



Mapping the Landscape of Human Resource Management in Education: A Bibliometric Review of Teacher Performance

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Abstract:

Human resource management (HRM) is one of the key factors that determine the sustainability and success of the education system. However, in reality, human resource management (HRM) research in education still faces several academic gaps that warrant serious attention. This study aims to analyze the development and scientific underpinnings of Human Resource Management (HRM) in education and identify its implications for improving teacher performance. The approach was a bibliometric analysis of publications indexed in Scopus using VOSviewer. Data were analyzed using word co-occurrence techniques to identify relationship patterns, research clusters, and key trends in the HRM literature. The visualization results show that HRM occupies a central position and is closely connected to performance, leadership, competence, and training, indicating the dominance of the strategic human resource management (SHRM) perspective in the research. In addition, research explicitly linking HR practices to teacher performance at the school level remains relatively rare. These findings confirm the existence of research practice gaps and research opportunities, especially in the context of context-specific HRM in schools in developing countries. This study contributes an integrated map of the field and identifies opportunities for context-sensitive research in underrepresented regions. It also offers direction for designing coherent, ethical, and sustainable teacher-management policies.

INTRODUCTION

Human resource management in education is a strategic issue for society because teachers directly shape students' learning quality. When schools recruit, develop, evaluate, and support teachers effectively, the learning process becomes more organized, responsive, and meaningful. This issue is important because optimal teacher performance strongly influences improvements in educational quality and student achievement (Engida et al., 2024; Hoque et al., 2023). In a society that increasingly demands high-quality educational outcomes, schools are expected to adopt knowledge, policies, and managerial strategies to address quality issues by improving teacher performance (Darling-Hammond, 2021; Norman et al., 2025). Therefore, strengthening human resource management is not only an internal school agenda but also a matter of public interest, as it affects the preparation of competent, adaptable, and competitive

future generations. In this sense, school human resources connect directly to social progress.

The importance of human resource management also lies in its ability to position teachers and education personnel as strategic assets rather than merely administrative resources. Education can run optimally when schools manage educators and staff through careful planning, organizing, directing, and controlling, aiming to improve quality, productivity, and professional competence (Nomin et al., 2025). Evidence from previous research shows that skills development, comprehensive performance assessment, constructive feedback, encouragement of initiative and creativity, recognition and rewards, collaboration within work teams, support for teacher well-being, and continuous evaluation can significantly improve teacher performance (Akmaluddin et al., 2025; Ghamrawi et al., 2024). These findings indicate that teacher quality does not emerge automatically, but must be built through systematic management. Thus, effective HRM becomes a key foundation for sustainable school improvement and broader educational development. Consequently, leaders need evidence-based strategies that connect decisions with classroom improvement in measurable ways.

Despite its importance, many educational institutions still struggle to implement human resource management consistently and effectively. Teacher performance development is often constrained by uneven recruitment systems, limited professional training, weak performance evaluation, and insufficient follow-up after assessment. These conditions create gaps between the expected quality of education and schools' actual capacity to support teachers. In Indonesia, for example, teacher performance evaluation remains uneven across schools and regions, suggesting that managerial practices are not yet fully institutionalized. This problem affects not only school administration but also students' learning experiences, as teachers who are not systematically supported may struggle to improve instructional quality. Therefore, the problem of HRM in schools becomes a broader educational concern that requires comprehensive academic attention. Without such support, educational reform may remain formal, fragmented, and unable to reach practice.

Previous studies have provided important contributions to understanding HRM practices in education. Mintz & Kelly (2021) outlined standard procedures, including recruitment, training, and performance evaluation, which reportedly increased teacher motivation by 20-30% in public schools. This study is useful because it shows that structured HRM procedures can positively affect teacher motivation and school performance. However, its limitation lies in its descriptive orientation and reliance on local case studies, which makes national generalization difficult. The study does not explain the variability of implementation across provinces in Indonesia, especially in contexts where only 40% of schools consistently apply performance evaluation. As a result, although the study offers practical insights, it has not provided a broader map of how HRM themes develop across educational research. This limitation becomes critical because Indonesian policy requires evidence that reflects diverse regional conditions.

Another contribution comes from (Permatasari & Tandiyuk, 2023), who mapped more than 25 studies on HRM practices, including recruitment, professional development, and performance assessment. Their review shows that HRM practices can improve the quality of teacher teaching tools, professional competence, and student learning outcomes. However, the study remains limited because it is a descriptive

literature review and does not apply newer empirical approaches such as meta-analysis or bibliometric analysis. Broader academic gaps also persist because research and practice are often disconnected due to differences in paradigms between scholars and practitioners (Cantoni et al., 2025; Moore & Cho, 2024; Redondo et al., 2021). In educational HRM, most studies still focus on administrative and policy dimensions, while educators' experiences and perspectives as implementers are less explored (Burhan et al., 2024; Stacey et al., 2023). Therefore, stronger mapping should clarify where literature concentrates and where future research should move.

In light of these gaps, the present study offers a state-of-the-art contribution by examining human resource management in education through a bibliometric analysis. This approach can reveal publication trends, dominant themes, keyword relationships, and research clusters not easily identified through conventional descriptive reviews. By using Scopus-indexed publications from 2005 to 2025 and analyzing them with VOSviewer, this study positions itself as a systematic attempt to understand how the field of educational HRM has developed over two decades. The novelty of this research lies in its focus on mapping the keyword cluster "HRM AND Education" and then filtering it into the more specific keywords "HRM, Teacher, School." This focus enables a sharper understanding of research patterns related to school-based human resource management. This design reduces conceptual ambiguity by linking HRM discussions to teacher and school contexts in contemporary educational institutions.

The main research problem addressed in this study is the limited availability of comprehensive mapping regarding trends, patterns, and thematic relationships in human resource management research within the education sector. Although many studies discuss teacher development, recruitment, performance assessment, and school management separately, the field's overall intellectual structure remains insufficiently organized. This study argues that bibliometric analysis can provide a clearer basis for understanding the direction of HRM research in education. By identifying dominant themes and keyword clusters, the study can help researchers, school leaders, and policymakers recognize which issues have been widely studied and which areas still require further investigation. Therefore, the research problem is both theoretical and practical, as it concerns how schools can improve teacher performance through evidence-informed management strategies. Such understanding supports policies that are conceptually strong and implementable in schools.

This study aims to describe the literature map of human resource management in education and identify the main keyword clusters relevant to HRM, teachers, and schools. The temporary argument developed in this study is that a bibliometric approach can more comprehensively reveal the development of educational HRM research than a conventional narrative review. Through this mapping, the study is expected to contribute by providing an organized overview of research trends, identifying underexplored areas, and strengthening the conceptual foundation for future studies. In practical terms, the results can support educational institutions in designing more effective HRM strategies for recruitment, professional development, performance evaluation, well-being support, and continuous improvement. Thus, this research contributes to both academic development and the long-term implementation of human resource management in schools. In this way, the study becomes a bridge between knowledge production and action in education.

RESEARCH METHODS

The approach used in this study is quantitative bibliometrics to map the development of Human Resource Management (HRM) studies in education and to identify research trends that specifically link HRM to teacher performance in the school environment. Bibliometric analysis was chosen because it can objectively and systematically reveal the patterns of publication growth, author and institutional collaboration, geographical distribution, and the intellectual structure of a field of study. In addition, the researcher uses this approach because it can provide systematic methodological guidelines (Öztürk et al., 2024; Passas, 2024). In addition, this approach can facilitate objective processing of big data from the Scopus database using matrices such as publication frequency and burst citation in VOSviewer, thus avoiding subjective bias in qualitative literature reviews (Baas et al., 2020). The research stages start from (1) determining the objectives and research questions, namely setting specific HRM topics, so that it is easy to get what you want. The second stage is to choose a database based on Scopus data, which is limited by the year of publication of the article/journal, and then formulate more specific search keywords. The inclusion criteria set in this study are (a) articles published in the Scopus database from 2005 to 2025, (b) articles accessed on November 24, 2025, (c) articles in English, (d) articles related to human resource management in an effort to improve teacher performance. The third stage is to collect metadata by downloading a bibliography containing citations, authors, years, and keywords using the Publish or Perish tool. As for the fourth stage, the researcher cleans the data by filtering for duplicates, correcting typing errors, and matching keywords with different spellings.

The keywords used in the data search are *"HRM AND Education,"* which are used to identify related literature in article titles, abstracts, and keywords. From these keywords, 718 documents appear in the search. To be more specific, the researcher then used the keywords *"HRM, Teacher, School"* in the search, and 56 relevant documents appeared. Based on the articles found, the researcher presents an analysis of the main research patterns, trends, and entities in the discipline.

The data analysis is carried out using the VOSviewer application, which visualizes and analyzes scientific networks based on publication metadata. The stages of analysis and visualization of the application include: (1) importing filtered or cleaned data into the VOSviewer application by pressing the button (menu "create"-> map based on bibliographic data/network data. Then (2) conduct a network analysis by selecting the type of analysis (coauthorship-> co-occurrence-> bibliographical coupling-> co-citation). Then (3) Visualization stage, the VOS viewer will visualize the results in the form of Network Visualization, Density Visualization, or Overlay Visualization to see trends from year to year according to the keywords searched. The analysis carried out includes: (1) Annual Publication Trends, to see the growth dynamics of MSDM studies in the field of education. (2) State and institutional affiliations, to identify geographical and institutional contributions. (3) Analysis of co-authorship, to map the network of collaboration between authors. (4) Analysis of the occurrence of keywords together, to identify the dominant theme in the study of MSDM Education. (5) Analysis of the subject area, to see the distribution and disciplines involved (Al Husaeni & Nandiyanto, 2022; Bukar et al., 2023).

In the next stage, the researcher interprets each result obtained from the VOSviewer application by analyzing clusters (color groups) in the visualization to identify the dominant topic, author, year, or journal over time. And in the last stage, the researcher writes and compiles the findings of the bibliometric analysis into this scientific article, adding new insights for the author and the reader.

RESULTS AND DISCUSSION

Results

Trends in Publication of MSDM Research in the Field of Education

Based on data from the Scopus database using the keywords “HRM, Teachers, Schools,” this study identified 56 relevant documents on human resource management in education. The first sub-finding in this section is the trend of publications. Operationally, a publication trend refers to the pattern of increase, decrease, or stability in the number of scientific documents published each year over a given period. In this study, publication trends are used to identify the extent to which HRM issues related to teachers and schools have attracted scholarly attention over the past two decades.

The publication mapping results show that research on human resource management in education has experienced fluctuating growth. Operationally, fluctuating growth refers to an uneven pattern of publication growth, in which the number of studies increases in some years but decreases or remains stable in others. However, a more significant increase can be observed from 2019 to 2025. The highest number of publications occurred in 2025, with 9 documents indexed in Scopus. This indicates that HRM in education, particularly studies related to “HRM, Teachers, Schools,” remains a relevant and increasingly important topic among researchers.

The second sub-finding is the growing scholarly attention toward HRM as a strategic issue in education. Operationally, strategic HRM in education refers to the management of teachers and school personnel not merely as administrative resources, but as key assets that influence learning quality, teacher professionalism, and institutional competitiveness. The increasing number of publications in recent years suggests that HRM in education is no longer viewed only as a technical or administrative matter. Instead, it has developed into an important research area that is directly connected to school improvement, teacher performance, and the long-term quality of educational institutions.

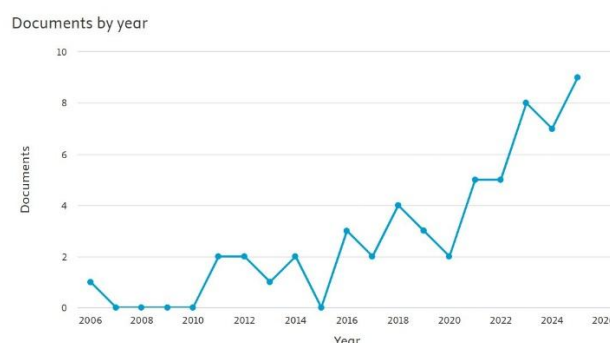


Figure 1. Mapping of Documents by Year of Publication

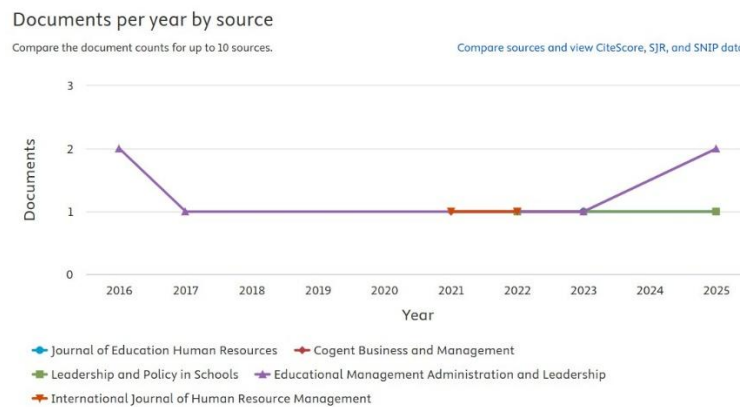


Figure 2. Mapping based on journal search results with the keywords "HRM, Teachers, Schools"

Based on these two figures, the trend of MSDM publications in the field of education with the keywords "HRM, Teachers, Schools" shows fluctuating growth, especially from 2019 to 2025. In the first graph, it can be seen that the number of publications remained very low in the 2006-2010 period, then began a gradual increase, though it was unstable in the 2011-2020 period. A stronger increase is seen after 2021, with a surge in publications in 2023 of 8 documents and reaching a peak in 2025 of 9 documents. This shows that the issue of MSDM in education has received increasing academic attention in recent years. Meanwhile, the second graph shows that publications are distributed across multiple journals, with relatively limited but consistent contributions from journals such as Educational Management Administration and Leadership, Leadership and Policy in Schools, Cogent Business and Management, Journal of Education Human Resources, and the International Journal of Human Resource Management. These findings indicate that MSDM research in education is not only growing in terms of the number of publications but is also increasingly discussed in various scientific sources focused on education management, school leadership, education policy, and human resource management.

Geographical Distribution of MSDM Research in Education

Based on data from Scopus using the keywords "HRM, Teachers, Schools," the geographical distribution of MSDM research in education shows that research activity is spread across several countries, with varying levels of contribution. The first sub-finding is the country-based research allocation. Operationally, country-based research allocation refers to the distribution of scientific publications by the country of author or research institution affiliation, as recorded in the Scopus database. In this study, this allocation is used to identify which countries have contributed most actively to the development of HR Education research. The data show that the Netherlands has the highest number of publications, with 12 studies published in Scopus-indexed journals. This indicates that the Netherlands has a relatively strong research focus on human resource management in education, particularly on teachers and schools.

The second sub-finding is the pattern of international research contribution. Operationally, international research contribution refers to the extent to which different countries participate in producing scientific knowledge on HRM in education. After the

Netherlands, Belgium contributed 6 studies, followed by Norway and Spain with 5 studies each. The United Kingdom and the United States each contributed 4 studies, while Malaysia contributed 3 studies. Australia, New Zealand, and the undefined category each contributed 2 studies. This distribution indicates that certain European countries still dominate HR Education research, although contributions from America, Asia, and Oceania are also present. Therefore, the allocation of research on HR Education indicates that the topic has global relevance, but its publication intensity remains uneven across countries.

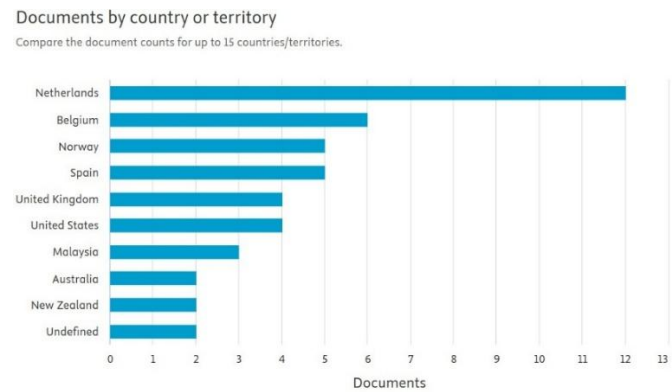


Figure 3. Document Mapping by Country or Region



Figure 4. Network Status Visualization

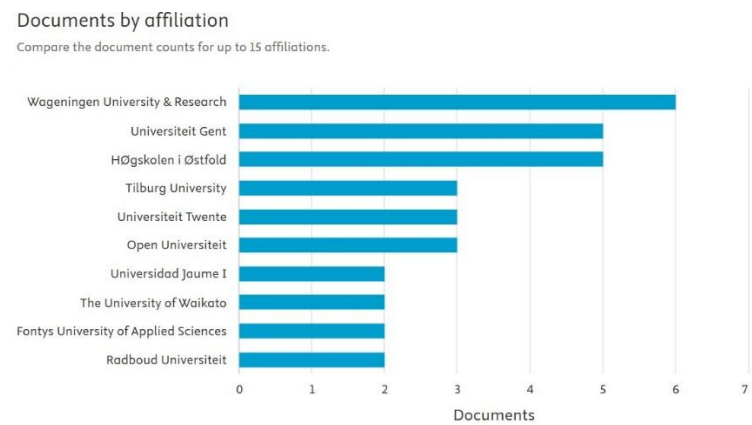


Figure 5. Articles by Contributor Institution Affiliation

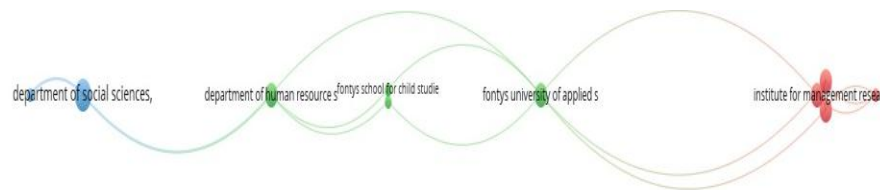


Figure 6. Visualization of the organization of the article publisher

Based on Figure 3, the geographical distribution of MSDM research in education shows that European countries still dominate publications. The Netherlands has the most documents, with 12, followed by Belgium with 6, and Norway and Spain with 5 each. Furthermore, the United Kingdom and the United States produced 4 documents each, Malaysia 3 documents, while Australia, New Zealand, and the undefined category produced 2 documents each. These findings show that research on HR Education, especially using the keywords "HRM, Teachers, Schools", is more developed in Europe than in other regions. Meanwhile, contributions from Southeast Asia remain very limited, visible only in Malaysia. This confirms that MSDM in education is still rarely the focus of research in Southeast Asia, as evidenced by publications in Scopus-indexed journals. Figure 4 reinforces these findings by visualizing the country network, where the Netherlands is the largest node and is connected to several other countries, while Malaysia is a small, sparsely connected node.

Furthermore, based on Figure 5, the distribution of publications by institutional affiliation shows that the largest contribution came from Wageningen University & Research, with 6 documents, followed by Universiteit Gent and Høgskolen i Østfold, each with 5 documents. Other affiliates, such as Tilburg University, Universiteit Twente, and Open Universiteit, each contributed 3 documents. In contrast, Universidad Jaume I, The University of Waikato, Fontys University of Applied Sciences, and Radboud Universiteit each contributed 2 documents. These data show that knowledge production about MSDM in education is not only concentrated at the state level but also in specific institutions with a strong focus on education management, school leadership, and human resource development. Figure 6 shows the network of affiliations, with some institutions serving as links between research units or centers. Overall, these findings confirm that MSDM research in education remains concentrated in specific countries and institutions, thereby creating significant opportunities for researchers from Southeast Asia, including Indonesia, to strengthen academic contributions in the field of HR Education.

Theoretical and Practical Implications from Future Perspectives

Based on a Scopus search using the keywords "HRM, Teachers, School," 56 documents were retrieved, comprising 51 articles, 2 conference papers, 2 review papers, and 1 book chapter. This composition indicates that research on human resource management in education is dominated by empirical articles, suggesting that the topic has been widely examined through formal academic studies. From a theoretical perspective, these findings imply that future research needs to strengthen the conceptual foundation of HRM in education by developing more specific models that connect teacher management, school leadership, professional development, performance evaluation, and institutional quality. The limited number of review papers also indicates a need for more systematic literature reviews, bibliometric studies, and meta-analyses to synthesize existing knowledge and identify stronger research directions. From a practical perspective, the findings suggest that schools and policymakers should use HRM research to inform the design of sustainable teacher development programs, fair performance appraisal systems, effective recruitment strategies, and support for teacher well-being. Therefore, from a future perspective, HRM in education should not be treated solely as an administrative function but also as a strategic framework for improving teacher professionalism, school effectiveness, and the overall quality of education.

The fields of study in the discussion of "HR, Teachers, Schools" are as follows:

Table 1. Distribution of Research Subject Areas

No	Subject Area	Number of Documents
1	Business, Management, and Accounting	38
2	Social Sciences	35
3	Computer Science	6
4	Decision Science	4
5	Arts and Humanities	3
6	Economics, Econometrics and Finance	3
7	Energy	3
8	Environmental Science	3
9	Technique	2
10	Psychology	2
11	Math	1
12	Medicine	1

Table 1 indicates that an examination was conducted on 21 documents using the keyword "HRM Education" and that VOSviewer was used to illustrate results that may have theoretical and pragmatic consequences for future human resource management (HRM) research in education.

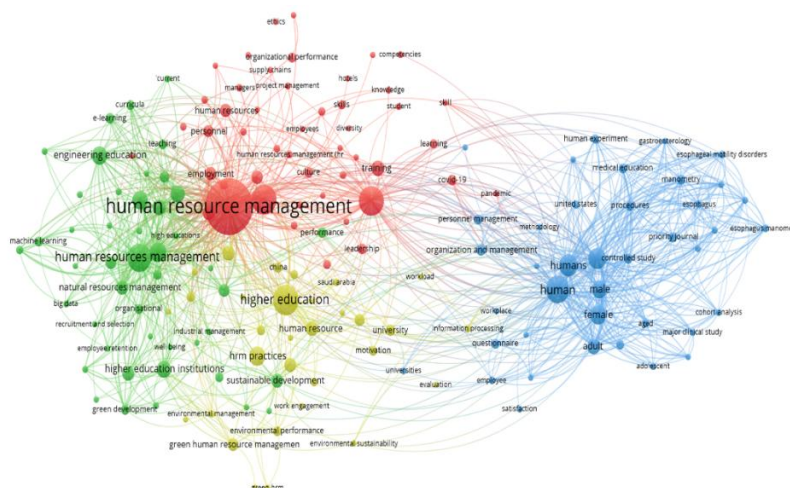


Figure 7. Search Results with Keyword "HRM Education"

Figure 7 presents a visualization of keyword linkages derived from the Scopus database, the main data source for this study. In the visualization, each dot or circle represents a keyword, and its size indicates the frequency of occurrence. Larger circles show keywords that appear more frequently in the dataset. The connecting lines represent relationships among keywords, and the distance between keywords reflects the closeness or strength of those relationships. In addition, different colors indicate different clusters or research topics. Based on the visualization, four major clusters can be identified: red, green, blue, and yellow.

The red cluster represents the core theme of human resource management (HRM). This cluster comprises several dominant keywords, including human resource management, skills, training, performance, and leadership. These keywords indicate that HRM remains the central focus of research and is closely related to competence development, organizational performance, professional training, and leadership

practices. This cluster shows that HRM studies in education are not only concerned with administrative management but also emphasize the strategic role of human resources in improving institutional performance and teacher professionalism.

The green cluster represents the theme of education and technology. This cluster includes keywords such as engineering education, e-learning, curriculum, and machine learning. The presence of these keywords indicates that HRM research has begun to intersect with technological developments in education, particularly in digital learning, technology-based curriculum development, and competency development through digital platforms. This cluster reflects a strong trend toward the digitalization of education and shows that future HRM practices in schools and universities need to adapt to technological transformation.

The blue cluster refers to health and medical-related studies. The keywords in this cluster include humans, medical education, procedures, and cohort study. The dominance of medical and methodological terms indicates that HRM research is also connected to the health sector, especially in relation to medical personnel management, clinical training, workforce development, and occupational health issues. This cluster shows that HRM is developing as a multidisciplinary field that extends beyond general education to professional education and healthcare workforce management.

The yellow cluster represents the theme of education and sustainability. The keywords that appear in this cluster include higher education, sustainable development, and universities. This cluster focuses on the role of universities and HR practices in supporting sustainability-oriented education. The emergence of this cluster indicates the growing relevance of green HRM, sustainable development, and institutional responsibility in educational settings. Therefore, HRM in education is increasingly linked to broader global agendas, especially sustainability and long-term institutional transformation.

Overall, the keyword linkage pattern in Figure 7 shows that HRM has evolved into a multidisciplinary field integrating digital technology, health issues, and sustainability principles. Strategically, this map indicates the transformation of HRM from a mainly administrative function into a more strategic, data-driven, and future-oriented role. These findings also open broad research opportunities, particularly in the development of AI-based HRM, green HRM, digital competency development, and sustainable human resource strategies in the education sector.

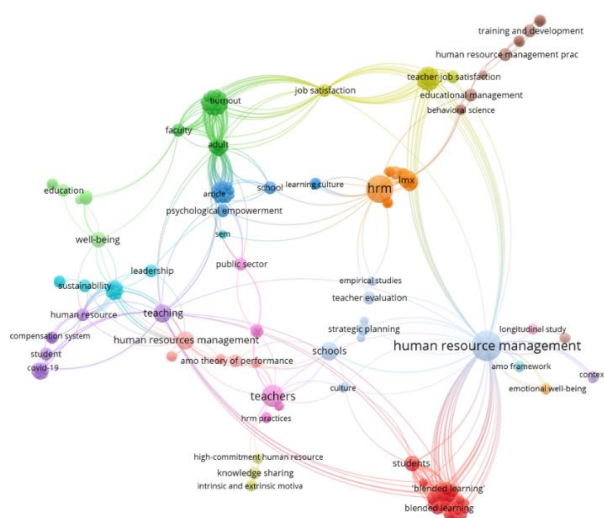


Figure 8. Search Results with Keywords "HRM, Teachers, Education"

Figure 8 shows the relationship between keywords in research focusing on human resource management (HRM) in the context of education. The large point labeled 'human resource management' on the right indicates that this keyword is the network's dominant topic and its main center. Other keywords, such as HRM, teachers, burnout, job satisfaction, and students, represent important subthemes. The lines and distance between keywords indicate the strength of conceptual relationships, while the cluster colors show different groups of research topics.

The blue cluster on the right represents HRM as a strategic system. This cluster includes keywords such as human resource management, strategic planning, schools, and emotional well-being. These keywords indicate that HRM is viewed not only as an administrative function but also as a strategic management tool for improving educational institutions and supporting educators' emotional well-being. Meanwhile, the yellow cluster in the middle consists of keywords such as HRM, educational management, and teacher job satisfaction. This cluster emphasizes the relationship between HRM implementation in education and teacher job satisfaction, showing that the quality of HRM practices strongly influences educational performance.

The green cluster on the upper left highlights the theme of well-being and burnout, with keywords such as burnout, well-being, and faculty. This cluster indicates that work fatigue and psychological well-being among teachers and lecturers have become important issues in educational HRM research. The red cluster is related to learning and students, consisting of keywords such as students and blended learning. This shows that HRM indirectly affects student learning experiences through teacher quality and modern learning practices. The purple cluster focuses on the role of teachers and HRM practices, including keywords such as teachers, HRM practices, and performance, which suggests that teachers act as key mediators between HRM policies and educational outcomes.

Another blue cluster reflects the themes of leadership and psychology, with keywords such as leadership and psychological empowerment. This cluster indicates that modern HRM has shifted toward a more human-centered approach that emphasizes empowerment, leadership, and psychological support. Overall, the keyword pattern in Figure 8 confirms that HRM in education functions as a complex strategic ecosystem. It not only manages human resources administratively but also influences teacher performance, educator well-being, leadership practices, digital learning adaptation, and the quality of student learning outcomes.

Discussion

The publication pattern identified in this study, 56 Scopus-indexed documents and a marked acceleration after 2021, demonstrates that educational human resource management has moved from a peripheral administrative concern toward a strategic research domain. This trajectory aligns with recent findings emphasizing the growing importance of integrated HRM systems in education that connect recruitment, professional development, performance appraisal, and participation with teacher and organizational outcomes (Shaoan et al., 2025; Tuytens et al., 2023). The rise to eight publications in 2023 and nine in 2025 suggests that post-pandemic workforce pressures, digital transformation, and teacher retention have intensified scholarly attention (Eblie Trudel & Sokal, 2025). Nevertheless, the fluctuating annual pattern indicates that the field remains emergent rather than fully consolidated. Following (Donthu et al., 2021), such

growth should be interpreted in terms of publication volume, thematic structure, and collaboration networks. Accordingly, the findings extend recent literature by showing when educational HRM gained momentum and how that momentum became institutionally distributed across journals and research communities.

The dominance of leadership, training, skills, performance, and HRM within the keyword network supports strategic HRM, but reveals that educational research emphasizes organizational performance more strongly than implementation quality. Recent studies highlight that team-oriented HR practices, including recruitment, development, and evaluation, significantly enhance teacher collaboration and innovation through commitment and knowledge sharing (Harris et al., 2022; Tuytens et al., 2023). This aligns with the red cluster, where competence development and performance are closely connected. However, the mapping shows limited visibility for HR implementation, perceived fairness, and teacher voice. This difference matters theoretically because HR practices may not generate outcomes unless school leaders enact them coherently and inclusively (Tran, 2022; Vekeman et al., 2025). Therefore, the findings support strategic alignment theory while indicating a need to examine the content of HRM and teachers' lived experiences of its implementation in contemporary educational settings.

The geographical concentration of publications in the Netherlands, Belgium, Norway, and Spain confirms that knowledge production in educational HRM is shaped by research capacity and institutional networks. The strong positions of European institutions are consistent with recent scholarship advancing school-based HRM models and strategic alignment approaches (Tuytens et al., 2023; Zerrad & Schechter, 2025). In contrast, Malaysia is the only visible Southeast Asian contributor, while Indonesia remains absent from the leading network. This imbalance does not imply that HRM challenges are less relevant in Southeast Asia; rather, it reflects limited international indexing, collaboration, and conceptual consolidation (Tian & Huber, 2020). Bibliometric studies emphasize that country-level mapping reveals intellectual concentration rather than research quality alone (Donthu et al., 2021). In practice, Southeast Asian researchers should strengthen international collaboration, conduct comparative studies, and develop context-sensitive HRM models that reflect governance structures, teacher status, and resource disparities.

The emergence of burnout, well-being, job satisfaction, and psychological empowerment as interconnected themes shows that educational HRM is increasingly adopting a human-centered orientation. Recent research confirms that teacher well-being is a multidimensional construct influenced by organizational conditions, leadership practices, and workload pressures (Kouhsari et al., 2023; Nwoko et al., 2023). Studies also demonstrate that supportive leadership and positive work environments reduce stress and emotional exhaustion while enhancing resilience and engagement (Paine & Prochnow, 2022; Yu et al., 2022). These findings reinforce the identified clusters by showing that performance outcomes cannot be separated from psychological resources and working conditions. Theoretically, this expands educational HRM beyond traditional performance metrics toward sustainable workforce functioning. Practically, schools should integrate workload management, supportive supervision, participatory decision-making, and mental health support into HR systems rather than treating well-being as a separate initiative.

The technology-oriented cluster, including e-learning, curriculum, and machine learning, indicates that digital transformation is increasingly integrated with educational HRM. Recent studies emphasize that teacher digital competence encompasses technical, pedagogical, and ethical dimensions, and that it requires systematic HR support through

recruitment, training, and evaluation (Basantes-Andrade et al., 2022; Mattar et al., 2022). Furthermore, emerging research highlights how artificial intelligence and advanced technologies are reshaping HR processes, including talent management, decision-making, and performance evaluation (Khatoon et al., 2025). This study contributes by situating these technological developments within an educational HRM framework, demonstrating the convergence of digital competence, workforce management, and learning innovation. Practically, educational institutions must establish digital competency standards, ensure equitable access to training, and implement governance mechanisms to address ethical concerns such as data privacy, algorithmic bias, and technological inequality.

The sustainability cluster linking higher education, universities, and sustainable development shows that educational HRM is increasingly addressing broader societal responsibilities beyond short-term performance outcomes. Recent perspectives on sustainable HRM emphasize aligning organizational practices with employee well-being, social responsibility, and long-term institutional resilience (Bartram & Cooke, 2022; Matthews & Muller-Camen, 2025). Although sustainability remains less dominant than performance and leadership themes, its presence indicates a growing shift toward holistic HRM approaches in education. Theoretically, this suggests integrating strategic HRM, teacher well-being, digital competence, and sustainability into a comprehensive framework that connects individual, organizational, and societal outcomes. Practically, policymakers should align recruitment, professional development, and leadership evaluation with sustainability goals, including inclusion, environmental responsibility, and workforce resilience, to enhance long-term educational effectiveness.

Overall, this study contributes a multidimensional understanding of educational HRM by integrating publication trends, geographical distribution, institutional concentration, and thematic mapping within a Scopus dataset. Its novelty lies in identifying a transition from administrative HRM toward a comprehensive ecosystem encompassing strategic alignment, teacher performance, well-being, digital transformation, and sustainability. This synthesis reflects recent developments in the field and highlights emerging research priorities (Eblie Trudel & Sokal, 2025; Shaoan et al., 2025). The study makes both scholarly and practical contributions by offering a research agenda for underrepresented regions and a framework to improve workforce outcomes in education. However, the dataset limitations should be acknowledged, particularly the separation between the 56-document core dataset and the 21-document HRM Education subset. Future research should employ transparent methodologies, comparative database analysis, and regional validation to strengthen the robustness and applicability of findings.

CONCLUSION

This study concludes that educational human resource management has evolved from a predominantly administrative function into a strategic and multidimensional ecosystem that integrates teacher performance, leadership, professional development, well-being, digital transformation, and institutional sustainability. The principal lesson is that educational quality cannot be improved through isolated HR practices; effective outcomes require coherent policies that align organizational objectives with teachers' professional, psychological, and technological needs. The study's main scholarly strength lies in integrating publication trends, geographical and institutional distributions, and

keyword-network analysis to reveal the intellectual development, dominant themes, and emerging directions of educational HRM. It also contributes by identifying the limited participation of Southeast Asian countries and by highlighting opportunities to develop context-sensitive educational HRM models. However, the findings are constrained by the exclusive use of Scopus data, the relatively small number of documents, variations in search keywords, and the separate analysis of the 56-document core dataset and the 21-document HRM Education subset. Future research should combine multiple databases, apply transparent and reproducible search protocols, conduct longitudinal and citation analyses, and empirically validate the identified themes across different educational systems, particularly in Indonesia and other underrepresented Southeast Asian contexts.

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