Research Paper

The Evolution of Learning Transfer and Training Development in Achieving Sustainable Human Resource Management: A Bibliometric Review

Isna Fitria Agustina[1*], Jusuf Irianto[2], Erna Setijaningrum[3]
[1] Postgraduate School Universitas Airlangga, Indonesia
[1] Universitas Muhammadiyah Sidoarjo, Indonesia
[2,3] Universitas Airlangga, Indonesia

Abstract

This research analyzes the evolution of learning transfer and training development in achieving sustainable human resource management (SHRM), an important part of achieving the 2030 SDGs target. The analysis was completed using a bibliometric review method of 161 articles in the Scopus database. The findings show that 454 authors from various developed and developing countries have contributed to this topic. Research on learning transfer and training development started in 1992 and continues to grow, but it was initially focused on achieving organizational performance. There is a shift in the purpose of learning transfer and training development which is now focused on achieving SHRM (HRM on financial, social, environmental, and organization) characterized by the keywords "natural resource management", "mental health", "healthcare", "female", which shows the importance of learning transfer and training development in achieving SDGs 3 (mental and well-being) and SDGs 4 (gender equality), as well as maintaining a balance of production and consumption through managing natural resources relevant to SDGs 12 and 13. Learning and training in the environmental aspect are interesting to research, indicated by the highest citation achievement in green human resource and green training articles with 184 citations. Learning transfer and training development also focus on technology training, such as cybersecurity and blockchain training. Furthermore, general topics such as learning and training to improve innovation, job satisfaction and organizational culture are still discussed.

Keywords: *Learning Transfer, Training, Sustainable Human Resource, Evolution, Bibliometric*

INTRODUCTION

In a rapidly changing world, companies need to ensure that their workforce has the necessary skills, knowledge and motivation to face new challenges and contribute effectively to the achievement of the Sustainable Development Goals (SDGs) (Aust et al., 2024). Sustainable Human Resource Management (SHRM) plays an important role in creating a resilient, prosperous workforce that can survive in the long term, further supporting the achievement of the SDGs (Macke & Genari, 2019). Sustainable Human Resource Management (SHRM) became the latest human resource management approach after maintaining economic, social, and environmental sustainability. Thus, organizations that initially focused only on strategic human resource management and only thought about organizational sustainability must contribute to the SDGs by implementing SHRM.

This research offers a novel contribution using a bibliometric approach to analyze the evolution of learning transfer and training development related to SHRM. Previous studies have conducted bibliometric analysis in various contexts, such as Human Resource Development (Pham-Duc et al., 2023; Tutar et al., 2023) and Artificial Intelligence in human resource development (Hamouche et al., 2023; Mathushan et al., 2023). Previous research has only conducted a bibliometric analysis of learning and training in the context of human resource management. In contrast, in the context of SHRM, previous research has only focused on environmental analysis,

such as that conducted by Asfiah et al. (2023), who conducted a bibliometric analysis of green training. Thus, bibliometric analysis of the evolution of learning and training in the context of SHRM is still limited.

This study highlights the importance of understanding learning and training transfer history and development and how these practices can be optimized to support SHRM. This research offers theoretical contributions and provides practical guidance for HR practitioners and policymakers in developing more effective and sustainable training and development strategies. The results of this study are expected to enrich the existing literature and open up further research opportunities in the field of SHRM.

LITERATURE REVIEW
Learning Transfer and Training Development

Learning Transfer and Training Development are different concepts but can be integrated to improve human resource management. Learning is the process of changing behaviour due to experience, while training is an effort to improve knowledge and skills. Learning transfer determines how much training promotes effective and continuous learning (Fauth & González-Martínez, 2021). On the other hand, training development (or training design) becomes a stimulus in the learning transfer process to achieve learning outcomes.

Sustainable Human Resource Management (SHRM)

Human resource management initially focused on a strategic approach to aligning human resource strategy with the organization's business strategy to improve organizational performance by creating a competitive advantage. This approach has been expanded with the emergence of the idea of Sustainable Human Resource Management (SHRM) as a response to achieving the targets of the SDGs (Macke & Genari, 2019), which focuses on managing human resources in the long term to improve performance in financial, social, environmental areas. Campos-García et al. (2024) show that the attention to SHRM and the achievement of SDGs has increased since 2015, where SHRM will focus on achieving SDGs 1 (social sustainability in overcoming the poverty), SDGs 3 (mental health), SDGs 5 (gender equality), SDGs 12 and 13 (responsible production and consumption).

An important part of the SHRM concept is learning transfer and training development. This is because SHRM focuses on maintaining worker productivity, especially for demographically weak workforces (such as ageing workforces). Previous research has discussed SHRM, learning transfer, and training development, but it is still in separate discussions, so research is still limited. Further analysis is needed to map the evolution of learning transfer and training development in achieving SHRM.

RESEARCH METHOD

This research is a quantitative study using the Bibliometric Review method, which has the advantage of mapping research history and trends. This research analyzes 161 articles in the Scopus database using the keywords "learning transfer" OR "training development" AND "human resources" OR "sustainable". The Scopus database was chosen because articles published in Scopus-indexed journals have passed a rigorous publication selection that applies peer review and blind review repeatedly. The data selection criteria are shown in Figure 1. This research uses Biblioshiny tools to analyze yearly production rates, number of citations, most relevant keywords, most relevant authors, most relevant affiliations, collaboration world map, and most relevant sources. The analysis is strengthened using Vosviewer tools to analyze keyword mapping based on timeframe and cluster.
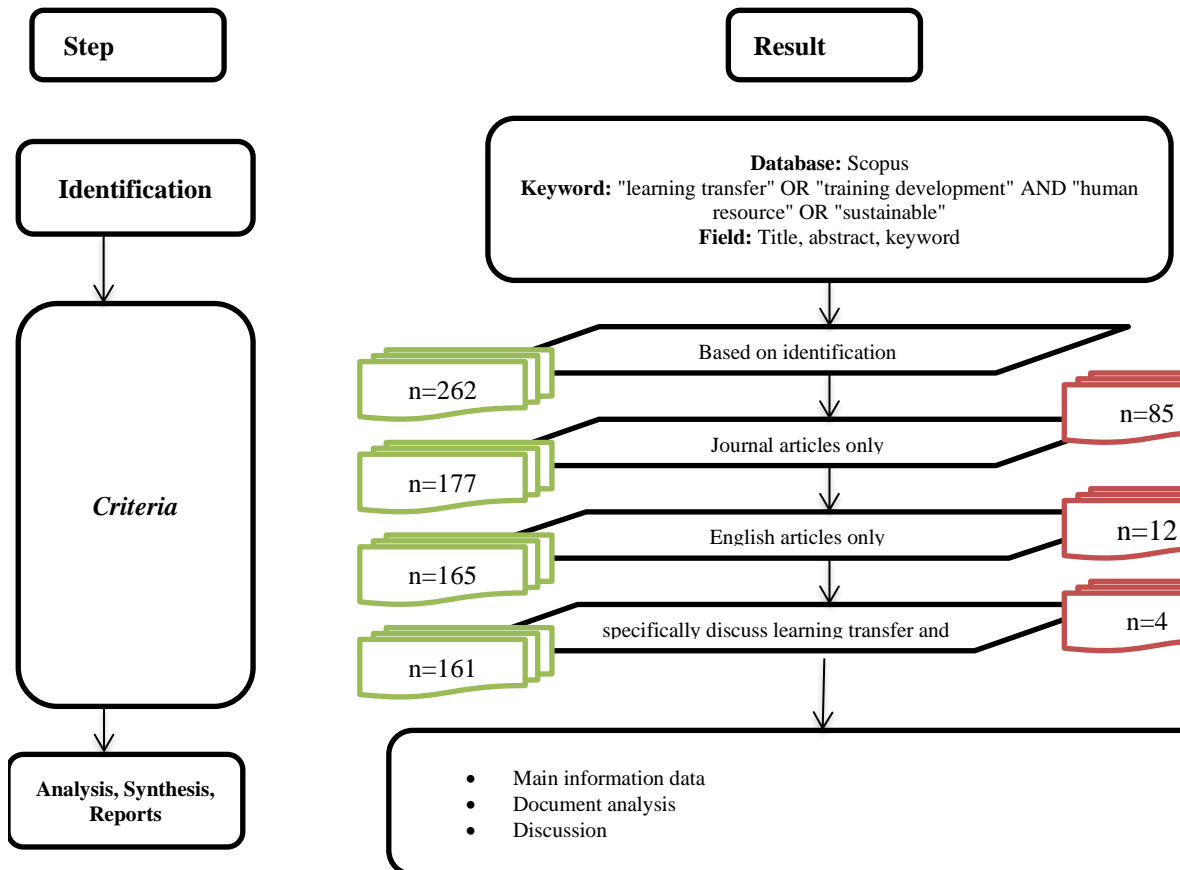
Figure 1. Data Collection

Source: Authors (2024)

FINDINGS AND DISCUSSION

Based on the publication history shown in Table 1, 454 authors have contributed, where the first research was conducted in 1992. Until 2024, there have been 161 scientific articles published in the Scopus database indexed Q1-Q4 with an annual growth rate of publications of 4.81%, and the average citation per article is 16.99 citations.

Table 1. Main Information Data

Description	Results
Timespan	1992:2024
Sources (Journals, Books, etc)	124
Documents	161
Annual Growth Rate %	4.81
Document Average Age	8.8
Average citations per doc	16.99
Keywords Plus (ID)	471
Author's Keywords (DE)	556
Authors	454
International co-authorships %	18.63
article	161

Source: Biblioshiny (2024)

From 1992-2009, publications on learning transfer and training development have been

minimal. Scholars began to show interest in discussing learning transfer and training development in 2018, with the number of publications reaching 12 articles, followed by 2019 with 17 articles. The existence of COVID-19 in 2020 resulted in a decrease in the number of publications. Afterwards, in 2021, the number of publications increased to 17 articles.
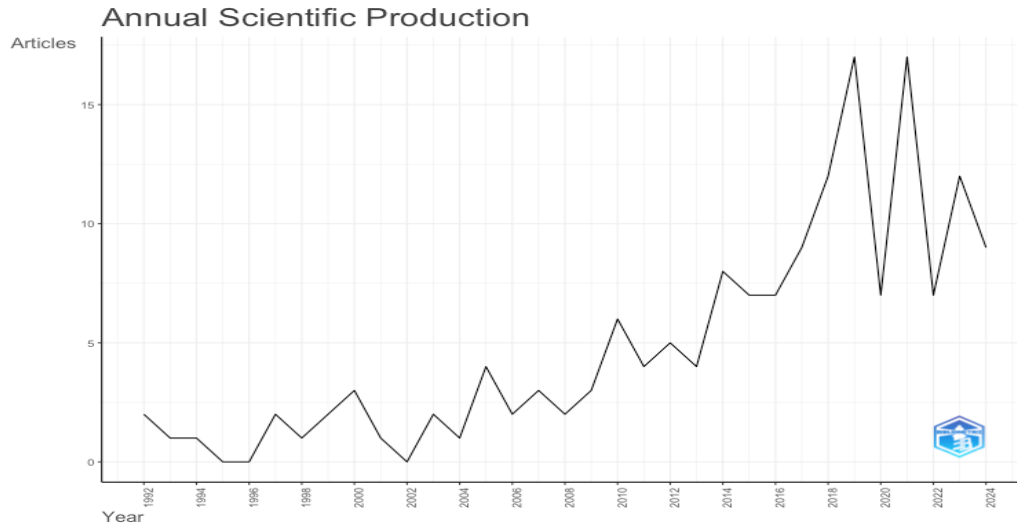

Figure 2. Production of Documents Annually

Source: Biblioshiny (2024)

Figure 3 shows the Three-Field Plot that shows the relationship between authors, keywords, and journals to which they are published. Some interesting keywords were found, such as "older workers", "organization culture", and "innovation", where for older workers, training is very important for them to keep up with the times, especially in the current industrial 4.0 era. On the other hand, the keywords organization culture and innovation point to the importance of learning transfer and training as a strong foundation to ensure that no one is left behind in the journey towards SDGs by 2030.
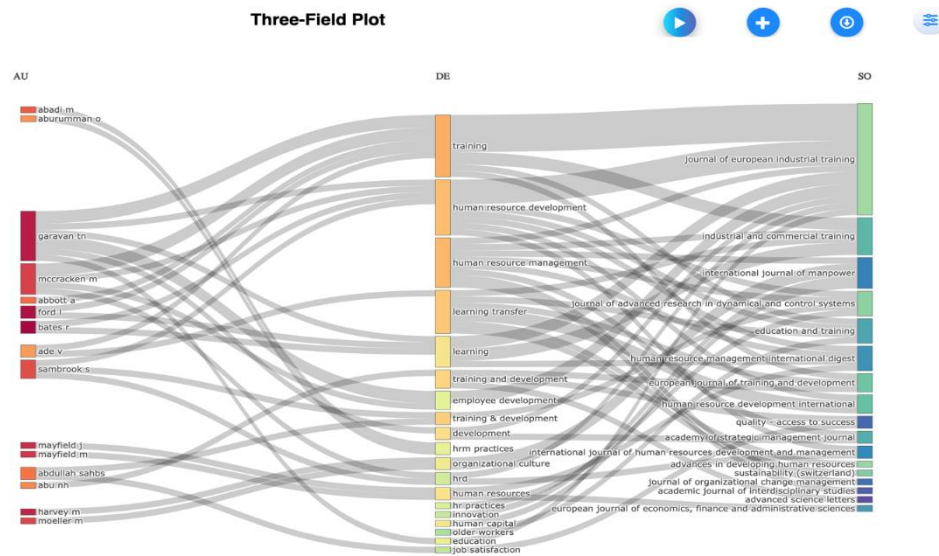

Figure 3. Three-field Plot

Source: Biblioshiny (2024)

Ataei P and Bates R are the authors with the highest number of publications, with three articles each (see Figure 4). After that, seven authors had two articles, while the other authors only had 1 article. It shows that out of 454 authors who published articles on learning transfer and training development, 0.44% have three articles, 1.54% have two articles, and 98.01% of all authors have 1 article.
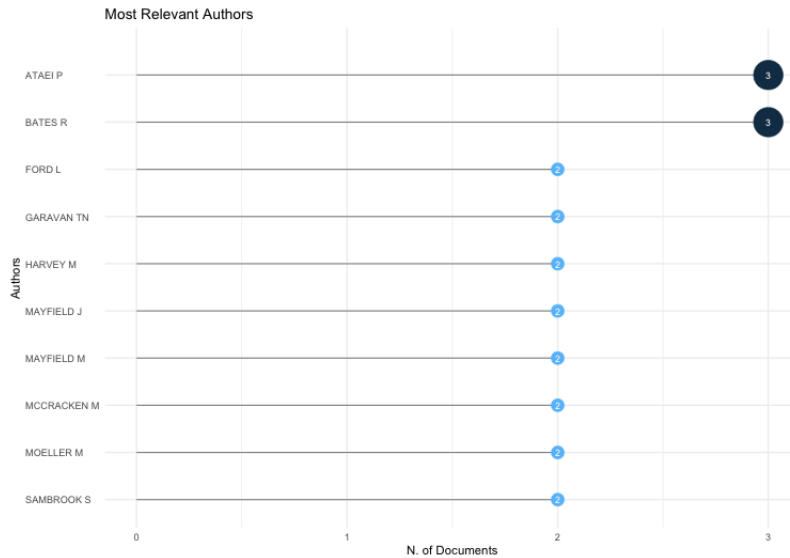

Figure 4. Most Relevant Authors

Source: Biblioshiny (2024)

Furthermore, as seen from Most Relevant Affiliations, there are five universities with the most publications with five articles each. The five universities are Leuphana University of Lunerburg, Louisiana State University, University of Amsterdam, University of Jordan and Carol Davila University of Medicine and Pharmacy.
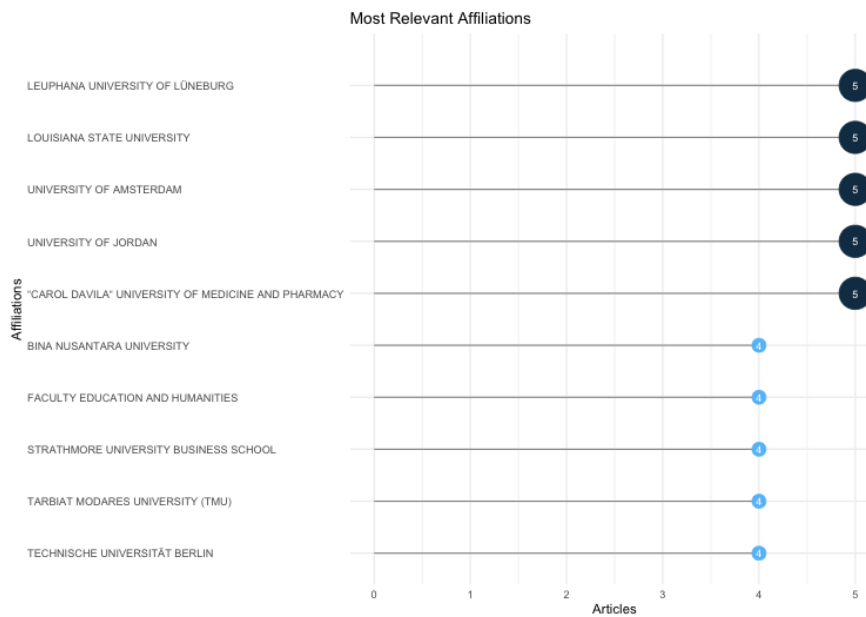

Figure 5. Most Relevant Affiliations

Source: Biblioshiny (2024)

On the other hand, Figure 3 shows that learning transfer and human development in achieving SHRM with domestic collaboration index research (SCP) is more researched in the United States, United Kingdom, Korea, Malaysia, and Iran. In comparison, research on collaboration between countries (MCP) focuses more on the United States, the United Kingdom, India, and China. An interesting thing was found in Australia, a developed country that pays less attention to the discussion of learning transfer and training development towards SHRM.
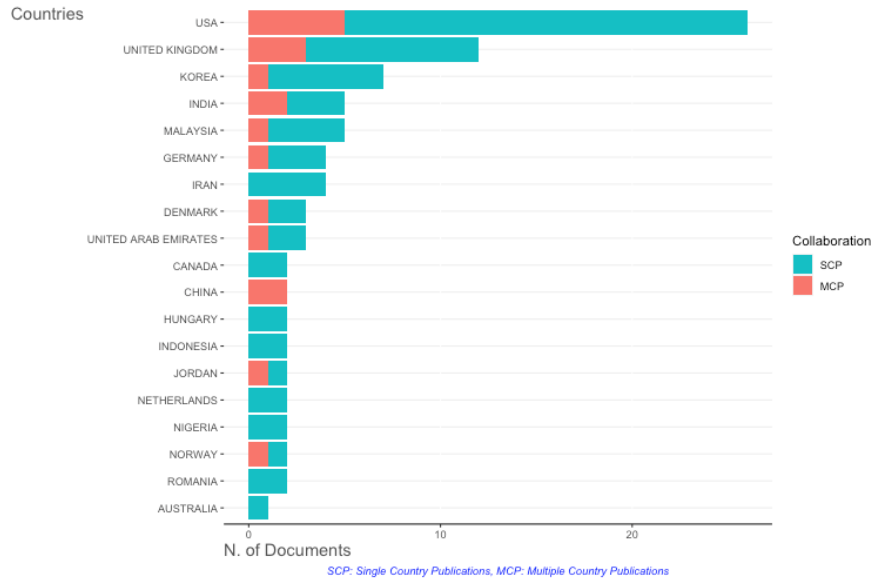

Figure 6. Top Countries

Source: Biblioshiny (2024)

Figure 7 shows the Most Relevant Source, where eight journals have scope areas in human resources and organizational behaviour in business, management, and accounting. Among them, they also have a scope area in social science. In comparison, another journal has a scope in computer science, engineering, energy, and environmental science. It shows that learning transfer and training development are needed in all organizational sectors.
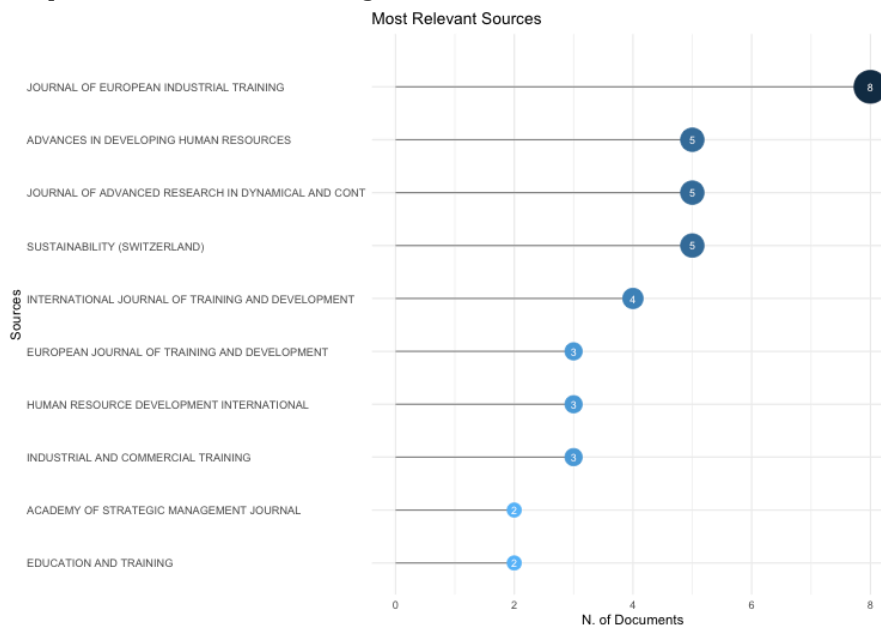

Figure 7. Most Relevant Source

Source: Biblioshiny (2024)

This research also captures some of the studies with the highest number of citations (see Table 2). Lewis et al. (2005) received 324 citations and were published 19 years ago, showing that the article has high theoretical and practical implications for Transactive Memory Systems (TMS). Furthermore, Nisar et al. (2021), in their article discussing the topic of Green Human Resource Management, got 184 citations. Green human resource management is one of the new concepts in SHRM.

Table 2. Top 5 Highest Cited Articles

Author(s)	Title	Cited by
Lewis et al. (2005)	Transactive memory systems, learning, and learning transfer	324
Nisar et al. (2021)	Green Human Resource Management Practices and Environmental Performance in Malaysian Green Hotels: The Role of Green Intellectual Capital and pro-environmental Behavior	184
Bierema & Callahan (2014)	Transforming HRD: A Framework for Critical HRD Practice	94
Law et al. (2015)	Engaging Employees in Sustainable Development: a Case Study of Environmental Education and Awareness Training in Hong Kong	87
Garavan (1997)	Training, development, education and learning: different or the same?	85

Source: Authors (2024)

Document Analysis

Several keywords are related to learning transfer and training development in SHRM. Based on Figure 8, interesting keywords such as "older workers" indicate that learning transfer and training are very important for older workers. This is because times are developing rapidly and have entered the era of digital technology.

Figure 8. Worldcloud
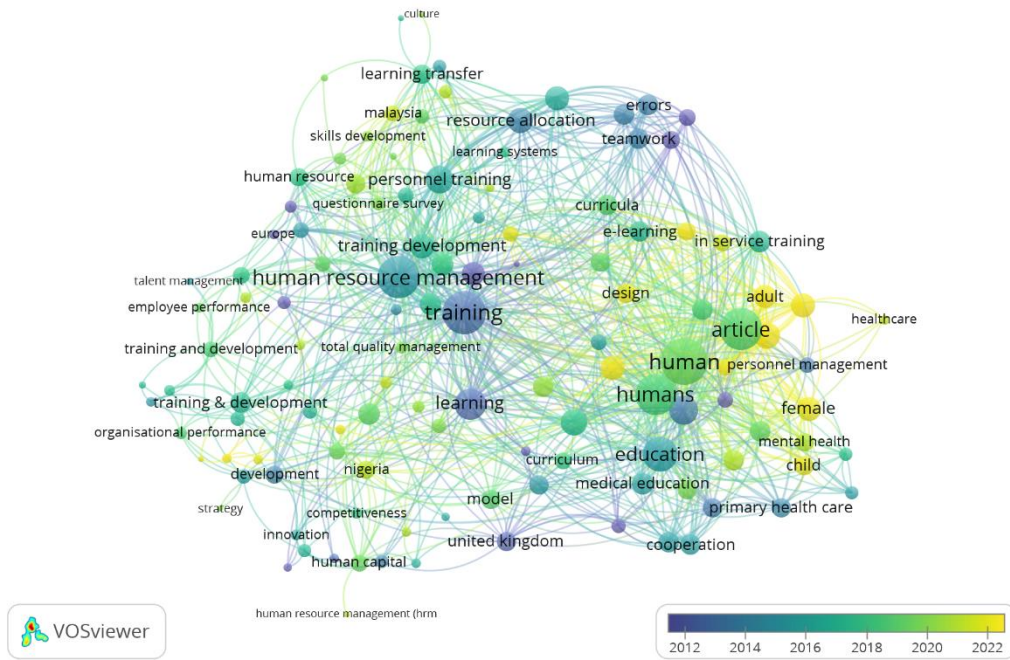
Source: Biblioshiny (2024)

Figure 9. Keyword Mapping by Timeframe

Source: Vosviewer (2024)

Figure 9 shows the research trend. The yellow colour indicated the most researched topics in 2022. Light-coloured keywords such as "female", "child", "adult", "mental health", and "healthcare" indicate that learning transfer and training development not only improve human resource capabilities but also enable individuals, especially women, to maintain their mental health.
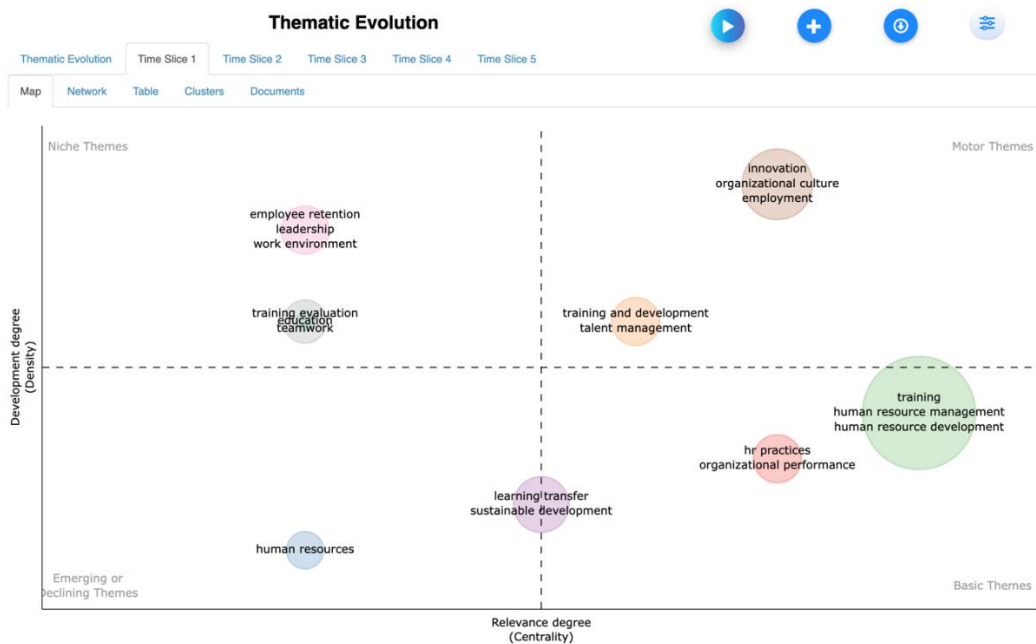

Figure 10. Thematic Evolution

Source: Biblioshiny (2024)

Figure 10 is a thematic evolution to map the development of research themes or topics over time. The keywords "innovation" and "organizational culture" are included in the motor themes. Furthermore, employee retention and leadership, which fall under niche themes, are also being researched. On the other hand, commonly used basic themes such as human resource management and organizational performance have been widely researched and are starting to reach a saturation point. Meanwhile, emerging themes that indicate "human resources" require qualitative analysis and more specific development.
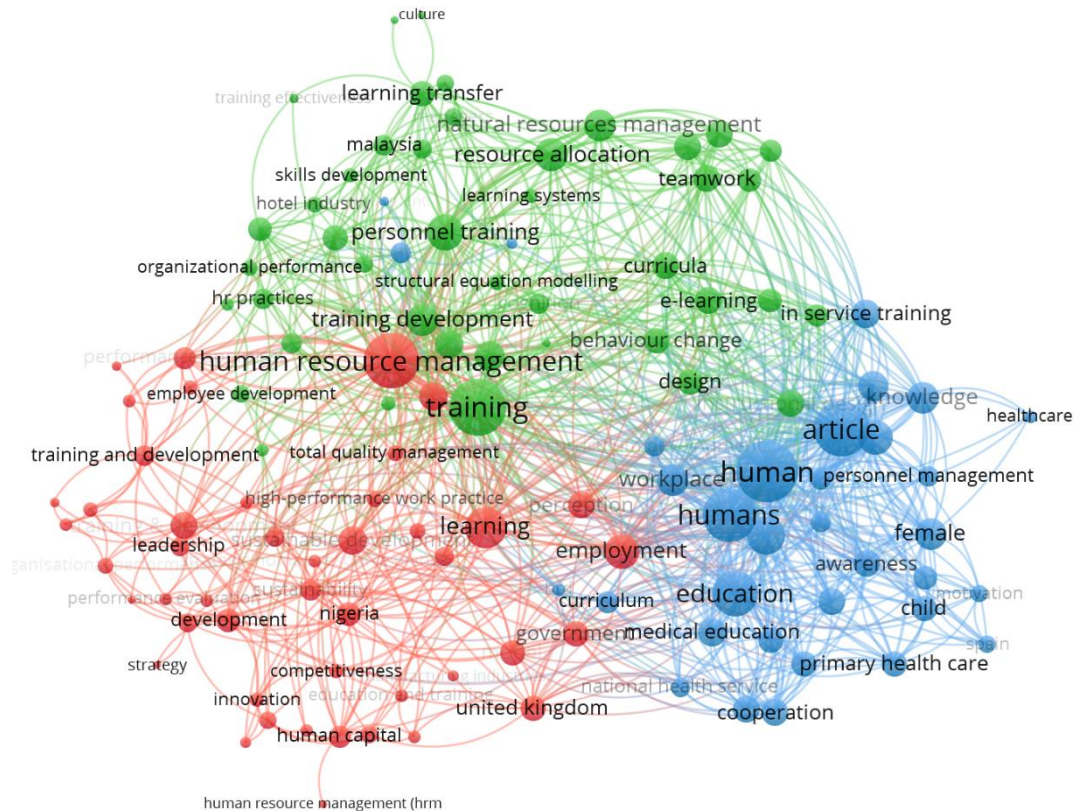

Figure 11. Research Theme: Keyword Analysis
Source: Vosviewer (2024)

This study also presents a cluster analysis (see Figure 11). The first cluster (in green) has the keywords "natural resource management" and "organizational performance", which shows that learning transfer and training development are conducted to achieve SHRM by managing and allocating natural resources properly. The second cluster (in red) has a broader scope discussing improving competitiveness and innovation to achieve performance and sustainability. Meanwhile, the blue cluster shows that learning transfer and training development are used as a means of motivation and as a means to maintain physical and mental health, especially for women.

Discussion

Sustainable Human Resource Management (SHRM) has become a major focus in organizations worldwide. It is due to the growing awareness of the importance of efficient and environmentally friendly resource management to achieve sustainability. Learning transfer and training development are two important components that are crucial in achieving this goal. Based on the analysis using Biblioshiny and VosViewer, several findings show the evolution and trend of learning transfer and training development to achieve SHRM in terms of financial, social,

environmental, and organizational.

Based on the bibliometric analysis, the results show that transfer learning and training development were initially the only basic concepts. It is indicated by Garavan (1997), which suggests the differences in learning, training, development, and education and how they are integrated to optimize human resources. In the 2000s, research continued to develop the instrument model to measure learning transfer. Instruments such as the Learning Transfer System Inventory (LTSI) also began to be developed (Bates et al., 2007; Khasawneh et al., 2006) and continued to evolve to assess factors that affect learning transfer in organizations. Researchers identified that managerial support, organizational culture, and learning climate play an important role in the success of learning transfer. One of these conditions is shown by Lewis et al. (2005), highlighting the importance of transactive memory systems in influencing group learning.

In order to achieve SHRM, the evolution of learning transfer research continues to grow. In this era, learning transfer is not only viewed in terms of performance but also in terms of sustainability and employee well-being. Research is starting to explore how learning transfer can contribute to organizational sustainability goals (SDGs) and employees' mental and physical well-being. As shown in Figure 10 in keyword by timeframe, which shows the keywords "mental health" and "healthcare", it is especially important to design learning transfer to improve mental health for women as they have a double burden as mothers and workers. Designing learning transfers that support women's health and well-being supports the achievement of SDGs on Gender and guarantees to ensure SHRM is achieved on financial and social aspects. Furthermore, it is also important to design transfer of learning older workers. Older workers must be provided with much training, especially training on digital technology, so they have the same capabilities as workers in the millennial, generation Z, and Alpha generations who are more tech-savvy.

Concepts such as Green Human Resource Management and sustainable learning are becoming popular (Chau et al., 2024). The research is on managing and allocating natural resources to achieve the SDGs. The evolution of transfer learning and training development in achieving SHRM is also supported by digital technology (Chau et al., 2024), and initially, the technology used was still computer-based (Hodson, 1998). E-learning, mobile learning, and other digital technologies are becoming increasingly common in training programs. Additionally, innovative approaches such as gamification and engaging experiential learning are used to increase engagement and effectiveness of learning transfer. Cybersecurity and blockchain training are also important topics.

Furthermore, learning transfer and human development are important for organizations, as evidenced by the keywords "organizational performance", "job satisfaction", "innovation", "organizational culture", and "HRM practices". Future research can focus on learning transfer and training development strategies for workers in different generations (baby boomers, millennials, Z, alpha) to achieve sustainable human development. Thus, there is an evolution of learning transfer and training development, which initially only aimed at achieving organizational performance, which has shifted to achieving financial, social and environmental sustainability, which is relevant in achieving SDGs 3 (mental and well-being) and SDGs 4 (gender equality), as well as maintaining a balance of production and consumption through managing natural resources relevant to SDGs 12 and 13.

CONCLUSIONS

Learning transfer and training development are two important components that play a crucial role in achieving Sustainable Human Resource Management (SHRM). Through analysis of 161 documents in Scopus written by 454 authors, research on transfer learning and training development in the SHRM context began in 1992 and is still discussing the conceptual framework. Research continues to evolve from developing measurement instruments such as the Learning

Transfer System Inventory (LTSI) and Transactive Memory Systems. Research on learning transfer and training development in achieving SHRM also discusses the topics of green human management and mental health in the context of demographics (older workers, gender). However, it is still limited and requires more in-depth discussion. Topics such as organizational performance, innovations, job satisfaction, and organizational culture are most discussed.

LIMITATION & FURTHER RESEARCH

This research is limited to bibliometric analysis, so further observations are required. Future research can focus on empirical analysis to measure the effectiveness of learning transfer and training development in achieving SHRM. Moreover, SHRM is still a relatively new approach and requires in-depth analysis. Previous research could also focus on the relevance of transfer learning and training development to mental health, green human management, and demographic contexts, which Scholars have not widely discussed. Previous research should also focus on learning and training in digital technology, such as cyber, blockchain and artificial intelligence.

REFERENCES

Asfiah, N., Arifiani, R. S., & Ambarwati, T. (2023). Human resources management: Bibliometric analysis of green training. *Environmental Issues and Social Inclusion in a Sustainable Era*, *Jabbour 2013*, 16–20. https://doi.org/10.1201/9781003360483-3

Aust, I., Cooke, F. L., Muller-Camen, M., & Wood, G. (2024). Achieving sustainable development goals through common-good HRM: Context, approach and practice. *German Journal of Human Resource Management*, *38*(2), 93–110. https://doi.org/10.1177/23970022241240890

Bates, R., Kauffeld, S., & III, E. F. H. (2007). Examining the factor structure and predictive ability of the German-version of the Learning. *Journal of European Industrial Training*, *31*(3), 195–211. https://doi.org/10.1108/eb005197

Bierema, L., & Callahan, J. L. (2014). Transforming HRD: A Framework for Critical HRD Practice. *Advances in Developing Human Resources*, *16*(4), 429–444. https://doi.org/10.1177/1523422314543818

Campos-García, I., Alonso-Muñoz, S., González-Sánchez, R., & Medina-Salgado, M. S. (2024). Human resource management and sustainability: Bridging the 2030 agenda. *Corporate Social Responsibility and Environmental Management*, *31*(3), 2033–2053. https://doi.org/10.1002/csr.2680

Chau, K. Y., Wang, J., & Moslehpour, M. (2024). The Impact of Technological Advancement and Green HRM Practices on the Sustainable Business Development in Vietnam. *Engineering Economics*, *35*(2), 155–168. https://doi.org/10.5755/j01.ee.35.2.33189

Fauth, F., & González-Martínez, J. (2021). Trainee Perceptions of Instructional Design in Continuous Online Training and Learning Transfer. *Education Research International*, *2021*. https://doi.org/10.1155/2021/3121559

Garavan, T. N. (1997). Training, development, education and learning: different or the same? *Journal of European Industrial Training*, *21*(2), 39–50. https://doi.org/10.1108/03090599710161711

Hamouche, S., Rofa, N., & Parent-Lamarche, A. (2023). Systematic bibliometric review of artificial intelligence in human resource development: insights for HRD researchers, practitioners and policymakers. *European Journal of Training and Development*, *ahead-of-p*(ahead-of-print), ahead-of-print. https://doi.org/10.1108/EJTD-10-2023-0152

Hodson, P. (1998). Managing computer-based training developments in higher education. *Research in Post-Compulsory Education*, *3*(2), 213–222. https://doi.org/10.1080/13596749800200031

Khasawneh, S., Bates, R., & Holton, E. F. (2006). Construct validation of an Arabic version of the Learning Transfer System Inventory for use in Jordan. *International Journal of Training and Development*, *10*(3), 180–194. https://doi.org/10.1111/j.1468-2419.2006.00253.x

Law, M. M. S., Hills, P., & Hau, B. C. H. (2015). Engaging Employees in Sustainable Development – a Case Study of Environmental Education and Awareness Training in Hong Kong. *Business Strategy and the Environment*, *26*(1), 84–97. https://doi.org/10.1002/bse.1903

Lewis, K., Lange, D., & Gillis, L. (2005). Transactive memory systems, learning, and learning transfer. *Organization Science*, *16*(6), 581–598. https://doi.org/10.1287/orsc.1050.0143

Macke, J., & Genari, D. (2019). Systematic literature review on sustainable human resource management. *Journal of Cleaner Production*, *208*, 806–815. https://doi.org/10.1016/j.jclepro.2018.10.091

Mathushan, P. Gamage, A. S. & Wachissara, V. (2023). Human Resource Management and Artificial Intelligence: A Bibliometric Exploration. *Vidyodaya Journal of Management*, *9*(I), 1–29. https://doi.org/10.31357/vjm.v9ii.6370

Nisar, Q. A., Haider, S., Ali, F., Jamshed, S., Ryu, K., & Gill, S. S. (2021). Green human resource management practices and environmental performance in Malaysian green hotels: The role of green intellectual capital and pro-environmental behavior. *Journal of Cleaner Production*, *311*(November 2020), 127504. https://doi.org/10.1016/j.jclepro.2021.127504

Pham-Duc, B., Tran, T., Hoang, D. H., & Do, C. B. (2023). Global scientific literature on human resource development: a bibliometric analysis using Scopus database. *European Journal of Training and Development*, *47*(7/8), 846–861. https://doi.org/10.1108/EJTD-01-2022-0004

Tutar, H., Nam, S., & GüLer, S. (2023). Development of Sustainable Human Resources in the Period 2000-2021: A Bibliometric Review. *Journal of Chinese Human Resource Management*, *14*(1), 117–139. https://doi.org/10.47297/wspchrmWSP2040-800506.20231401