Harnessing the Power of Motivation: A Bibliometric Analysis on Employee Productivity Through Training and Development

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Abstract

This bibliometric study aims to explore the influence of motivation, training and development on employee productivity. By analyzing the literature in Scopus databases, the study investigates the impact of motivation as a mediator factor on employee productivity through training and development. Using bibliometric analysis, the study identifies the most influential articles, key themes, and concepts in the literature. Results show that motivation is critical to employee productivity, and training and development programs can significantly enhance employee motivation and productivity. The study also highlights gaps in the literature, including the need for more research on effective training programs, and the relationship between motivation and productivity in different industries and contexts. Overall, this study emphasizes motivation's importance in employee productivity and provides insights into factors that contribute to motivation and productivity.

Keywords: *Motivation, Training & Development, Employee Productivity, Bibliometrics, HRD, Human Resource Management, HR policies*

Introduction

Motivation is a critical factor in determining employee productivity in any industry. (Ryan, R. M., & Deci, E. L. 2000) Employees who are motivated are more likely to be involved in their work, dedicated to their jobs, and focused on their tasks. This can lead to improved performance results. However, motivation is not an innate trait that some employees possess while others do not. This is a constantly changing process that can be affected by a variety of factors, including training and development programs (Kozlowski, 2012). A study by Gagné and Deci (2005) found that employees who are more self-determined, or motivated by internal factors, are more productive and have better performance outcomes than those who are externally motivated.

Motivation is the force that drives and sustains behavior over time, energizing and directing individuals in the workplace (Locke & Latham, 2004). When employees are motivated, they are committed to their work, take initiative, and persist through challenges. (Hackman, J. R., &

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Oldham, G. R. 1976) They are also more innovative, creative, and willing to exceed job requirements. Conversely, demotivated employees may be unproductive, disengaged, and prone to absenteeism and turnover. Motivation is influenced by internal and external factors, including personality, values, goals, work environment, job characteristics, and leadership style (Ryan & Deci, 2000). Although internal factors are beyond employers' control, external factors can be influenced through training & development programs and other strategies.

Training and development programs can play a critical role in enhancing employee motivation and productivity. Employee development programs can help employees acquire the skills and knowledge they need to do their jobs well. This can lead to increased confidence and competence, which can in turn lead to better job performance. (Salas et.al, 2012). Additionally, training and development programs can communicate to employees that their employer values their growth and development, which can increase their sense of belonging and commitment (Kozlowski, 2010).

One of the most important ways that training and development programs can influence employee motivation is by providing opportunities for learning and growth (Elnaga and Imran, 2013). Employees who are given the opportunity to grow and develop in their careers are more likely to be engaged and satisfied with their work. This can lead to a sense of accomplishment and purpose, which can boost productivity and morale. This, in turn, can increase their motivation and drive to perform at a high level.

Employees who receive regular feedback and recognition are more likely to be motivated and engaged in their work. Feedback can help employees to identify their strengths and weaknesses, and it can also help them to improve their performance. Recognition can help employees to feel valued and appreciated, and it can also boost their morale. Similarly, when employees receive recognition for their achievements, they are more likely to feel a sense of pride and motivation to continue performing at a high level (Vera Akafo, P A Boateng 2015). The current study examines the importance of motivation in the workplace and how training and development programs can enhance employee motivation and productivity.

In addition to enhancing employee motivation, training and development programs can also significantly increase employee productivity. Training programs can help employees to develop the skills and knowledge they need to do their jobs well. This can lead to reduced errors, increased efficiency, and improved quality. This can lead to significant cost savings for employers and improved outcomes for customers (Noe, Hollenbeck, Gerhart & Wright, 2019).

Furthermore, (Mathis, Jackson, & Valentine, 2017) training and development programs can help to reduce employee turnover and absenteeism, which can have a significant impact on productivity. Employees who feel valued and supported by their employer are more likely to be engaged and satisfied with their work. This can lead to a sense of commitment and loyalty to the company,

which can make them less likely to look for other jobs (Meyer, Becker, & Van Dick, 2006). Additionally, (Leiter & Maslach, 2009) employees who have the skills and knowledge they need to do their jobs well are less likely to experience burnout or stress. This is because they are more likely to feel confident in their abilities and to be able to manage their workload effectively.

Bibliometric Methods

Academic journals are a primary means of sharing knowledge and research findings with the wider academic community and beyond. They provide a platform for scholars to publish their work and for others to learn about new developments in their field. (Abramo and D'Angelo, 2011). Bibliometrics is a quantitative method for analyzing scholarly literature. It can be used to track trends in research, identify emerging areas of research, and assess the impact of research. Bibliometrics can be used to classify and present information on various aspects of scholarly literature, such as co-citation links, unique variables, related topics, co-authors, keywords, co-occurrence, publication countries and regions, funding organizations, and the impact of specific articles, journals, and authors (De Battisti et al., 2015).

Bibliometric analysis encompasses both simple and complex methods for organizing and analyzing data related to a group of study objects. These methods include creating and visualizing maps based on network data, which provide insights into the literature evolution and research models (Cobo et al., 2015). This analysis can help researchers to understand their productivity, identify emerging research goals, and make informed decisions about where to publish their work (Abramo, D'Angelo, 2011).

Co-citation analysis is a method of measuring the relationship between two scholarly works, such as journals or authors, by examining the frequency with which they are cited together by other works (Zupic and Cater, 2015). The idea behind co-citation analysis is that two works that are often cited together are likely to be related or have similar research interests. This is because researchers who are interested in the same topic are likely to cite the same works. This technique has been a pioneering method in the field of bibliometrics (Cobo et al., 2015).

This analysis is generally utilized in IT, computer science, information science, and medicine to uncover emerging trends and patterns (Chang et al., 2020; Goksu, 2021). In this study, bibliometric visualization methods were employed using R (specifically, Biblioshiny) to further explore and visualize the analysis results. The analysis considered the frequency at which two units (authors, documents, and journals) were cited jointly, emphasizing the significance of co-citation as a prominent aspect of bibliometrics. Notably, co-citation analysis has proven to be a valuable tool in explaining current developments in computer science, information science, and medicine. To effectively present the findings of this research, bibliometric visualization techniques were employed in conjunction with R, specifically utilizing Biblioshiny.

As evident from the aforementioned information, the literature on motivation in physical education encompasses a wide array of topics and perspectives. Ryan and Deci (2020) conducted a comprehensive review spanning 23 years, exploring the impact of motivation on employee productivity and the significance of training and development.

In addition, this study proposes the utilization of supporting metrics and network analysis techniques to provide future researchers and practitioners with a comprehensive understanding of the field. Consequently, the present research employs a bibliometric approach, utilizing the Scopus database to investigate various aspects of motivation and their relationship to employee productivity. With this aim in mind, the study has formulated the following objectives:

Objectives of the Study

- To identify and analyze key publications in the field that explore the influence of motivation on employee productivity through training and development.

- Conduct a citation analysis to determine the most influential and frequently cited articles on the topic

- Investigate the collaborative networks and patterns of co-authorship among researchers in the field.

- Analyze selected publications to identify key themes and topics related to the subject

- To map the relationships among authors, institutions, and research areas in the field.

- Identify research trends and gaps in the literature.

- Based on the findings of the bibliometric analysis, provide recommendations for future research directions.

Study Design

This study uses the Scopus literature databases to conduct a bibliometric analysis of motivation, with employee productivity and training & development as subtopics. Zupic and Cater (2015) have provided valuable guidelines for conducting science mapping analysis using bibliometric methodologies. Following a five-step approach, which includes design, collection, analysis, visualization, and interpretation of data, this research adheres to the preferred reporting items for such analyses.

Data Collection

The data for this study was collected from the Scopus database, covering the period from 2000 to 2023. The search was conducted using three keywords: "Motivation," "Employee Productivity," and "Training and Development," to retrieve relevant journal articles. The summary of the data collection process is provided below:

Table 1: Bibliometrics Analysis Summary

Description	Results
Time Period	2000:2023
Journals, Books, Reviews	309
Documents	1645
Growth Rate (Annual) %	7
Average Age of the documents	6.42
Citations (Avg.)	30.46
Keywords Plus (ID)	542
Keywords of Authors (DE)	4301
Authors	4111
Authors of single-authored docs	207
Individual Authors Docs	214
Co-Authors per Doc	2.84
International co-authorships %	26.32
Articles	1499
Conference papers	42
Reviews	104

The dataset encompasses a period from 2000 to 2023, incorporating 309 sources comprising journals, books, and other publications, along with a total of 1,645 documents. The data exhibits an annual growth rate of 7%, and the average age of the documents is 6.42 years. Each document, on average, receives 30.46 citations, and there is one reference available for the dataset. Additionally, the documents are enriched with 542 Keywords Plus (ID) and 4,301 Author's Keywords (DE). The dataset involves 4,111 authors, out of which 207 are associated with single-

authored documents. Among the total documents, 214 are single-authored. On average, each document features 2.84 co-authors, with 26.32% of these collaborations being international in nature. The dataset comprises 1,499 articles, 42 conference papers, and 104 reviews, representing the different document types included.

Interpreting bibliometric results is the final step in the study, and it requires special attention. There are two crucial points to consider in this process. Firstly, bibliometric methodologies differ from traditional meta-analyses, review of literature or systematic reviews. They take a broader perspective, aiming to understand the overall academic literature pattern, identify interrelations and impacts, and offer fresh insights to enhance knowledge in the field. Secondly, when interpreting bibliometric methodologies, it is important to maintain objectivity rather than relying too heavily on previous research. Nevertheless, it is still possible to reconcile the findings with retrospective articles to gain an understanding of the past and potentially predict future developments. Thus, caution and careful consideration are necessary during this stage.

Results

Publications

The number of publications on motivation and its influence on employee productivity has grown rapidly in the last two decades. This suggests that scholars in various fields are actively updating and exploring the knowledge in this field. The number of articles published shows a fluctuating trend over the years. From 2000 to 2009, the number of articles ranges from 12 to 32, with some variations but no significant growth.

Figure 1: Annual Scientific Production
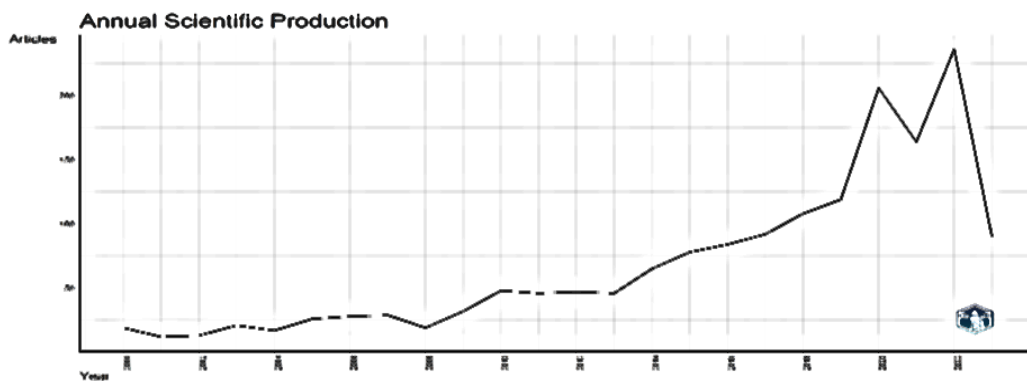
However, starting from 2010, there is a noticeable increase in the number of publications. The years 2014 to 2023 exhibit a consistent upward trend, with significant growth observed each year. From 2014 to 2020, there is a substantial increase in the number of articles published. In particular,

the years 2020 and 2021 show a remarkable surge in publications, reaching 206 and 164 articles, respectively. It is worth noting that the year 2022 experienced a substantial jump in the number of articles published, with a count of 236. However, in 2023, the count dropped to 90, indicating a decrease compared to the previous year.

Average Citation

The MeanTCperArt (Mean Times Cited per Article) metric represents the average number of times each article is cited. The values range from 110.37 (in the year 2000) to 0.57 (in the year 2023), with higher values indicating that the articles published in those years have received more citations on average.

Figure 2: Average Citation Per Year
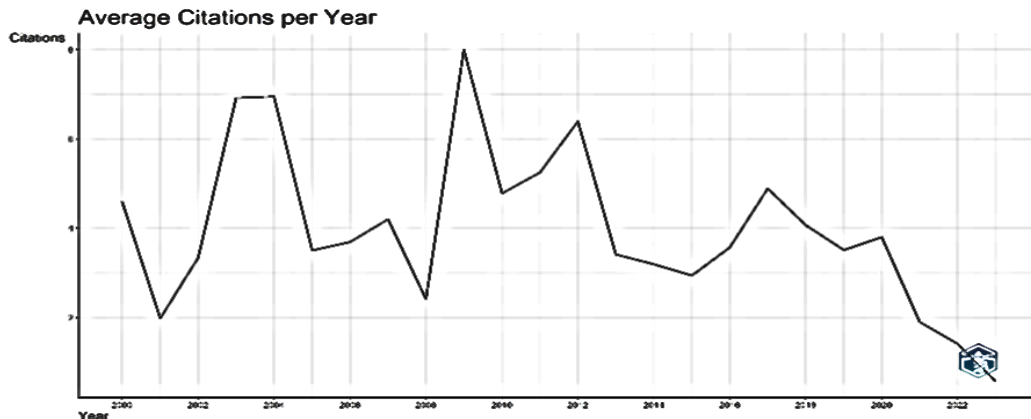
The values range from 19 (in the year 2000) to 236 (in the year 2022), providing an insight into the volume of research output in each year. The Mean Times Cited per Year metric calculates the average number of citations received per year, considering all the articles published in a specific year. The values range from 4.60 (in the year 2000) to 0.57 (in the year 2023), reflecting the overall impact or citation rate of articles published in a particular year. The Citable Years metric represents the number of years for which an article remains citable. The values range from 24 (in the year 2000) to 1 (in the year 2023), with higher values indicating that articles published in those years have a longer citable lifespan.

Most Relevant Sources

The analysis of the provided data reveals the most relevant sources in the field of human resource management, productivity, and related areas based on the number of publications. The International Journal of Human Resource Management stands out as the leading source with 110 articles, indicating its prominence and influence in the academic community. Following closely is

the International Journal of Productivity and Performance Management with 54 articles, reinforcing its importance in the field. Additionally, the Journal of Business Research, with 34 articles, and Benchmarking and Employee Relations, both with 30 articles, also demonstrate their significance in contributing to research and knowledge in their respective domains.

Figure 3: Most Relevant Sources

Most Relevant Sources
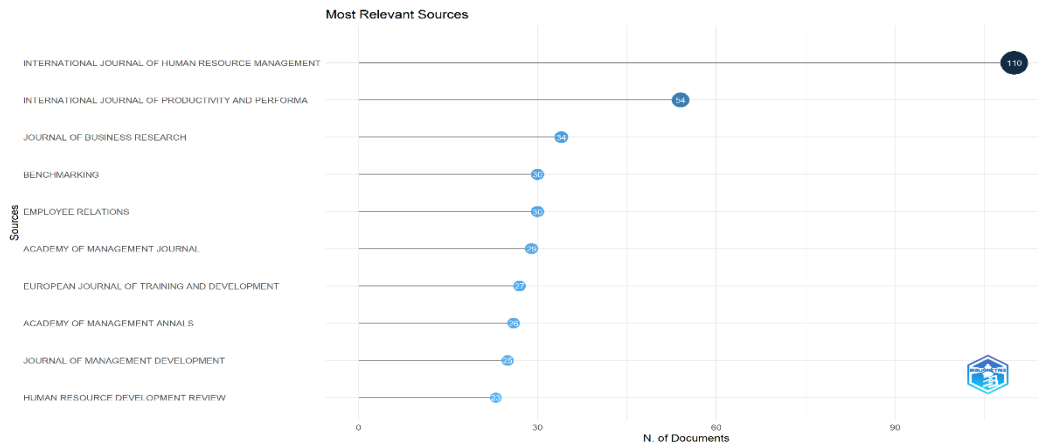
Other notable sources include the Academy of Management Journal, European Journal of Training and Development, and Academy of Management Annals, each with a substantial number of publications, further emphasizing their impact on the field of management and organizational studies.

Most Relevant Authors

Figure 4: Most Relevant Sources


Most Relevant Authors
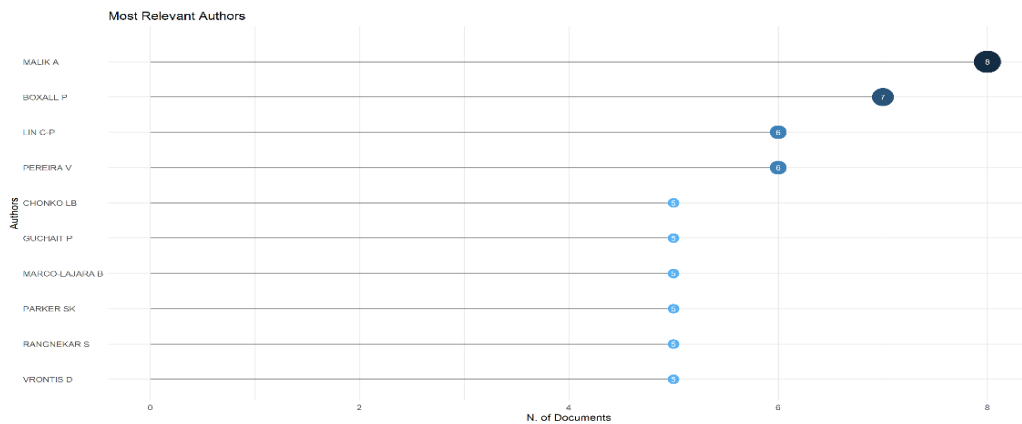
Among the top authors, Boxall P emerges as the leader with 7 articles published, showcasing a high

publication rate of 4.33 articles per year, signifying their significant contribution to their field of research and establishing them as an influential figure. Malik A follows closely with 8 articles, maintaining a consistent publishing record of 2.95 articles per year, highlighting their active engagement in scholarly activities. Bhanugopan R, Dubinsky AJ, Jiang K, Karatepe OM, Kantabutra S, Kim S, McLean GN, and Rangnekar S, each with 4 articles, demonstrate varying fractionalized values. Bhanugopan R and Dubinsky AJ maintain a steady presence with 1.33 articles per year, while Jiang K and Karatepe OM exhibit relatively higher publication rates of 1.45 and 2.17 articles per year, respectively, indicating their dedication to research dissemination. Kantabutra S and Kim S stand out with notably high fractionalized values of 2.50 articles per year, showcasing their active involvement and strong research output in their respective fields. McLean GN and Rangnekar S maintain consistent levels of scholarly activity, both with a fractionalized value of 2.00 articles per year, reflecting their substantial research output and consistent publishing records.

Most Global Cited Documents

Figure 5: Most Global Cited Documents
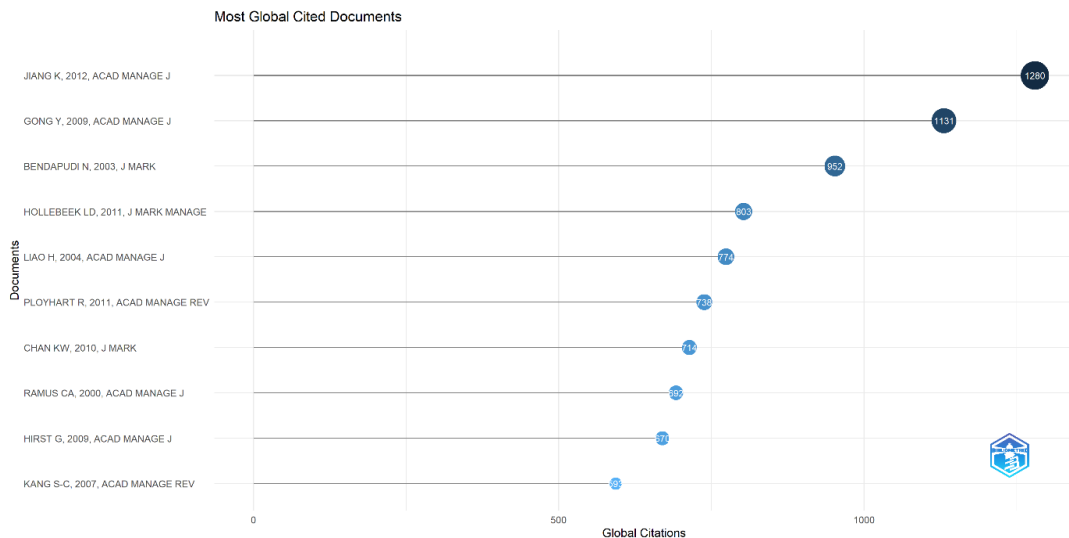
The table provides information on the total citations received by different papers, their citation rate per year, and the normalized total citations. Here's an interpretation of the data: Among the listed papers, "JIANG K, 2012, ACAD MANAGE J" has the highest total citations of 1280, indicating its significant impact in the field. With a citation rate of 106.67 per year, it demonstrates ongoing recognition and influence. Moreover, when considering the normalized total citations, which takes into account the citation rate relative to the average in the dataset, this paper stands out with a value of 16.70, highlighting its exceptional performance. Other noteworthy papers include "GONG Y, 2009, ACAD MANAGE J" with 1131 total citations and a citation rate of 75.40 per year, as well

as "BENDAPUDI N, 2003, J MARK" with 952 total citations and a citation rate of 45.33 per year. Both papers exhibit considerable impact and recognition in their respective fields. Furthermore, papers such as "HOLLEBEEK LD, 2011, J MARK MANAGE," "PLOYHART R, 2011, ACAD MANAGE REV," and "CHAN KW, 2010, J MARK" have relatively high citation rates per year, indicating their ongoing relevance and influence. These papers also achieve notable normalized total citation scores, further emphasizing their significant impact within their domains.

Key Themes and Topics

The analysis of word occurrences in the provided dataset reveals several prominent themes and topics in the field of research. The word "surveys" appears most frequently, indicating the prevalence of survey-based research methodologies. "Human resource management" and "motivation" are also highly recurring words, highlighting their significance in the field.

Figure 6: Key Themes and Topics
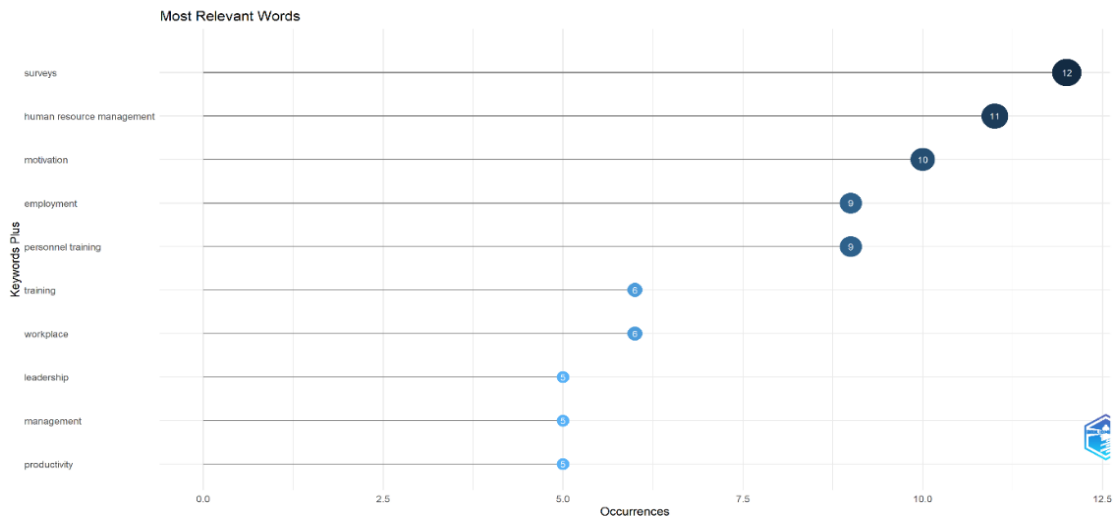
Other important themes include "employment," "personnel training," and "workplace," emphasizing the focus on optimizing human resources and improving working conditions. Additionally, words such as "leadership," "management," and "productivity" suggest an interest in effective management practices and enhancing organizational performance. The presence of terms like "service sector," "sustainable development," and "service quality" reflects a specific focus on service-oriented industries and the importance of sustainable practices. Furthermore, words like "banking," "commerce," and "consumption behavior" suggest a research focus on business and consumer behavior. The dataset also includes terms such as "empirical analysis" and "behavioral research," indicating the utilization of data-driven and experimental approaches in studying human behavior and organizational dynamics. These recurring words provide insights into the key areas

of research and highlight the multidimensional nature of topics related to human resources, management, and organizational behavior.

Figure 7: Word Cloud

Co-Occurrence Network

The number of publications on motivation and its influence on employee productivity has grown rapidly in the last two decades. This suggests that scholars in various fields are actively updating and exploring the knowledge in this field. The size of the dot indicates the strength of the correlation, indicating the level of relevance between the topics.
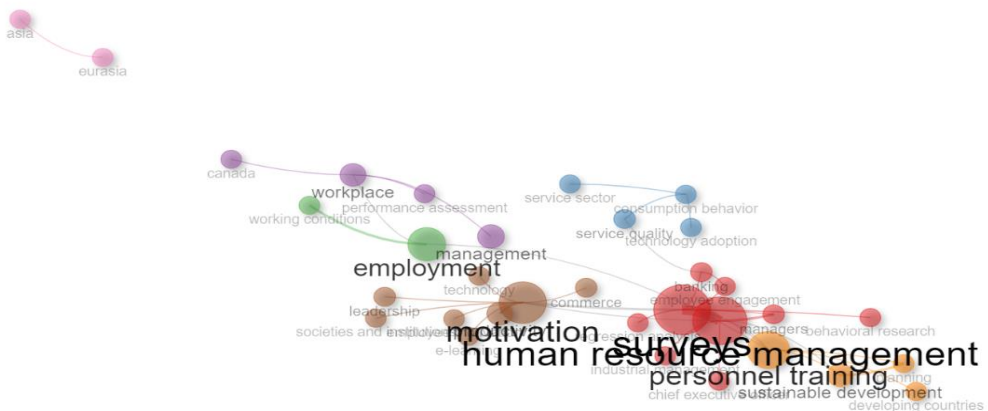
Generally, the red cluster encompasses a larger space and encompasses 23 words (such as Surveys,

Motivation, Human Resource Management, Personal Training, workplace, performance assistance, management, working conditions, employee engagement, service sector, technology adoption, sustainable development, commerce, etc.). These words primarily relate to operational variables and constitute thematic issues. Notably, Motivation and Human Resource Management emerge as the dominant themes within the dots, signifying their significant relevance in this study.

Discussion

Reviewing and examining the 1600 articles published in 2000–2023, influence of motivation on employee productivity by providing training and development research is rapidly evolving. The analysis of publications indicates a general upward trend in the number of articles published, suggesting increased research activity and interest in the field. While there are some fluctuations in certain years, the overall growth in recent years is particularly significant. This growth reflects the expanding body of knowledge and the ongoing contributions made by researchers in the field.

The citation metrics provide valuable insights into the impact and longevity of the published articles. The MeanTCperArt and MeanTCperYear metrics reflect the citation influence, indicating the average number of citations an article receives and its impact over time. These metrics help gauge the significance and recognition of the research findings. Additionally, the volume of research output, represented by the metric N, gives an indication of the overall research productivity in the field. Furthermore, the metric CitableYears provides information about the duration of relevance and availability for citation of the articles. The most relevant sources identified in this analysis encompass a wide range of journals focusing on different aspects of business and management. These journals contribute to the existing body of knowledge and serve as valuable resources for researchers, scholars, and practitioners in various fields such as human resources, organizational analysis, hospitality management, manpower, quality management, leadership, and sales.

The inclusion of diverse sources ensures a comprehensive understanding of the subject matter and facilitates interdisciplinary research. The analysis of the top 10 authors reveals varying levels of research productivity and publication rates. Boxall P and Malik A stand out as the authors with the highest number of articles published. Boxall P, in particular, exhibits an impressive publication rate, indicating a consistent contribution to the field. The remaining authors in the top 10 have published fewer articles, but their fractionalized values shed light on their respective publication rates and consistency in research output. This variation in productivity highlights the diverse research profiles within the field. Among the analyzed documents, one paper stands out with the highest total citations of 1280, indicating significant impact in the field. This paper maintains a citation rate of 106.67 per year, demonstrating ongoing recognition and influence over time. Additionally, it achieves an exceptional normalized total citation score of 16.70, further emphasizing its

significance. Other papers with 1131 and 952 total citations also demonstrate considerable impact and recognition within their respective fields. Furthermore, several papers exhibit high citation rates, indicating ongoing relevance and influence, as evidenced by their notable normalized total citation scores.

Conclusion

The data presented in this analysis suggests an upward trend in the number of published articles, indicating increased research activity and interest in the field. The citation metrics provide insights into the impact and longevity of articles, while the identified relevant sources contribute to the present body of knowledge. The top authors demonstrate varying levels of research productivity, and the analysis of the most global cited documents highlights papers with significant influence and recognition. This study enhances our comprehension of the research landscape within the field and sheds light on the valuable contributions made by researchers, scholars, and practitioners.

It is important to note that motivation and training and development are often directly related to employee productivity. To optimize productivity and ensure high-quality outcomes, it is advised that management directs its efforts towards establishing policies that give priority to training and development initiatives designed to motivate employees. In line with this recommendation, the present study has examined bibliographic data using bibliometric analysis, revealing a notable emphasis on research exploring the relationship between motivation, training and development, and employee productivity in previous studies.

This study has two primary limitations. Firstly, the analysis was solely conducted on the Scopus database within a restricted timeframe of 2000-2023, potentially limiting the generalizability of the findings to the broader category. Secondly, it is acknowledged that the Scopus database itself may have certain unidentified limitations. However, it is worth noting that the findings pertaining to the leading contributors have undergone manual verification. Furthermore, it is important to consider that continuous changes and updates to the database may result in varying publication data for analysis, depending on the search date and timeframe. Therefore, the inclusion of metadata from other sources could prove beneficial in complementing this study and providing a comprehensive context regarding the subject matter.

As a researcher who has conducted bibliometric analyses and published scientific studies, the current study wants to emphasize the significance of science mapping. This approach utilizes quantitative methods to uncover a compelling narrative through numbers. Science mapping is particularly valuable as it visually represents relationships among different aspects of the literature. As my study concludes, this research encourages fellow academics and databases, such as WOS, PubMed etc., to consider undertaking a similar review as future research. The findings from this rapid scoping analysis have provided valuable insights into the extensive range of publications

within the field of motivation, employee productivity, and training and development. These insights not only shed light on the past but also offer glimpses into potential future developments.

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