

TLIC PAPER

Mapping the Corporate Learning Research Landscape: A Bibliometric Analysis of Trends, Themes, and Collaborations

Sherif Abdelhamid¹(✉),
Mona Aly²

¹Virginia Military Institute,
Lexington, VA, USA

²Independent Researcher,
Lexington, VA, USA

abdelhamidse@vmi.edu

ABSTRACT

Corporate learning research is a constantly changing field influenced by organizational development and new learning methods. As this field matures, it becomes increasingly important to understand its dynamic research landscape to identify current trends, emerging challenges, and potential opportunities. This paper fulfills this critical need by conducting a bibliometric analysis of corporate learning research publications. The study uses the Scopus database to analyze various scholarly outputs, including peer-reviewed journals, conference proceedings, and academic books. This work aims to uncover important research themes, outline changing trends, and highlight the most influential authors and institutions, shedding light on how these elements have evolved. The research uses co-authorship networks to reveal collaboration and knowledge exchange patterns among scholars, underscoring the potential for future synergies and advancements within the field. Moreover, exploring concept co-occurrence networks provides a detailed view of foundational ideas and their interconnections within the corporate learning research domain. This analysis summarizes the current state of corporate learning research and maps its path, providing a valuable resource for corporate executives, organizational leaders, educators, researchers, and policymakers aiming to navigate and contribute to this dynamic and constantly evolving landscape.

KEYWORDS

corporate learning, workplace training, bibliometric analysis, collaboration network, term co-occurrence

1 INTRODUCTION

1.1 Background

Corporate learning research has emerged as a critical area of inquiry, driven by its potential to revolutionize corporate training and development through

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innovative methodologies and tools. Drawing on advancements in organizational practices and learning theories, this domain seeks to enhance the effectiveness of corporate learning initiatives and improve employee performance and outcomes. This study leverages the Scopus database to conduct a bibliometric analysis, thoroughly exploring the corporate learning research landscape. This research aims to uncover dominant themes, identify leading scholars and research groups, and show the research connections among organizations and countries within this rapidly evolving field by analyzing an extensive body of scholarly works.

1.2 Research motivation

Identifying the key themes, topics, and trends in corporate learning research is essential for several reasons. First, it facilitates the recognition of significant trends and subjects that have captivated the academic and professional communities, highlighting areas that have attracted considerable research attention. Second, it reveals research gaps and underexplored areas, providing valuable insights for future scholarly endeavors. Third, it uncovers patterns of research collaboration and networks, fostering potential partnerships and knowledge exchange within the corporate learning community. To achieve these objectives, this study uses the Scopus database, which offers access to various relevant articles for our analysis. By utilizing this comprehensive and diverse catalog, our bibliometric study captures the full scope of research activity.

1.3 Research goal and objectives

This research aims to provide an overview of the current research landscape in corporate learning through a systematic examination of collaboration networks, frequently used terms, and co-occurrence networks. The findings will equip policymakers, educators, and researchers with a deeper understanding of the existing body of work, potential directions for future research, and opportunities for collaboration within this domain. Ultimately, this research contributes to advancing corporate learning by identifying effective training practices and innovative instructional strategies.

1.4 Research questions

The following research questions form the foundation of our study and guide the investigation. To address these questions, we conducted a thorough data collection process and applied bibliometric analysis techniques.

- **What are the key research themes and trends in corporate learning research over the past hundred years?**

We employed descriptive and conceptual data analyses with thematic maps to identify the most frequently occurring terms and the central research themes.

- **Who are the leading authors, institutions, and countries contributing to corporate learning research, and how do they collaborate?**

We developed three social networks at the levels of authors, institutions, and countries. Using these networks, we performed social network visualizations and analyses to identify prominent authors, organizations, and countries based on the social structures within the networks.

2 RELATED LITERATURE

Corporate learning and workplace training have emerged as critical components in developing human resources within organizations. Workplace learning is fundamentally characterized by its context-specific nature, influenced by organizational culture, job roles, and the socio-cultural environment. Workplaces are not merely venues for task execution but are also rich learning environments that facilitate the acquisition of skills and knowledge necessary for job performance [1]. This perspective is echoed in [2], where the researchers highlighted the role of informal learning facilitated by mobile technologies, enabling employees to engage in self-directed learning within their work contexts. The shift from traditional training models to more integrated workplace learning approaches underscores the need for organizations to adapt their training strategies to foster continuous learning among employees [3]. The factors that support workplace learning are diverse and can significantly affect an individual's learning opportunities and engagement levels. In [4], researchers emphasize that organizational support mechanisms, such as mentorship and resource access, are vital in enhancing workplace learning experiences. Similarly, [5] discusses the importance of a conducive learning climate, which can either facilitate or hinder learning processes depending on the level of organizational restructuring. This indicates that the organizational context is vital in shaping the effectiveness of workplace learning initiatives. Moreover, the interplay between formal and informal learning within the workplace is crucial for employee development. Researchers posit that formal training programs and informal learning experiences contribute positively to job performance [6]. This duality is further explored in [7], arguing that self-regulated learning is increasingly becoming the individual's responsibility, necessitating that employees take charge of their learning within the constraints of their roles. This shift towards self-directed learning aligns with the contemporary understanding of workplace learning as a continuous, lifelong process that transcends traditional training boundaries. Furthermore, the literature highlights the significance of mentoring and peer learning in workplace contexts. Researchers illustrate how mentoring relationships can provide essential support for learning in clinical settings, where the complexities of practice necessitate ongoing guidance and feedback [8]. This aligns with the findings in [9], which emphasize the importance of workplace mentors in helping learners develop critical reflection and inquiry skills. Such relationships enhance individual learning outcomes and contribute to the overall learning culture within organizations. The impact of organizational culture on workplace learning is another critical theme in the literature. Researchers argue that a supportive organizational culture can significantly enhance the relationship between workplace learning and employee performance [10]. This assertion is supported by another work [11], which identifies cultural differences in expectations regarding workplace learning, suggesting that organizations must be aware of these differences to implement learning initiatives effectively. Understanding the cultural context in which learning occurs is essential for designing training programs that resonate with employees and promote engagement. In addition, the literature reveals a growing recognition of the need for workplace learning to address the challenges posed by the rapidly changing nature of work. As organizations strive to remain competitive, the demand for continuous reskilling and upskilling of employees has intensified. The literature highlights that integrating learning into the workplace is crucial for building employee competency in an evolving job market [12]. This perspective underscores organizations' need to rethink their training strategies and embrace a more holistic approach to employee

development. The concept of learning as a social process is also prevalent in the literature. In [13], authors emphasize that workplace learning occurs through interactions with colleagues and the broader organizational environment, suggesting that social dynamics significantly shape learning experiences. This aligns with the views of researchers in another work [14], who distinguish between routine-generating learning and regenerative learning, both of which are influenced by social interactions within the workplace. Recognizing the social dimensions of learning can help organizations create more collaborative and supportive learning environments. Moreover, the literature indicates that workplace learning is not a one-size-fits-all approach; instead, it must be tailored to meet the diverse needs of employees across different contexts. Researchers discussed the varying learning cultures within workplaces, suggesting that organizations must adopt a nuanced understanding of their workforce to facilitate learning effectively [15]. This tailored approach is essential for ensuring that training initiatives are relevant and impactful, ultimately improving employee performance and satisfaction.

Bibliometric analyses have been conducted in various areas of education research. In the education for sustainability development (ESD) in tourism, a bibliographic review was carried out to analyze the presence of sustainability in tourism training [16]. The scholarship of teaching and learning (SoTL) in higher education has also been the subject of bibliometric analysis, revealing an upward trend in the number of documents and identifying key sources and authors [17]. In the context of online education, a bibliometric analysis examined the conceptual apparatus of the term “Online Education” before and after the COVID-19 pandemic, highlighting the increase in publication activity and the emergence of new trends [18]. Similarly, a bibliometric analysis of technology in anatomy education identified publication trends, prominent authors, and research hotspots [19]. Another bibliometric study focused on the key topics and research themes of language learning using Chatbots [20]. The growth, publication trends, and collaborations in the Journal of Special Educational Technology (JOSET) have also been analyzed using bibliometric methods [21]. The collaboration networks and related factors have been studied using a bibliometric analysis of the publications of the American Society of Engineering Education (ASEE) conference [22]. These studies demonstrate the value of bibliometric analysis in understanding the research landscape and trends in education with a possible focus on corporate learning.

3 METHODOLOGY

Scopus provides access to various academic publications pertinent to corporate learning and training research. It facilitates the retrieval of relevant studies encompassing empirical research, theoretical contributions, systematic reviews, and proceedings from relevant conferences, all within the context of corporate learning. The data-gathering process involved a structured search within the Scopus database, utilizing specific search terms aligned with the focus on corporate learning. We searched for articles containing the keyword “corporate learning” or synonymous in their title, abstract, or section. We used the following query to retrieve relevant publications to our study:

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TITLE-ABS-KEY (“corporate learning” OR “corporate training” OR “corporate education”
OR “organization training” OR “workplace training” OR “workplace education” OR “workplace learning”)
AND PUBYEAR > 1921 AND PUBYEAR < 2024
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The adopted methodology follows the mapping workflow detailed in the referenced literature [23]. This methodology includes several key stages: 1) the collection and storage of data, 2) the loading of data, 3) the descriptive analysis of data, and 4) the mapping and visualization of data to identify trends and relationships. The study utilized the R programming language to execute this workflow, explicitly leveraging the bibliometrix package for sophisticated bibliometric analyses.

4 RESULTS AND FINDINGS

4.1 Data acquisition

We retrieved all the papers produced between 1922 and 2023 from Scopus, yielding 5,563 records. These records were thoroughly reviewed to verify their pertinence to the corporate learning research query. Furthermore, publications metadata were collected and stored in an “R data frame” and then subjected to a data-cleaning procedure. A preliminary analysis of the records highlighted an annual publication growth rate of 6.1% and an average citation count of 15.31 per paper. This data underscores a growing interest and research in corporate learning, particularly over the last three decades.

4.2 Descriptive analysis

The bibliometric analysis of the dataset revealed vital metrics, which are concisely summarized in Table 1. The study found that 70.5% of the total dataset involved publications with multiple authors, with three authors per paper on average. International collaborations accounted for only 13.68% of the publications. The total number of author’s keywords is 8879. Additional keywords extracted from each paper’s reference section, referred to as “Keywords Plus,” were extracted with a total number equal to 7933.

Table 1. Publications dataset descriptive information

Description	Results
Annual Growth Rate %	6.08
Document Average Age	11.2
Average citations per doc	15.31
References	172793
Keywords Plus (ID)	7933
Author’s Keywords (DE)	8879

Notably, “Billet, S.” and “Ley, T.” emerged as the most productive authors, contributing thirty-seven and twenty-six publications, respectively (see Figure 1a). Furthermore, the analysis identified Universiteit Maastricht as a top active institution based on the number of affiliated authors with 107 publications, as shown in Figure 1b. University of Technology Sydney came second with 101 publications, followed by Griffith University with 82 publications.

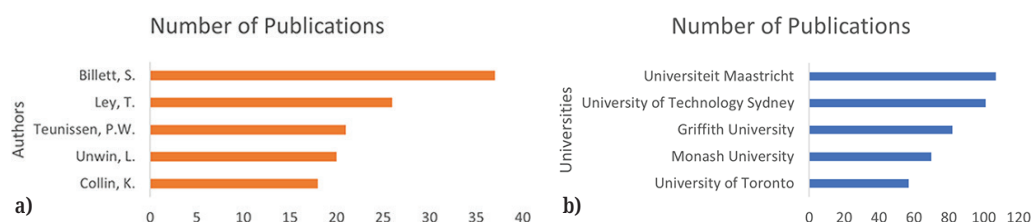


Fig. 1. (a) Top-5 authors based on the number of publications. (b) Top 5 universities based on the number of publications

The study also found that the top three countries in research output, as determined by the number of publications, are the USA, the United Kingdom, and Australia, see Figure 2.



Fig. 2. Top countries based on the number of publications

Counting the publications by type revealed the distribution of the publications as follows: conference papers (732 documents), journal articles (3626 documents), review articles (347 documents), and book chapters (605 documents). The remaining categories include editorial, erratum, short survey, note, report, and letter. Among the top cited publications were “*Motivational Design for Learning and Performance: The ARCS Model Approach*,” with a total citation of 979, “*Perspectives into Learning at the Workplace*,” with a total citation of 737, and “*Reframing professional development through understanding authentic professional learning*” with total citations of 674.

Collaborating among universities can yield benefits such as advancing research, expanding resources, sharing knowledge and expertise, and achieving internationalization and global reach. In this part of the analysis, we calculated the intra-country (Single-country publications—SCP) and inter-country (Multiple-country publications—MCP) collaboration indices. Results show that the USA is the highest in terms of SCP and MCP, followed by the UK, as shown in Figure 3a.

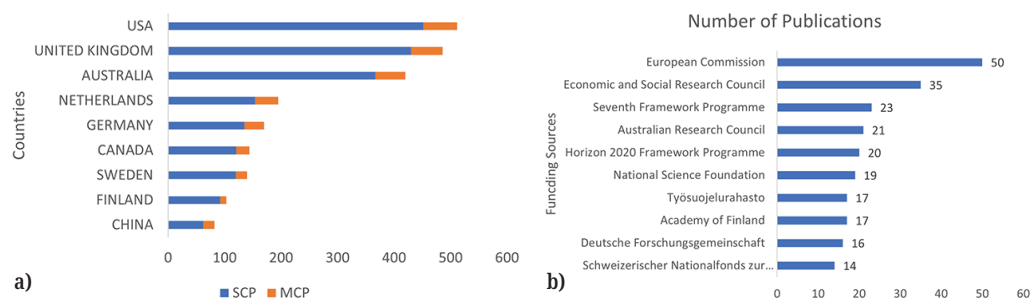


Fig. 3. (a) Corresponding author's top countries producing corporate learning-related publications. Results indicate that the USA has the highest SCP and MCP indices. (b) Top funding sources based on the number of publications

Funding agencies worldwide are essential in supporting corporate learning researchers and universities. Based on our analysis, the European Commission is the top funding source, followed by the Economic and Social Research Council (Figure 3b). Table 2 displays the most frequent “keywords plus” and “author keywords.” Keywords plus were extracted from the references of each article. There are some common terms between the two categories. “Keywords plus” indicate the broad topics in corporate learning research, and author keywords reflect each article’s local content.

Table 2. Most frequent keywords

Terms from Keyword Plus	Occurrences	Terms from Author Keywords	Occurrences
female/male	1093	workplace learning	1825
workplace	826	workplace training	254
human	808	training	227
learning	620	learning	190
adult	498	informal learning	155
education	396	e-learning	141
workplace learning	310	corporate training	123
personnel training	291	education	106
clinical competence	289	professional development	99
qualitative research	275	organizational learning	81

4.3 Conceptual analysis

The conceptual analysis can be conducted using i) network analysis, a common approach in bibliometric studies for exploring connections; ii) factorial analysis, aimed at simplifying complex data sets; and iii) thematic mapping, which synthesizes elements of the first two approaches. This research employed conceptual analysis to reveal pivotal themes within the corporate learning research, to represent bibliometric data graphically, and to trace the thematic evolution within this academic discipline. Using thematic mapping, we created a visualization using bigrams of authors’ keywords from analyzed publications. A bigram is a pair of words that usually appear consecutively. Through stemming, we reduced each keyword to its base form. The clustering was performed using the Louvain method, and the top five bigrams were used for the node labels, with node sizes reflective of their occurrence frequency. The thematic map, shown in Figure 4, arranges identified themes into four quadrants based on their centrality (which indicates their significance) and density (which measures their development). We have four types of themes: motor themes (both central and well-developed), isolated themes (well-developed but less significant), emerging or declining themes (noted for their marginal development), and primary/transversal themes (broad topics that cross over multiple research areas).

4.4 Social network analysis

We constructed the co-authorship network to study collaborations in the corporate education community. The network consists of authors as nodes and co-authorship

relations as links. Scientific collaboration is often done through co-authorship, which is extensively documented. Figure 5 shows fourteen research groups, with the most significant group consisting of ten authors.

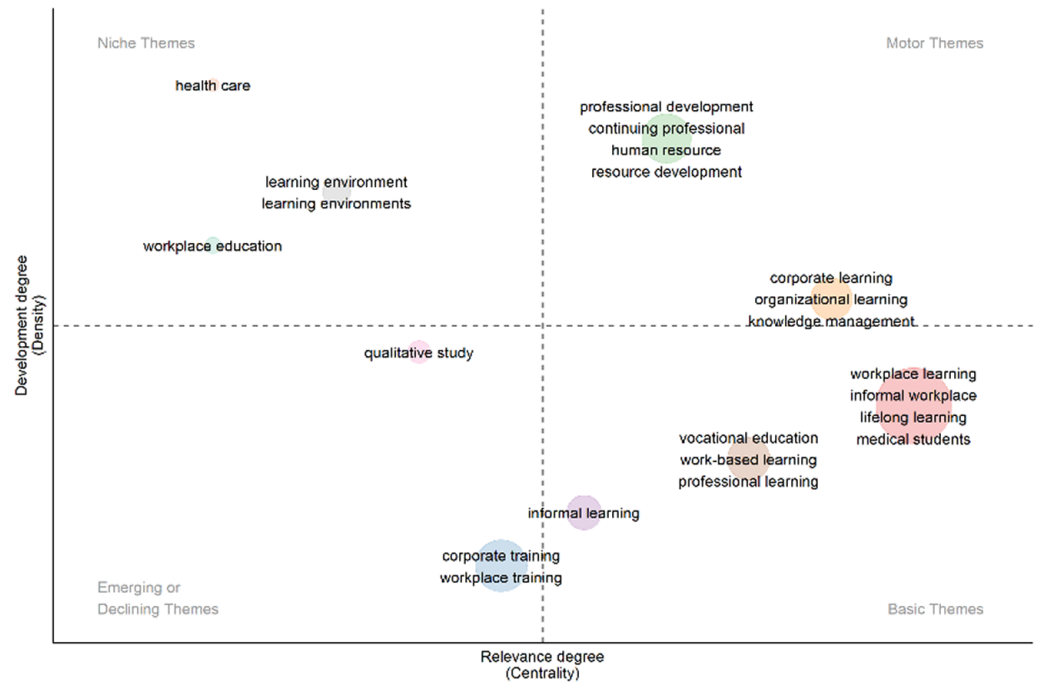


Fig. 4. This thematic map showcases clusters and bigrams identified using co-occurrence network analysis spanning the timeline from 1922 to 2023

In our study, we also focused on the institution collaboration network derived from the data on harvested publications, where each node symbolizes an institution and edges denote co-authorship relations among affiliated authors. The institution network analysis is pivotal for understanding the collaborative dynamics within corporate learning research at the institutional level.

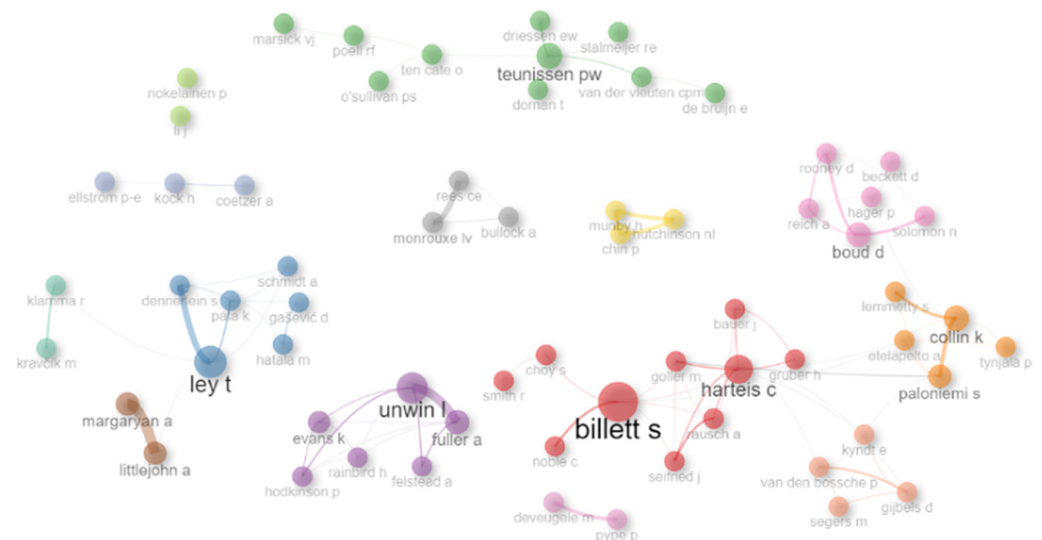


Fig. 5. The collaboration network displays author groups with key authors represented as nodes. The size of the nodes reflects the authors' popularity or degree. Authors or researchers in the same cluster are assigned the same color

The institution network visualization, illustrated in Figure 6, unveils eight distinct clusters within the collaboration network, with the largest consisting of twenty-one universities. Maastricht University has the highest degree of centrality, indicating its pivotal role in the network due to its many direct connections with other nodes. This is closely followed by Griffith University, which underscores its significant position within the research community. The nodes exhibiting the highest degree of centrality are predominantly institutions recognized for their research-intensive focus. These institutions, often called hubs, play a crucial role in the network by fostering extensive collaborative ties. Furthermore, our analysis extends to betweenness centrality, a measure that captures the importance of broker nodes. These nodes are crucial connectors between distinct groups, enhancing the network's connectivity and cohesion. Griffith University stands out with the highest betweenness centrality, affirming its role as a critical mediator within the network. Maastricht University follows, reinforcing its importance in bridging various research communities. The findings suggest that institutions with high betweenness centrality are typically research universities with significant publication activity. Such institutions facilitate knowledge exchange and collaboration across different segments of the corporate learning research field, thereby enriching the academic and scientific discourse.

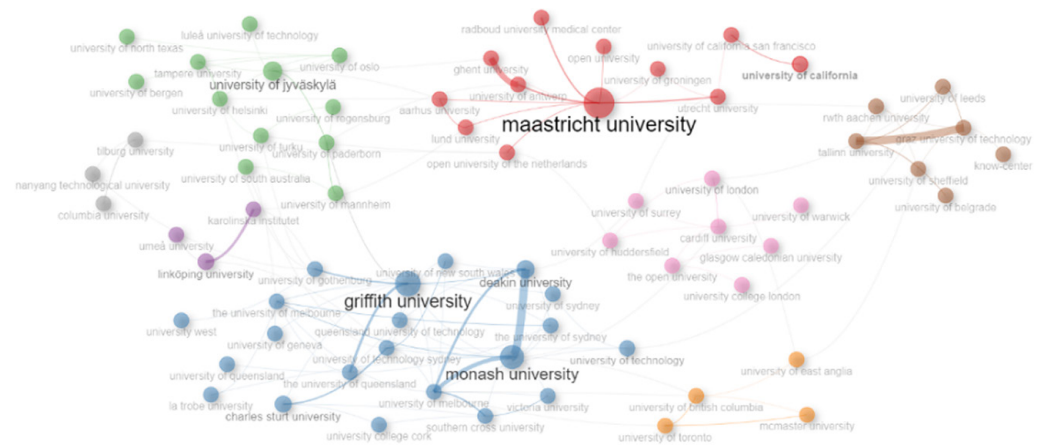


Fig. 6. The institution collaboration network reveals collaborations at the institution level

Exploring the “country collaboration network” presents an insightful perspective on international academic partnerships. The network in Figure 7 shows the collaborative interactions between countries, where nodes symbolize countries and edges indicate co-authorial relationships based on the authors’ affiliation. Our examination revealed six clusters, indicating distinct regional and international collaboration patterns. The largest of these clusters encompasses twenty countries, highlighting the extensive nature of global collaborations in corporate learning research. A key finding from our analysis is the prominent role of the United States, which exhibits the highest betweenness centrality, followed by the United Kingdom. This measure of betweenness centrality underscores the United States’ pivotal position in facilitating connections among various clusters within the network, acting as a primary node through which many paths of collaboration pass. The USA’s central role indicates the country’s extensive collaboration with members from different clusters. The most notable collaborations are quantified through publication counts, with the highest collaboration observed between the UK and Australia, resulting in 33 publications. This is followed by collaborations between the USA and Netherlands with 32 publications, the USA and UK with 31 publications, and

the USA and Canada with 29 publications. This figure demonstrates the USA's central role in the corporate learning research landscape and highlights the importance of international collaboration in fostering academic and scientific progress across borders. This network analysis shows that the USA, the United Kingdom, Canada, Australia, and Germany are key nodes in the global research network, facilitating knowledge exchange and collaboration across various regions.

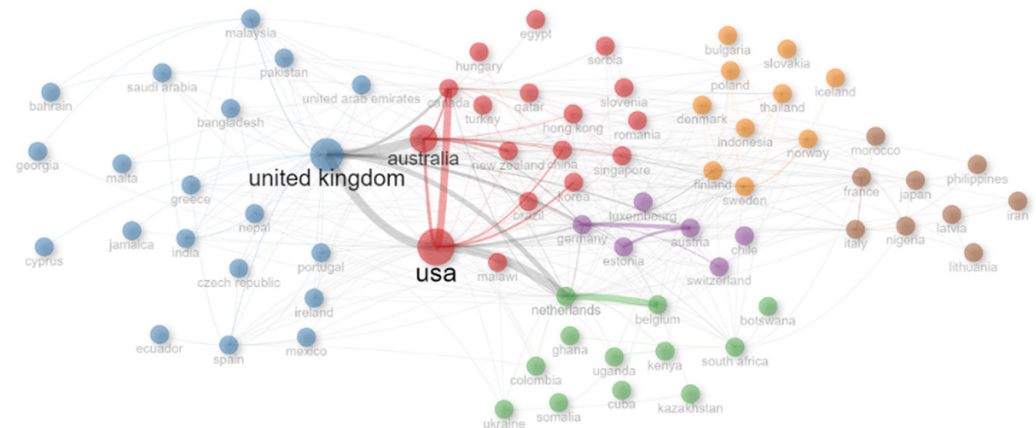


Fig. 7. Global collaboration network in corporate learning research showing key country clusters and the central roles of the USA, China, and UK

5 CONCLUSION AND FUTURE WORK

This paper leverages data from the Scopus database to understand the trends, networks, and thematic structures that have shaped the field over the last hundred years. Our findings highlight a dynamic and evolving domain characterized by a growing interest in collaborative research, an expanding geographical reach, and a focus on innovative pedagogical approaches. The analysis has provided a panoramic view of the corporate learning research community, showcasing its rich collaboration fabric underpinning its progress. The study's exploration of co-authorship networks revealed significant cooperation and knowledge-sharing patterns among scholars and institutions, highlighting the potential for future joint ventures and interdisciplinary research. Additionally, examining concept co-occurrence networks offered insights into the foundational ideas and their interconnections, illustrating the thematic evolution of the field. This work guides corporate executives, organizational leaders, educators, researchers, and policymakers through current corporate learning research and development. Our future work will include a qualitative study to complement the bibliometric analysis. Additionally, we aim to extend the bibliometric analysis periodically, incorporating new data to capture the latest developments and trends in the field and integrate more sources besides Scopus.

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8 AUTHORS

Sherif Abdelhamid is an assistant professor in the Department of Computer and Information Sciences at Virginia Military Institute (VMI) (E-mail: abdelhamidse@vmi.edu; ORCID: <https://orcid.org/0000-0002-6574-0187>).

Mona Aly is a researcher specializing in network communications, engineering education, and data science (ORCID: <https://orcid.org/0009-0009-8215-7784>).