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Bridging the Gap: A Bibliometric Analysis of Skill Gaps and Competency Mapping in Management Education

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Abstract

Purpose:
This study aims to explore skill gaps and competency mapping in management education through a bibliometric analysis, examining the alignment between educational programs and industry demands.

Design/Methodology/Approach:
A bibliometric analysis was conducted using data extracted from Scopus, covering the period from 1997 to 2024. Key indicators such as publication trends, author collaborations, and citation patterns were analyzed using advanced bibliometric tools.

Findings:
The analysis revealed an annual growth rate of 10.27% in publications, indicating a rising interest in the field. Collaborative research is prevalent, with significant contributions from institutions in the United States, Canada, and the UK. The findings underscore the need for integrating both technical and soft skills in curricula to enhance graduate employability.

Originality/Value:
This research provides a comprehensive overview of the current landscape of skill gaps and competency mapping in management education, offering valuable insights for educators, policymakers, and researchers. It highlights the importance of aligning educational outcomes with industry needs and fostering collaborative partnerships.

Keywords:
Skill gaps, competency mapping, management education, bibliometric analysis, educational outcomes, industry alignment.

Paper Type: Research paper

1. Introduction

The exploration of skill gaps and competency mapping in management education has become a pivotal area of research in recent years. This interest stems from the growing recognition that educational programs must align more closely with industry demands to produce graduates who are adequately prepared for the workforce (Alhamami et al., 2020; Aliu &Aigbavboa, 2020). As industries evolve rapidly due to technological advancements and globalization, the competencies required by employers are also changing. Consequently, educational institutions are under pressure to adapt their curricula to bridge the gap between academic training and practical skills needed in the job market (Ambardekar et al., 2023; Belachew et al., 2017).

The concept of competency mapping in management education involves identifying the essential skills and knowledge that students need to acquire during their studies to be effective in their professional roles. This mapping process is crucial for developing targeted educational strategies that can enhance the employability of graduates (Gallen et al., 2019; Kampakaki et al., 2022). Recent studies have highlighted various methods and approaches to competency mapping, emphasizing the importance of both technical and soft skills in the modern business environment (Eldardery et al., 2023; Fernandes et al., 2020).

In addition to addressing skill gaps, competency mapping helps educational institutions to design more effective training programs that cater to the specific needs of different industries. This approach not only improves the quality of education but also ensures that graduates are better prepared to meet the challenges of their respective fields (Fritze et al., 2017; Gallen et al., 2019). The integration of competency-based education into management programs has shown promising results in various studies, indicating that students who undergo such training are more likely to succeed in their careers (Grimm et al., 2017; Jansen-Van Vuuren & Aldersey, 2018).

Overall, the bibliometric analysis of skill gap and competency mapping in management education aims to provide a comprehensive overview of the current research landscape. By examining trends in publications, author collaborations, and key research areas, this study seeks to identify the major developments and future directions in this field (Kampakaki et al., 2022; Lau et al., 2019). The findings of this analysis will be valuable for educators, policymakers, and researchers who are striving to enhance the effectiveness of management education and address the evolving needs of the workforce (Macnamara et al., 2018; Martinez-Gutierrez et al., 2020).

2. Background of the study

The landscape of management education has undergone significant transformations over the past few decades, driven by rapid technological advancements, globalization, and the evolving needs of industries. This dynamic environment has necessitated a continuous reassessment of the skills and competencies imparted to management students (Alhamami et al., 2020; Aliu &Aigbavboa, 2020). Historically, management education has focused on theoretical knowledge and traditional business practices. However, the contemporary business environment demands a diverse set of skills, including digital literacy, critical thinking, and adaptability. These changes have spurred

academic institutions to re-evaluate and realign their curricula to bridge the gap between education and industry requirements (Ambardekar et al., 2023; Belachew et al., 2017).

Competency mapping in management education involves identifying the specific skills and abilities that students need to acquire to be successful in their professional careers. This process is essential for ensuring that graduates are not only knowledgeable but also capable of applying their knowledge in practical, real-world settings (Gallen et al., 2019; Kampakaki et al., 2022). In recent years, there has been a growing emphasis on the integration of soft skills into management education. Skills such as communication, teamwork, and leadership are now considered as important as technical knowledge in the development of effective managers (Fritze et al., 2017; Gallen et al., 2019). This holistic approach to education ensures that graduates are well-rounded and prepared to navigate the complexities of modern organizational environments. Studies have shown that programs incorporating both technical and soft skills produce graduates who are more adaptable and capable of meeting the diverse demands of their roles (Grimm et al., 2017; Jansen-Van Vuuren & Aldersey, 2018).

2.1 Rational of the study

The rationale behind this study is to provide a comprehensive analysis of the existing literature on skill gaps and competency mapping in management education. By conducting a bibliometric analysis, we aim to identify key trends, patterns, and areas of focus within this body of research (Kampakaki et al., 2022; Lau et al., 2019). This analysis will not only highlight the evolution of competency mapping practices but also underscore the importance of aligning educational outcomes with industry needs. The findings will be valuable for educators, policymakers, and researchers seeking to enhance the effectiveness of management education and address the skill gaps prevalent in the current job market (Macnamara et al., 2018; Martinez-Gutierrez et al., 2020).

Research in this field has highlighted various challenges and opportunities associated with competency mapping in management education. One of the primary challenges is the rapid pace of change in the business environment, which makes it difficult for educational programs to keep up with emerging skills and competencies (NaN, 2024; Prince et al., 2024). Moreover, there is a need for greater collaboration between academia and industry to ensure that educational programs remain relevant and responsive to the needs of employers. By fostering partnerships and leveraging industry insights, educational institutions can develop more effective curricula that prepare students for the demands of the modern workplace (Siddoo et al., 2019; Vittori et al., 2023).

Overall, the background of this study underscores the critical importance of competency mapping and skill gap analysis in management education. As the business landscape continues to evolve, it is imperative for educational institutions to adapt and innovate to meet the changing needs of students and employers alike. This bibliometric analysis will provide a valuable framework for understanding the current state of research in this area and identifying future

directions for enhancing the alignment between management education and industry requirements (Walker et al., 2020; Wang et al., 2022).

Justification

The need for this study is driven by the persistent and evolving gap between the skills provided by management education and those demanded by contemporary industries. As businesses adapt to rapid technological changes and globalization, the competencies required for effective management also transform. This dynamic has created a pressing need for educational institutions to continuously update and refine their curricula to better prepare graduates for the workforce (Alhamami et al., 2020; Aliu &Aigbavboa, 2020). Competency mapping is a strategic approach that helps bridge this gap by identifying and integrating essential skills into educational programs. By conducting a bibliometric analysis of the existing literature on skill gaps and competency mapping, this study aims to provide valuable insights that can guide the development of more effective management education programs (Ambardekar et al., 2023; Belachew et al., 2017).

Research Questions

1. What are the key trends in skill gap and competency mapping research within management education?
2. How have publication patterns evolved over time in this field?
3. What are the main areas of focus in competency mapping studies?
4. What are the collaboration patterns among authors and institutions in this field?
5. How do different regions and countries contribute to the research on skill gaps and competency mapping in management education?

3. Methodology

This study employs a bibliometric analysis to explore the landscape of skill gaps and competency mapping in management education from 1997 to 2024. Bibliometric analysis is a quantitative method used to analyze the volume, impact, and structure of academic literature. The data for this study were extracted from Scopus, a comprehensive abstract and citation database. Key bibliometric indicators such as annual growth rate, document types, author collaborations, and citation patterns were analyzed. The analysis includes the examination of keywords, authorship patterns, and institutional affiliations to identify trends and patterns in the research. Advanced bibliometric tools and software, such as VOSviewer and Biblioshiny, were utilized to create visualizations of co-authorship networks, keyword co-occurrence, and citation analysis. These visualizations help in identifying prominent researchers, influential publications, and emerging

research themes. The results provide insights into the evolution of research focus areas, collaboration patterns among researchers and institutions, and the overall growth and development of the field of skill gaps and competency mapping in management education.

4. Results

4.1 Bibliometric Data

The bibliometric analysis provides a comprehensive overview of the publication trends, authorship patterns, and collaboration dynamics in the field of skill gap and competency mapping in management education. The analysis covers a timespan from 1997 to 2024, during which a total of 576 documents were published, sourced from 412 different journals, books, and other outlets. The annual growth rate of publications in this field stands at 10.27%, indicating a steadily increasing interest over the years. The average age of the documents is 6.97 years, and each document has received an average of 14.83 citations, demonstrating the impact and relevance of the research in this area. The total number of references cited across all documents is 19,974, highlighting the extensive research that underpins the field.The contents of the documents reveal a rich diversity of keywords and author contributions. There are 2,815 Keywords Plus (ID) and 1,557 Author's Keywords (DE), reflecting the broad range of topics and themes explored in the literature. The authorship data shows that a total of 2,340 authors have contributed to the research, with 53 authors having published single-authored documents. Collaborative research is prevalent, as evidenced by the 57 single-authored documents and an average of 4.21 co-authors per document. International co-authorships account for 18.58% of the total, indicating significant global collaboration in this field.The types of documents published include 415 articles, 5 books, 12 book chapters, 93 conference papers, 2 conference reviews, and 1 erratum. This variety demonstrates the multifaceted nature of research dissemination in the field of skill gap and competency mapping in management education.

Table 1: Bibliometric Data

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	1997:2024
Sources (Journals, Books, etc)	412
Documents	576
Annual Growth Rate %	10.27
Document Average Age	6.97
Average citations per doc	14.83
References	19974
DOCUMENT CONTENTS	
Keywords Plus (ID)	2815
Author's Keywords (DE)	1557
AUTHORS	
Authors	2340
Authors of single-authored docs	53
AUTHORS COLLABORATION	
Single-authored docs	57
Co-Authors per Doc	4.21
International co-authorships %	18.58
DOCUMENT TYPES	
Article	415
Book	5
book chapter	12
conference paper	93
conference review	2

Erratum	1

4.2 General Information

The general information section highlights the annual publication output over the selected timespan. In 1997, the field saw the publication of 3 articles, and this number varied in subsequent years. For instance, there were 2 articles published in both 1998 and 1999, and this number increased to 6 by the year 2000. The number of publications continued to fluctuate, with notable increases in certain years, such as 9 articles in 2005.

Table 2: General Information

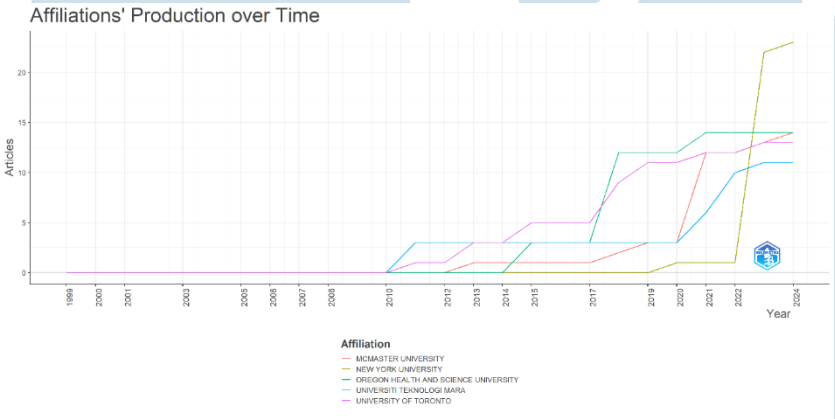
Year	Articles
1997	3
1998	2
1999	2
2000	6
2001	3
2002	5
2003	5
2004	6
2005	9
2006	3

4.3 Affiliations' Production Over Time

Affiliations' production over time indicates the average number of citations per article and other related metrics. For instance, in 1997, the mean total citations per article were 38.67, with a mean citation per year of 1.38 over a citable span of 28 years. These metrics provide insights into the impact and longevity of the research conducted by various affiliations.

Table 3: Affiliations' Production Over Time

Year	MeanTCperArt	N	MeanTCperYear	CitableYears
1997	38.67	3	1.38	28
1998	1.50	2	0.06	27
1999	30.00	2	1.15	26
2000	30.67	6	1.23	25
2001	37.33	3	1.56	24
2002	29.80	5	1.30	23
2003	17.20	5	0.78	22
2004	39.33	6	1.87	21
2005	63.89	9	3.19	20
2006	46.33	3	2.44	19



Graph 1. Affiliations' Production Over Time

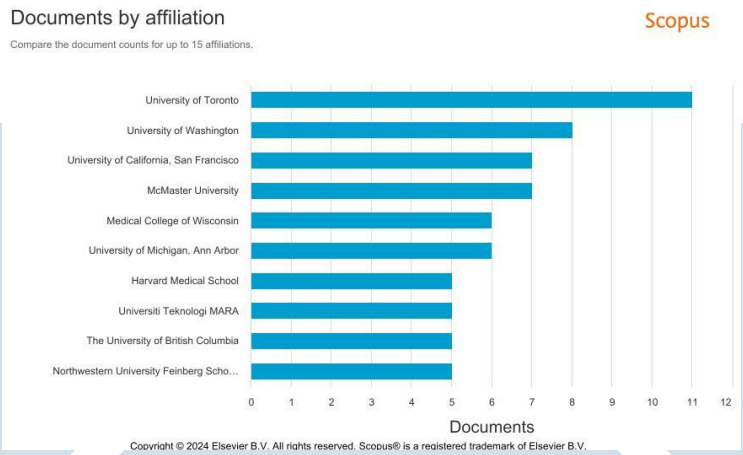
The graphical representation of affiliations' production over time provides a visual understanding of how different institutions have contributed to the research landscape in this field. It highlights the fluctuations in research output and the impact of various affiliations over the years.

4.4 Documents by Affiliations

The analysis of documents by affiliations highlights the institutions that have significantly contributed to the research on skill gaps and competency mapping in management education. New York University leads with a total of 23 articles, showcasing its strong emphasis and leadership in this field. McMaster University and Oregon Health and Science University both have 14 articles, indicating their active participation and substantial contributions. The University of Toronto follows closely with 13 articles, demonstrating its commitment to advancing research in management education. UniversitiTeknologi MARA has published 11 articles, reflecting its regional influence and growing research output. Harvard Medical School and the University of Gondar each have 10 articles, underscoring their role in bridging educational gaps. Cairo University, Stanford University School of Medicine, and the University of Michigan each have 9 articles, contributing valuable insights and findings to the academic community."

Table 4: Documents by Affiliations

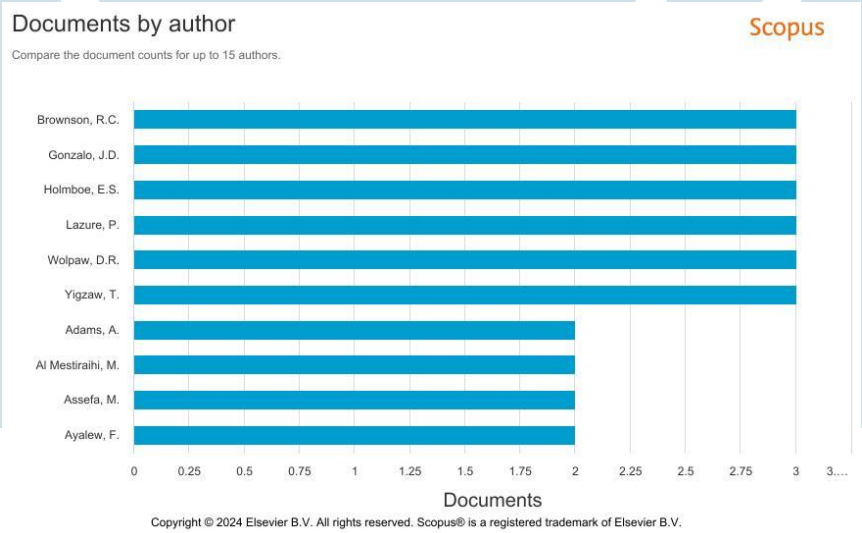
Affiliation	Articles
NEW YORK UNIVERSITY	23
MCMASTER UNIVERSITY	14
OREGON HEALTH AND SCIENCE UNIVERSITY	14
UNIVERSITY OF TORONTO	13
UNIVERSITI TEKNOLOGI MARA	11
HARVARD MEDICAL SCHOOL	10
UNIVERSITY OF GONDAR	10
CAIRO UNIVERSITY	9
STANFORD UNIVERSITY SCHOOL OF MEDICINE	9
UNIVERSITY OF MICHIGAN	9



Graph 2. Documents by Affiliations

The graphical representation (Graph 2) further illustrates the distribution of documents by affiliations, providing a visual comparison of the research output across these prominent institutions.

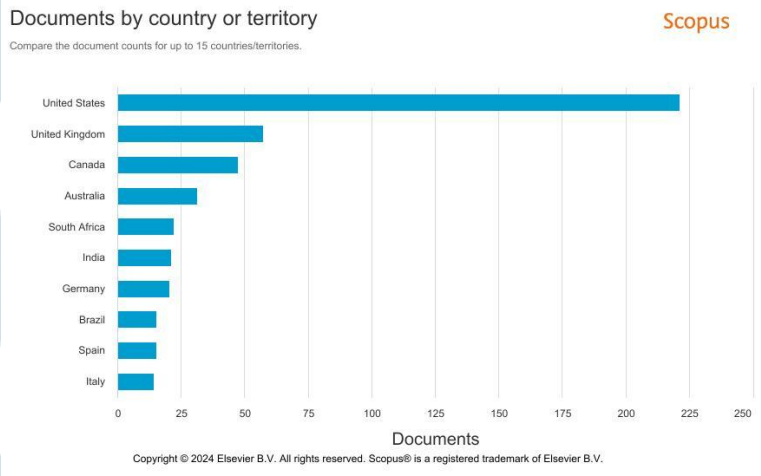
4.5 Documents by Author



Graph 3: Documents by Author

The analysis of documents by author identifies key contributors to the field of skill gaps and competency mapping in management education. The top authors, such as Brownson R.C., Gonzalo J.D., Holmboe E.S., and Lazure P., each have produced significant work, with around three documents attributed to their names. This indicates their pivotal role in advancing research and shaping the discourse in this area. Other notable contributors include Wolpaw D.R., Yigzaw T., Adams A., Al Meslmani M., Assefa M., and Ayalew F., each having contributed around two to three documents. Their research efforts have collectively enriched the body of knowledge and provided diverse perspectives on addressing skill gaps and competency needs in management education.

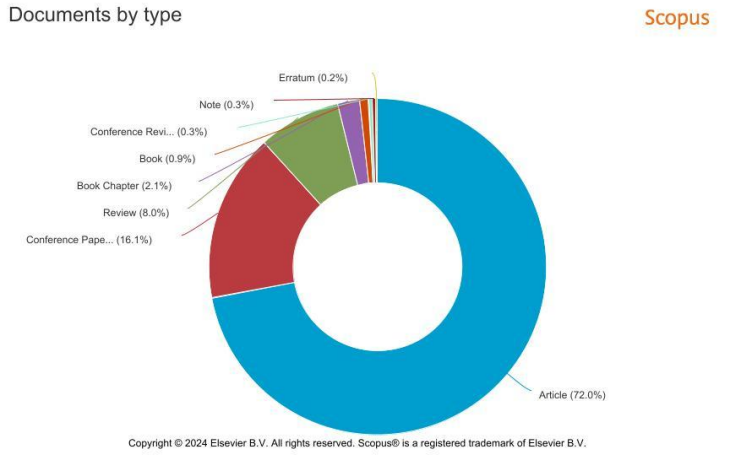
4.6 Documents by country or territory



Graph 4: Documents by country or territory

The distribution of documents by country or territory reveals the geographic diversity and regional focus of research in this field. The United States is the most prolific, with a substantial lead, contributing over 200 documents. This dominance reflects the country's extensive research infrastructure and academic interest in management education. The United Kingdom and Canada follow, with significant contributions, indicating robust research activities in these regions. Australia, South Africa, India, Germany, Brazil, Spain, and Italy also feature prominently, each contributing a noteworthy number of documents. This geographic spread demonstrates a global recognition of the importance of addressing skill gaps and competency mapping in management education.

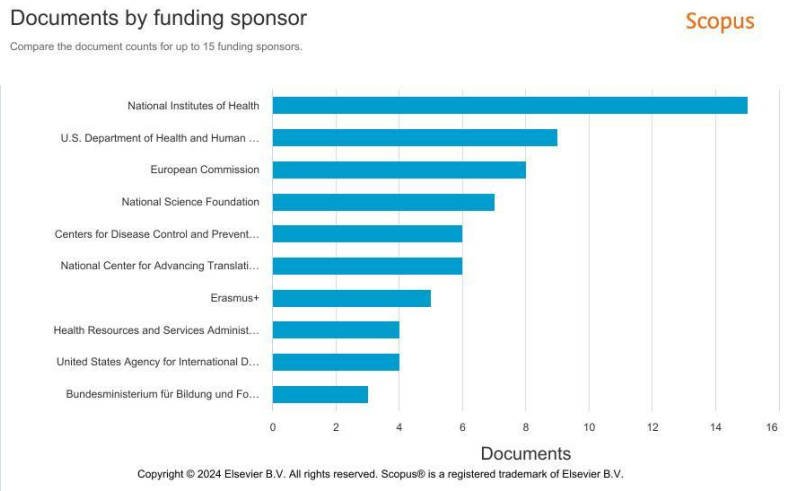
4.7 Documents by types



Graph 5: Documents by types

An examination of the types of documents published provides insights into the preferred mediums of dissemination in this field. Articles constitute the majority, accounting for 72% of the total documents, reflecting the primary reliance on peer-reviewed journal publications. Conference papers represent 16.1%, indicating the active exchange of research findings at academic conferences. Reviews, book chapters, books, and other document types like conference reviews and notes contribute smaller percentages, showcasing the variety of formats used to disseminate research. The presence of an erratum highlights the commitment to accuracy and the ongoing refinement of published research.

4.8 Documents by funding sponsor



Graph 6: Documents by funding sponsor

The analysis of documents by funding sponsor identifies the key organizations supporting research in this area. The National Institutes of Health (NIH) is the leading sponsor, reflecting its significant investment in educational research. The U.S. Department of Health and Human Services also plays a major role, alongside the European Commission and the National Science Foundation. Other notable sponsors include the Centers for Disease Control and Prevention, the National Center for Advancing Translational Sciences, and Erasmus+, which support a range of studies aimed at enhancing management education. This funding landscape highlights the critical role of governmental and international organizations in fostering research and innovation.

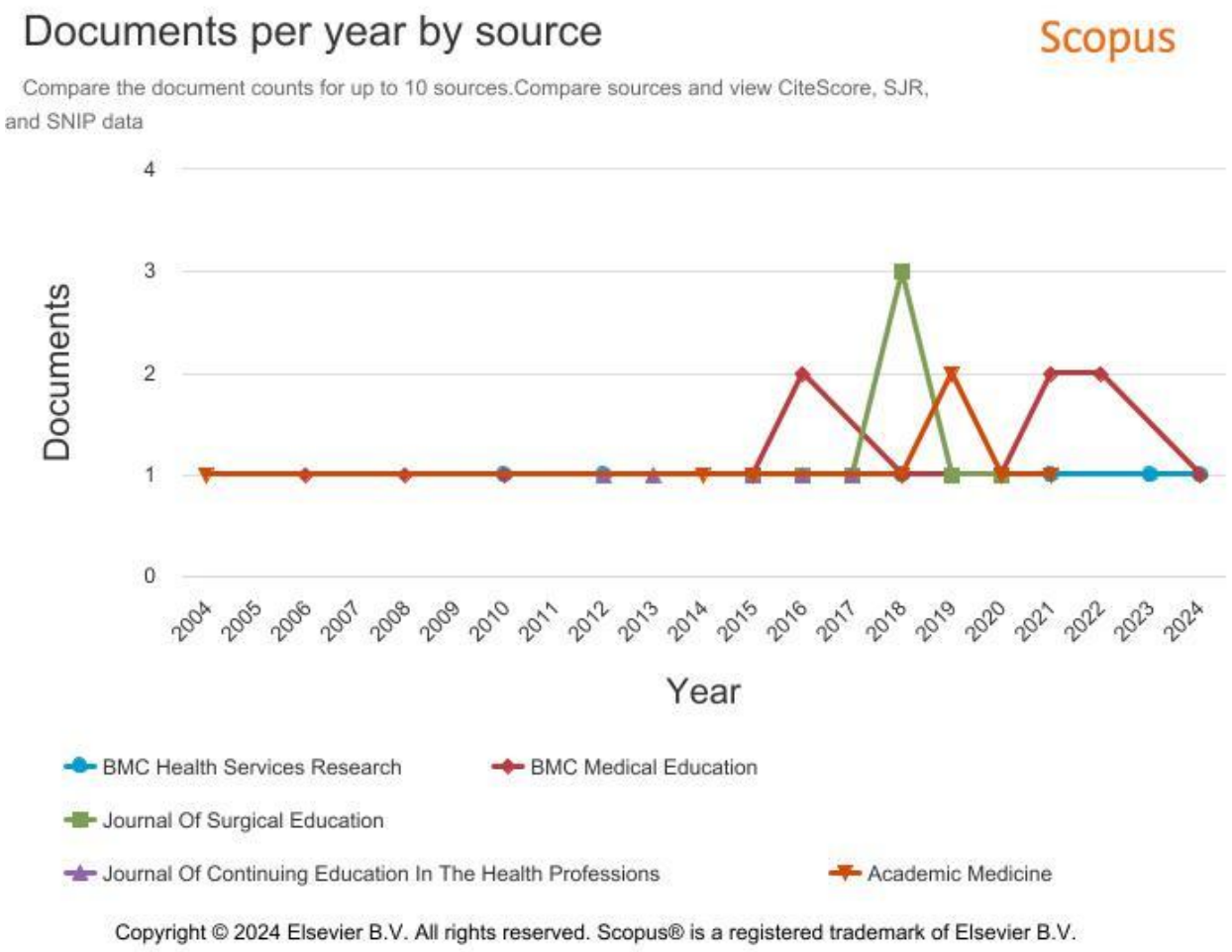
4.9 Documents per year by Source

The distribution of documents per year by source provides insights into the frequency and consistency of publications across different journals and conference proceedings. Sources like the ASEE Annual Conference and Exposition and BMC Medical Education have each published 14 articles, demonstrating their significant role in disseminating research on skill gaps and competency mapping. Academic Medicine and the Journal of Surgical Education each contributed 8 articles, indicating their importance in the academic community. Other notable sources include BMC Health Services Research, the Journal of Continuing Education in the Health Professions, the Journal of Public Health Management and Practice, Advances in Intelligent Systems and Computing, BMJ Open, and the Journal of Nursing Education. These

sources collectively reflect a diverse range of platforms through which research findings are shared and discussed.

Table 5: Documents per year by Source

Sources	Articles
ASEE ANNUAL CONFERENCE AND EXPOSITION, CONFERENCE PROCEEDINGS	14
BMC MEDICAL EDUCATION	14
ACADEMIC MEDICINE	8
JOURNAL OF SURGICAL EDUCATION	8
BMC HEALTH SERVICES RESEARCH	7
JOURNAL OF CONTINUING EDUCATION IN THE HEALTH PROFESSIONS	5
JOURNAL OF PUBLIC HEALTH MANAGEMENT AND PRACTICE	5
ADVANCES IN INTELLIGENT SYSTEMS AND COMPUTING	4
BMJ OPEN	4
JOURNAL OF NURSING EDUCATION	4



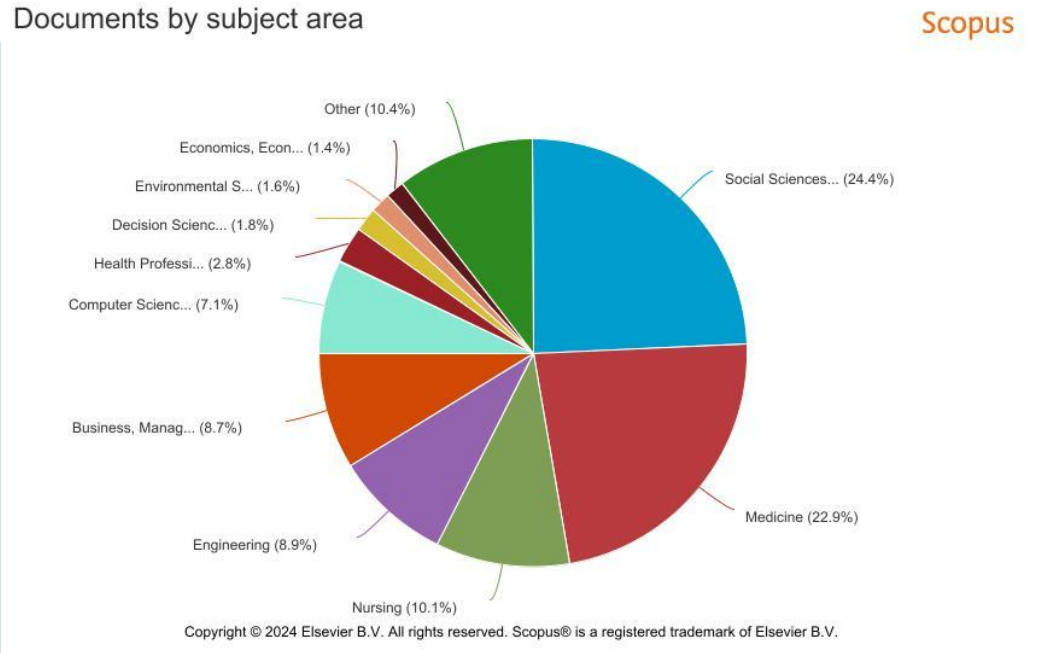
Graph 7: Documents per year by Source

The line graph (Graph 7) illustrates the annual publication trends for these sources, highlighting the peaks and troughs in research output over the years. It shows the active periods of publication and the consistency of contributions from each source.

4.10 Documents by Subject Area

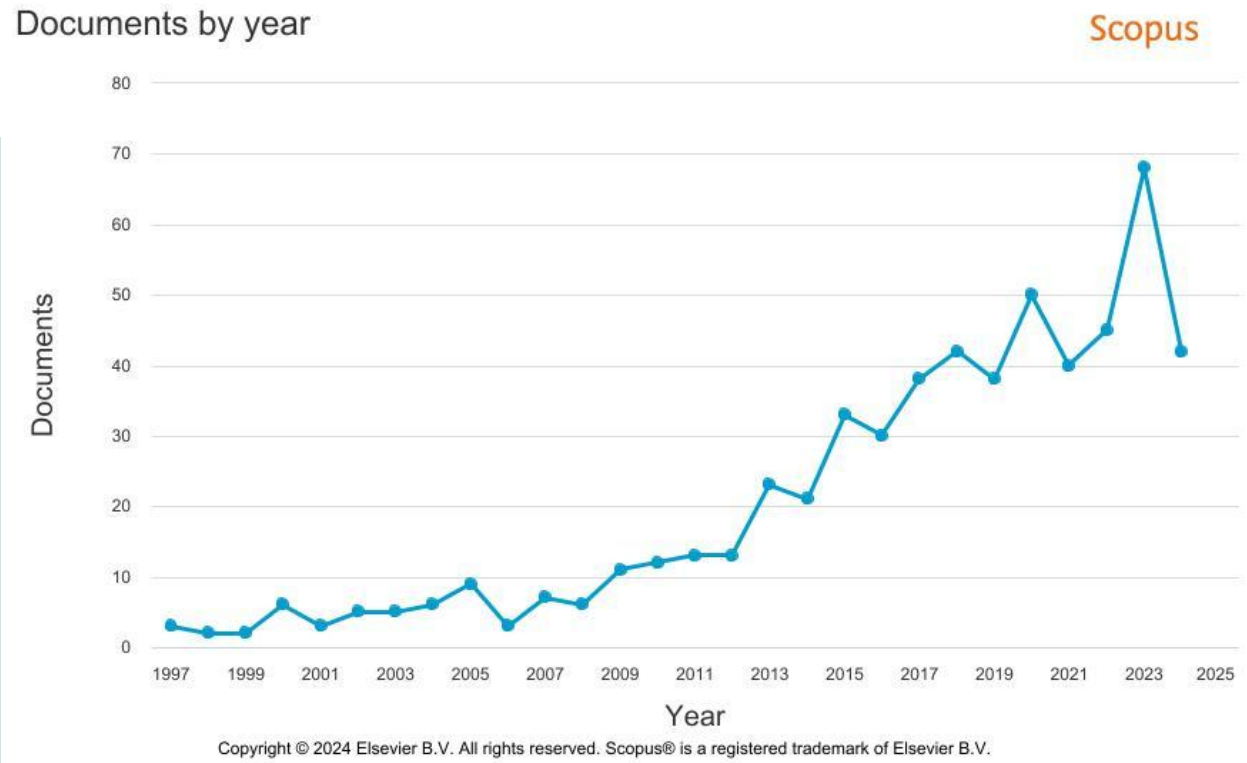
The distribution of documents by subject area highlights the interdisciplinary nature of research on skill gaps and competency mapping. Social sciences lead with 24.4% of the documents, followed closely by medicine with 22.9%, reflecting the significant interest in these areas. Nursing accounts for 10.1%, indicating a focus on healthcare education. Engineering (8.9%), business management (8.7%), and computer science (7.1%) also feature prominently, showcasing the diverse application of competency mapping across different fields. Other subject

areas include health professions, decision sciences, environmental science, economics, and other smaller categories, reflecting the broad relevance of this research.



Grap 8: Documents by Subject Area

4.11 Documents by Year

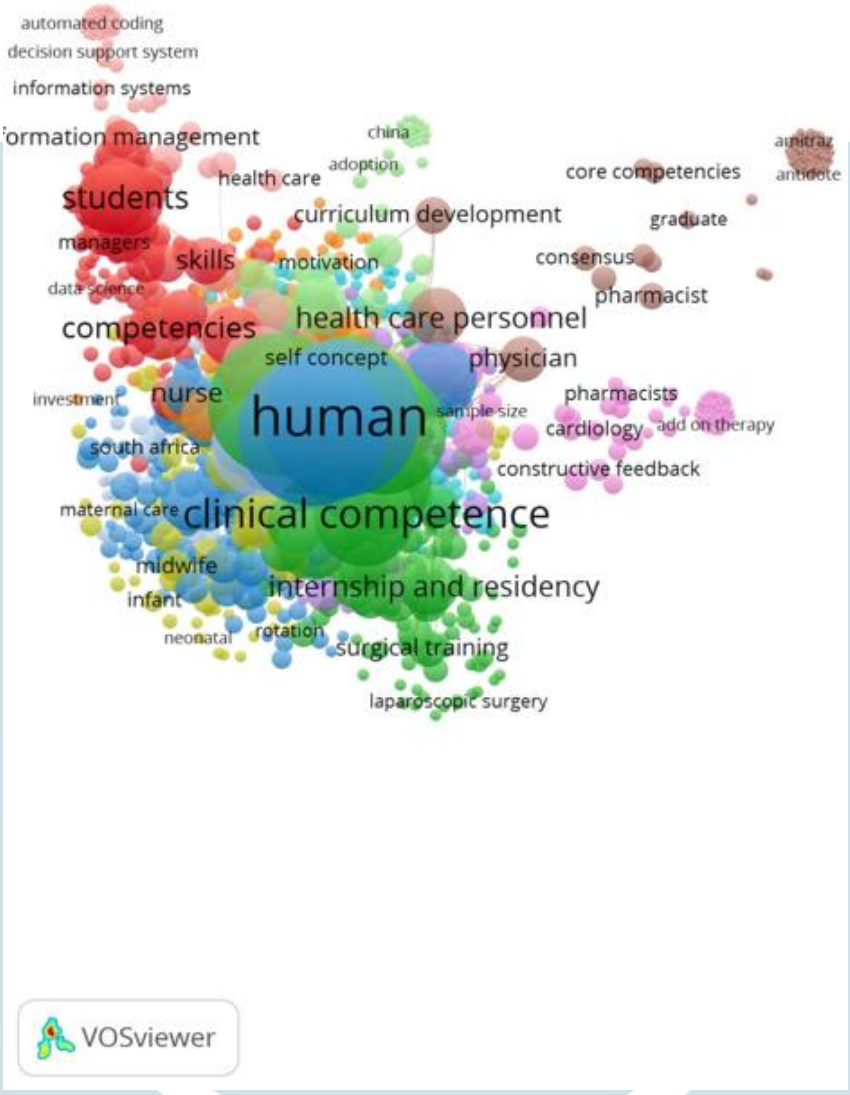


Graph 9: Documents by Year

The analysis of documents by year provides a longitudinal view of the research output in the field of skill gaps and competency mapping. The data shows a steady increase in the number of documents published annually, with notable growth in recent years. This trend indicates a rising interest and ongoing expansion of research in this area. The peak in the number of documents around 2021 reflects heightened academic activity and possibly increased funding and interest in addressing skill gaps and improving competency mapping.

4.12 Service Mapping

Cluster I: Network Visualization of Medical Education and Clinical Competence Terms



Graph 10: Network Visualization of Medical Education and Clinical Competence Terms

The network visualization of medical education and clinical competence terms reveals the interconnectedness of various concepts and keywords within this research domain. Terms like "human," "clinical competence," "students," and "health care personnel" are central to the network, indicating their significance in the literature. Other important terms such as "skills," "competencies," "curriculum development," and "internship and residency" highlight the focus areas of research aimed at enhancing clinical education and competency development. This visualization aids in understanding the primary themes and their interrelations, providing a comprehensive overview of the key topics being explored in medical education research.

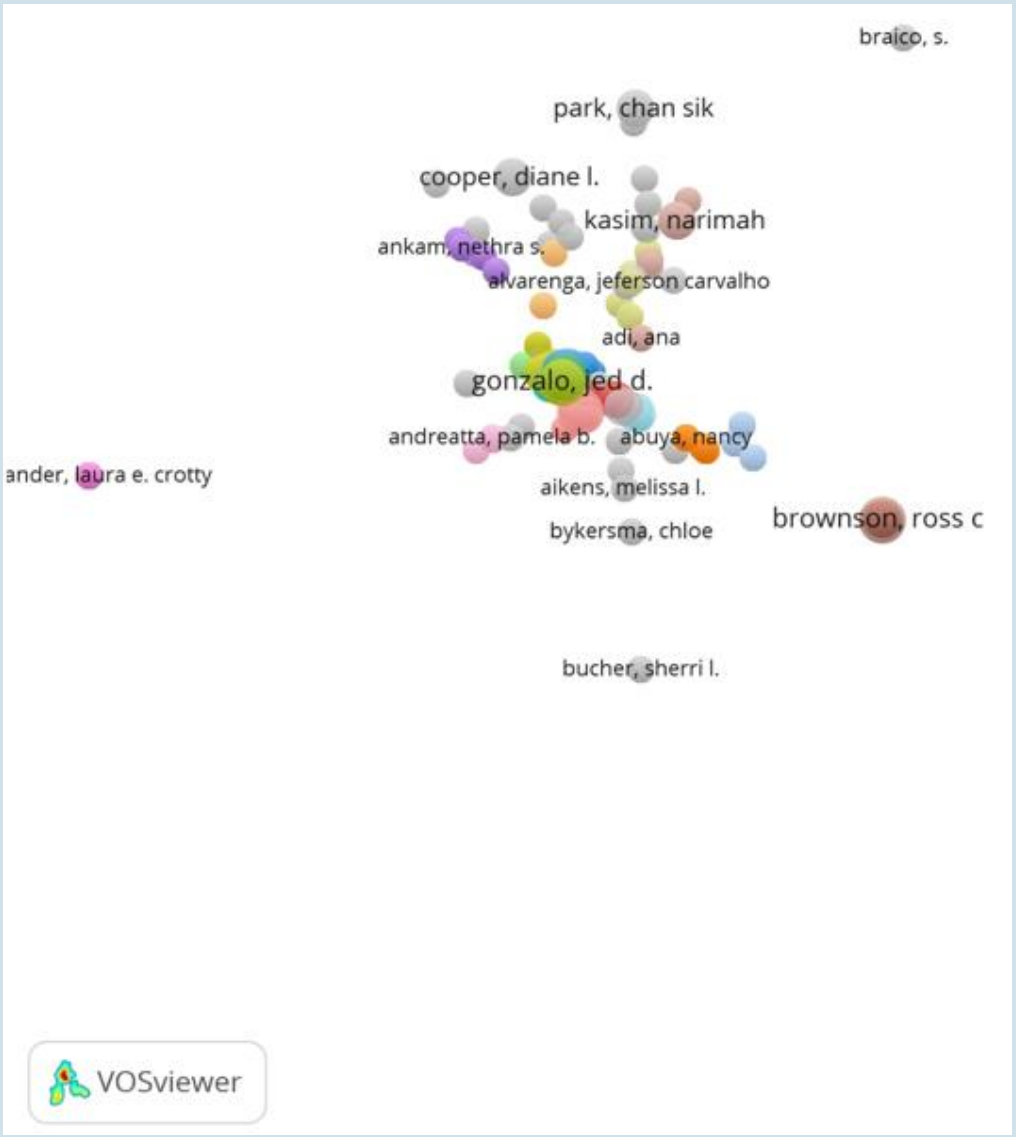
Cluster II: Network Visualization of Institutional Collaborations in Epidemiology and Global Health

Graph 11: Network Visualization of Institutional Collaborations in Epidemiology and Global Health

The network visualization of institutional collaborations in epidemiology and global health showcases the collaborative efforts between various institutions globally. Key institutions like the University of Connecticut, American Thoracic Society, and Addis Ababa University are prominent in the network, indicating their active involvement in research collaborations. This cluster underscores the importance of interdisciplinary and cross-institutional partnerships in advancing the fields of epidemiology and global health. The connections between these

institutions highlight the shared goals and cooperative efforts to address global health challenges and improve epidemiological practices.

Cluster III: Network Visualization of Author Collaborations in Medical Education

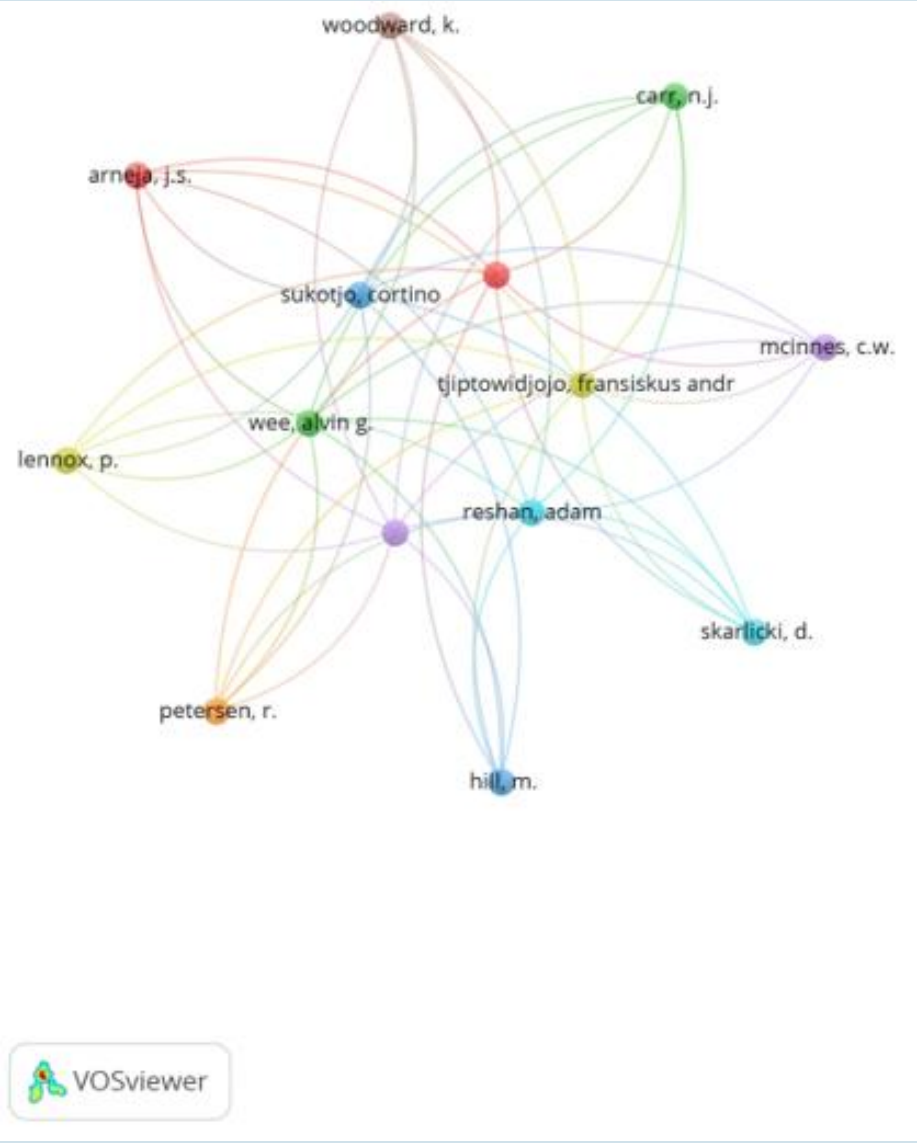


Graph 12: Network Visualization of Author Collaborations in Medical Education

The network visualization of author collaborations in medical education depicts the collaborative relationships among researchers. Authors such as Gonzalo J.D., Holmboe E.S., and Brownson R.C. are central figures, indicating their significant contributions and extensive collaboration networks. This visualization helps identify influential researchers and their collaborative efforts,

which are crucial for driving forward the research agenda in medical education. Understanding these collaborations can provide insights into the dynamics of research teams and the dissemination of innovative educational practices.

Cluster IV: Network Visualization of Author Collaborations in Clinical Research

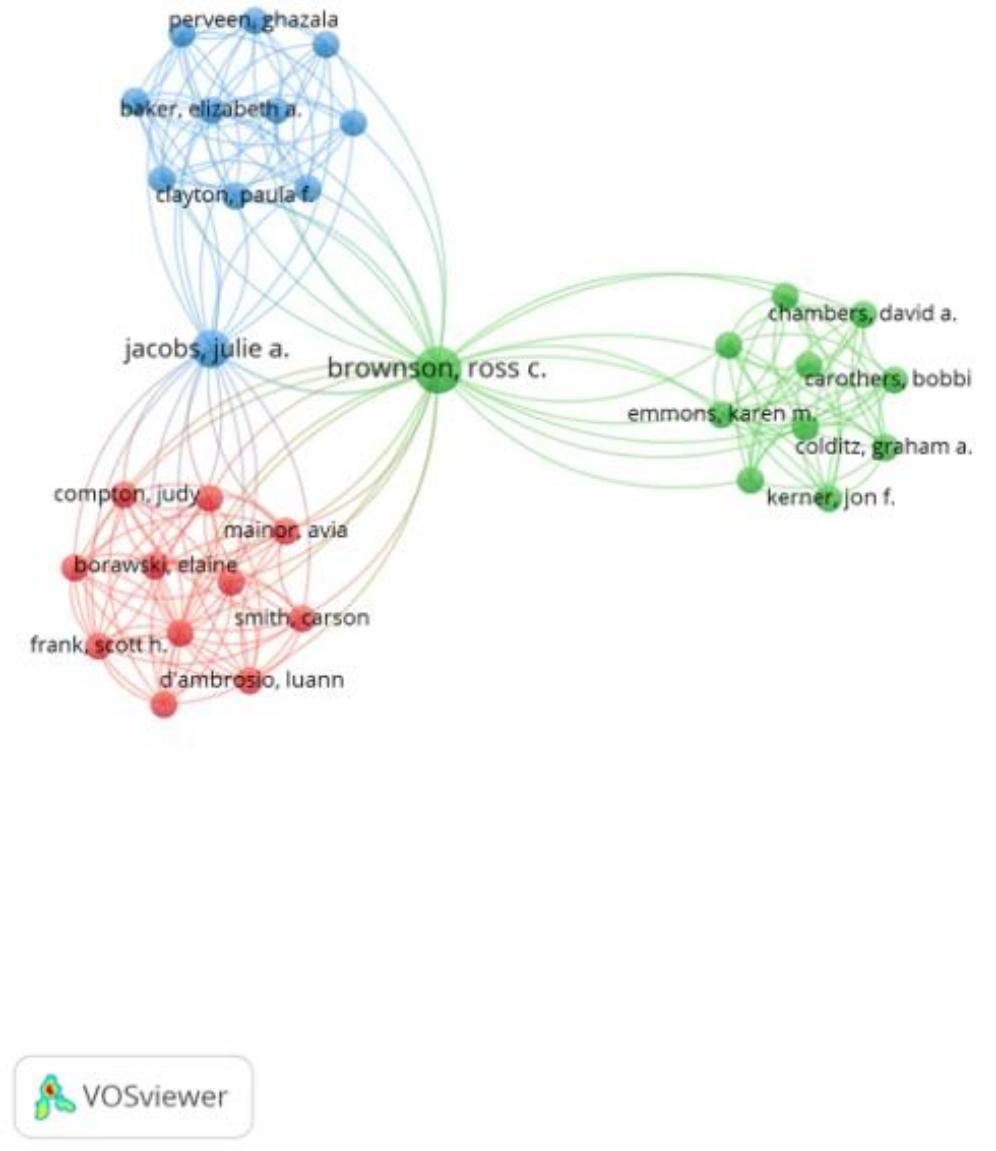


Graph 13: Network Visualization of Author Collaborations in Clinical Research

The network visualization of author collaborations in clinical research highlights the collaborative nature of clinical studies. Central authors like Brownson R.C., Jacobs J.A., and Emmons K.M. demonstrate extensive collaborative networks, contributing significantly to

clinical research advancements. This visualization showcases the interconnections between authors, illustrating how collaborative efforts enhance the quality and impact of clinical research. Identifying these networks can help in understanding the flow of knowledge and the development of new clinical practices and interventions.

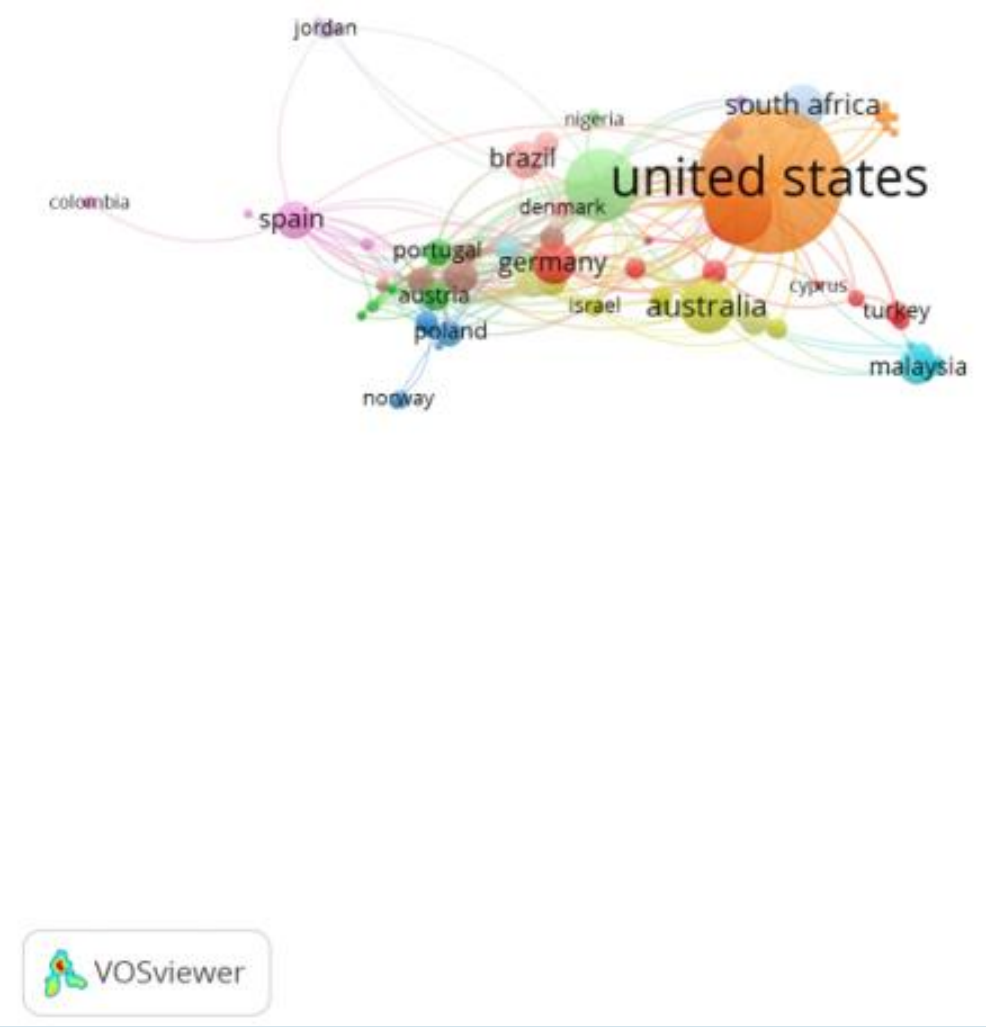
Cluster V: Network Visualization of Author Collaborations in Public Health



Graph 14: Network Visualization of Author Collaborations in Public Health

The network visualization of author collaborations in public health emphasizes the collaborative contributions to public health research. Prominent authors such as Brownson R.C., and Jacobs J.A. are central, indicating their substantial influence and extensive collaborative networks. The visualization demonstrates how these collaborations contribute to the development and dissemination of public health knowledge, highlighting the importance of teamwork in addressing public health issues. Understanding these networks can provide valuable insights into the key players and collaborative efforts that drive public health research.

Cluster VI: Network Visualization of Country Collaborations in Health Research

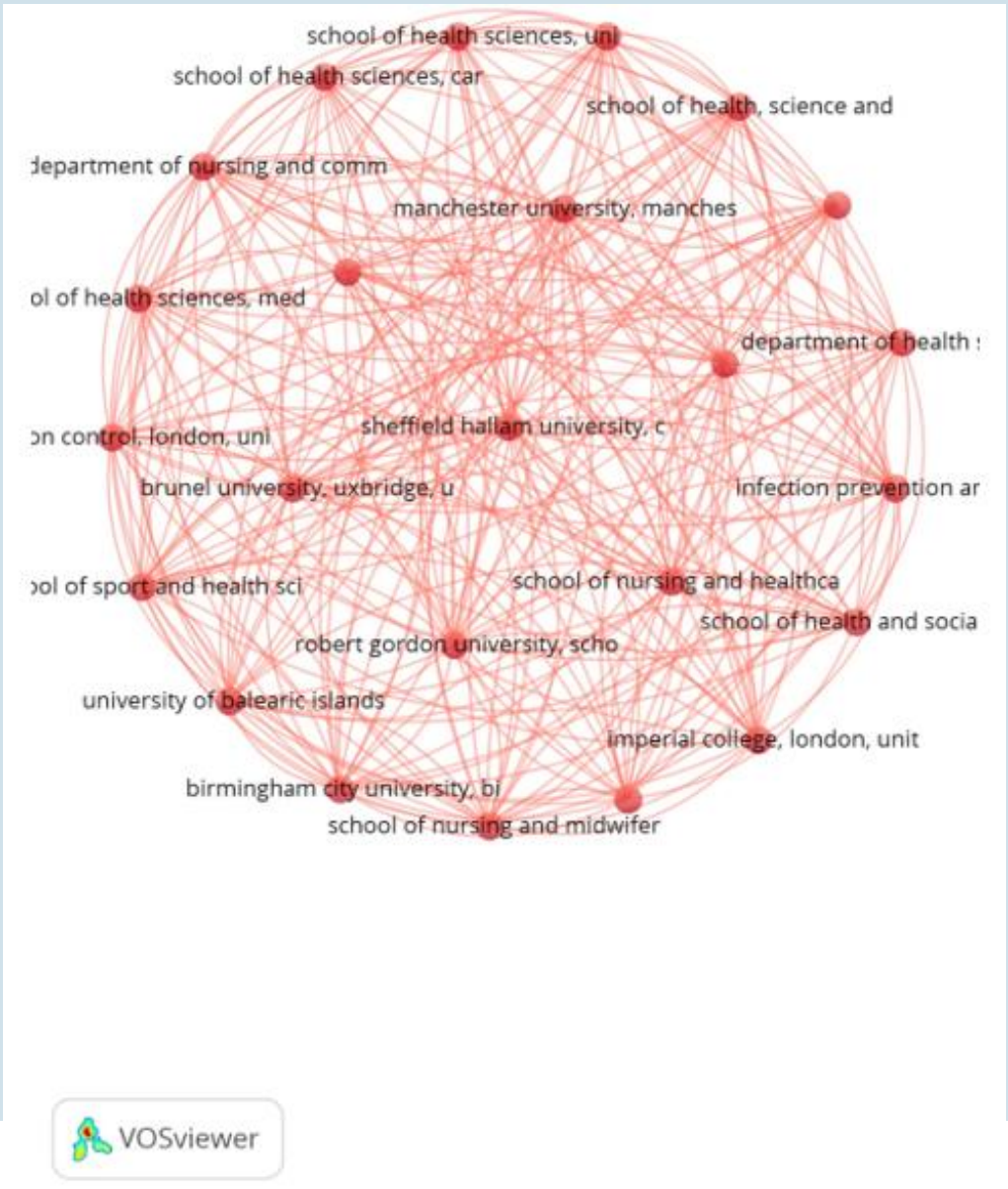


Graph 15: Network Visualization of Country Collaborations in Health Research

The network visualization of country collaborations in health research highlights the global nature of health research collaborations. The United States is a major hub, with extensive

connections to various countries such as the United Kingdom, Canada, and Australia. This visualization underscores the international collaborative efforts to advance health research, reflecting the shared global commitment to improving health outcomes. Identifying these collaborations can help in understanding the global landscape of health research and the cooperative efforts required to tackle international health challenges.

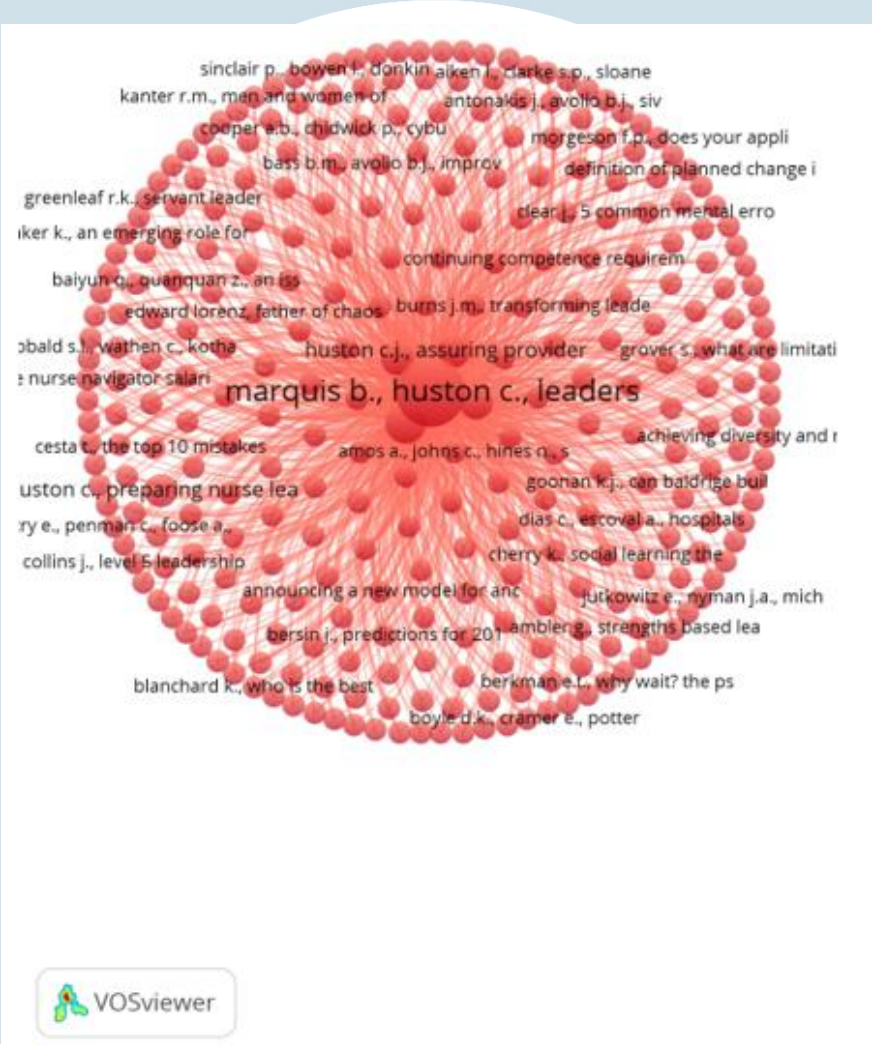
Cluster VII: Network Visualization of Institutional Collaborations in Health Sciences



Graph 16: Network Visualization of Institutional Collaborations in Health Sciences

The network visualization of institutional collaborations in health sciences showcases the extensive collaborative efforts between various institutions. Institutions like the University of Cambridge, Imperial College London, and Manchester University are prominent, indicating their significant roles in health sciences research. This visualization highlights the interconnectedness of institutions and their collaborative contributions to advancing health sciences. Understanding these networks can provide insights into the collaborative dynamics and the collective efforts to improve health research and education.

Cluster VIII: Network Visualization of Author Collaborations in Leadership and Management



Graph 17: Network Visualization of Author Collaborations in Leadership and Management

The network visualization of author collaborations in leadership and management emphasizes the collaborative nature of research in this field. Central figures such as Marquis B., Huston C.J., and others demonstrate extensive collaboration networks, contributing significantly to the development of leadership and management theories and practices. This visualization illustrates the importance of collaborative efforts in enhancing the understanding and implementation of effective leadership and management strategies. Identifying these networks can provide insights into the key contributors and their collaborative relationships, which are crucial for advancing research and practice in leadership and management.

5. Conclusion and Future Directions

The bibliometric analysis of skill gaps and competency mapping in management education provides a comprehensive understanding of the evolving trends, key contributors, and significant themes in this critical research domain. The analysis reveals an increasing annual growth rate in publications, highlighting a growing recognition of the importance of aligning educational outcomes with the dynamic demands of the industry. This trend reflects a broader acknowledgment of the necessity for educational institutions to adapt their curricula to equip graduates with the relevant skills and competencies that employers require in a rapidly changing business environment.The study underscores the critical role of collaborative efforts among authors and institutions, emphasizing the global and interdisciplinary nature of research in this field. Collaborative research fosters the sharing of best practices and innovative strategies to address skill gaps, facilitating a more responsive approach to management education. As the business landscape continues to evolve, the integration of both technical and soft skills into educational programs emerges as essential for developing graduates who can not only demonstrate knowledge but also effectively apply that knowledge in real-world settings.Furthermore, the findings from this analysis provide a roadmap for educators and policymakers, guiding the enhancement of management education programs to ensure their relevance and effectiveness. The identification of key trends and focus areas allows for prioritization in curriculum development, ensuring that both current and emerging skill gaps are addressed. This approach will ultimately lead to the creation of a workforce that is better prepared to navigate the complexities of modern organizational environments.As we look to the future, it is crucial for institutions to foster partnerships that support ongoing research and the dissemination of findings. By doing so, they can create a collaborative spirit that enhances educational quality and ensures that graduates are equipped to meet the challenges of their respective industries. This collaborative effort will not only enrich the learning experience but also contribute to the continuous improvement of management education. This bibliometric analysis serves as a valuable framework for understanding the current state of research in skill gaps and competency mapping, while also identifying future directions for exploration. Future studies should consider expanding the data sources beyond Scopus and incorporating qualitative methodologies to provide a more nuanced understanding of the field. By addressing these gaps, researchers can further contribute to the evolution of management education, ensuring that it remains responsive to the evolving needs of the global workforce.

5.1 Research Implication

The findings from this analysis have several important implications for future research and practice in management education. Firstly, the identification of key trends and focus areas can help educators and policymakers prioritize the development of curricula that address current and emerging skill gaps. The prominence of both technical and soft skills in the literature suggests that a balanced approach to competency development is essential for preparing graduates for the complexities of modern workplaces. Additionally, the extensive collaboration networks revealed in the study highlight the importance of interdisciplinary and cross-institutional partnerships in advancing research and practice. These collaborations can facilitate the sharing of best practices and innovative approaches to competency mapping, ultimately enhancing the effectiveness of management education programs.

5.2 Limitations

While this bibliometric analysis provides valuable insights, there are several limitations that should be considered. The reliance on data from a single database (Scopus) may exclude relevant studies indexed in other databases, potentially biasing the results. "Additionally, bibliometric analyses are inherently limited by the quality and completeness of the metadata available in the database, which may affect the accuracy of the findings. The analysis primarily focuses on quantitative metrics such as publication counts and citation patterns, which may not fully capture the qualitative impact of the research. Future studies could address these limitations by incorporating data from multiple sources and employing complementary qualitative methods to gain a more comprehensive understanding of the field.

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