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Catalyzing SDG 4: A Strategic Management and Edupreneurship Initiatives

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ABSTRACT

This study examines the intersection of entrepreneurship, strategic management, and education in contributing to the achievement of SDG 4. The bibliometric analysis covers research published from 2016 to 2024, focusing on the global trends and key themes that have emerged in strategic management and education. The United States, United Kingdom, and India have been identified as the leading nations conducting significant research in these areas. **Notable themes such as sustainability**, digital innovation, and education governance have emerged as central topics in the literature, reflecting their critical role in shaping the future of education. This paper investigates how strategic management practices can foster educational equity, sustainability, and innovation, providing essential insights into how educational systems can be optimized through strategic entrepreneurial approaches. **The analysis highlights** the importance of integrating entrepreneurship into strategic management to address educational challenges globally, particularly in the context of SDG 4, which aims to ensure inclusive and equitable quality education for all. **The study further** delves into how strategic management and entrepreneurship can align with the evolving demands of global education systems, ensuring adaptability and resilience in the face of technological advancements and changing societal needs. **By exploring research trends** and advancements within the 2016–2024 period, this study offers a comprehensive overview of the dynamic relationship between strategic management, education, and entrepreneurship, providing a foundation for future research and practical applications that contribute to the achievement of SDG 4. The findings underscore the pivotal role of entrepreneurship in educational reform.

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1. INTRODUCTION

Strategic Management plays an critical part in directing instruction frameworks towards the accomplishment of SDG 4, by prioritizing the realization of quality, comprehensive and available instruction for all in all social statuses. The expanding request for instruction on a worldwide scale requires an understanding of the significance of strategic management commitment to the maintainability of the world of instruction [1].

Previous research has grown rapidly so that in the period 2015-2022 there were 12,176 English-language articles, revealing that 45,345 authors have contributed to the SDGs field, revealing that 31% of

SDGs-related research productivity came from the US, China, and the UK, with high collaboration among authors [2]. This study aims to provide a holistic perspective on the topic of SDGs research, by examining progress, obstacles, possibilities, trends, and prospects between 2016 and 2024, to provide more in-depth data and complement previous research through multidisciplinary bibliometric studies. This bibliometric study is needed to determine the distribution of research and development concentrations on SDGs in developing and underdeveloped countries in order to obtain a comparison with bibliometric research from developed countries [3, 4].

This study, comprehensively analyzing bibliometrically, utilizes VOSviewer to visualize the research map and its relationship with each other, as a global collaboration, influential institutions, and keyword trends in the research in the period 2016 – 2024, and also utilize Bibliometrix so that it is hoped that a conclusion will be obtained clearly and more detail concern on the impact of Strategic Management on the educational framework aimed at sustainability development goal-4 [5].

2. RESEARCH METHODE

Strategic Management related to education as the keyword in the Scopus indexer, where 257 publications were identified in the Scopus database through a preliminary article search by introducing keywords ”strategic management” and education. A total of 148 articles were then filtered as a result of bibliographic matching using VOSviewer [6, 7].

Figure 1 shown step by step how to intrepret the data from keyword investigations, reduction intial search, total manual selection, preparation intial statistical image, finally data interpretation.

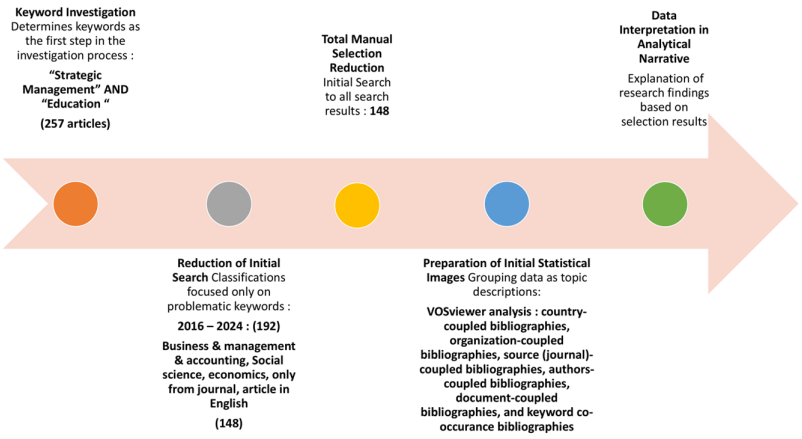

Figure 1. Steps Involved in Performing a Bibliographic Analysis

All articles were published between 2016 to 2024 as the dataset, into Scopus database, as the most outstanding scientific search engine, to learn more about corporate plans to contribute education of corporate members, it were limited in the fields of business, management, and accounting as well as social science and economics were the main focus of the search. and then continued with bibliometric analysis with VOSviewer software [8, 9]. The findings of each visual component (network, density, and overlay) are cross-referenced to ensure consistency. Analysis based on network density as well as overlay visualization is used to find influential country pairs, organizations, authors, journals, and documents, by obtaining trends as they occur, by paying attention to emerging themes in the role of Strategic Management in supporting SDG 4 [10].

Institutions, and authors as the main roles, they are connected in investigating collaborative linkages based on network visuals, while overlay and density visualizations provide insights into thematic trends that have been the focus of research during 2016 – 2024. The articles obtained from the Scopus indexer, because Scopus offers the capacity to analyze citations and covers a larger selection of journals [11]. Filtered by the period 2016 to 2024, in order to focus on the latest research, are not separated for the field being researched, because it includes all research in the business field, the next filter in relation to the type of article, and the type

of journal and its nature so that further tracking can be carried out if necessary. The research methods used are bibliometric techniques, including co-authorship, co-citation and co-occurrence of keywords, to identify and interpret network clusters. Countries, institutions and authors are examined for their role in fostering collaborative networks, while overlay and density visualizations provide insights into emerging research trends and thematic concentrations [12, 13].

VOSviewer analysis addresses six research dimensions collaboration between countries publishing on strategic management and education topics, institutional influence, top contributors and their interrelationships, journal sources involved in publishing articles on strategic management and education, document relevance and keyword associations [14, 15]. Each dimension is essential to understanding the strategic management landscape in education, particularly as it relates to SDG 4. Each dimension is essential to understanding the strategic management landscape in education, especially as it relates to SDG 4. Key indicators include article count, citation influence, cluster strength, and centrality. High cluster strength indicates significant collaboration, while high citation counts indicate research influence. Cluster centrality highlights key strategic management research centers relevant to education [16, 17].

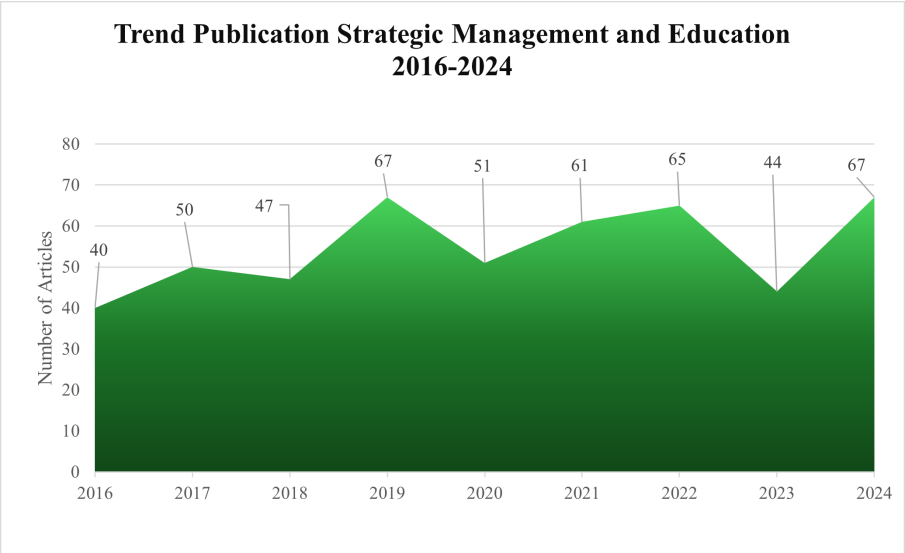

Figure 2. Publication trends of of strategic management and gender equality in 2016-2024

Figure 2 illustrates the publication trends in ”Strategic Management and Gender Equality” from 2016 to 2024. Starting with 11 articles in 2016, the number grew modestly to 21 in 2017, but experienced a slight decline to 16 in 2018. However, the trajectory shifted significantly in 2019 with a notable rise to 37 articles, reflecting a growing recognition of the critical interplay between gender equality and strategic management frameworks. This surge in research may have been driven by increased global attention on achieving SDG 5 through organizational strategies [18].

From 2020 onward, the publication trend demonstrated consistent growth, with 26 articles in 2020, 32 in 2021, and a steady increase to 45 in both 2022 and 2023. A remarkable spike occurred in 2024, with 77 articles published, marking the highest point in the observed period [19, 20]. This sharp increase underscores a renewed focus on integrating gender equity into strategic decision-making, possibly influenced by advancements in data analytics and policy frameworks that emphasize diversity as a driver for organizational success. Overall, this trend highlights a sustained and accelerating interest in exploring the role of strategic management in addressing gender-related challenges [21].

3. BIBLIOMETRIC ANALYSIS

3.1. Country-based Bibliometric Analysis

Using data from Scopus Indexing and network visualization of country-coupled as shown at Figure 3, the United States emerged as the leading contributor with 68 documents and 1.028 citations, displaying strong collaboration links (link strength: 3.611). The United Kingdom and Spain also ranked highly in document

output and link strength [22]. United States and the United Kingdom, as Red Cluster consists of countries with significant impact, meanwhile the Blue Cluster includes countries such as India and Malaysia, reflecting a growing interest related with strategy education. The Green Cluster highlights Spain and South Africa, emphasizing their growing commitment to SDG 4 in education and teaching [23, 24].

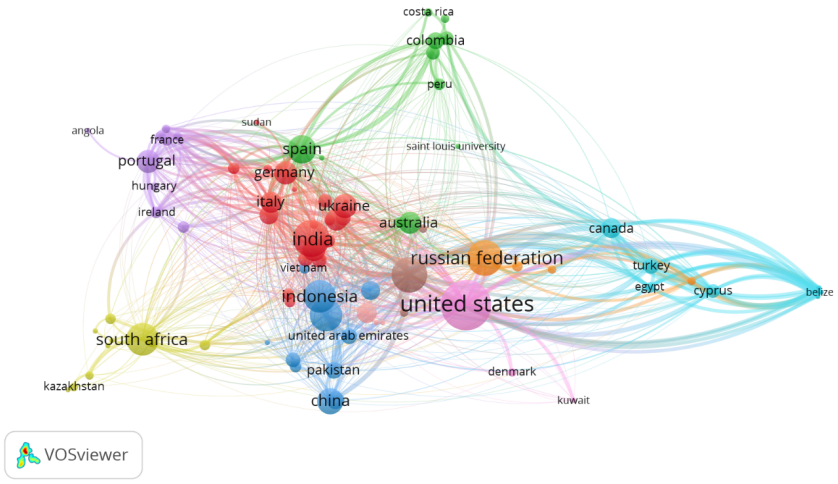

Figure 3. The Network Visualization of Country-Coupled Bibliography of Strategic Management and Education

Bibliometrix analysis is used to obtain a more detailed analysis, as shown in Figure 4, that the relationship between countries as a world map of country collaborations spans all continents, while the details of country authors are shown in Figure 5. The United States is ranked top followed by India, South Africa, the United Kingdom, and Malaysia as the top five [25].

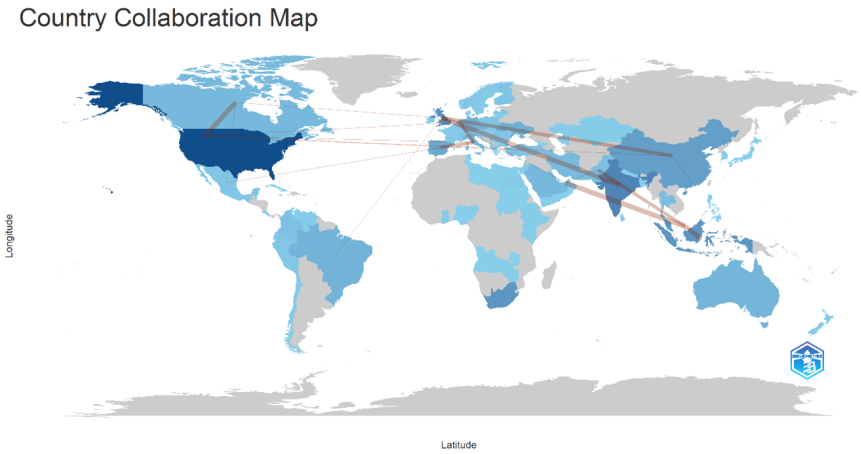

Figure 4. The Countries Collaboration World Map of Strategic Management and Education

This Figure 4 shows a world map illustrating the collaboration between countries in the fields of strategic management and education. The map displays international connections and partnerships, represented by lines linking the countries involved [26]. With darker blue shades indicating higher levels of collaboration, this map provides a clear visual representation of how global collaboration is evolving in the academic and professional sectors, particularly in strategic management and education. The data source is from Bibliometrix 2024.

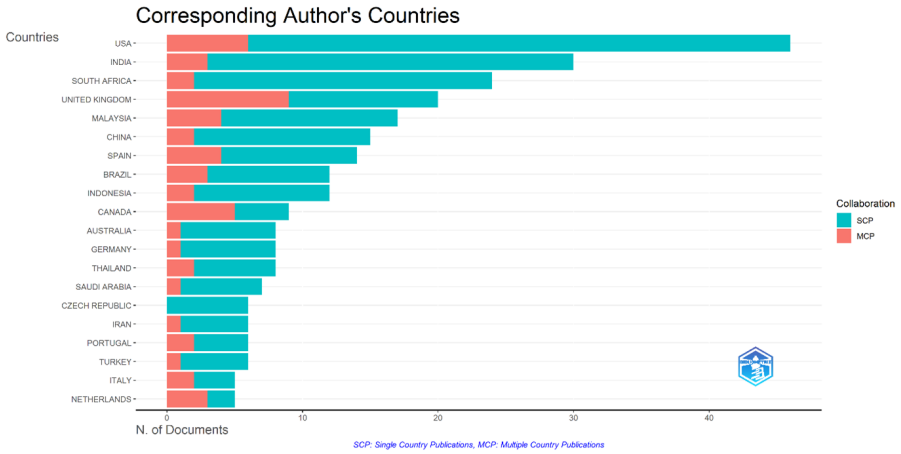

Figure 5. The countries Corresponding Authors Countries of strategic management and education

The Figure 5 displayed represents the distribution of countries based on the corresponding author countries in the field of strategic management and education. It distinguishes between single-country publications (SCP) and multiple-country publications (MCP) [27]. The USA leads significantly in terms of the number of documents published, especially in SCP, followed by countries like India, South Africa, and the United Kingdom, which also have notable contributions. On the other hand, countries like Saudi Arabia and Italy show a relatively lower number of publications. The chart emphasizes the global reach of research in strategic management and education, showcasing both individual and collaborative international efforts.

3.2. Organization-based Bibliometric Analysis

Organization-based Bibliometric Analysis refers to a research method that uses bibliometric techniques to assess the publication output and impact of specific organizations, such as universities, research institutes, or corporations. This approach involves analyzing various bibliometric indicators, such as the number of publications, citation counts, collaboration patterns, and the quality of journals in which the organization researchers publish [7]. It helps in understanding an organization research strengths, its scientific contributions to particular fields, and its influence within the global academic community. By examining co-authorship networks, citation networks, and thematic trends in the organization published work, this analysis provides insights into how well the organization is performing in terms of research productivity and impact, while also identifying potential areas for future research collaboration and strategic development.

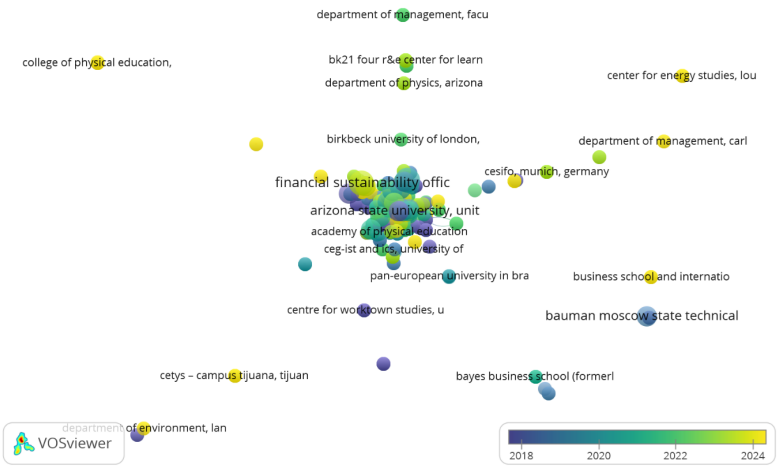

Figure 6. The overlay Visualization of Organization Coupled Bibliography of Strategic Management and Education

Based on Figure 6 is overlays visualization-based investigation highlights a timeline of organisations commitments to investigate on Strategic Management and Education. The color changes run from purple to yellow, uncovering distributions from 2018 or prior to the show day being the most recent [28]. Driving organizations such as Arizona State University, highlighted in shinning yellow, have been effectively contributing to later a long time, illustrating their inclusion with modern subjects and challenges, for illustration, a later consider from Arizona State University talks about imaginative procedures to pay consideration to the strategic social duty system based on energetic capabilities is proposed to maximize social affect through strategic management of assets. This system points to address the one-of-a-kind social duty of higher education. Integrate sustainability objectives within the educational leadership demonstrate, particularly tending to the criticalness of SDG 4, in specific squeezing issues such as value in instruction and key reactions to worldwide disturbance [29]

Bibliometric couple-organizations analysis which the node represented in purple, such as the study of Bauman Moscow State Technical University explores the linkage between the professional activities of university graduates and their competencies and explains the main element of the strategic model for forming professional competence, the scientific and practical significance of the research results is that with the help of this model the university can develop a strategic model for the formation of professional competence of the university students [30, 31].

3.3. Author Based Bibliometric Analysis

Author-Based Bibliometric Analysis is a method used to evaluate the research productivity, impact, and collaboration patterns of individual authors within a specific field of study [32]. This analysis involves examining bibliometric indicators such as the number of publications, citation counts, h-index, and the impact of journals in which the author has published. It also looks at co-authorship networks, identifying collaborative relationships between authors, and uncovering trends in research themes and topics over time. By conducting author-based bibliometric analysis, researchers can assess the scholarly influence and contributions of individual authors, track their academic trajectory, and identify key areas of expertise. It is a useful tool for recognizing influential authors and understanding how their work shapes a particular research domain [33].

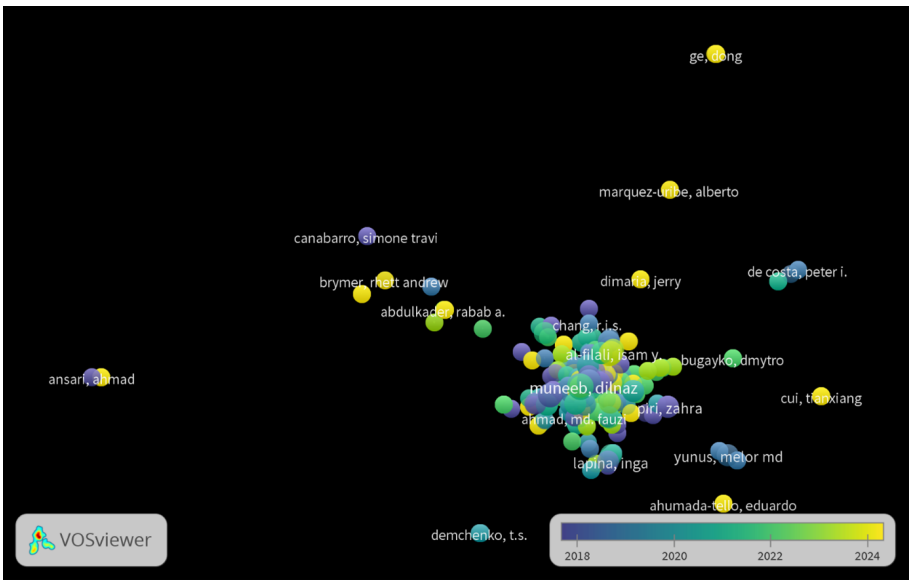

Figure 7. The Overlay Visualization Author Coupled Bibliography of Strategic Management and Education

Based on the bibliography of strategic management and education combined with the author of the overlay visualization as shown in Figure 7, the latest authors in yellow include prominent researchers who have contributed to Strategic Management and Education in recent years. [34] actively researches in this area, highlighting the need for a framework as a way for future researchers and practitioners on how to manage their resources, as dynamic capabilities, continuously reconfigure resources strategically and flexibly to face environmental turbulence such as during the pandemic. The difference between the old contributors and the

newer entrants, the author-couple analysis as shown in Figure 7 that extracted from the Scopus database is shown which identifies authors who have significantly advanced in the strategic management and education [35].

Purple nodes showed the articles from 2018 and before, the knowledge economy, suggests the strategies for enhancing the economy revealed that measures to increase education, learning, ICT, and innovation can be adopted. These include governmental programs for knowledge repositories, financial assistance for hardware and software development, and support for schools investments in hardware and software [36].

Both articles at least point out that there is a shift in the topic of the use of the Internet of Things in facilitating learning and education, as part of the recommended management strategy to improve educational and learning methods, both for companies and educational institutions, shifting to how companies and educational institutions have management strategies that pay attention to their respective critical values to find solutions to adapt and survive a globally dynamic business [37].

3.4. Source Based Bibliometric Analysis

Source-Based Bibliometric Analysis focuses on evaluating the characteristics and impact of the sources (such as journals, conferences, and books) where academic works are published. This analysis examines various bibliometric indicators, including citation impact, journal ranking, impact factor, and the number of publications in specific sources over time [38]. It aims to identify the most influential and productive journals or sources within a given field, assessing their contribution to advancing knowledge and driving research trends. By analyzing citation patterns and trends within sources, this method helps researchers understand the significance of different publication outlets and how they contribute to the development of a specific academic discipline. It is particularly useful for evaluating the quality and reach of scientific sources and for guiding researchers in selecting appropriate journals or venues for publishing their work [39].

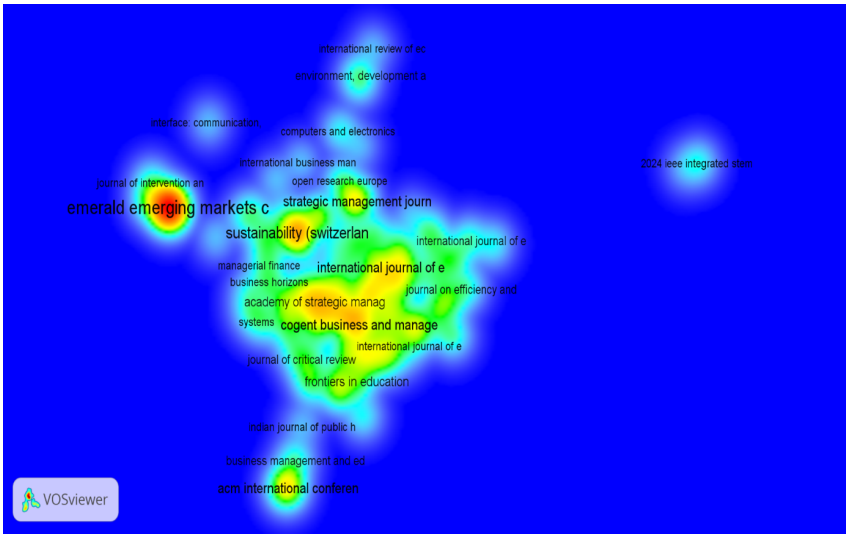

Figure 8. The Network Visualization of Country-Coupled Bibliography of Strategic Management and Education

Figure 8 as a result of a visualization density analysis of the bibliographic of strategic management and education combined with sources reveals the journal Emerald Emerging Market Case as the source of the most articles on this topic, marked with red nodes, such as the case study of Silulo Ulutho Technologies, a South African social enterprise, which successfully bridged the digital divide in townships and underserved rural communities [40]. The study successfully revealed an adaptive business model, which combines IT services, training, and community engagement to drive digital inclusion. Sources with low research impact (blue density) still have the potential to be increasingly cited for future research, such as research on the need to pay attention to the role of board demographic diversity in mergers and acquisitions, even across Chinese firms, revealing that the proportion of female boards significantly improves M&A performance, compared to age and education diversity [41].

3.5. Document Based Bibliometric Analysis

Document-Based Bibliometric Analysis is a research method focused on evaluating individual academic documents, such as articles, books, conference papers, and reports, based on bibliometric indicators. This analysis examines key metrics such as citation counts, publication frequency, impact factor, and keyword relevance to assess the influence and contribution of specific documents within a field of study [42]. By analyzing citation patterns, document co-citation, and content-related keywords, this approach allows researchers to identify seminal works, trends, and emerging topics in academic literature. Document-based bibliometric analysis is essential for understanding the impact of specific documents on advancing scientific knowledge, shaping research directions, and establishing a foundation for future studies. It also helps in identifying highly-cited works and influential documents that contribute significantly to a discipline's intellectual landscape [43].

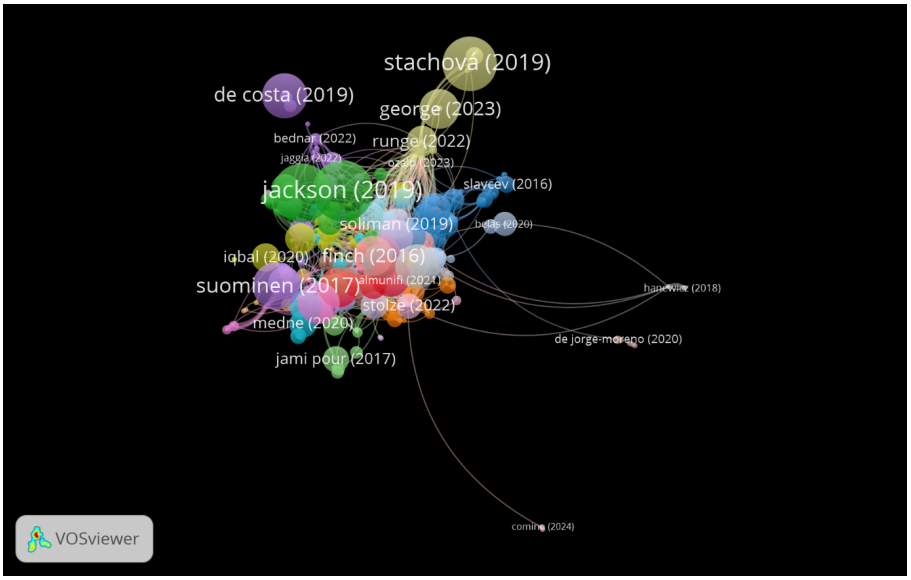

Figure 9. The Network Visualization of Document Coupled Bibliography Strategic Management and Education

Figure 9 Analyzing the network visualization of document-coupled bibliography strategic management and education, reveals network cluster, green cluster, is the most document that cited by others, main topic of digital transformation related with the transformation of organizations to gain a competitive advantage, is the interesting topic, the research concluded that platform technologies and the consequences of digital transformation and analytics are becoming more noticeable in businesses, their effects on higher education still need to be investigated [44]. The necessity of this balanced approach, known as ambidexterity, or the need to address both competency and innovation, is explained by tracing the historical developments that resulted in this issue in higher education, identifying three typical pitfalls that administrators and programs encounter, and connecting these problems to the absorptive capacity of higher education [45].

3.6. Keyword Co-occurrence Bibliometric Analysis

Keyword Co-occurrence Bibliometric Analysis is a technique used to examine the relationships between keywords in academic literature, based on their frequency of co-occurrence within the same document or publication. This method helps to identify key themes, trends, and areas of focus within a particular research field by analyzing how often certain terms appear together [46]. By mapping these relationships, researchers can uncover emerging topics, measure the thematic evolution over time, and gain insights into the connections between various concepts within the academic discourse. In the context of strategic management and education, for instance, keyword co-occurrence analysis can reveal how concepts like "sustainability," "innovation," "governance," and "education quality" are linked, shedding light on the multidisciplinary approach and guiding future research directions. This analysis is particularly valuable in understanding the evolving landscape of research and highlighting the most influential areas of study in a given domain [47, 48].

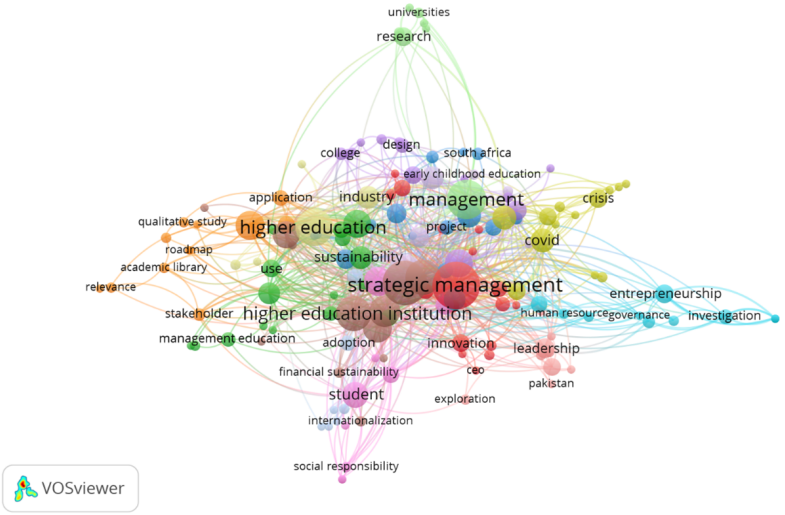

Figure 10. The Network Visualization of Keyword Co-occurrence of Strategic Management and Education

The network visualization of keyword co-occurrence in the field of strategic management and education, as illustrated in Figure 10, reveals distinct clusters that emerged around key foundational and thematic concepts [49]. The Red Cluster, for example, centers on critical terms such as ”strategic management” and ”higher education,” underscoring the foundational principles that form the basis of the field. Meanwhile, the Blue Cluster incorporates keywords associated with ”sustainability” and ”innovation,” signifying an increasing focus on future-oriented research that seeks to integrate sustainability into strategic management practices within educational contexts [50]. The Green Cluster, on the other hand, emphasizes terms like ”governance” and ”education quality,” linking strategic management not only to the improvement of educational systems but also to the development of policy frameworks aligned with the achievement of SDG 4. This analysis serves to highlight the interdisciplinary nature of the research landscape, demonstrating how strategic management principles are being applied to various dimensions of educational quality and governance, as well as how these elements are being integrated to foster sustainable development in education [51].

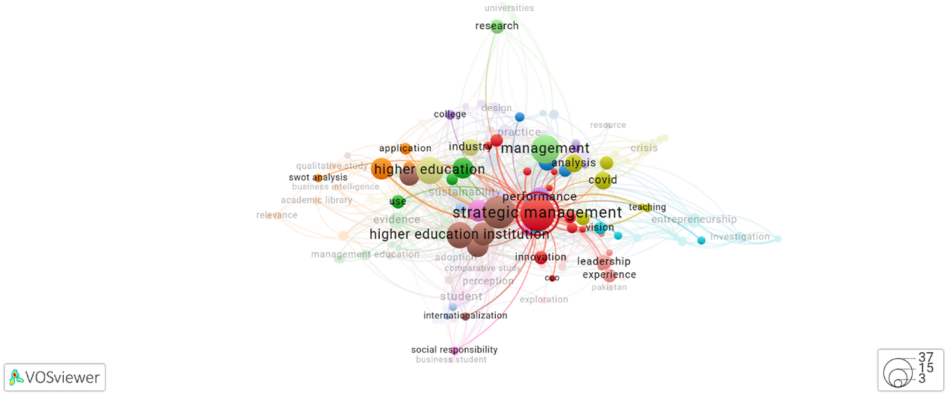

Figure 11. The Network Visualization of Keyword “Strategic Management and Education

This visualization of Figure 11, shown a closer look at important themes within strategic management and education, related with “ higher education institution”, “higher education”, “teaching” and “internasionalization”. Keyword “internationalization” is interesting to be further discussed by future research, aims to create a converged system of higher education across Europe, focusing on international staff mobility [52, 53]. A study aimed to organize and implement an international staff exchange between UK and France universities.

The research suggests that strategic entrepreneurs can execute riskier elements of internationalisation strategies, such as staff exchange, broadening AR from education to strategic management [54].

4. MANAGERIAL IMPLICATIONS

The findings of this study carry significant implications for policymakers and educational managers. Policymakers can leverage these insights to integrate strategic management principles into educational frameworks at both national and institutional levels, ensuring that policies align with the goals of inclusivity and equitable access to education. Educational institutions, particularly universities, are encouraged to prioritize global collaborations and foster knowledge-sharing initiatives to address education challenges collectively. Additionally, the adoption of digital technologies and governance strategies can significantly enhance the quality and reach of education systems. Aligning strategic management initiatives with the objectives of SDG 4 is critical for ensuring long-term sustainability and impactful educational outcomes.

5. CONCLUSION

The research employs bibliometric methods to analyze scholarly works on Strategic Management and Education. Using Scopus as the primary database, 257 publications were initially identified and narrowed to 148 relevant articles through filters for publication type, year, and focus. VOSviewer software was utilized to map co-authorships, co-citations, and keyword networks, enabling a detailed view of research collaborations and thematic trends. This approach not only highlights key contributors and institutions but also uncovers the global dynamics shaping the field of education and strategic management.

The bibliometric analysis provides valuable insights across multiple dimensions. Country-based analysis shows that the United States, the United Kingdom, and India dominate in terms of research productivity and collaboration, while contributions from developing regions remain limited. This disparity underscores the need for greater inclusion of underrepresented regions in educational research. Institutional analysis highlights leading organizations like Arizona State University, whose innovative contributions focus on equity, governance, and global partnerships.

Keyword analysis identifies recurring themes like ”sustainability,” ”strategic management,” and ”digital transformation,” reflecting the field’s evolving priorities. Topics such as ”higher education” and ”teaching” illustrate the alignment of strategic management with modern educational practices. Meanwhile, author-based analysis showcases a mix of established and emerging researchers, emphasizing the growing focus on sustainability and technological innovation. Source-based analysis points to prominent journals that drive critical discussions, offering platforms for diverse and impactful research. Collectively, these findings underline the transformative role of Strategic Management in shaping education systems to meet global goals.

6. DECLARATIONS

6.1. About Authors

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6.2. Author Contributions

Conceptualization: HH; Methodology: DS; Software: HH; Validation: JE; Formal Analysis: HH and DS; Investigation: JE; Resources: HH; Data Curation: HH and DS; Writing Original Draft Preparation: JE; Writing Review and Editing: DS; Visualization: DS; All authors, HH, DS, and JE have read and agreed to the published version of the manuscript.

6.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6.4. Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

6.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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