Table 4: Subject Area

Subject Area	Total Publications	
	(TP)	Percentage (%)
Social Sciences	506	87.85
Business, Management, and Accounting	186	32.29
Arts and Humanities	83	14.41
Medicine	26	4.51
Psychology	19	3.30
Computer Science	17	2.95
Nursing	12	2.08
Environmental Science	11	1.91
Decision Sciences	10	1.74
Economics, Econometrics, and Finance	10	1.74
Engineering	6	1.04
Energy	5	0.87
Pharmacology, Toxicology, and Pharmaceutics	5	0.87
Mathematics	4	0.69

Multidisciplinary	4	0.69
Health Professions	3	0.52
Chemistry	2	0.35
Agricultural and Biological Sciences	1	0.17
Biochemistry, Genetics, and Molecular Biology	1	0.17
Dentistry	1	0.17
Materials Science	1	0.17
Neuroscience	1	0.17

In general, the distribution analysis indicates that research on educational leadership has progressed across a diverse range of thematic areas. The findings indicate that a significant proportion of the examined documents, specifically 506 (87.85%), fall within the scope of Social Sciences, while Business, Management, and accounting account for 186 publications (32.29%). Moreover, educational leadership is also explored in subjects such as Arts and Humanities, Medicine, Psychology, Computer Science, Nursing, and Environmental Science, each contributing more than ten documents to the field.

To address RQ2, the study aimed to identify the frequently employed keywords in educational leadership research. A thorough analysis was performed on 576 educational leadership studies, and the summarised outcomes are provided in Table 5. The analysis revealed that ‘leadership’ stood out as the most commonly utilised keyword in the literature on educational leadership. The second most repeated keyword is ‘Educational Leadership’. This finding is logical since Educational Leadership is usually studied by most post-grad in education background. Other common keywords that came up less than a hundred were Education, Human, Humans, Article, Article, Transformational Leadership, Social Justice, Management, Leadership Preparation, Higher Education, Female, Adult, Male, School Leadership, Educational Administration, Principals, Principals, Curriculum, Gender, Medical Education, Instructional Leadership, Principal Preparation, Principal Preparation, Distributed Leadership, Diversity, Leadership Development, Teaching, United States, and Questionnaire.

To visualise the bibliometric networks of authors' keywords, the VOSviewer software available at <https://www.vosviewer.com> was employed. The software facilitated the mapping of relationships between keywords, indicated by variations in font size, circle size, connecting line thickness, and colour. Keyword co-occurrence, wherein two keywords appear in the same article, suggesting a relationship between the two concepts (Baker et al., 2020).

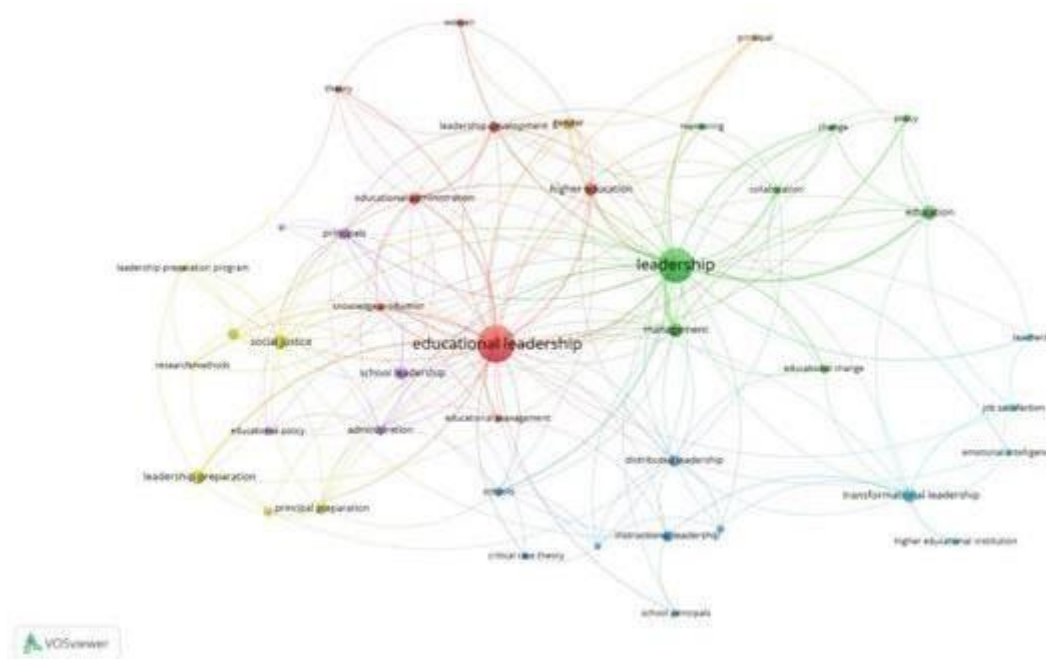
Table 5: Top Keywords

Author Keywords	Total Publications	
	(TP)	Percentage (%)
Leadership	148	25.69
Educational Leadership	124	21.53
Education	42	7.29
Human	41	7.12
Humans	31	5.38
Article	28	4.86
Transformational Leadership	21	3.65
Social Justice	20	3.47
Management	19	3.30
Leadership Preparation	18	3.13
Higher Education	17	2.95
Female	16	2.78
Adult	15	2.60
Male	15	2.60
School Leadership	15	2.60
Educational Administration	14	2.43

Principals	14	2.43
Curriculum	13	2.26
Gender	13	2.26
Medical Education	13	2.26
Instructional Leadership	12	2.08
Principal Preparation	12	2.08
Distributed Leadership	11	1.91
Diversity	11	1.91
Leadership Development	11	1.91
Teaching	11	1.91
United States	11	1.91
Questionnaire	10	1.74

Figure 3 depicts the author's keyword network visualisation, demonstrating that each keyword had at least five occurrences. Hence, from the total of 726 keywords, 1,425 met these criteria. The overall co-occurrence strength linkages having other keywords were determined for each of the 114 keywords (Van Eck & Waltman, 2008, 2017; Waltman et al., 2010). Next, these keywords were divided into seven clusters, and the size of the nodes represented the frequency of keywords. Meanwhile, the different colours of the node represented the different clusters to which it belonged (Zhang et al., 2020).

Figure 3: Author Keywords' Network Visualisation Map with at least Five Occurrences



Cluster analysis involves using various algorithms to group natural divisions within a network based on their similarity and minimise differences between the groups (Bazm & Seyyed Mehdi Kalantar, 2016). The keywords extracted from each publication's title, abstract, and author's keywords were assigned to specific clusters (Van Eck & Waltman, 2017). This study chose a parameter of five, meaning that a basic cluster for a subject area was formed for every fifth publication (Nadzar et al., 2017). The first cluster (highlighted in red) focused on 'educational leadership', with larger node sizes indicating more publications associated with that term. The number of clusters assigned to each term represented the total number of links with other nodes, known as the 'total link strength' metric (Van Eck & Waltman, 2017; Shmagun et al., 2020). The term 'school leadership' was closely related to 'educational leadership', suggesting a strong connection between these two concepts (Nadzar et al., 2017; Van Eck & Waltman, 2017). The keywords 'management' and 'collaboration' belonged to Cluster 2 (highlighted in green), and the top keywords within this cluster included 'mentoring',

‘change’, ‘policy’, ‘education’, and ‘educational change’. ‘Educational leadership’ had the highest frequency and strongly correlated with the other terms in Cluster 2, with 186 links and a total link strength of 353. Cluster 3 (highlighted in blue) consisted of 22 items, with only two top keywords related to ‘distributed leadership’, specifically ‘instructional leadership’ and ‘schools’. Cluster 4 (highlighted in yellow) mainly included keywords related to the functional aspect of social justice, such as ‘research methods’, ‘leadership preparation’, ‘principal preparation’, and ‘leadership preparation program’. However, these keywords did not appear among the top keywords listed in Table 5. The keywords related to ‘school leadership’, ‘principals’, and ‘administration’ were assigned to Cluster 5 (highlighted in purple). Additionally, the most frequently occurring keyword, ‘educational leadership’, appeared in Cluster 6 (highlighted in red) along with seven other items. Finally, Cluster 7 (highlighted in cyan) focused on ‘transformational leadership’ within higher education institutions, including keywords such as ‘emotional intelligence’, ‘job satisfaction’, and ‘teachers’. Keyword analysis also provided valuable insights into the importance or popularity of specific issues within a particular research domain.

Citation analysis serves as a systematic tool for assessing the impact and quality of research papers, offering a straightforward method for computation (Aristodemou & Tietze, 2018; Hou et al., 2018). The SCOPUS database provided the citation metrics for the papers, as presented in Table 6. Over ten years, from 2013 to 2022, 4,419 citations were recorded for the 576 articles, resulting in an average of 441 citations per year and seven citations per paper.

Table 6: Citations Metrics

Metrics	Data
Publication years	2013-2022
Citation years	10 (2013-2022)
Papers	576
Citations	4,419
Cites_Year	441.9
Cites_Paper	7.67
Cites_Author	315.41
Papers_Author	225.08
Authors_Paper	2.48
h_index	29
g_index	44

RQ 3: Who are the primary contributors to educational leadership research and how have they collaborated?

Additionally, this study investigated the attributes of scientific collaborations in educational leadership research to address research question RQ3 through an examination of RQ3 through an examination of (a) the leading contributors to publications based on country, (b) the most influential institutions, (c) the journal with the highest activity, (d) citation analysis, and (e) authorship analysis.

The contribution of various countries to educational leadership research publications is presented in Table 7. The United States emerged as the leading country with 201 publications, followed by the United Kingdom with 52, and Australia with 41. Additionally, authors from Canada, Spain, Israel, Turkey, India, Hong Kong, Thailand, Malaysia, and the United Arab Emirates collectively accounted for less than 30 publications based on national affiliations. These findings indicate that educational leadership research is significant across diverse geographical regions.

Table 7: Top 12 countries contributed to the publications

Country	TP	NCP	TC	PCP	CCP	h	g
The United States	201	168	1,690	8.41	10.06	21	29
The United Kingdom	52	41	359	6.90	8.76	10	16
Australia	41	34	389	9.49	11.44	11	18
Canada	28	24	131	4.68	5.46	7	10
Spain	24	18	145	6.04	8.06	7	11
Israel	20	16	138	6.90	8.63	5	11
Turkey	18	14	308	17.11	22.00	7	17
India	15	5	12	0.80	2.40	2	3
Hong Kong	13	12	236	18.15	19.67	9	13
Thailand	13	8	244	18.77	30.50	6	13
Malaysia	10	10	26	2.60	2.60	3	4
The United Arab Emirates	10	8	72	7.20	9.00	3	8

Notes: TP = total number of publications; NCP = number of cited publications; TC = total citations; PCP = proportion of cited publications; CCP = citations per cited publication; h = h-index; and g = g-index.

Table 8 presents the influential institutions in educational leadership research and the number of publications originating from each institution. Of the 576 documents, Texas State University had the highest contribution, with 17 publications on educational leadership research. Monash University, University of Illinois, The Education University of Hong Kong, Florida Atlantic University, and University of Virginia were close behind, with 16, 15, 14, 13, and 12 publications, respectively. Three institutions, namely the College of Saint Benedict Saint John's University, NC State University, and the University of Wisconsin-Madison, all had an equal number of 11 publications. The remaining institutions had ten or fewer publications to their credit.

Table 8: Most influential institutions with a minimum of seven publications

Affiliation	Country	TP	NCP	TC	PCP	CCP	h	g
Texas State University	The United States	17	16	475	27.94	29.69	10	17
Monash University	Australia	16	15	114	7.13	7.60	6	10
University of Illinois	The United States	15	13	825	55	63.46	12	15
The Education University of Hong Kong	Hong Kong	14	14	235	16.79	16.79	7	14
Florida Atlantic University	The United States	13	12	215	16.54	17.92	9	13
University of Virginia	The United States	12	12	201	16.75	16.75	7	12
College of Saint Benedict Saint John's University	The United States	11	11	94	8.55	8.55	7	9
NC State University	The United States	11	10	107	9.73	10.70	5	10
University of Wisconsin-Madison	The United States	11	10	137	12.45	13.70	5	11
University of South Florida, Tampa	The United States	10	8	72	7.20	9.00	5	8
University of Cincinnati	The United States	10	7	51	5.10	7.29	4	7
University of Georgia	The United States	10	9	84	8.40	9.33	6	9
Iowa State University	The United States	9	9	149	16.56	16.56	6	9
University of California, Irvine	The United States	9	5	41	4.56	8.20	3	6
University of California, Davis	The United States	9	9	112	12.44	12.44	5	9
Justus Liebig University Giessen	Germany	9	8	54	6.00	6.75	4	7
National University of Singapore	Singapore	9	9	91	10.11	10.11	6	9
University of California, Santa Barbara	The United States	9	9	174	19.33	19.33	7	9

Notes: TP = total number of publications; NCP = number of cited publications; TC = total citations; PCP = proportion of cited publications; CCP = citations per cited publication; h = h-index; and g = g-index.

Table 9 presents the most active journals in the field of educational leadership. Topping the list is the International Journal of Leadership in Education with 47 publications, Educational Management Administration and Leadership in second place with 45 publications, and the Journal of Research on Leadership Education in third place with 43 publications. Interestingly, the Journal of Research in Science Teaching ranks second in CiteScore (CS) despite not being among the top five institutions with the highest publication count. SCOPUS has introduced CS as a new scient metric indicator for evaluating journals basedon their citation impact. While Elsevier's database offers various scientific quality assessment metrics such asScimago Journal Rank (SJR) and Source Normalised Impact per Paper (SNIP), CS provides unique features of citations compared to the traditional Impact Factor (Okagbue et al., 2019) (Zijlstra & McCullough, 2016).

Table 9 : Most Active Journals

Source Title	TP	Publisher	Cite Score	SJR 2021	SNIP 2021
International Journal of Leadership in Education	47	Taylor & Francis	2.9	0.469	0.906
Educational Management Administration and Leadership	45	SAGE	5.8	1.282	2.256
Journal of Research on Leadership Education	43	SAGE	2.7	0.629	1.379
Journal of Education Administration	20	Emerald Publishing	2.9	1.009	1.459
Educational Administration Quarterly	19	SAGE	5.6	1.949	2.960
Journal of Educational Administration and History	14	Taylor & Francis	1.7	0.559	0.896
Leadership and Policy in School	14	Taylor & Francis	2.0	0.606	0.857
International Journal of Education Management	12	Emerald Publishing	2.7	0.462	0.372
Research in Educational Administration Leadership	12	Dokuz Eylul University	0.6	0.246	0.372
School Leadership in Management	12	Taylor & Francis	4.8	1.443	2.556

Notes: TP = total number of publications

The top ten articles in the field with the most citations of educational leadership are shown in Table 10. The article titled ‘A systematic review of studies on leadership models in educational research from 1980 to 2014’, published in 2018 in the Educational Management Administration and Leadership Journal, holds the distinction of being the most cited article in the field of educational leadership. With a total of 170 citations, it maintains an impressive average of 34 citations per year. However, when it comes to prolific authors in the education leadership domain, Simon Clarke and O’Donoghue (2017) are widely recognised as the top performers, boasting the highest number of citations per year, amounting to 14.67%.

Table 10: Top 10 Highly Cited Articles on Educational Leadership

No.	Authors	Title	Year	Cites	Cites per Year
1	S. Gumus, M.S. Bellibas, M., Esen, E. Gumus	A systematic review of studies on leadership models in educational research from 1980 to 2014.	2018	170	34
2	L.J. Santamar�a	Critical Change for the Greater Good: Multicultural Perceptions in Educational Leadership Toward Social Justice and Equity	2014	109	12.11
3	P. Hallinger, J. Chen	Review of research on educational leadership and management in Asia: A comparative analysis of research topics and methods.	2015	99	12.38
4	Clarke, S., & O’donoghue	Educational Leadership and Context: A Rendering of an Inseparable Relationship.	2017	88	14.67
5	P. Hallinger	Reviewing Reviews of Research in Educational Leadership: An Empirical Assessment.	2014	84	9.33

6	Capper, C. A., & Young	Ironies and Limitations of Educational Leadership for Social Justice: A Call to Social Justice Educators.	2014	59	6.56
7	Al-Sada, M., Al-Esmael, B., & Faisal)	Influence of organisational culture and leadership style on employee satisfaction, commitment and motivation in the educational sector in Qatar.	2017	57	9.5
8	O'Malley, M. P., & Capper	A Measure of the Quality of Educational Leadership Programs for Social Justice: Integrating LGBTIQ Identities into Principal Preparation.	2015	55	6.88
9	P. Hallinger	Surfacing a hidden literature: A systematic review of research on educational leadership and management in Africa.	2018	54	10.8
10	Godfrey	Leadership of schools as research-led organisations in the English educational environment: Cultivating a research-engaged school culture	2016	53	7.57

A grand total of 24 authors have collectively contributed to 576 publications in the field of educational leadership. The distribution of authors per document is illustrated in Table 11. Out of the 576 publications analysed in this study, 157 documents (27.26%) were authored by a single individual, while the rest involved multiple authors. The majority of articles on educational leadership were co-authored by two individuals (31.94%), followed by three authors (23.78%) and four authors (8.33%). Additionally, three documents in this study had more than ten authors collaborating on them.

Table 11: Number of Author(s) per document

Author Count	Total Publications (TP)	Percentage (%)
1	157	27.26
2	184	31.94
3	137	23.78
4	48	8.33
5	28	4.86
6	10	1.74
7	4	0.69
8	3	0.52
9	2	0.35
10	1	0.17
11	1	0.17
12	1	0.17
Total	576	100.00%

*Conference review document. No author is listed.

CONCLUSION AND RECOMMENDATION

During the period from 2013 to 2022, a bibliometric analysis was conducted to review publications related to educational leadership. The Scopus database was utilised to gather bibliometric data for 576 publications. In response to Research Question 1 (RQ1), which examined the distribution pattern of research in educational leadership, it was found that English was the predominant language. The results indicated a continuous growth in the publication of journals on this topic. However, the total number of article citations per year declined from 2018 to 2022.

Addressing Research Question 2 (RQ2), the analysis sought to identify the key areas discussed in the research. It was concluded that the main subject areas were social sciences as well as business, management, and accounting, making up 87.85% and 32.29% of the responses, respectively. The most frequently used keyword among scholars in educational leadership research was identified as 'leadership', contributing to 25.69% of the total keywords commonly found in this field. This indicates a shift in focus from pedagogy to management in the research trends of educational leadership.

Furthermore, Research Question 3 (RQ3) focused on major contributors in educational leadership research, including countries, institutions, journals, citation analysis, and authorship analysis. The VOS viewer software was employed to map the citation and co-authorship networks, providing insights into the characteristics of educational leadership research. Using Harzing's Publish or Perish software for citation metrics, it was determined that 4,419 citations were reported within the ten years, averaging 441 citations per year and seven citations per paper.

The findings regarding RQ3 revealed that the United States served as the central network hub in educational leadership research, collaborating with countries such as Norway, New Zealand, and Spain. Scientific collaboration between countries is crucial in knowledge and technology transfer, particularly in educational leadership. Texas State University in the United States emerged as the leading institution in educational leadership research, with 17 publications, followed by Monash University in Australia, with 16 publications.

It is important to acknowledge the limitations of this study. First, the reliance on the Scopus database and specific keywords may have excluded relevant documents from other databases. Second, the examination was limited to a sample of literature within a fixed period due to the broad nature of educational leadership concepts. Additionally, the co-authorship network mapping was not cross-validated with other methods, and limitations in citation analysis include unknown reasons for citing specific documents and the influence of self-citations. Recommendations for future studies include exploring alternative analysis and counting methods, replicating the study using other databases such as Web of Science, and addressing educational gaps in leadership development.

Despite these limitations, this study provides valuable insights into current trends and publications in educational leadership research. Each indicator contributes to advancing research in this field and enhances our understanding of the evolving nature of educational leadership, ultimately facilitating the development of effective educational leadership.

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