MAPPING RESEARCH TRENDS ON PRINCIPAL LEADERSHIP: A BIBLIOMETRIC ANALYSIS

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Abstract

This study employs bibliometric analysis to comprehensively examine the literature on school principal leadership. The roles of management, leadership, and supervision in educational institutions are explored, emphasizing the importance of effective leadership for organizational success. The study aims to map research trends, identify key authors, journals, and institutions, and analyze the impact of research on principal leadership. The research methodology involves bibliometric analysis using the Scopus Database, covering publications from 1964 to 2023 with the keyword "Principal leadership." The study employs text-mining techniques to extract crucial topics, notions, and research inquiries from the articles. The results are presented through visualizations, including the distribution of publications by year, country, affiliation, and the most cited articles. Key findings include a steady increase in publications over the past decade, with a focus on Asia in terms of research concentration. The analysis identifies productive authors, institutions, and countries, shedding light on the global scope of principal ship research. Furthermore, impactful journals and articles are highlighted, emphasizing the influence of certain publications on the field. The study also addresses research gaps and proposes future research directions. It categorizes research topics into "Nice Themes" and "Basic Themes," providing insights into current trends and potential areas for further exploration. The practical implications of the findings suggest applications for leadership development programs and considerations for educational policymakers to enhance school quality. In conclusion, this bibliometric analysis contributes to a comprehensive understanding of the current state, trends, and impact of principal leadership research. The study's limitations, primarily based on the Scopus database, are acknowledged, and recommendations for future research include exploring under-explored themes and utilizing diverse databases for a more nuanced analysis.

Index Terms: Principal Leadership; Trend Research; Bibliometric Analysis.

1. INTRODUCTION

The management, leadership, supremacy, planning, and head of the school are fundamental elements in the world of organizations and education that have important roles in ensuring the success of any entity. An administrator in a school must be capable of managing the institution [4]–[6]. Management is concerned with procedures and skills related to the use of people, processes, and day-to-day resources in any kind of organization[7]–[9]. This includes the persistence, organization, perseverance, and fortitude required to achieve the objective of the organization in an efficient and effective manner.

A person with leadership qualities is able to inspire, encourage, and direct people toward the accomplishment of shared objectives[10]–[12]. Leadership is not only about authority or rank; it is also about having the ability to positively influence others and shape the culture of an organization[13]–[16]. The head of the school is positioned at the top of the educational institution, giving them the opportunity to observe closely and provide guidance needed to raise student achievement. As a result, they are frequently referred to as the top observers or the top group inside the school environment.

In addition, the principal of the school serves as a supervisor. The process of keeping an eye on and managing an organization's performance is known as supervision[17]–[21]. It entails ongoing assessment, evaluation, and development to guarantee that predetermined objectives and benchmarks are met. The principle is the key person in charge of overseeing teachers and pupils, managing the school, and developing educational policy. A principal's influence on school culture and the provision of quality instruction is significant.

Since the last decade, many studies have discussed the leadership role of school principals, both in their functions as supervisors, supervisors, and in exercising supremacy in an effort to improve the quality of the schools they lead. Bibliometric analysis is one method for comprehending the evolution of principal leadership research. Because bibliometric analysis may help educational scholars and practitioners comprehend research developments in this field, it is very appropriate for application in mapping research on school principal leadership.

Researchers can determine emerging research subjects, top writers and journals, and research trends by employing bibliometric analysis. They can also determine how research is influencing the creation of improved educational resources[22]–[25]. You may determine what topics in the subject of leadership still require investigation and how much study has already been done in those areas by using bibliometric analysis[26], [27]. Furthermore, tracing the connections between research topics, authors, and top journals in this sector might be facilitated by bibliometric analysis[28]–[30]. This can provide valuable information on current research trends and issues, as well as assist in identifying possible research partnerships and collaborations that could lead to the advancement of education[31]–[33]. Therefore, bibliometric analysis can assist academics and practitioners in the field of education in creating research and development agendas that are more effective and efficient[34], [35].

The literature on principle leadership will be examined using bibliometric analysis in this study. Publications, journals, authors, and institutions involved will all be taken into consideration. Most engaged in this area. Furthermore, this study will employ text mining methodologies to scrutinize article material and ascertain pivotal topics, notions, and research inquiries[36]. This will enable us to comprehend how the area has changed over time, including the introduction of fresh study topics, the level of popularity of particular subjects, and the influence of influential journals and experts[37]. Additionally, this study will highlight the distribution of international publications about different instructions, including the countries where research is conducted and shared. This will shed light on the field's worldwide scope and assist in identifying regional or language variations in study[38]–[40]. Subsequently, this study will examine the manner in which writers and educational institutions collaborate.

This entails determining the most productive organizations, writers, and nations as well as the networks of cooperation that link them. The study will also examine how research affects principals' leadership through an analysis of scholarly impact metrics such as indexes, citation counts, and other measures. This will make it easier to determine which papers, writers, and journals are the most important in the subject and to comprehend the breadth and significance of study on principal leadership. All things considered, this study will offer a thorough assessment of the situation of principal leadership today, stressing important topics, publications, and academics in the field while also suggesting areas for more research. He results of this study will be helpful to politicians, researchers, and educators in their efforts to promote professional school leaders and raise the quality of education.

To ascertain the present level of research in this field, the study intends to do a bibliometric analysis mapping research trends on principle leadership. This study is deemed significant enough to carry out a preliminary investigation into the research topic, steer clear of related studies, and assist researchers in formulating a plan for future research. Thus, this inquiry for research is:

RQ 1) Which writers are the most productive in primary leadership roles, and how are the publications distributed by year, nation, affiliation, source, and most referenced articles?

RQ 2) What subjects are in demand and pertinent for upcoming studies on principal leadership?

2. METHODS

2.1. Research Method

The use of bibliometric analysis facilitates researchers to examine collected bibliographic data, including scholarly journals and related citations. This approach applies bibliometric correlation analysis to highlight current research trends, while cross-checking keywords in articles and co-citations to reveal the topical structure and knowledge base within each field[41], [42].

This method was applied in this study, and the results provide insight into how topics are organized and connected before the information is visually depicted. Bibliometric steps include identification of research questions, selection of appropriate methods, collection and sorting of relevant data, data analysis, and presentation and interpretation of results[43], [44].

2.2. Data Collection

This metadata was obtained from the Scopus Database and used to collect publications on school principal leadership from 1964 to 2023 by utilizing search keywords "Principal leadership". In order to prevent search errors brought on by database changes, metadata retrieval and data investigation were completed in November 2023 in a single day with no search constraints. After that, the gathered data was sorted according to the year of release, document type, topic matter, and document source type. Below are the outcomes of document

processing with filters from the Scopus database.

TITLE-ABS-KEY ("TITLE-ABS-KEY (managerial) OR TITLE-ABS-KEY (leadership) OR TITLE-ABS-KEY (supremacy) OR TITLE-ABS-KEY (supervision) OR TITLE-ABSKEY (supervision) AND TITLE-ABS-KEY (headmaster "), the results are as shown in the following figure:
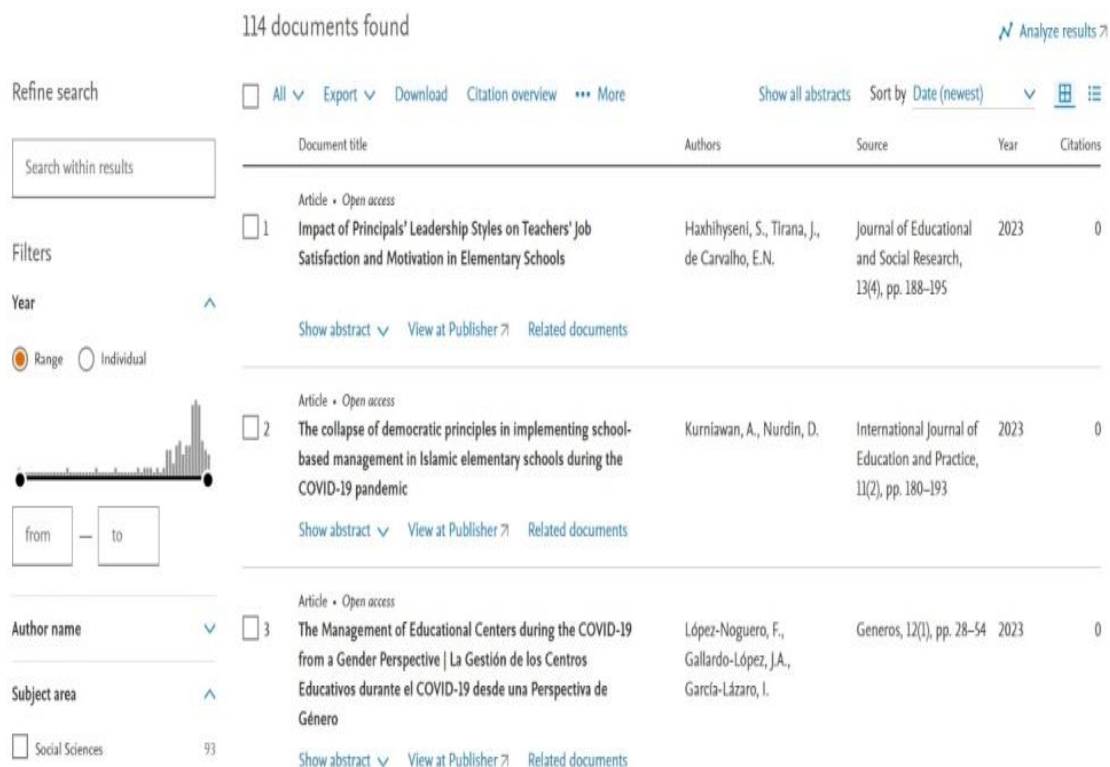

Figure 1: The Process of Retrieving Metadata in the Scopus Database

After the keywords to find data from Scopus were applied, the entire metadata was downloaded in comma summarized value format (.csv).

2.3. Data Coding and Analysis

Using R Studio software and the Bibliometrix tool, metadata analysis is the next step after acquiring metadata from the Scopus database. The code "install. Packages (bibliometrix)" needs to be used for the first time in order to install the bibliometrix package. The bibliometric analysis application can be launched in a browser window by calling the package with the codes "library (bibliometrix)" and "biblioshiny ()" after it has been installed. You can import Scopus metadata in the "Loading Data" section. Visualizations of published articles, the most cited articles, the most prolific authors, the most used keywords, and the development of research themes will be presented as a consequence of the analysis. A descriptive analysis is the final product, which is used to look over and analyze the results.

3. RESULTS

3.1. Distribution of Publications by Year, Country, Affiliation, Source, Most Cited Articles, and Most Prolific Author in Principal Leadership

3.1.1. Main Information

The primary information about every article that has been exported and is prepared for analysis is displayed on the software's initial display after the metadata has been exported to the biblioshiny program. Figure 2 provides the essential details about the documents that will be the subject of the bibliometric analysis.

Figure 2: Main Information

Figure 2 demonstrates that a total of 113 documents from 84 Scopus-indexed journals, conferences, and books, published between 1964 and 2023, are the subject of bibliometric study. The annual average rise in publications was 2,238%. Of the 285 writers, 24 were the sole authors of the papers. 2.65 co-authors per document translate to a 7.08% foreign co-authorship rate. In addition, there are 1 reference and 327 keywords about human resource management. Furthermore, each of these documents has an average of 4,469 citations.

3.1.2. Distribution of Articles by Years

The distribution of publications on Scopus by year is shown in this study. Data distribution is initiated from the year of the article's initial publication and continues until the piece is prepared for publication. Figure 3 displays the findings of the distribution of the annual number of articles published.
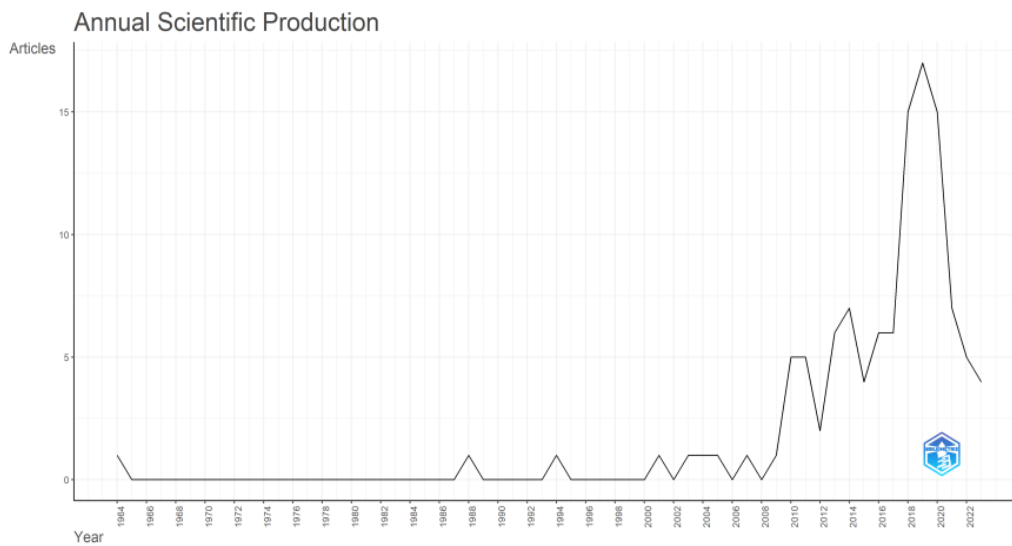
Figure 3: Annual Scientific Production

Interesting statistics about research patterns in defining main leadership may be seen in Figure 3. The data indicates that the quantity of publications about this facet has progressively grown over the years, exhibiting a noteworthy surge in 2018. The peak was reached in 2019 with the publication of 17 papers on the topic. This implies that senior leadership research will continue to be an important topic to look at in the future.

3.1.3. Distribution of Articles by Country

Every year, countries carry out research in a variety of sectors, but if we look at productivity, we can see that the top 10 countries are where the majority of the research is conducted. The results of research published through Scopus are shown according to the nation of origin, as depicted in Figures 4 and 5.
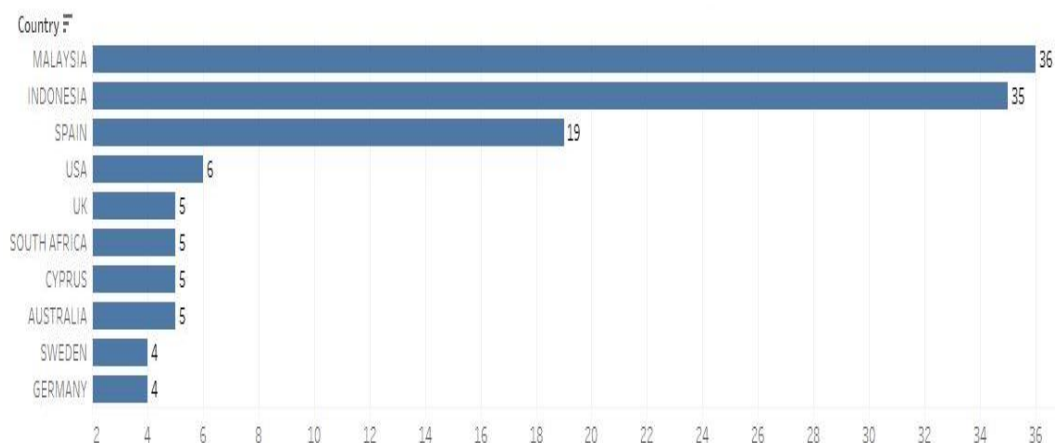

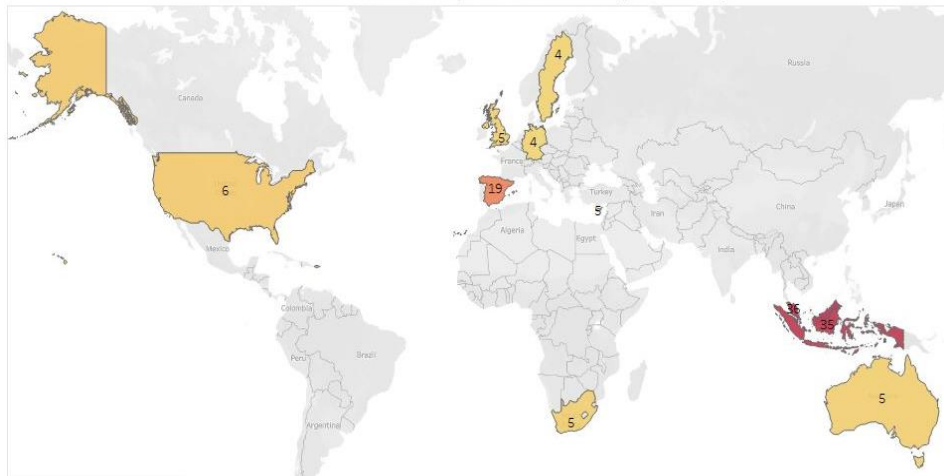**Figure 4: Distribution of Articles by Country**

Figure 5: Article Distribution Map by Country

The nations that produced the most papers on varied principal leadership are shown in Figures 4 and 5. Based on the data, which includes 36 articles about the topic, productivity is highest in Malaysia. Spain came in third place with 19 articles, followed by Indonesia in second place with 35 papers. In contrast, the top five nations in terms of research production were the UK, South Africa, Australia, Cyprus, and the US. Comparing Malaysia to the other nations depicted in Figure 4, this demonstrates that the country is a leader in the research of diverse principalship. Many factors, including the abundance of universities and research facilities, the availability of funding for research, and Malaysia's position as the productivity leader, could

3.1.4. Afiliasi Paling Produkti

Information about the most fruitful affiliations within the framework of the main leadership subject is provided below. The figure in Figure 6 displays the findings of the bibliometric investigation.
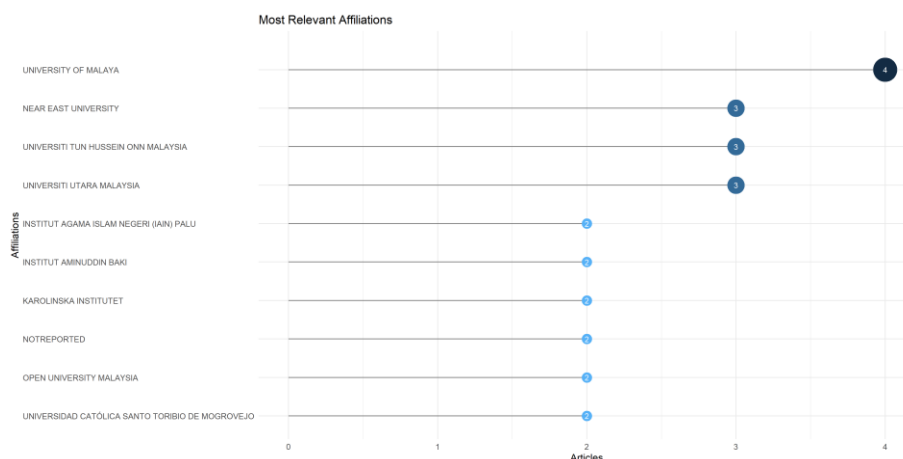

Figure 6: The Most Productive Affiliates

The University of Malaysia is the most productive affiliate in terms of publishing articles on principle leadership, based on the statistics shown in Figure 6. They have out produced other affiliates by a significant margin, having produced over 4 articles. This suggests that the University of Malaysia has several very committed researchers working in this area, and the institution has greatly advanced our understanding of principle leadership. Moreover, Near East University, Universiti Tun Hussein Onn Malaysia, and Universiti Utara Malaysia seem to be active in releasing comparable articles as well; they rank second in terms of publications with over three articles pertaining to key leadership.

Six other affiliates, Institut Agama Islam Negri (IAIN), Institut Aminuddin Baki, Karolinska Institutet, Not reported, Open University Malaysia, and Universidad Católica Santo Toribio De Mogrovejo, are also among the top five most productive affiliates in terms of principal ship publications. This indicates the attention of numerous researchers from different colleges worldwide in the topic of principal ship.

For scholars and researchers, the bibliometric analysis results shown in Figure 6 offer important insights. They can use this information to identify possible research colleagues or partners at pertinent universities as well as to comprehend contemporary advancements in principal ship studies. Furthermore, the data sheds light on how principal ship research and thought processes are conducted globally. Researchers can decide the best course of action for furthering their understanding of principal ship by identifying the affiliates that are most active in publishing research in this area.

3.1.5. Most Productive Sources (Articles and Citations)

Starting with the top ten sources for publications by Scopus-indexed leadership topic, citation analysis was performed. Table 1 presents the information.

Table 1: The Most Productive Sources

Element	h_index	Citations	Artikel	Year
UNIVERSAL JOURNAL OF EDUCATIONAL RESEARCH	5	46	8	2019
ASIAN JOURNAL OF UNIVERSITY EDUCATION	2	16	4	2020
ESTUDIOS PEDAGOGICOS	2	10	2	2017
INTERNATIONAL JOURNAL OF LEADERSHIP IN EDUCATION	2	16	2	2005
INTERNATIONAL JOURNAL OF SCIENTIFIC AND TECHNOLOGY RESEARCH	2	51	7	2018
PROCEDIA - SOCIAL AND BEHAVIORAL SCIENCES	2	15	2	2010
PROFESORADO	2	6	2	2013
3L: LANGUAGE, LINGUISTICS, LITERATURE	1	4	1	2019
ACM INTERNATIONAL CONFERENCE PROCEEDING SERIES	1	1	2	2019
ADVANCES IN EDUCATIONAL ADMINISTRATION	1	6	1	2014

Data pertaining to principal leadership publications and citations is included in Table 1 for the journals and publication sources that are most fruitful. Based on the table, it is evident that "ASIAN JOURNAL OF UNIVERSITY EDUCATION" has 4 articles and 16 citations, whereas

"Universal Journal of Educational Research" publishes 8 articles and receives 46 citations. Table 1 offers significant insights into the publications' sources that have made significant contributions to the field of principle leadership. Furthermore, as can be seen from the table's data, an entity's h-index value increases with the quantity of citations it receives from journals or other sources. This suggests that highly cited journals or other sources have a big influence on principal ships.

3.1.6. Articles with the Most Citations

The top ten articles, sourced from a variety of authors and sources, are shown below. The bibliometric analysis findings are displayed in Table 2.

Table 2 shows information about the authors and the highest number of citations tracked by Scopus. Based on the data in Table 2, Ewen et al.'s (2013)[45] article has received the highest number of citations (68) among all articles on the topic of principal leadership. This article is followed by articles written by Renata et al. (2018)[46], Aksal (2015)[47], Hoque et al. (2020)[48], and Ingemarson et al. (2014)[49], which are among the five most cited articles on the topic. The fact that Ewen et al. (2013) is the most cited author suggests that its research has a significant impact on the field of principal leadership. However, it should be noted that a high number of citations does not necessarily indicate the quality of the research, as there are other factors that influence it, such as the popularity of the topic or the availability of the research. The presence of other authors in the list of most cited articles in human resource management also indicates that their research has made a significant contribution to the field.

Table 2: Top 10-Most Articles Citations

Paper	DOI	Total Citations	Year	Juornal
Ewen et al.	10.1016/j.leaqua.2013.03.006/2-s2.0-84880729599	68	2013	Leadership Quarterly
Renata et al.	NA/2-s2.0-85059778389	39	2018	International Journal of Scientific and Technology Research
Aksal	10.15390/EB.2015.4534/2-s2.0-84954477171	32	2015	Egitim ve Bilim
Hoque et al.	10.1177/2158244020925501/2-s2.0-85085039592	17	2020	SAGE Open
Ingemarson et al.	10.1016/j.evalprogplan.2013.10.005/2-s2.0-84890231474	15	2014	Evaluation and Program Planning
Wahab et al.	10.5539/ies.v7n13p40/2-s2.0-84919710676	13	2014	International Education Studies
Chapman & Burchfield	NA/2-s2.0-0028562698	12	1994	International Review of Education
Khasanah et al.	10.1007/BF01102820/2-s2.0-85073373205	12	2019	International Journal of Scientific and Technology Research
Balyer & Özcan	NA/2-s2.0-84875668903	11	2012	Egitim Arastirmalari - Eurasian Journal of Educational Research
Watkins	NA/2-s2.0-34248136074	11	2007	History of Education

3.2. Relevant Trends and Topics for Principal Leadership Differentiation Future Research

3.2.1. Relevant Topics for Future Research

The information that follows pertains to subjects that should be explored further in future studies on the topic of principal ship. Figure 7 displays the findings of the bibliometric investigation.
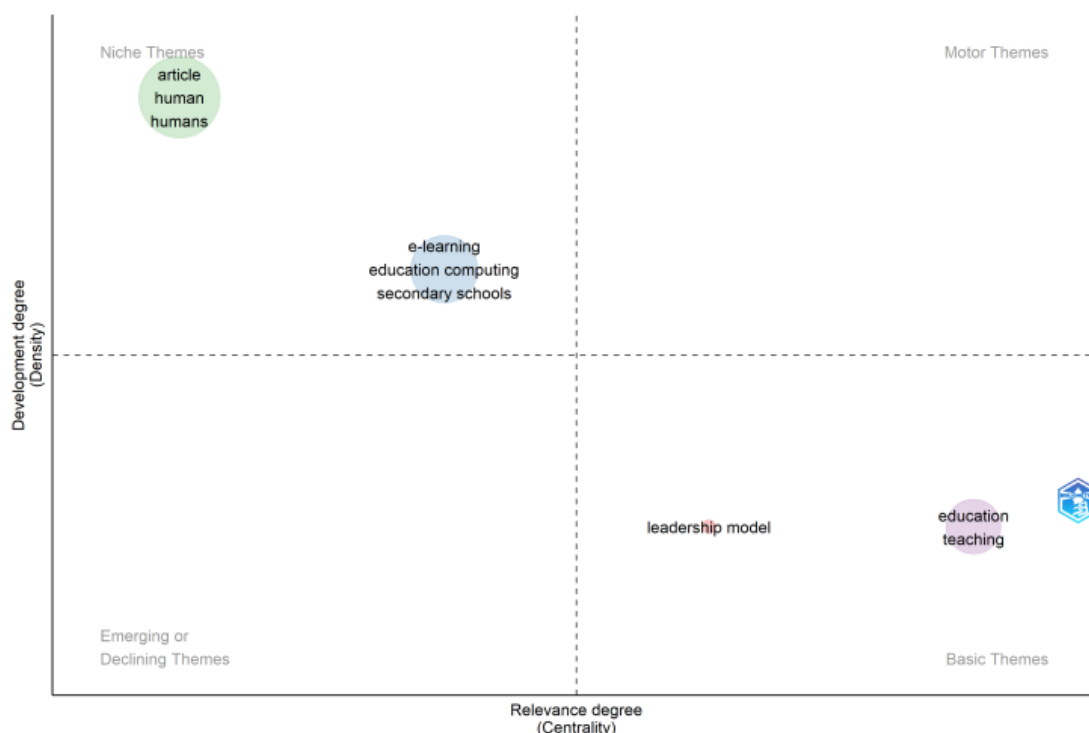

Figure 7: Thematic Map

Based on current research trends, Figure 7 presents information on how pertinent themes for principle leadership study have been divided into two quadrants. Research on subjects that are still of interest is found in the first quadrant, Nice Themes, which includes subjects such education computing, secondary schools, students, articles, human, organization and management, and school health services. Leadership models and e learning are two examples of well-established and pertinent subjects found in the second quadrant, Basic Themes.

The findings from the Basic themes quadrant above indicate that although principal ship is a topic that has been studied extensively, it is not currently the primary focus of study or one that advances leadership paradigms. Finally, Figure 7 offers insightful data that can help researchers choose leadership model study topics that align with current research trends and advance the field of education.

A technique known as a conceptual structure map is used in bibliometric analysis to locate and examine the scientific conceptual structure of the literature. Its goal is to provide insight into the connections and evolution of related concepts in the scientific literature by employing keyword mapping and cluster analysis of scientific documents found in pertinent databases.

4. DISCUSSION

4.1. Distribution of Publications

The situation of the field today has been significantly enlightened by bibliometric examination of important leadership. There has been a consistent rise in publications over the last ten years, indicating that the field is active, according to one of the main findings. This suggests that researchers, educators, and policy makers are becoming more interested in discovering new ways to teach diverse subjects. The field's interdisciplinary nature and its links to sociology, psychology, and education are other important discoveries. This demonstrates the intricacy of the idea of leadership and the demand for a diverse method of comprehending and implementing it. Research is heavily concentrated in Asia, with little to no representation in other parts of the world, according to the international distribution of publications. This result raises the possibility that further research from non-Asian regions has to be included in order to develop a more thorough grasp of the field. According to the impact assessment of principal ship research, the topic has a number of highly referenced articles, authors, and journals. This implies that principal ship research has a big influence on the area and helps create new insights and knowledge.

4.2. Trending and Relevant Topics for Future Research

"Principal Leadership" is one of the subjects that has been popular recently, according to the analysis of trending topics. In the realms of businesses and education, principal leadership is a crucial component that plays a major part in controlling, steering, and guaranteeing the success of an institution[50], [51]. The objectives of a school principal can vary, but in general they aim to carry out basic managerial tasks, entrepreneurial development, and supervision of teachers and education personnel in addition to developing and improving school quality based on the eight national education standards.

The examination of pertinent subjects for upcoming studies has separated these subjects into two quadrants. Bibliometric analysis uses two categories, Quadrant 1 Nice Themes and Quadrant 2 Basic themes, to rank research topics according to their degree of significance and applicability in a certain field[52]–[54]. Nice Themes are very specific topics and may not be of broad interest to the entire field. These topics may be highly specialized, focused on a specific industry or sector, or only relevant to a specific geographic area[55] and The fundamental ideas and precepts that guide the discipline are referred to as basic themes. It is possible to consider these subjects to be fundamental information for academics working in the field because they are probably well-researched and extremely pertinent to the field as a whole[56], [57].

By categorizing research topics into these two categories, bibliometric analysis can provide valuable insights into the current state of research in a particular field and can help researchers identify which topics are most important and relevant to their work to research themes and concepts that are less studied in the field, such as leadership models and e-learning. The practical implication of the findings of this study is that they can be used to develop leadership development programs to improve school management, student development, and overall school success. The findings can also be used as a consideration by managerial policy makers to ensure that schools have leaders who can improve school quality.

To sum up, the bibliometric analysis of principal ship has given us a thorough understanding of the field's current state, historical development, global reach, and influence on practice communities in science and education. It is crucial to remember that this analysis just makes up a small portion of the principal ship research, and additional study is required to fully comprehend the topic. The quadrant categories selected for future principal ship research subjects are determined by the researcher's interests and research aims. Topics from the Niche Themes category might be selected if the objective is to conduct research on a more specialized subject. Topics under the Basic Themes category, however, are more suited if you wish to.

Researchers who want to focus on a relatively specific topic that has not been widely researched can choose the Niche Themes category. Examples of topics included in this category are education-computing, secondary schools, students, articles, human, humans, organization and management, school health services. Researchers who want to focus on more general and basic topics in digital marketing can choose the Basic Themes category. Examples of topics included in this category are leadership model and e learning.

The practical implication of the findings of this study is that they can be used to develop principals' professional development programs to improve school management, student development, and overall school success. The findings can also be taken into consideration by school managerial policy makers to ensure that schools have leaders who can keep improving school quality. In conclusion, the bibliometric analysis of principal ship has provided a comprehensive picture of the current state of the field, its evolution over time, its international scope, and its impact on the scientific and educational communities of practice. However, it is important to note that this analysis is only part of the research on principal ship, and further research is needed to gain a more comprehensive understanding of the field.

5. CONCLUSIONS

A thorough picture of the field's current state has been produced by a bibliometric examination of the principal ship literature. The analysis's findings indicate that, during the previous ten years, the number of publications in the field of principal ship has steadily increased. Along with important ideas and concepts that are the subject of current research, our analysis has identified the most productive journals, authors, and institutions.

Furthermore, the global dissemination of papers suggests that this research is heavily concentrated in the Asian region, with relatively little research coming from other parts of the

globe. Temporal trend analysis reveals that the area is changing with time, with new study subjects emerging and some topics becoming more and more popular. An evaluation of the impact of research on principle leadership also reveals that publications in this field have garnered a large number of citations, with a number of articles, authors, and journals holding a prominent position within the research community.

However, it is important to note that this study has limitations in that the analysis is based on the Scopus database, so interpretation of the findings is limited to the information available in the journals indexed in it. Recommendations for future research in the area of principal leadership include the need to explore themes and concepts that are still under-explored in the field, such as focusing on different leadership styles or identifying models of principal leadership that are effective in managing educational institutions. In addition, research could deepen the understanding of the implementation of school leadership in different regions and cultures, providing valuable insights into the challenges faced in implementing leadership models in diverse school and geographical contexts. These recommendations will assist school leaders and education policy makers in making more informed decisions. Furthermore, additional varied databases including Web of Science (WoS/WoK), Dimensions, Lens.org, PubMed, and the Cochrane Library should be used in future studies. Merging metadata from these different database providers, can assist uncover more detailed patterns in principle leadership research and increase the accuracy of study findings.

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