Emerging Trends in Human Resource Management and Education in Indonesia (2018-2023): A Bibliometric Analysis

Suharyanto

Universitas PGRI Adi Buana Surabaya, Indonesia
Email: Suhariyanto@unipasby.ac.id

ABSTRACT

This article presents a bibliometric analysis of emerging trends in Human Resource Management (HRM) and its intersection with education in Indonesia over the period 2018 to 2023. Employing bibliometric methodology, this study measures and analyzes scientific literature related to HRM, with a specific focus on educational settings and the impact of educational advancements on HRM practices. The research data was sourced from various academic publications, including journals, conference papers, and other HRM-related publications, with a particular emphasis on the educational sector. The bibliometric analysis, conducted using specialized software such as Biblioshiny, facilitated the generation of thematic maps and citation matrices, offering insights into the evolving dynamics at the confluence of HRM and education. The results of this analysis provide a comprehensive understanding of recent changes and trends in HRM practices within the Indonesian educational context, encompassing themes such as HRM strategies in educational institutions, the role of technology in HR education, sustainability in educational HRM, and the challenges of managing human resources in the dynamic environment of educational settings. This article contributes significantly to the understanding of HRM in the context of Indonesian education and offers valuable guidance for practitioners, academics, and policymakers in navigating the complexities of HRM challenges in educational environments.
Keywords: Bibliometric, Indonesia, Human Resource Management, Education

A. INTRODUCTION

Human Resource Management (HRM) plays a crucial role in shaping the success and sustainable growth of organizations through strategic workforce management (Verma et al., 2018). Amidst the dynamic changes in Indonesia's business landscape, HRM practices have undergone significant transformations, influenced by various internal and external factors. These include advancements in technology, globalization, demographic shifts, and the evolving expectations and needs of employees. In line with these changes, HRM practitioners, academics, and policymakers need a deep understanding of the latest trends and research directions in HRM in Indonesia to achieve competitive excellence and optimal organizational performance (Sitepu et al., 2018). To provide profound insights into these changes, this study presents a meticulous bibliometric analysis titled "Emerging Trends in Human Resource Management in Indonesia (2018-2023)".

The background of HRM research in Indonesia reflects the importance of adaptive and innovative human resource management strategies to respond to the complexities of business challenges. HRM researchers have made valuable contributions in exploring relevant issues and evidence-based solutions to enhance workforce management effectiveness (Brewster et al., 2016). This study's bibliometric approach is expected to yield valuable information about HRM research trends and focuses in Indonesia during the defined research period. By mining data from various trusted sources such as Scopus and Web of Science, the analysis will identify dominant themes, prolific authors contributing significantly to HRM research, and leading journals in the field.

This research involves collecting data from relevant scientific publications (Scopus database) on HRM in Indonesia during the specified research period. With the aid of Biblioshiny software and proven bibliometric techniques, the analysis will include identifying and interpreting dominant themes, citation analysis, and identifying prolific authors who have made significant contributions to HRM development in Indonesia (Andriyani et al., 2023; Jannah et al., 2022; Sumiharsono et al., n.d.).

The discussion of the findings will include an in-depth analysis of prominent themes, research implications, and their relevance in achieving competitive excellence and long-term organizational success. Additionally, the discussion will highlight potential research gaps and future research directions that could explore unexplored aspects or emerging issues in HRM in Indonesia. The results of this bibliometric analysis will provide valuable insights for HRM practitioners, academics, and policymakers to enhance their understanding of trends and changes in HRM in Indonesia. This research is expected to offer strong guidance in developing innovative, adaptive, and sustainable HRM practices to achieve organizational goals and drive sustainable growth in the future.

The primary objective of this study is to provide valuable contributions in understanding the latest developments in HRM in Indonesia and their implications in the context of evolving organizational and business environments. By examining HRM research trends during the period 2018-2023, policymakers and HRM practitioners in Indonesia can gain deep insights into effective strategies and practices for managing a diverse workforce and facing global competition.

B. METHODS

This study employs a bibliometric approach to analyze research trends in the field of Human Resource Management (HRM) in Indonesia during the period from 2018 to 2023. The bibliometric approach is utilized to measure and analyze relevant scientific literature in HRM, as well as to identify research patterns, key themes, and recent developments in the field (Kismoyo et al., 2023). Research data were sourced from relevant scientific publications on HRM in Indonesia. This data encompasses journal articles, conference papers, and other

publications. The Scopus database was used to collect data, with the initial stage involving keyword selection. The keywords used in the data search involved a specific combination, resulting in 603 documents.
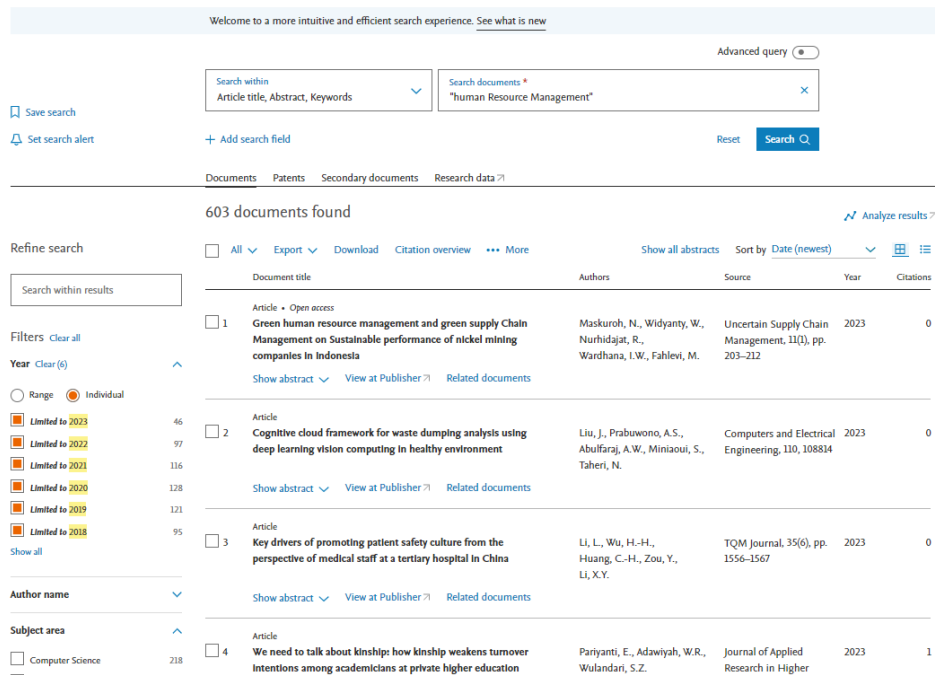

Figure 1. Search results metadata on the Scopus database

Bibliometric analysis was conducted using the R programming environment, including Biblioshiny, to process the collected data. The use of this software enabled the visualization of thematic maps, ranking of prolific authors, and in-depth citation analysis. Thematic maps were employed to identify the main themes in HRM research in Indonesia, while citation analysis revealed the most frequently cited publications in the field (Asriyani & Ramadhan, 2023; Safitri & Ramadhan, 2023). The data collected and processed through bibliometric analysis were organized into representative tables and graphs. This data analysis provides a comprehensive overview of the trends and research focuses in HRM in Indonesia during the studied period. The results of the bibliometric analysis will be interpreted to reveal relevant research patterns, dominant themes, and recent trends in the field of HRM in Indonesia. These findings will be related to the social and economic developments in Indonesia and their implications in human resource management in organizations.

C. RESULTS AND DISCUSSION
Main Information About Data

A bibliometric analysis was conducted by examining data from the years 2018 to 2023, sourced from 270 references including journals, books, and other sources. A total of 603 documents were analyzed in this study, with a noted -13.5% decrease in the annual growth rate of document volume. The average age of the documents in the dataset is approximately 2.77 years, indicating that the majority of the documents were published within this time frame. Within these documents, 2,987 additional key terms (Keywords Plus) were identified, deemed relevant for depicting specific themes or topics. Furthermore, the authors provided 1,582 key terms (Author's Keywords) to describe the content of the documents. This data offers insights into the words considered significant by the authors in portraying their research. The detailed results are presented in Table 1 below.

Table 1. Main Information About Data

Description	Results
Timespan	2018:2023
Sources (Journals, Books, etc)	270
Documents	603
Annual Growth Rate %	-13,5
Document Average Age	2,77
Average citations per doc	2,673
References	18943
Document Contents	
Keywords Plus (ID)	2987
Author's Keywords (DE)	1582
Authors	
Authors	1922
Authors of single-authored docs	41
Authors Collaboration	
Single-authored docs	41
Co-Authors per Doc	3,58
International co-authorships %	15,09
Document Types	
article	246
book chapter	7
conference paper	342
editorial	1
review	7

The bibliometric analysis involved 1,922 authors engaged in the authorship of the analyzed documents. Out of 603 documents, there were 41 documents authored solely by a single individual, highlighting individual contributions in some studies. The document types in the bibliometric analysis encompassed a variety of publication forms. Articles were the most common document type with 246 entries, followed by conference papers totaling 342 documents. Additionally, there were 7 book chapters and 7 review documents, with only 1 editorial document included in the dataset. Overall, this bibliometric analysis provides an overview of the data sources, annual growth, and the distribution of document types focused on in the research during a specific period. These results offer significant insights into research trends and author contributions in the field.

Most Relevant Authors

This section presents descriptive data regarding the authors and the number of articles they have written in this bibliometric analysis. Ten authors were identified in the dataset, each with a significant contribution to article authorship. The analysis results are presented in Figure 2 below.
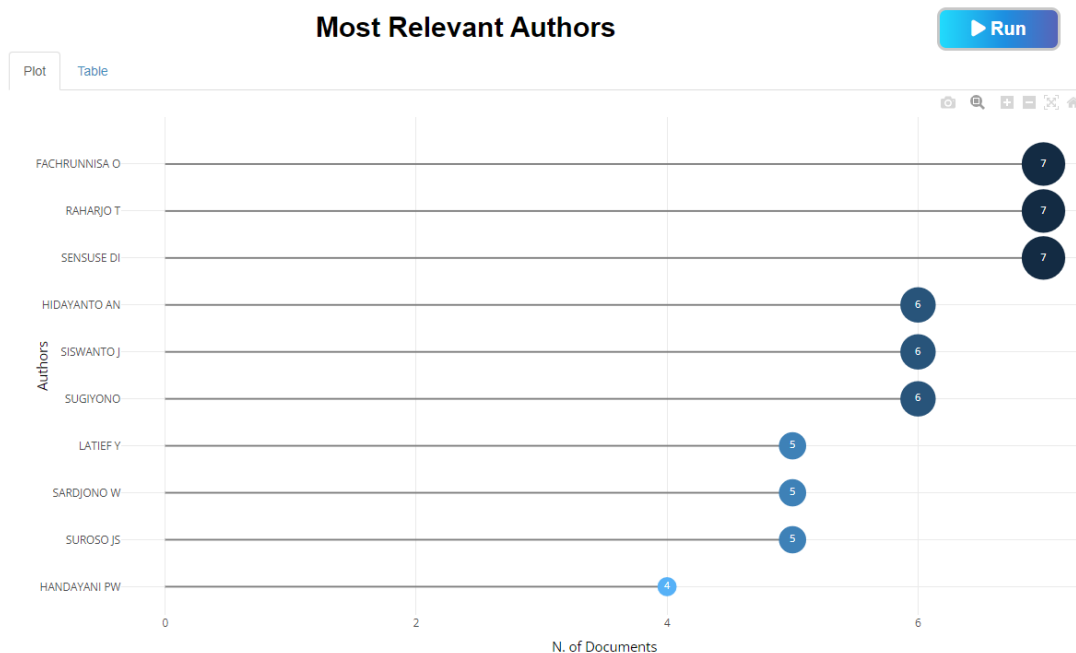
Figure 2. Most Relevant Authors

According to Figure 2, Fachrunnisa O, Raharjo T, and Sensuse DI each contributed equally by writing seven articles. This indicates their significant role in contributing to the same research topic. Following them, three other authors, Hidayanto AN, Siswanto J, and Sugiyono, each wrote six articles. Their nearly equal article count signifies active participation in the same research field. The next five authors, Latief Y, Sardjono W, Suroso JS, Handayani PW, and Hardoyo W, each wrote five articles. Although their article count is slightly less, their contributions remain an integral part of the overall bibliometric analysis. Altogether, these ten authors have made significant contributions to the analyzed research, and their roles in producing these articles are key aspects of this bibliometric analysis. The presence of these authors demonstrates collaboration and academic contributions in building knowledge in the studied field.

Most Relevant Sources

This section provides a description of the sources contributing articles in this bibliometric analysis. Ten publication sources were identified in the dataset, each contributing a different number of published articles.

The leading source, "IOP Conference Series: Earth and Environmental Science," contributed the most with 55 articles. Its significant role in providing articles relevant to earth and environmental sciences, and its substantial contribution, indicates high interest and research in this topic. "Journal of Physics: Conference Series" ranked second with 46 articles, contributing substantially to articles related to various aspects of physics and related conferences. Following this, "IOP Conference Series: Materials Science and Engineering" contributed 34 articles relevant to materials science and engineering. This contribution underscores the importance of research in materials science and the development of innovative material techniques.
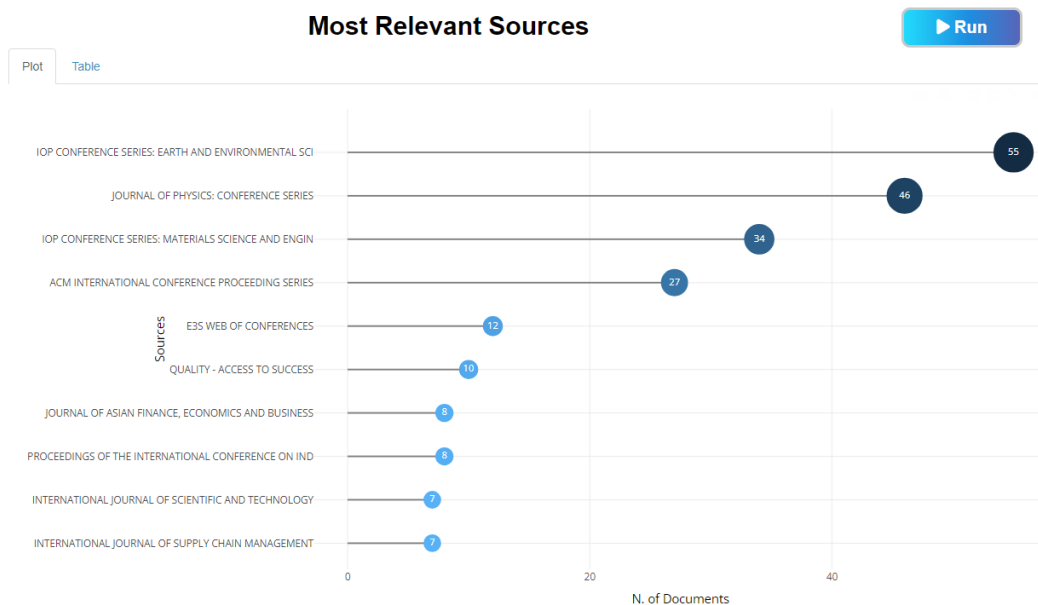
Figure 3. Most Relevant Sources

The ACM International Conference Proceeding Series contributed 27 articles to the dataset. Known for publishing high-quality scientific articles related to computer science and its related fields, its contributions are noteworthy. Additionally, other sources such as E3S Web of Conferences, Quality - Access to Success, Journal of Asian Finance, Economics and Business, Proceedings of the International Conference on Industrial Engineering and Operations Management, International Journal of Scientific and Technology Research, and International Journal of Supply Chain Management, all have made valuable contributions in enriching scientific literature in fields relevant to each publication. Overall, these sources reflect the diversity of topics and scientific fields focused on in this bibliometric analysis and demonstrate the active contributions of various international conferences and journals in scientific research.

Most Relevant Affiliations

This section presents a description of the affiliations or academic institutions contributing to the authorship of articles in this bibliometric analysis. There are ten top affiliations participating in this research, each contributing a different number of articles.

Figure 4 showcases the most relevant affiliations in the bibliometric analysis. Bina Nusantara University (Universitas Bina Nusantara) ranks at the top with a significant contribution, accounting for a total of 61 articles. This university emerges as the most productive affiliation in this study, indicating a high level of research activity by authors associated with it. In the second position is Universitas Indonesia, contributing 41 articles. This substantial contribution reaffirms the university's reputation as one of the leading higher education institutions in Indonesia for high-quality research. Following this, Diponegoro University (Universitas Diponegoro) stands in the third position with 24 contributed articles. This significant contribution signifies the university's important role in supporting research activities.
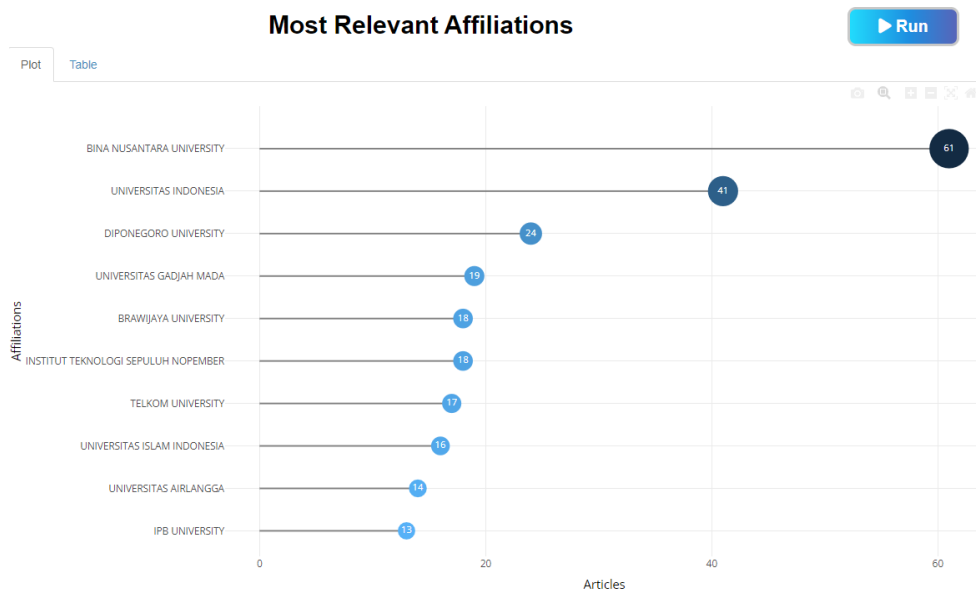
Figure 4. Most Relevant Affiliations

Universitas Gadjah Mada, Brawijaya University (Universitas Brawijaya), and the Institut Teknologi Sepuluh November each have an equal contribution of 19 articles. Their identical positioning in this research demonstrates a high level of engagement in research. Additionally, several other universities have made meaningful contributions to this bibliometric analysis. Telkom University, Universitas Islam Indonesia, Universitas Airlangga, and IPB University (Institut Pertanian Bogor) each contributed a diverse number of articles. Overall, these ten affiliations or academic institutions play a significant role in generating research and contributing to knowledge advancement across various fields of study. These results reflect the diversity of research conducted at higher education institutions in Indonesia and affirm their commitment to supporting scientific and academic advancement in the country.

Most Global Cited Documents

This section provides a descriptive overview of several articles based on the total citations each article received. These articles originate from various fields of study and have gained wide recognition in the form of citations from other researchers and scientists.

Table 2. Most Global Cited Documents

Paper	Author and year	DOI	Total Citations
PAAIS M, 2020, J ASIAN FINANC ECON BUS	(Paais & Pattiruhu, 2020)	10.13106/JAFEB.2020.VOL7.NO8.577	86
WIDIANTA MMD, 2018, J PHYS CONF SER	(Widianta et al., 2018)	10.1088/1742-6596/953/1/012116	54
PRADANA M, 2020, TECHNOL ANAL STRATEG MANAGE	(Pradana et al., 2020)	10.1080/09537325.2020.1714578	39
WRAHATNOLO T, 2018, IOP CONF SER MATER SCI ENG	(Wrahatnolo & Munoto, 2018)	10.1088/1757-899X/296/1/012036	37

Paper	Author and year	DOI	Total Citations
NAWAY FA, 2019, UNCERTAIN SUPPLY CHAIN MANAG	(Naway & Rahmat, 2019)	10.5267/j.uscm.2018.11.001	34
MUKHLIS H, 2022, HTS TEOL STUD	(Mukhlis et al., 2022)	10.4102/HTS.V78I1.7830	27
SITEPU S, 2018, IOP CONF SER MATER SCI ENG	(Sitepu et al., 2018)	10.1088/1757-899X/300/1/012016	26
FACHRUNNISA O, 2020, J KNOWL ECON	(Fachrunnisa et al., 2020)	10.1007/s13132-018-0572-7	24
FACHRUNNISA O, 2020, INTERN J ENG BUS MANAGE	(Fachrunnisa & Hussain, 2020)	10.1177/1847979020966400	24
VERMA P, 2018, EQUAL DIVERSITY INCL	(Verma et al., 2018)	10.1108/EDI-01-2017-0015	24

The most cited article is "PAAIS M," published in 2020 in the "Journal of Asian Finance, Economics and Business." This article has received a total of 86 citations, indicating the scientific community's high level of interest in the topic discussed. Likely, this article addresses significant issues in the fields of finance, economics, and business in Asia. In second place is the article "WIDIANTA MMD," published in 2018 in the "Journal of Physics: Conference Series." This article has been cited 54 times, demonstrating its meaningful contribution to the field of physics and attracting significant researcher interest.

Next, the article "PRADANA M," published in 2020 in the "Technology Analysis & Strategic Management" journal, has received 39 citations. This article likely discusses topics relevant to technology analysis and strategic management, and its contributions have been recognized by many scientists. Additionally, several other articles have also received recognition in the form of citations. These articles cover a range of topics from theological studies to diversity and knowledge economics. Collectively, they have been valuable sources of knowledge and contributed to enriching the scientific literature in their respective fields. Overall, the articles in this table reflect the quality and relevance of the research conducted by their authors. With varying citation levels, these articles have significantly contributed to advancing knowledge in various scientific domains and have been a source of inspiration for many researchers worldwide.

Trend Topic

The bibliometric analysis reveals intriguing trends in academic research topics. The findings related to trend topics are displayed in the figure below.

Figure 5. Trend Topic

Several key topics identified in this analysis include "job satisfaction," "human resources," "machine learning," "employee performance," "artificial intelligence," "human resource management," "knowledge management," "performance," and "turnover intention." The topic of "job satisfaction" highlights research on employees' satisfaction levels with their jobs, a crucial factor in productivity and employee retention within organizations. "Human resources" involves research on human resource management, including aspects such as recruitment, training, and performance management. Meanwhile, "machine learning" is an area of artificial intelligence focusing on developing algorithms that learn from data without being explicitly programmed.

The topic of "employee performance" focuses on research into employee performance and the factors affecting it. "Artificial intelligence" encompasses the development of machines or computers that can mimic human behavior, such as thinking and decision-making. Meanwhile, "human resource management" relates to the management of human resources within organizations, including aspects of planning and organizing human resources. The topic of "knowledge management" highlights strategies for collecting, storing, and distributing knowledge within an organization. "Performance" includes indicators and methods used to measure performance in various contexts. Lastly, "turnover intention" involves research into employees' intentions to leave their current organization. All these topics reflect critical issues in human resource management, technology, and organizational performance. Research in these areas contributes to enhancing understanding of how these factors impact organizations and employees. These findings can assist organizations in improving effectiveness, efficiency.

Co-occurance network

This section illustrates clusters of various nodes (keywords or topics) that emerged in the bibliometric analysis. There are 9 clusters grouping similar topics based on their

commonality in research context or discussed themes. Here is a descriptive overview of each cluster:

Figure 6. Co-occurance network

1. Cluster 1: Employee Performance, Job Satisfaction, Leadership, Organizational Culture, Transformational Leadership, Motivation. This cluster encompasses topics focused on employee performance, job satisfaction, leadership, organizational culture, transformational leadership, and motivation. It likely focuses on aspects influencing employee performance and productivity, and how leadership and organizational culture impact job satisfaction and employee motivation.
2. Cluster 2: Indonesia, Supply Chain Management. This cluster is centered on research related to Indonesia and supply chain management. It may include studies on managing supply chains in Indonesia, challenges faced, and strategies for enhancing efficiency and effectiveness in supply chains.
3. Cluster 3: Sustainability, Green HRM. This cluster discusses topics related to sustainability and environmentally conscious human resource management (green HRM). These topics concern organizational efforts to adopt environmentally friendly and sustainable practices in human resource management.
4. Cluster 4: Knowledge Management, Knowledge Management System. This cluster focuses on research about knowledge management and knowledge management systems. It relates to strategies and practices for collecting, storing, and distributing knowledge within organizations.
5. Cluster 5: Artificial Intelligence, Machine Learning. This cluster includes topics on artificial intelligence and machine learning, focusing on the development of technologies and algorithms that enable computers to learn and perform specific tasks without explicit programming.
6. Cluster 6: Project Management, Critical Success Factors. This cluster focuses on topics related to project management and critical success factors in project management. It may cover strategies and practices for successfully managing projects and factors influencing project success.
7. Cluster 7: Performance, Human Resource, Innovation. This cluster encompasses topics related to performance, human resource management, and innovation. These

topics might focus on how human resource management and innovation influence organizational performance.

8. Cluster 8: Human Resource Management, Turnover Intention, Digitalization, Employee, HRM, Strategic Management. This cluster includes topics related to human resource management, turnover intention, digitalization, employees, HRM, and strategic management. It may relate to the roles and challenges in human resource management, and organizational efforts to adopt digital technologies in HRM.

9. Cluster 9: Human Resources Management, Hospital. This cluster focuses on topics related to human resources management in the context of hospitals. These topics might include specific strategies and practices in human resource management applied in hospitals to improve efficiency and healthcare services.

Thematic Map

In bibliometric analysis, the thematic map is an essential feature of the Biblioshiny program that aids in data visualization and identifying patterns related to clusters or groups of topics based on density and centrality. The thematic map function allows users to present bibliometric analysis results in the form of thematic maps containing clusters or groups of interrelated keywords based on commonality in research context or discussed themes.
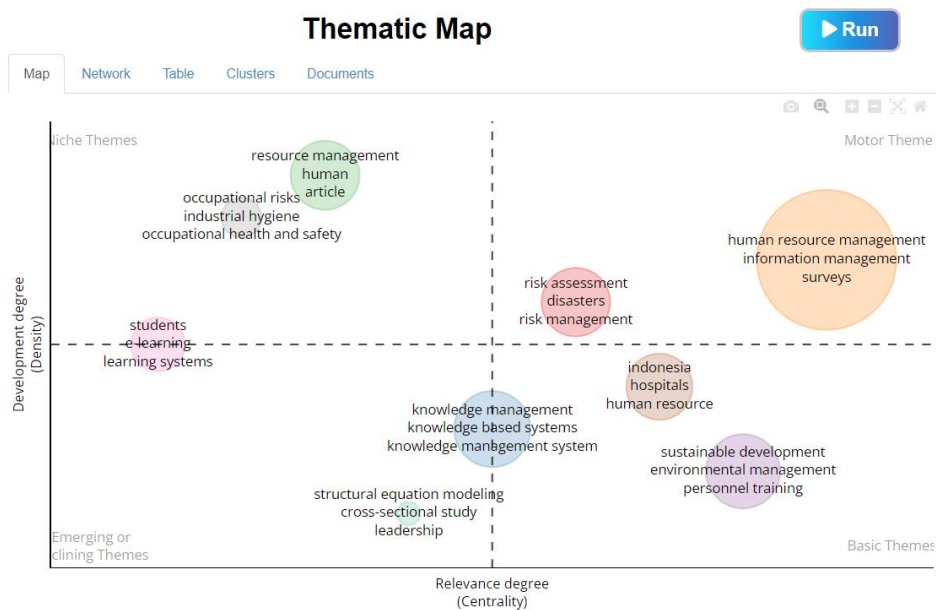

Figure 7. Thematic Map

The table displays 9 clusters (groups) grouping similar words in the bibliometric analysis. Cluster 1: Risk Assessment, Disasters, Risk Management. Cluster 2: Knowledge Management, Knowledge-Based Systems, Knowledge Management System. Cluster 3: Resource Management, Human, Article. Cluster 4: Sustainable Development, Environmental Management, Personnel Training. Cluster 5: Human Resource Management, Information Management, Surveys. Cluster 6: Indonesia, Hospitals, Human Resource. Cluster 7: Students, E-learning, Learning Systems. Cluster 8: Occupational Risks, Industrial Hygiene, Occupational Health and Safety. Cluster 9: Structural Equation Modeling, Cross-Sectional Study, Leadership.

The bibliometric analysis on "Emerging Trends in Human Resource Management in Indonesia (2018-2023)" has provided valuable insights into the evolution of this crucial field over the specified period. This analysis enabled us to identify key themes, prominent research areas, and overall trends in Human Resource Management (HRM) research in Indonesia. In

this discussion, we highlight the main findings from the bibliometric analysis and interpret their implications.

Thematic mapping revealed several dominant themes in HRM research during 2018-2023. Notably, topics like "employee performance," "job satisfaction," "leadership," "organizational culture," and "motivation" emerged as the most researched. Their dominance indicates the importance of employee satisfaction, leadership styles, and organizational culture in enhancing employee performance and motivation within Indonesian organizations.

The bibliometric analysis showed an increased focus on technology-related topics such as "knowledge management," "knowledge-based systems," and "artificial intelligence" in HRM research. The emergence of these themes indicates a growing interest in leveraging technology and digital solutions to enhance HR processes, including knowledge sharing, decision-making, and talent management. Another notable finding was the emergence of sustainability-related themes, like "sustainable development" and "environmental management" in the context of HRM. This trend reflects the growing awareness among organizations in Indonesia about the importance of adopting environmentally and socially responsible HRM practices for long-term success and stakeholder satisfaction. The analysis also revealed topics such as "occupational risks," "industrial hygiene," and "occupational health and safety" in HRM research. These themes indicate increasing concerns for employee well-being and safety at work, suggesting that Indonesian organizations are proactive in addressing occupational risks and health-related issues to create a safe and conducive work environment.

Additionally, the rise of themes like "e-learning" and "learning systems" in HRM research suggests a shift towards technology-driven training and development initiatives, reflecting the adoption of e-learning platforms to enhance employee skills and competencies. Strategic HRM-related themes such as "human resource management" and "strategic management" were also prominent in the analysis, indicating an increased focus on aligning HR practices with overall business strategies for improved organizational performance and competitive advantage.

While this analysis identified various trends in HRM research in Indonesia, it also revealed potential research gaps. Topics like "human resources management" and "students" appeared less frequently in the analysis, indicating opportunities for further exploration and research in these areas. Moreover, this study highlights the need for more research on the impact of digitalization on HRM practices and the effectiveness of knowledge management systems in Indonesian organizations.

D. CONCLUSION

Through the bibliometric analysis conducted in the article "Emerging Trends in Human Resource Management and Education in Indonesia (2018-2023): A Bibliometric Analysis," we have successfully identified several key trends in HRM research in Indonesia, particularly focusing on their implications within the educational sector. These findings provide a comprehensive overview of developments and shifts in HRM as they relate to educational institutions in the country. Themes such as "employee performance," "job satisfaction," "leadership," and "motivation" emerged as primary focuses in Indonesian HRM research, highlighting their significance in educational settings. The impact of these factors on teaching staff, administrative personnel, and overall educational outcomes underlines the need for effective HRM strategies in schools, colleges, and universities. Research on "knowledge management," "knowledge-based systems," and "artificial intelligence" demonstrates an increasing interest in adopting digital technologies and solutions to optimize HRM processes, which is particularly pertinent in educational contexts where such innovations can significantly enhance teaching, learning, and administrative efficiency.

Despite the valuable insights provided by this bibliometric analysis, the study also has limitations that should be noted, particularly concerning the representation of trends in the educational sector. The analysis relies on data available from specific sources, which might not fully capture the unique HRM challenges and innovations within educational institutions. With the growth of HRM research in Indonesia, the availability of richer data from diverse educational contexts could enhance the overall representation of trends. The defined research period, 2018-2023, might not fully reflect long-term trends in educational HRM. Future studies could extend the analysis period and include a broader range of publication languages to encompass more studies, providing a more comprehensive view of HRM developments in the Indonesian education sector.

This bibliometric analysis offers a comprehensive view of the main trends in HRM in Indonesia during 2018-2023, with a specific emphasis on their application and impact in educational settings. These findings can assist educational institutions, academics, and policymakers in understanding the latest developments in HRM within the education sector and identifying opportunities for enhancing sustainable human resource management practices in educational environments. Future research addressing these limitations and exploring the identified research opportunities will contribute to more effective and responsive HRM development in Indonesian educational institutions.

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