



A SYSTEMATIC LITERATURE NETWORK ANALYSIS (SLNA): SCHOOL-UNIVERSITY PARTNERSHIPS (SUPS) AND FUTURE RESEARCH AGENDA

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ABSTRACT

This study aims to uncover current, trending, and future research areas within School-University Partnerships (SUPs). The research employs the Systematic Literature Network Analysis (SLNA) method, combining Systematic Literature Review (SLR) using the PRISMA protocol and Bibliometric Analysis with VOSviewer software. The findings indicate a consistent annual increase in SUPs publications, with the United States dominating the research landscape. The VOSviewer analysis reveals key research topics: pre-service teachers, initial teacher education, teacher education in Cluster 1, professional development and school-university partnerships in Cluster 2, and educational development, teacher training, and university in Cluster 3. Overlay Visualization highlights current research trends, including pre-service teachers, professional experience, professional learning community, professional learning, curriculum, learning communities, and communities of practice. Thematic evolution mapping suggests future research involving pre-service teachers in SUPs, such as exploring communities of practice. This research provides valuable guidance for SUPs researchers in selecting and determining future research topics, facilitating informed and strategic contributions to the field.

Keywords: School-University Partnerships (SUPs), SLNA, Communities of Practice, Pre-service Teacher.

INTRODUCTION

The collaboration between schools and universities has become a crucial aspect of advancing sustainable education (Burroughs et al., 2020; Oates & Bignell, 2022; Weddle et al., 2021). In this rapidly evolving knowledge era, the close engagement between primary and secondary educational institutions and universities offers boundless opportunities for sharing knowledge, resources, and innovation (Alema et al., 2017; Rodriguez-meehan, 2022; Yue, 2019). This interconnection aims to enhance the quality of education, develop innovative programs, and create a learning environment that supports students' holistic growth.

Amid the dynamics of modern society, schools and universities complement each other in pursuit of common goals (Goh, 2021; Wheeler et al., 2018). As the foundation of early education, schools lay the groundwork for fundamental knowledge and skills, while universities play a role in developing more profound and complex knowledge. This collaboration goes beyond mere information exchange,

encompassing cooperation in research, curriculum development, teacher training, and introducing fresh perspectives that improve educational effectiveness (Bernay et al., 2020; Marsh, 2021; Shehab & Hegg, 2022). The linkage between schools and universities also involves utilizing available resources and facilities, collectively contributing to the efficiency and effectiveness of learning (Chen, 2022). For instance, access to university libraries, laboratories, or expert faculty opens up new opportunities for improved research and teaching in schools.

It is important to emphasize that the role of scientific research in gaining a deeper understanding of the role and impact of this collaboration is crucial (Oates & Bignell, 2022). Scientific research enables us to measure the effectiveness of various collaborative initiatives, identify potential challenges, and formulate best practices that can be applied to maximize the benefits of the engagement between schools and universities (Chen, 2022; Jones et al., 2016). As a strong knowledge foundation, scientific research helps build a deeper understanding and evidence-based insights that support wise decision-making in advancing the education system sustainably. In academia, systematic literature network analysis (SLNA) has become an increasingly important tool for exploring, identifying, and measuring the impact of research in various fields (Nasrudin et al., 2022). With increasingly advanced technology and databases, researchers can conduct systematic literature network analysis to explore trends, researcher contributions, research topics, and leading journals related to collaboration between schools and universities (Colicchia et al., 2019; Nasrudin, et al., 2023).

This article aims to conduct a systematic literature network analysis of research on collaboration between schools and universities in the Scopus database. Using literature network analysis tools, we will present a holistic view of the development and contribution of research on this topic. This analysis will provide in-depth insight into dominating research trends and leading authors who have contributed significantly. These journals publish relevant research and essential educational collaboration between these two institutions (school-university). Through a deeper understanding of existing literature, we can plan future research directions and encourage closer collaboration between schools and universities (Colicchia et al., 2019). In addition, this SNLA will also provide valuable guidance in developing educational programs that focus on collaboration between schools and universities to achieve better educational goals. The novelty of this research lies in its emphasis on the latest developments in the collaboration between schools and universities, utilizing the most recent Scopus data over the past ten years, thereby ensuring the quality of the information source for analysis; furthermore, employing the Systematic Literature Network Analysis method to unveil patterns and relationships within the relevant literature.

METHODS

In this research, we employed a methodological approach called Systematic Literature Network Analysis (SLNA). This innovative approach combines the strengths of two essential methodologies, namely Systematic Literature Review (SLR) and Bibliometric Analysis (BA), to provide a comprehensive and nuanced exploration of the research landscape in our study (Colicchia et al., 2019; Nasrudin et al., 2022). This method builds on previous research and is designed to unravel intricate connections and patterns within the literature on our chosen subject (Nasrudin et al., 2022; Wong et al., 2023). Our study's systematic Literature Review (SLR) process adheres to the widely recognized PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analyses) Protocol. This rigorous framework ensures that our literature search and selection processes are systematic and transparent (Nasrudin, et al., 2023). By following this protocol, we aim to minimize bias and subjectivity, thus enhancing the credibility and reliability of our findings.

We conducted a detailed bibliometric analysis using VOSviewer software, with Figure 1 visually illustrating the systematic analysis steps. VOSviewer stands out as a

valuable tool due to its proficiency in translating bibliometric data into visually intuitive formats. Through the utilization of either citation network diagrams or concept maps, VOSviewer empowers users to effortlessly explore the intricate web of connections between publications and their associated research themes (Bukar et al., 2023). The citation network diagrams offer a dynamic representation of the relationships among various articles or research papers, providing a visual network that reflects the intricate web of citations and influences between scholarly works.

Our comprehensive literature search in the Scopus database in October 2023 used the keywords "school-university partnership" OR "university-school partnership." Initially, we found 731 Scopus documents matching our criteria. After refining our search, we narrowed it to a final selection of 143 relevant Scopus documents. This subset was chosen for further examination due to its increased relevance and potential significance for our research. The selected 143 documents served as the foundation for our subsequent bibliometric analysis, providing deeper insights into the existing knowledge about school-university partnerships. We conducted this analysis using the VOSviewer application, a specialized tool for visualizing and understanding the academic landscape of a specific subject or field.

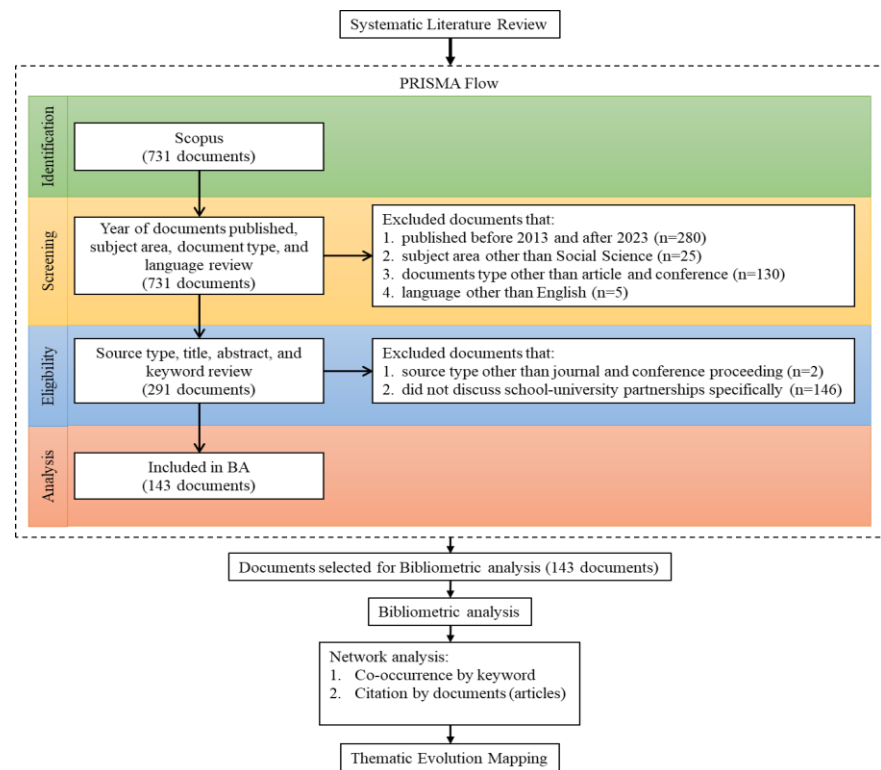


Fig. 1 SLNA Approach for The Paper

RESULTS AND DISCUSSION

Publications Data Search Result

Based on the data collection from Scopus articles using the keywords "school-university partnership" OR "university-school partnership," we initially retrieved 731 documents. We applied the Systematic Literature Network Analysis (SLNA) method to refine and focus our dataset for our study. Through this process, we narrowed our dataset to 143 documents most relevant to our research objectives.

The metadata of these selected articles was gathered, including citation information, titles, abstracts, keywords, and references. This information was systematically compiled and exported into a CSV file for further analysis.

Subsequently, we analyzed the citation counts using the VOSviewer application. This

analysis allowed us to identify our dataset's top ten most cited articles. The findings of this citation analysis are presented in Table 1. This detailed analysis helps us gain insights into the most influential and frequently referenced articles in the field of school-university partnerships (SUPs), providing a solid foundation for our research.

Table 1. The Top Ten Influential Articles.

No	Author	Title	Citations
1	Allen, J. M. & Wright S. E. (2014)	Integrating theory and practice in the pre-service teacher education practicum	140
2	Yuan, R. & Burns, A. (2017)	Teacher identity development through action research: a Chinese experience	59
3	Jones, M., Hobbs, L., Kenny, J., Campbell, C., Chittleborough G, Gilbert, A., Herbert, S., & Redman, C. 2016)	Successful university-school partnerships: An interpretive framework to inform partnership practice	58
4	Walsh, M. E., & Backe, S. (2013)	School–University Partnerships: Reflections and Opportunities	56
5	Schaik, P. V., Volman, M., Admiraal, W., & Schenke, W. (2018)	Barriers and conditions for teachers’ utilisation of academic knowledge	55
6	Robinson, D. (2017)	Effective inclusive teacher education for special educational needs and disabilities: Some more thoughts on the way forward	50
7	Green, C. A., Tindall-Ford, S. K., & Eady, M. J. (2020)	School-university partnerships in Australia: a systematic literature review	44
8	Blitz, L. V., Yull, D., & Clauhs, M. (2016)	Bringing Sanctuary to School: Assessing School Climate as a Foundation for Culturally Responsive Trauma-Informed Approaches for Urban Schools	38
9	Lac, V. T., & Fine, M. (2018)	The Good, the Bad, and the Ugly: An Autoethnographic Journey on Doing Participatory Action Research as a Graduate Student	35
10	Grudnoff, L., Haigh, M. & Mackisack, V. (2017)	Re-envisaging and reinvigorating school–university practicum partnerships	33

According to Table 1, it is evident that the article authored by Allen and Wright in 2014 is the most frequently cited piece regarding SUPs. This article emphasizes the significance of linking university course assessments with field-based practicums as a means of bridging the gap between universities and schools on the one hand and the divide between theory and practice on the other.

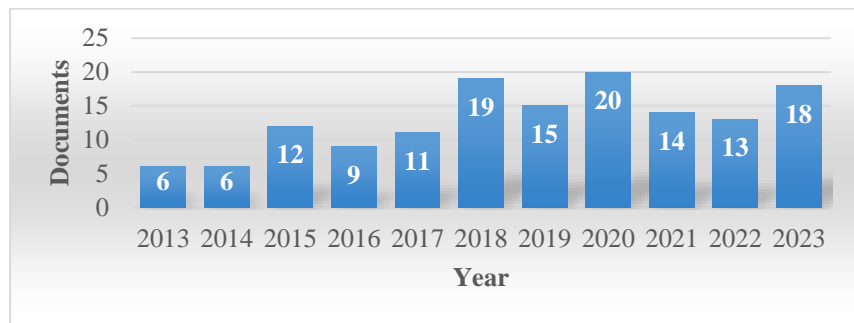


Fig.

2 Distribution of the number of Scopus articles published each year

Next, the annual distribution of publications related to School-University Partnerships (SUPs) is presented in Figure 2. As depicted in Figure 2, the highest number of Scopus articles related to SUPs was recorded in 2020, totaling 20 articles. Overall, the Scopus publications related to SUPs have a noticeable upward trend. The data represented in Figure 2 clearly illustrates a trend of increasing interest and research output in the field of SUPs over the years. This trend suggests a growing recognition of the importance of school-university partnerships and their potential contributions to educational advancements, reflected in the increasing number of scholarly publications on the subject.

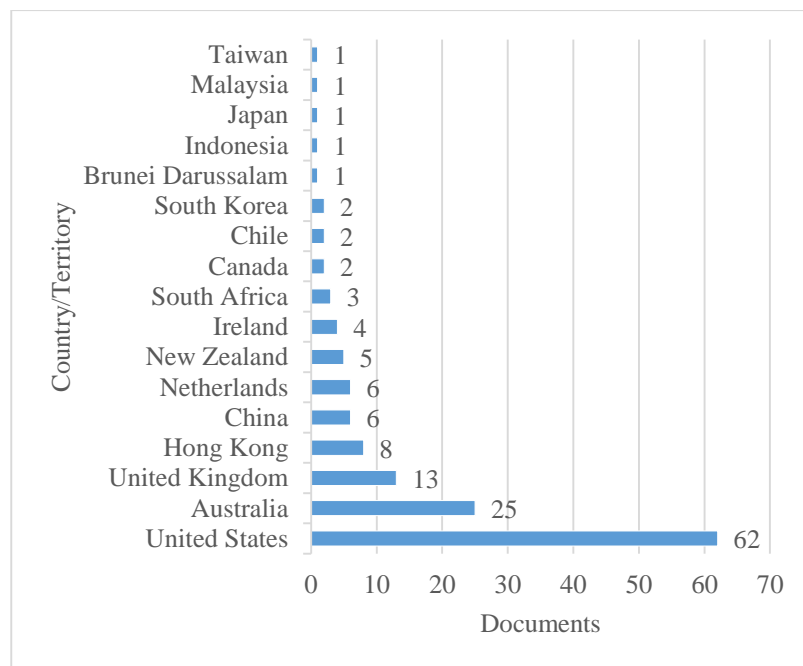


Fig. 3 Distribution of Scopus articles published in each country

Figure 3 reveals the global distribution of Scopus articles in each country, providing valuable insights into scholarly contributions. It showcases the engagement of researchers and institutions from diverse regions in generating knowledge about school-university partnerships. The data in Figure 3 helps identify leading countries in research output and highlights potential regional differences in studying this topic, reflecting unique perspectives and objectives. Figure 3 offers a comprehensive view of the worldwide landscape of Scopus articles on school-university partnerships, enhancing our understanding of global reach and collaborative efforts in this research field.

The Contemporary Landscape of SUPs: A Comprehensive Mapping

The current state of School-University Partnerships (SUPs) is assessed by analyzing the number of articles published in Scopus-indexed journals and proceedings from 2013 to 2023. Out of the total of 143 articles that were retrieved and subjected to analysis (as shown in Figure 2), the mapping of the state of SUPs is visualized via co-occurrence analysis conducted using VOSviewer. The outcomes of this analysis, including the clustering of terms and keywords, are displayed in Table 2. Notably, a minimum threshold of three occurrences was applied for keywords. Out of a pool of 468 keywords, 33 keywords met the specified threshold. These 33 keywords were further categorized into three distinct clusters, each identified by a different color (cluster 1: red, cluster 2: green, cluster 3: blue), with the graphical representation of the color-coded clusters provided in Figure 4.

Table 2. The Keywords Representing each cluster.

No	Cluster	Keywords
1	Cluster 1 (red colour 14 items)	Co-teaching (3), collaboration (7), field experiences (6), initial teacher education (13), mentoring (6), partnership (11), practicum (7), pre-service teacher education (4), pre-service teacher (6), professional experience (4), professional learning community (3), reflective practice (5), teacher education (13), third space (3).
2	Cluster 2 (green colour 10 items)	Action research (5), learning community (3), professional development (14), professional learning (3), school-university partnership (32), teacher identity (4), teacher learning (4), teacher preparation (3), teacher professional development (4), teacher research (5).
3	Cluster 3 (blue colour 9 items)	Communities of practice (6), community-based participatory research (5), curriculum (8), educational development (9), evidence-based practice (4), learning (8), teacher training (8), teaching (7), university (11),

Keywords with higher frequencies indicate that the research topics within this study are receiving significant attention and discussion. Cluster 1 focuses on initial teacher education (13), partnership (11), pre-service teacher (6), and teacher education (13). And then, Cluster 2 is about professional development (14) and school-university partnerships (32). Cluster 3 encompasses educational development (9), teacher training (8), and university (11).

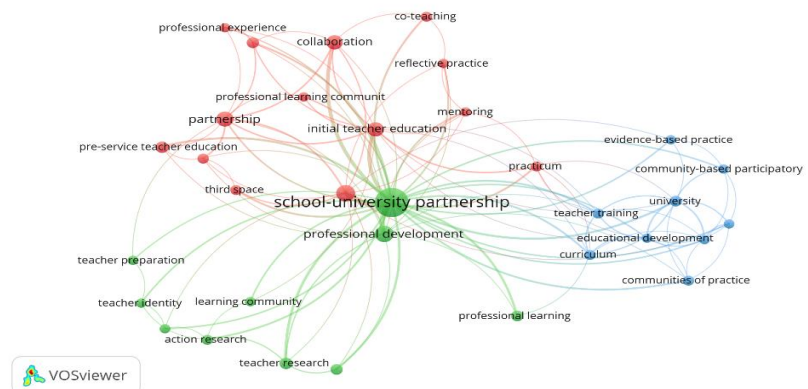


Fig. 4 Network Visualization of SUPs

Figure 4 also shows the proximity and relationships between concepts within each cluster. For instance, in the red-colored cluster, teacher education is closely associated with professional development and school-university partnerships in the green-colored cluster. Another example is the topic of pre-service teachers within the red-colored cluster, which demonstrates its proximity to concepts like professional experience and

professional learning community, also within the same red-colored cluster. This visual representation illustrates the interconnections and interrelatedness of various research themes within each cluster, providing valuable insights into the intricate web of ideas and relationships in School-University Partnerships.

The emerging and trending research topic in SUPs

The trending research topics in School-University Partnerships (SUPs) were analyzed using VOSviewer. VOSviewer offers an overlay visualization that presents the relationships between well-established topics (from 2013 to 2018) and emerging topics (from 2020 onwards). Long-established topics are represented in purple while trending topics are highlighted in yellow, as depicted in Figure 5.

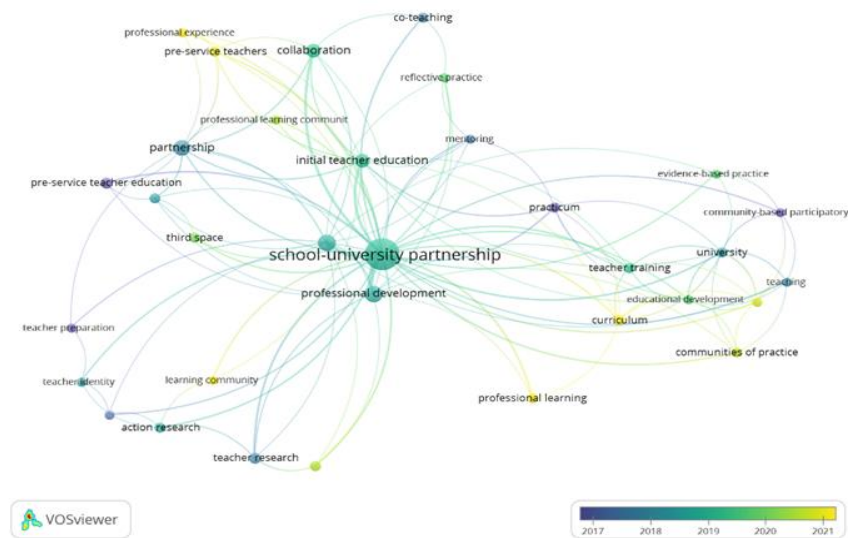


Fig. 5 Overlay Visualization of SUPs

As revealed through the VOSviewer analysis, examples of trending topics include pre-service teachers, professional experience, professional learning community, professional learning, curriculum, learning communities, and communities of practice. These emerging topics signify a shift in research focus and indicate these subjects' growing relevance and significance in the current educational landscape.

Regarding the proximity of relationships between topics, the pre-service teacher topic is closely associated with professional experience and the professional learning community. The curriculum topic strongly connects with professional learning and communities of practice. This visual representation in Figure 5 not only underscores the dynamic nature of research trends but also highlights the interconnectedness of these emerging topics in School-University Partnerships.

The future work in SUPs

In subtopic “the emerging and trending research topic in SUPs”, the discussion shifts to the potential future directions of research in the field of School-University Partnerships (SUPs), leveraging the insights obtained through Overlay Visualization by VOSviewer, as depicted in Figure 5. Additionally, this visualization technique allows for creating a thematic evolution map, as illustrated in Figure 6.

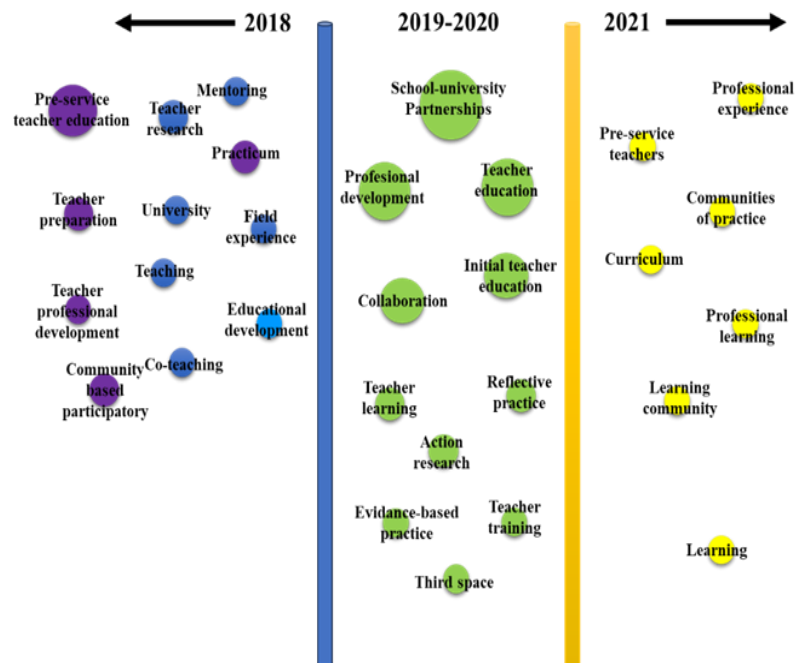


Fig. 6 Thematic evolution mapping of SUPs

Figure 6 highlights seven significant keywords or research themes likely to shape SUPs research's future. These themes encompass professional experience, pre-service teachers, communities of practice, curriculum, professional learning, learning community, and learning.

To illustrate the concept further, let us consider the "communities of practice" theme as a specific example. In this "communities of practice" theme, manual exploration of 143 Scopus articles dataset was conducted using the provided CSV file in Excel. It was feasible to manually identify critical authors and articles about "communities of practice." This exploration led to identifying an influential author, Ross Bernay, whose work, mainly the article "Three Models of Effective School-University Partnerships," delves into the critical role of "communities of practice" within SUPs. Ross Bernay's research underscores the importance of actively involving pre-service teachers in school-university partnerships. He advocates for providing pre-service teachers with comprehensive opportunities to immerse themselves fully in the school community, thereby gaining practical insights and experiences within that community.

Ross Bernay's and other researchers' insights serve as an illustrative case that points toward a potential research direction—further investigation into integrating pre-service teachers into the school community as an important aspect of effective school-university partnerships (Barnes, 2020; Bernay, 2020; Topçu & Çiftçi, 2023). This example underscores the dynamic nature of research in the field, with new and evolving topics and perspectives continually emerging, thus contributing to the ongoing evolution of research in SUPs. The distinction of this research from others lies in its unique features, including a focus on Scopus data as the primary source, a contemporary scope within the last ten years, and the utilization of the Systematic Literature Network Analysis (SLNA) as the chosen method of analysis.

CONCLUSION

Through Systematic Literature Network Analysis (SLNA), this research has successfully illuminated four key aspects. First, Publication Data Analysis encompasses an in-depth examination of publications based on author citations, publication years, and the countries of authorship, offering insights into the scholarly landscape of School-University Partnerships (SUPs). Second, Contemporary

Landscape Mapping of SUPs provided a comprehensive visualization of the current state of SUPs research, highlighting the interconnectedness of concepts and themes in the field. Third, Research Trends in SUPs employing overlay visualization using VOSviewer; the study has shed light on well-established and emerging research topics within SUPs, helping identify areas ripe for further investigation. Last, Thematic Evolution Mapping captures the evolution of topics related to SUPs, tracing their development from well-established areas to those likely to be explored.

In summary, this research has leveraged SLNA to provide a holistic view of the SUPs' research landscape, encompassing historical trends, contemporary insights, and potential future directions. This multi-faceted analysis contributes to a deeper understanding of the dynamic and evolving nature of research in SUPs. The limitation of this study is rooted in its reliance solely on Scopus data within the timeframe of 2013-2023. Future research endeavours could enhance comprehensiveness by incorporating additional data from sources such as ScienceDirect or Web of Science. Diverse data sources would broaden the scope of information, offering a more comprehensive and nuanced understanding of the subject under investigation.

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