

# THE EVOLVING KNOWLEDGE BASE ON PRINCIPAL LEADERSHIP RESEARCH: A BIBLIOMETRIC ANALYSIS OF THE LITERATURE 2013-2022

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**Abstract:** *This paper provides a thorough examination of contemporary research on principal leadership within the realm of education, employing a bibliometric analysis. Principals wield a crucial influence on shaping school culture, climate, and overall effectiveness. The review consolidates findings from diverse studies investigating various facets of principal leadership, exploring the influence of leadership styles on teacher morale, student achievement, and overall school enhancement. Additionally, the paper delves into the role of principals in fostering positive school climates, managing change, and cultivating collaborative relationships within the school community. A comprehensive review of articles on principal leadership available in the Scopus database between 2013 and 2022 was undertaken. Utilizing the keyword "Teacher Professional Learning," 661 articles were gathered for further scrutiny. Various tools, including Microsoft Excel for frequency analysis, for data visualization, and Harzing's Publish or Perish for citation metrics and analysis, were employed throughout the analytical process. By dissecting the existing body of literature, this paper aims to deepen our understanding of the multifaceted nature of principal leadership, providing insights for both researchers and practitioners. The study analysed bibliometric indicators such as language, subject area, research trends by publication year, top countries, the most influential institution, active source title, citation analysis, authorship analysis, and keyword analysis. The findings indicate a significant growth rate in literature on principal leadership from 2013 to 2022, with the United States emerging as the largest contributor to research on educational leadership, closely followed by the United Kingdom. In conclusion, the synthesis of current research on principal leadership offers valuable implications for the ongoing professional development of school leaders and the formulation of policies that support effective leadership practices. As education systems strive for continuous improvement, a robust understanding of principal leadership is essential for creating learning environments that foster student success and holistic school development.*

**Keywords:** *Bibliometrics, Citation Analysis, Scopus Database, Principal Leadership*

## Introduction

In the realm of education, the linchpin that holds together the aspirations of students, the dedication of educators, and the lofty goals of an institution is the indomitable force of principal leadership. School principals are not just administrators; they are architects of the educational journey, visionaries who shape the future by cultivating an environment where learning thrives, and potential is not just realized but maximized.

As we embark on a nuanced exploration of principal leadership, it becomes evident that the impact of these leaders extends far beyond the walls of their offices. The decisions they make, the values they embody, and the culture they foster resonate in every classroom, influencing the minds and hearts of both students and teachers. In an era where education is more than just the transfer of knowledge, but an intricate dance of inspiration, motivation, and skill-building, the role of the school principal emerges as pivotal.

This paper provides a comprehensive overview of contemporary research on principal leadership in the field of education. From fostering a climate of collaboration to navigating the challenges posed by modern pedagogy, principal leadership is a dynamic force that must adapt to the evolving needs of students and the ever-shifting landscape of education.

The subsequent sections of this paper are organized as follows. Firstly, a literature review provides an overview of bibliometric analysis and previous studies on principal leadership papers. Secondly, the methods employed in this study are presented, covering various aspects of the research. The subsequent analysis and findings section present the results obtained from the documents retrieved from the Scopus database. The conclusion section encompasses a summary, limitations, and recommendations for future research.

Moreover, this article identifies potential areas for future research, recognizing that research trends often influence curriculum development and redesign. Consequently, it presents a bibliometric analysis of principal leadership research, addressing three primary research questions (RQs): (RQ1): How has research on principal leadership advanced, and what are the trends in its distribution pattern? (RQ2): What specific keyword areas have garnered considerable focus in studies related to the principal leadership? (RQ3): Who are the main contributors to research on principal leadership, and what collaborative efforts have characterized their contributions? In this way, the paper contributes to a deeper understanding of the importance of principal leadership and its impact on educational leadership, guiding future research and promoting collaboration within the field.

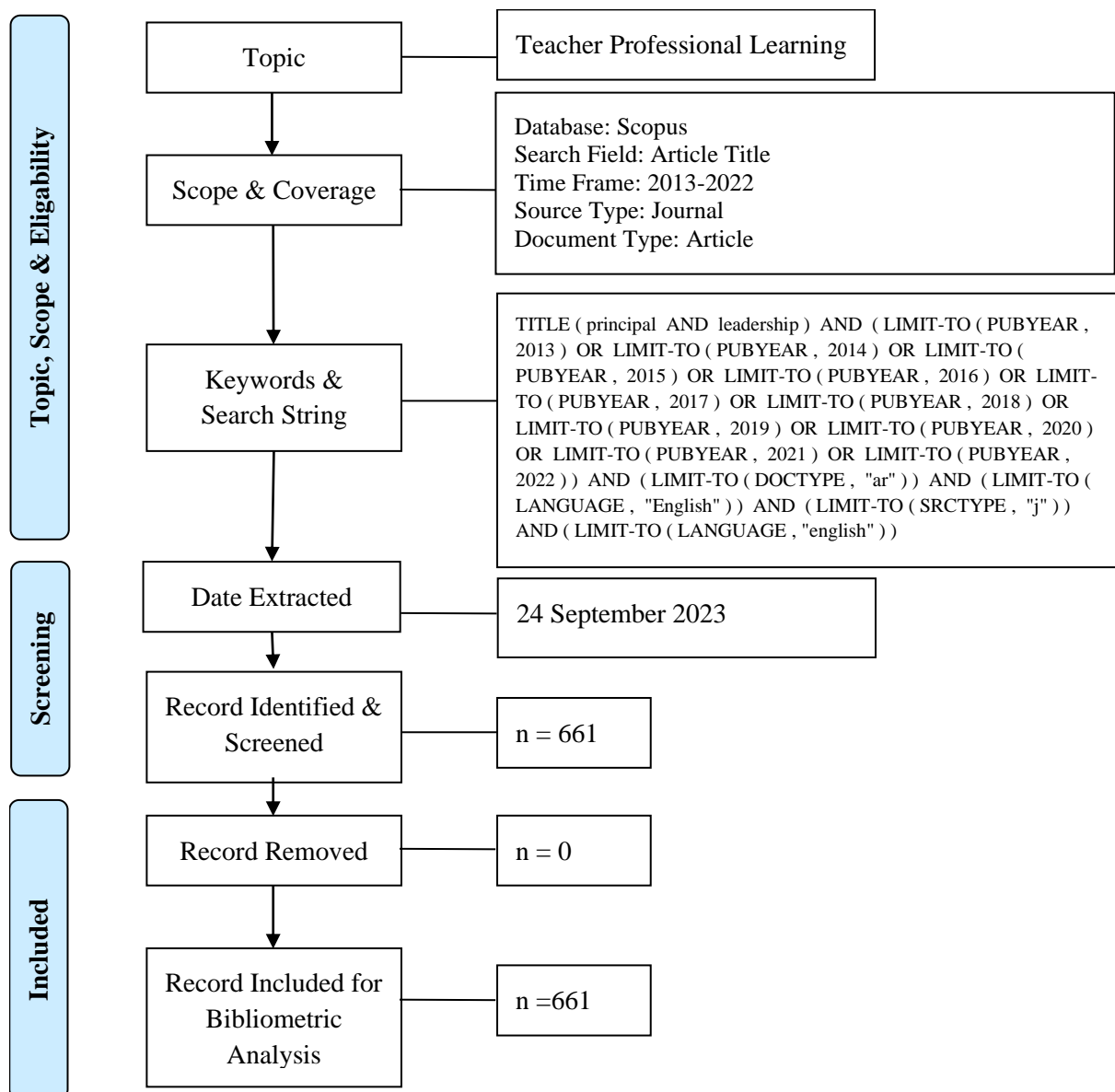
## Method & Material

To address the research inquiries of this study, various facets of the literature on principal leadership were scrutinized. The investigation encompassed an examination of the evolution and dissemination of principal leadership, with a focus on analyzing the language used in documents and identifying research trends across publications over time. Noteworthy findings from significant contributions in principal leadership research included key data points, such as the top countries contributing to publications, the most influential institutions, active source titles, and citation and authorship analysis.

The primary aim of this study was to gain a more profound understanding of the research trends in principal leadership, particularly concerning its international scope and collaborative endeavours. However, it is imperative to acknowledge that the current data necessitates careful

scrutiny by researchers to provide meaningful recommendations for future studies in this research domain.

The systematic review adhered to the modified PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, as outlined by Moher et al. (2009) and Zakaria et al. (2021). The Scopus search engine was employed, utilizing the search term "principal leadership." Subsequently, the search results underwent refinement using Scopus subject filters, taking into account the search field, time frame, source type, and document type to eliminate irrelevant papers. The initial search produced a total of 661 documents (refer to Figure 1). After evaluating the abstracts of all identified documents, further exclusions were applied based on topical relevance. Following the screening process, the final database comprised 661 documents specifically related to principal leadership.



**Figure 1. Flow Diagram of The Search Strategy**

Source: Zakaria et al. (2021)

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.

### **Data Extraction and Data Cleaning**

In conducting the analysis, this study employed search terms ("principal AND leadership\*") within article titles, abstracts, and keywords, utilizing wildcard symbols to replace multiple characters (Ahmi, 2021). Articles containing any of these terms in their title, abstract, or keywords were selected for bibliometric analysis, resulting in the retrieval of a total of 1,224 documents. The Scopus index was chosen as the repository for conducting searches and extracting documents due to its precision in providing citation search results and its extensive coverage across diverse fields of study. The data utilized in this research is sourced from the Scopus database as of September 24, 2023. The search employed the keywords "principal leadership" to identify relevant articles, with an expectation that these keywords would be present in the article's keyword list, abstract, and title. However, the titles of the publications were not given undue emphasis, as certain laboratory experiments did not explicitly include the keywords "teacher professional learning" in their titles, even though the content of these articles related to the research field and the study's objectives. The Scopus search engine was utilized for retrieving articles on principal leadership, with Scopus subject filters applied to refine the search. The search was focused on published journals and articles from 2013 to 2022, sourced from the Scopus database. This time frame allowed the identification of the earliest studies published within the last decade. The review specifically targeted papers and journals, with limitations on document and source categories. The parameters for the study's scope and coverage were established based on considerations such as the search field, time frame, source type, and document type to exclude irrelevant papers. The data extraction and cleaning process can be summarized as follows: TITLE ( principal AND leadership ) AND ( LIMIT-TO ( PUBYEAR , 2013 ) OR LIMIT-TO ( PUBYEAR , 2014 ) OR LIMIT-TO ( PUBYEAR , 2015 ) OR LIMIT-TO ( PUBYEAR , 2016 ) OR LIMIT-TO ( PUBYEAR , 2017 ) OR LIMIT-TO ( PUBYEAR , 2018 ) OR LIMIT-TO ( PUBYEAR , 2019 ) OR LIMIT-TO ( PUBYEAR , 2020 ) OR LIMIT-TO ( PUBYEAR , 2021 ) OR LIMIT-TO ( PUBYEAR , 2022 ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" ) ) AND ( LIMIT-TO ( SRCTYPE , "j" ) ) AND ( LIMIT-TO ( LANGUAGE , "english" ) ). Following the document screening process, a final database comprising 661 documents related to principal leadership was retained.

The bibliometric analysis for this study utilized VOSviewer, a freely available tool designed for constructing and visualizing networks (vosviewer.com). Additionally, Harzing's Publish or Perish was employed to retrieve and analyze scholarly citations. The examination of publication influence, considering factors such as citation counts, impact per publication, and citation per publication, was conducted using both VOSviewer and Publish or Perish. Microsoft Excel was employed to generate editable tables and figures. It is noteworthy that all the software tools used are widely recognized and commonly employed in bibliometric data analysis.

### **Findings**

The data analysis was structured according to the research questions (RQs). 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.

***RQ1: How has research on principal leadership advanced, and what are the trends in its distribution pattern?***

Table 1 displays the findings, indicating that English was the predominant language, accounting for 100% of the total of the 976 publications on principal leadership research. German was the second most utilised language in publications, representing only 0.10% of the total publications.

**Table 1. Languages**

Language	Total Publications (TP)*	Percentage (%)
English	661	100.00
Turkish	3	0.45
Spanish	2	0.30
Chinese	1	0.15
Portuguese	1	0.15
Total	668	100.00

\*One document has been prepared in dual languages

Typically, articles published in English enjoy a considerable advantage in gaining visibility within the scientific community's journals, given that English serves as the universal lingua franca in the field of leadership. English emerges as the predominant language, accounting for 661 publications. Despite the initial intention of the researcher to confine the language to English only, seven documents were prepared in dual languages, resulting in their appearance in Turkish, Spanish, Chinese, and Portuguese. However, the proportion of papers written in these languages remained notably low, constituting only 1.05% or less. As a result, the total number of publications reached 668 (refer to Table 2), surpassing the overall number of publications between 2013 and 2022 (refer to Figure 2).

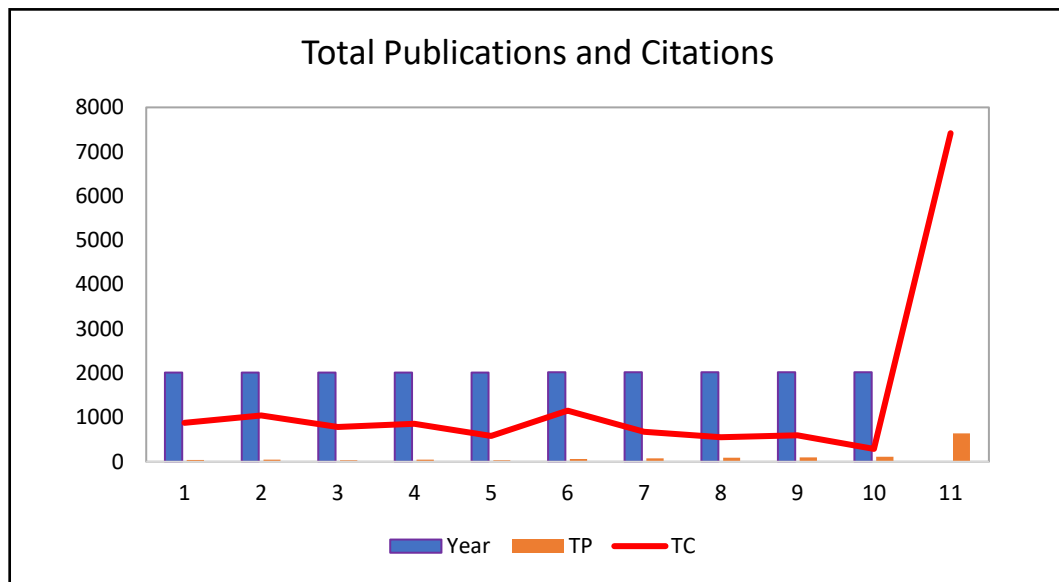
**Table 2. Number of Principal Leadership Learning Research Publications by Year**

Year	TP	NCP	TC	PCP	CCP	<i>h</i>	<i>g</i>
2013	39	36	881	22.59	24.47	15.00	29.00
2014	51	49	1045	20.49	21.33	18.00	30.00
2015	35	33	784	22.40	23.76	17.00	27.00
2016	50	47	857	17.14	18.23	17.00	28.00
2017	31	27	580	18.71	21.48	13.00	24.00
2018	59	57	1151	19.51	20.19	19.00	31.00
2019	74	58	679	9.18	11.71	14.00	23.00
2020	94	78	555	5.90	7.12	13.00	18.00
2021	95	73	595	6.26	8.15	11.00	20.00
2022	111	72	290	2.61	4.03	9.00	12.00
Total	639	530	7417	144.79	160.47	146.00	242.00

**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.

Figure 2 illustrates the number of publications on principal leadership spanning the years 2013 to 2022. Notably, two particular years experienced a significant surge in publications over the decade. It is noteworthy that three years exhibited a sharp increase in publications during the

ten-year period. Specifically, in 2020, 2021, and 2022, there were 94, 95, and 111 documents published, respectively. The year 2022 recorded the highest productivity with 111 documents, while the lowest productivity occurred in 2017, with only 31 documents. The overall trend suggests a gradual increase in publications from 2017 to 2022, indicating a growing interest in principal leadership research and its potential for further advancements. In 2018, publications garnered the highest number of citations per publication, reaching 1151, whereas the year 2022 saw the lowest, with 290 citations per publication. Regarding productivity, 2018 attained the highest h-index of 13 for authors. The h-index, introduced by Hirsch, (2010), serves as a metric estimating the importance, significance, and high impact of researchers' cumulative contributions. Widely employed for assessing scientific performance, the h-index is now integrated into major bibliographic databases like Scopus and Web of Science (Van Eck, N. J., & Waltman, 2017).



**Figure 2 Total Publications and Citations by Year**

***RQ2: What specific keyword areas have garnered considerable focus in studies related to the principal leadership?***

The second research question (RQ) in this study centres on the identification of primary topic areas through the examination of subject areas, top keywords, and co-occurrence analysis. To address RQ2, we conducted an analysis of the citation networks involving 661 articles, taking into account both the subject areas in which the documents were published and the top keywords revealed through co-occurrence analysis. The co-occurrence analysis of keywords is a valuable method for content analysis, offering insights into the strength of association between keywords found in the literature (Shmagun et. al, 2020) Subsequently, the materials were categorized based on their respective topic areas, as detailed in Table 3.

Overall, the distribution analysis reveals that research on principal leadership has advanced across a broad spectrum of thematic areas. The results demonstrate that a noteworthy portion of the analyzed documents, specifically 610 (92.28%), is situated within the domain of Social Sciences, with an additional 202 publications (30.56%) falling under the category of Business, Management, and Accounting. Furthermore, principal leadership is explored in other subjects, such as Arts and Humanities, contributing more than 100 documents to the field.

**Table 3. Subject Area**

<b>Subject Area</b>	<b>Total Publications (TP)</b>	<b>Percentage (%)</b>
Social Sciences	610	92.28
Business, Management and Accounting	202	30.56
Arts and Humanities	100	15.13
Psychology	32	4.84
Computer Science	22	3.33
Economics, Econometrics and Finance	22	3.33
Engineering	21	3.18
Environmental Science	15	2.27
Energy	10	1.51
Mathematics	7	1.06
Medicine	7	1.06
Health Professions	5	0.76
Multidisciplinary	4	0.61
Biochemistry, Genetics and Molecular Biology	3	0.45
Decision Sciences	1	0.15
Earth and Planetary Sciences	1	0.15
Immunology and Microbiology	1	0.15
Pharmacology, Toxicology and Pharmaceutics	1	0.15
Physics and Astronomy	1	0.15

To address RQ2, the study aimed to identify frequently utilized keywords in principal leadership research. A comprehensive analysis encompassed 661 studies on principal leadership, and the summarized findings are delineated in Table 4. The extracted data includes keywords associated with at least 10 publications and above. The analysis revealed that "Leadership" emerged as the most commonly utilized keyword in the literature on teacher professional learning, representing 17.55% of the total publications. Within the realm of leadership, the emphasis on this keyword is both intuitive and logical, considering the fundamental role that principals play in shaping the quality of education within their schools.

The term "Leadership" is expansive and inclusive, capturing various dimensions, styles, and approaches to leadership within the context of principal leadership. Its prevalence is logical, reflecting the overarching theme of the research and encapsulating the diverse facets of leadership that principals embody. The second most frequently used keyword is "Instructional Leadership," which is associated with 82 total publications, representing 12.41% of the total. Additional common keywords, each appearing in fewer than a hundred publications, include "Principal" and "Principals." Conversely, the remaining keywords were employed in less than 50 publications each.

**Table 4. Top Keywords**

<b>Author Keywords</b>	<b>Total Publications (TP)</b>	<b>Percentage (%)</b>
Leadership	116	17.55
Instructional Leadership	82	12.41
Principal	57	8.62
Principals	56	8.47
Principal Leadership	48	7.26

Transformational Leadership	48	7.26
School Leadership	40	6.05
School Principals	32	4.84
School Principal	25	3.78
Leadership Styles	20	3.03
Educational Leadership	18	2.72
Professional Development	17	2.57
Education	16	2.42
Teachers	16	2.42
Distributed Leadership	15	2.27
School Management	13	1.97
Teacher	12	1.82
Teacher Leadership	12	1.82
Human	11	1.66
Principal Preparation	11	1.66
School Improvement	11	1.66
Job Satisfaction	10	1.51
Organizational Commitment	10	1.51
Schools	10	1.51
Student Achievement	10	1.51
Teacher Self-efficacy	10	1.51

For the keyword analysis, this study initially generated a word cloud for the author keywords using Microsoft Word (ProWritingAid), with a maximum of 100 words. The resulting word cloud is presented in Figure 3, depicting the top 100 words or partial keywords derived from published articles on teacher professional learning. The size of each word reflects its frequency of occurrence in the articles.

Beyond the keyword used to search for the title of the document, the word cloud highlights other emerging keywords, including "Leadership," "School," "Principal," "Teacher," "Principals," and "School Education." While some keywords may appear relatively small in size, they are nonetheless crucial in accommodating the topic of principal leadership research. It is essential to note that all the words generated in Figure 3 represent trending words associated with principal leadership research. Consequently, these keywords are indicative of potential focal points for future research in the field of principal leadership.





**Figure 3: Word cloud of the Author Keywords**

Citation analysis functions as a systematic tool to evaluate the impact and caliber of research papers, providing a straightforward computational method (Aristodemou & Tietze, 2018; Hou et al., 2018). Utilizing the Scopus database, citation metrics for the papers were obtained and are detailed in Table 5. Harzing's Publish or Perish software was employed to identify the citation metrics for the data extracted from the Scopus database. The brief description encompasses the number of citations, citations per year, citations per work, and citations per author. Across a decade, spanning from 2013 to 2022, a total of 7599 citations were documented for the 661 articles, resulting in an annual average of 759.9 citations and 10.0 citations per paper. The overall h-index and g index for all publications were 2.53 and 42, respectively.

**Table 5: Citations Metrics**

Metrics	Data
Publication years	2013-2022
Citation years	10 (2013-2022)
Papers	661
Citations	7599
Cites_Year	759.9
Cites_Paper	10.0
Cites_Author	11.48
Papers_Author	3867.03
Authors_Paper	339.44
h_index	2.53
g_index	42

Meanwhile, Table 6 unveils the top 10 most cited articles based on data retrieved from the Scopus database. Notably, Neumerski's (2013) work, "Rethinking Instructional Leadership, a Review: What Do We Know About Principal, Teacher, and Coach Instructional Leadership, and Where Should We Go From Here?" stands out, amassing the highest number of citations

to date, totaling 268 citations, with an average of 26.8 citations per year. Following closely is Liu & Hallinger's (2018) article titled "Principal Instructional Leadership, Teacher Self-Efficacy, and Teacher Professional Learning in China: Testing a Mediated-Effects Model," which has garnered 111 total citations and an annual average of 22.2 citations. On the contrary, the article with the lowest citation rate per year is attributed to Hallinger et al.'s (2018) paper titled "Do beliefs make a difference? Exploring how principal self-efficacy and instructional leadership impact teacher efficacy and commitment in Iran," receiving only 81 citations.

**Table 6. Top 10 Highly cited articles on Principal Leadership**

No.	Authors	Article Title	Year	Cites	Cites per Year
1	(Neumerski, 2013)	Rethinking Instructional Leadership, a Review: What Do We Know About Principal, Teacher, and Coach Instructional Leadership, and Where Should We Go from Here?	2013	268	26.8
2	(Liu & Hallinger, 2018)	Principal Instructional Leadership, Teacher Self-Efficacy, and Teacher Professional Learning in China: Testing a Mediated-Effects Model	2018	111	22.2
3	(Fransen et al., 2014)	The myth of the team captain as principal leader: extending the athlete leadership classification within sport teams	2014	108	12
4	(Urick & Bowers, 2014)	What Are the Different Types of Principals Across the United States? A Latent Class Analysis of Principal Perception of Leadership	2014	107	11.89
5	(Walker & Hallinger, 2015)	Synthesis paper: A synthesis of reviews of research on principal leadership in east asia	2015	97	12.13
6	(Truong et al., 2017)	Confucian values and school leadership in Vietnam: Exploring the influence of culture on principal decision making	2017	91	15.17
7	(Liu et al., 2016)	Supporting the professional learning of teachers in China: Does principal leadership make a difference?	2016	90	12.86
8	(Hoppey & McLeskey, 2013)	A Case Study of Principal Leadership in an Effective Inclusive School	2013	87	8.7
9	(Karakose et al., 2021)	Examining teachers' perspectives on school principals' digital leadership roles and technology capabilities during the covid-19 pandemic	2021	86	43
10	(Hallinger et al., 2018)	Do beliefs make a difference? Exploring how principal self-efficacy and instructional leadership impact teacher efficacy and commitment in Iran	2018	81	16.2

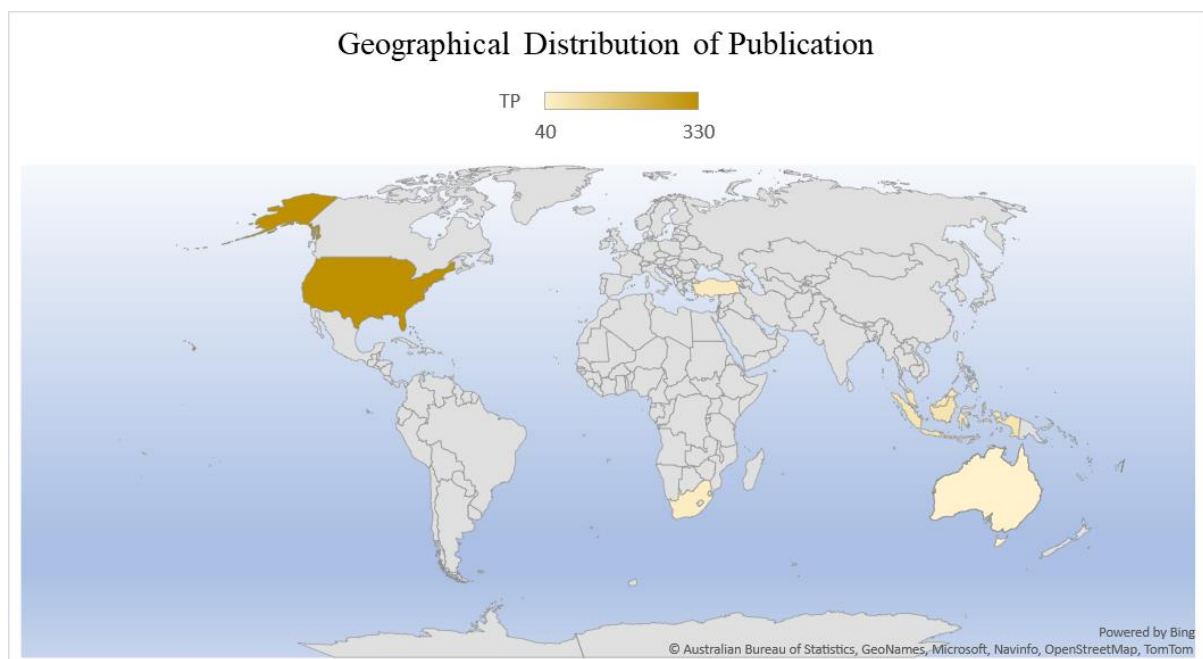
***RQ3: Who are the main contributors to research on principal leadership, and what collaborative efforts have characterized their contributions?***

Furthermore, this investigation aimed to examine the characteristics of scientific collaborations in principal leadership research, focusing on research question RQ3. To accomplish this objective, the study scrutinized (a) the primary contributors to publications by country, (b) the most influential institutions, (c) the journal with the highest activity, (d) authorship analysis. The contributions of different countries to publications on principal leadership research are outlined in Table 7. The table delineates the top seven countries actively involved in principal leadership research from 2013 to 2022. The United States emerged as the foremost country with 330 publications, closely trailed by Indonesia with 78 and Malaysia with 72. Turkey claimed the fourth position among contributing nations with 60 publications, while South Africa ranked fifth with 54 publications. These findings underscore the global significance of principal leadership research, spanning diverse geographical regions. The geographical distribution of publications in the leading countries is illustrated in Figure 5.

**Table 7. Top 7 Countries Contributed to the Publications**

Country	TP	NCP	TC	PCP	CCP	<i>h</i>	<i>g</i>
United States	330	276	6788	20.57	24.59	42	70
Undefined	78	62	1507	19.32	24.31	19	38
Indonesia	78	52	350	4.49	6.73	9	16
Malaysia	72	52	432	6.00	8.31	11	18
Turkey	60	51	865	14.42	16.96	18	28
South Africa	54	42	739	13.69	17.60	15	26
Australia	40	37	1011	25.28	27.32	15	31

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.



**Figure 4: Geographical Distribution of Publication**

Table 8 showcases the prominent institutions involved in principal leadership research along with the corresponding number of publications credited to each institution. Out of the 661 scrutinized documents, The Universitas Negeri Malang emerged as the foremost contributor with 21 publications on principal leadership research. Following closely were the University of Johannesburg from South Africa and the Education University of Hong Kong, both with 17 and 16 publications, respectively. The fourth position was jointly occupied by Chulalongkorn University from Thailand, contributing 14 publications. Two Malaysian institutions, namely Universiti Malaya and Universiti Utara Malaysia, secured the sixth and seventh positions with 14 and 13 publications each. The institution least actively involved in Teacher Professional Learning, with a total of 11 publications, was Vanderbilt University in the United States.

**Table 8. Most influential Institutions with Minimum of Six Publications**

Affiliation	Country	TP	NCP	TC	PCP	CCP	<i>h</i>	<i>g</i>
Universitas Negeri Malang	Indonesia	21	16	133	6.33	8.31	5	10
University of Johannesburg	South Africa	17	15	527	31.00	35.13	11	17
The Education University of Hong Kong	Hong Kong	16	17	503	31.44	29.59	12	17
Chulalongkorn University	Thailand	14	13	650	46.43	50.00	11	14
Universiti Malaya	Malaysia	14	14	170	12.14	12.14	6	13
Universiti Utara Malaysia	Malaysia	13	14	115	8.85	8.21	6	10
Michigan State University	United States	7	7	481	68.71	68.71	10	11
Vanderbilt University	United States	6	6	487	81.17	81.17	9	12

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.

Moreover, this study presents a roster of the top ten most active journals, each with a minimum of 10 publications on principal leadership research, as depicted in Table 9. The table sheds light on the journals most actively involved in the realm of principal leadership. Topping the list is "Educational Management Administration and Leadership" with 52 publications, followed closely by the "International Journal of Leadership in Education" in the second position with 53 publications. Securing the third position with 30 publications is the "Journal of Educational Administration." It is noteworthy that "School Leadership and Management" leads in Cite Score (CS), even though it does not rank among the top five institutions with the highest publication count. Cite Score (CS) is a novel scientific metric introduced by Scopus to assess journals based on their citation impact. While Elsevier's database offers various scientific quality assessment metrics like Scimago Journal Rank (SJR) and Source Normalized Impact per Paper (SNIP), CS provides distinct features in evaluating citations compared to the conventional Impact Factor. (Okagbue et al., 2019).

**Table 9. Most Active Journals**

Source Title	TP	Publisher	Cite Score	SJR 2021	SNIP 2021	
Educational Management Administration and Leadership	52	978	Sage	6	1.079	1.809
International Journal of Leadership in Education	35	371	Taylor and Francis	3.1	0.519	0.89
Journal Of Educational Administration	30	682	Emerald Publishing	3.6	0.975	1.536
Leadership And Policy In Schools	26	294	Taylor and Francis	2.4	0.598	0.886
International Journal Of Educational Management	24	471	Emerald Publishing	3.6	0.493	1.101
School Leadership And Management	17	199	Taylor and Francis	6.4	1.379	2.363
Educational Administration Quarterly	16	774	Sage	5.9	1.886	2.28
Journal Of Research On Leadership Education	15	118	Sage	2.3	0.435	0.774
South African Journal of Education	12		Bereau of Scientific Publications of the Foundation for Education, Science and Technology	2	0.392	0.962
Frontiers In Psychology	10		Frontiers Media S.A			

Notes: TP=total number of publications

Furthermore, Table 10 furnishes an extensive compilation of the most prolific authors who have made significant contributions to the domain of Active Engagement in Principal Leadership. Other authors also occupy a noteworthy position in the research on Active Engagement in Principal Leadership, having authored a minimum of six publications. Notably, among these highly productive authors, Philip Hallinger from Mahidol University, Thailand, stands out with the highest total of publications (20) and an average of 20 citations per publication. Hallinger, boasting an h-index of 16 and a full publication g-index of 20, has left a profound impact on the field. The h-index, proposed by Hirsch in 2005, has garnered global interest for its capacity to encapsulate both the quantity and impact of a researcher's body of work in a single whole number (Abramo et al., 2013).

**Table 10. Most Productive Authors**

Author's Name	Affiliation	Country	TP	NCP	TC	PCP	CCP	h	g
Hallinger, P.	Mahidol University	Thailand	20	20	943	47.15	47.15	16	20
Arifin, I.	Universitas Negeri Malang	Indonesia	9	7	59	6.56	8.43	5	7

Bafadal, I.	Universitas Negeri Malang	Indonesia	9	6	36	4.00	6.00	4	6
Raman, A.	Universiti Utara Malaysia	Malaysia	7	7	77	11.00	11.00	5	7
Bellibaş, M.Ş.	Adiyaman Üniversitesi	Turkey	6	6	89	14.83	14.83	4	6
Shaked, H.	Hemdat College of Education	Israel	6	5	53	8.83	10.60	4	6
Szeto, E.	Pontificia Universidad Católica de Chile	Chile	6	6	116	19.33	19.33	5	6

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.

## Conclusion

Between 2013 and 2022, this investigation conducted a bibliometric analysis to review publications related to research on principal leadership. The Scopus database served as the primary source for bibliometric data, encompassing a total of 661 publications. In response to Research Question 1 (RQ1), which aimed to explore the distribution pattern of research in educational leadership, it became evident that English was the predominant language. The results indicated a continuous growth in the publication of journals on this topic. However, there was a decline in the total number of article citations per year from 2013 to 2018.

Addressing Research Question 2 (RQ2), the analysis sought to identify the key areas discussed in the research. The findings revealed that the main subject areas were social sciences, accounting for 92.28% of the responses, followed by Business, Management, and Accounting with 10.76%. Among the various keywords commonly found in this field, "Professional Development" emerged as the most frequently used, contributing to 30.56% of the total. This suggests a shift in research trends within principal leadership from a focus on pedagogy to a greater emphasis on management. Notably, Neumerski's (2013) study gained recognition as the most prolific in the field. His article, titled "Rethinking Instructional Leadership, a Review: What Do We Know About Principal, Teacher, and Coach Instructional Leadership, and Where Should We Go from Here?" received a significant number of citations, totalling 268.

Furthermore, Research Question 3 (RQ3) delved into major contributors in principal leadership research, encompassing countries, institutions, journals, and authorship analysis. Harzing's Publish or Perish software was employed to analyze citation metrics, revealing a total of 13,879 citations over a decade. On average, this equated to 1,387.9 citations annually and 14.22 citations per paper. The results pertaining to RQ3 revealed that the United States played a central role as the network hub in principal leadership research, collaborating with countries such as Indonesia, Malaysia, Turkey, South Africa, and Australia. Such collaborations between countries are essential for knowledge and technology transfer, particularly in the context of principal leadership research. Universitas Negeri Malang from Indonesia emerged as the leading institution in principal leadership research, contributing 21 publications, followed by the University of Johannesburg from South Africa with 17 publications.

It is crucial to acknowledge the limitations of this study. Firstly, reliance on the Scopus database and specific keywords may have excluded relevant documents from other databases. Secondly, the examination was limited to a sample of literature within a fixed period due to the broad

nature of principal leadership concepts. Additionally, the co-authorship network mapping was not cross-validated with other methods, and limitations in citation analysis include the 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 like Web of Science, and addressing educational gaps in leadership development.

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

## References

- Abramo, G., D'Angelo, C. A., & Murgia, G. (2013). Gender differences in research collaboration. *Journal of Informetrics*, 7(4), 811–822. <https://doi.org/10.1016/j.joi.2013.07.002>
- Demir, E. K. (2021). The role of social capital for teacher professional learning and student achievement: A systematic literature review. *Educational Research Review*, 33. <https://doi.org/10.1016/j.edurev.2021.100391>
- Evdokimenkova, Y. B., & Soboleva, N. O. (2020). Organic chemistry in Russia: Bibliometric publication flow analysis over the past 30 years. *COLLNET Journal of Scientometrics and Information Management*, 14(1), 23–36. <https://doi.org/10.1080/09737766.2020.1766388>
- Fransen, K., Vanbeselaere, N., De Cuyper, B., Vande Broek, G., & Boen, F. (2014). The myth of the team captain as principal leader: extending the athlete leadership classification within sport teams. *Journal of Sports Sciences*, 32(14), 1389–1397. <https://doi.org/10.1080/02640414.2014.891291>
- Hallinger, P., Hosseingholizadeh, R., Hashemi, N., & Kouhsari, M. (2018). Do beliefs make a difference? Exploring how principal self-efficacy and instructional leadership impact teacher efficacy and commitment in Iran. *Educational Management Administration and Leadership*, 46(5), 800–819. <https://doi.org/10.1177/1741143217700283>
- Hallinger, P., & Kulophas, D. (2020). The evolving knowledge base on leadership and teacher professional learning: a bibliometric analysis of the literature, 1960-2018. *Professional Development in Education*, 46(4), 521–540. <https://doi.org/10.1080/19415257.2019.1623287>
- Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Journal of Hazardous Materials*, 400, 123110. <https://doi.org/10.1016/j.jhazmat.2020.123110>
- Hirsch, J. E. (2010). An index to quantify an individual's scientific research output that takes into account the effect of multiple coauthorship. *Scientometrics*, 85(3)(741-754.).
- Hoppey, D., & McLeskey, J. (2013). A Case Study of Principal Leadership in an Effective Inclusive School. *Journal of Special Education*, 46(4), 245–256. <https://doi.org/10.1177/0022466910390507>
- Karakose, T., Polat, H., & Papadakis, S. (2021). Examining teachers' perspectives on school principals' digital leadership roles and technology capabilities during the covid-19 pandemic. *Sustainability (Switzerland)*, 13(23). <https://doi.org/10.3390/su132313448>
- Ling, P. S., & Amzah, F. (2023). A Bibliometric Review on Teachers' Professional Learning Community (PLC), 2012 to 2022. *International Journal of Advanced Research in Education and Society*, 4(4), 36–49. <https://doi.org/10.55057/ijares.2022.4.4.4>
- Liu, S., & Hallinger, P. (2018). *Principal Instructional Leadership, Teacher Self-Efficacy, and Teacher Professional Learning in China: Testing a Mediated-Effects Model*.

- <https://doi.org/10.1177/0013161X18769048>
- Liu, S., Hallinger, P., & Feng, D. (2016). Supporting the professional learning of teachers in China: Does principal leadership make a difference? *Teaching and Teacher Education*, 59, 79–91. <https://doi.org/10.1016/j.tate.2016.05.023>
- Neumerski, C. M. (2013). Rethinking instructional leadership, a review: What do we know about principal, teacher, and coach instructional leadership, and where should we go from here?. *Educational Administration Quarterly*, 49(2), (310–347), 40. <https://doi.org/10.1177/0013161X18769048>
- Okagbue, H. I., Bishop, S. A., Oguntunde, P. E., Adamu, P. I., Opanuga, A. A., & Akhmetshin, E. M. (2019). Modified CiteScore metric for reducing the effect of self-citations. *Telkomnika (Telecommunication Computing Electronics and Control)*, 17(6), 3044–3049. <https://doi.org/10.12928/TELKOMNIKA.v17i6.12292>
- Shmagun, H., Oppenheim, C., Shim, J., & Kim, J. (2020). The uptake of open science: mapping the results of a systematic literature review. *In ITM Web of Conferences, EDP Sciences.*, Vol. 33, 01001.
- Truong, T. D., Hallinger, P., & Sanga, K. (2017). Confucian values and school leadership in Vietnam: Exploring the influence of culture on principal decision making. *Educational Management Administration and Leadership*, 45(1), 77–100. <https://doi.org/10.1177/1741143215607877>
- Urlick, A., & Bowers, A. J. (2014). What Are the Different Types of Principals Across the United States? A Latent Class Analysis of Principal Perception of Leadership. *Educational Administration Quarterly*, 50(1), 96–134. <https://doi.org/10.1177/0013161X13489019>
- Van Eck, N. J., & Waltman, L. (2017). Citation-based clustering of publications using CitNetExplorer and VOSviewer. *Scientometrics*, 111, 1053-1070.
- Van Eck, N. J., & Waltman, L. (2022). *VOSviewer manual*. (Manual for). CWTS Meaningful metrics.
- Walker, A., & Hallinger, P. (2015). Synthesis paper: A synthesis of reviews of research on principal leadership in east asia. *Journal of Educational Administration*, 53(4), 554–570. <https://doi.org/10.1108/JEA-05-2015-0038>
- Zakaria, R., Ahmi, A., Ahmad, A. H., & Othman, Z. (2021). Worldwide melatonin research: a bibliometric analysis of the published literature between 2015 and 2019. *Chronobiology International*, 38(1), 27–37. <https://doi.org/10.1080/07420528.2020.1838534>