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Research Article Trends Globally on Translation: A Bibliometric Analysis with ScienceDirect Database

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ABSTRACT

Bibliometric analysis has emerged as a powerful tool for understanding research trends in translation studies. By systematically analyzing large volumes of academic publications, bibliometric methods were able to reveal patterns and trends that might not be immediately apparent. The data for this bibliometric analysis were collected from the ScienceDirect database, https://www.sciencedirect.com/. The search focused on research articles related to translation studies published between 2015 and 2024. The keyword used was "translation" to identify relevant publications. Two main conclusions were drawn from this research. First, VOSviewer provided a global map of existing research, in this context based on the ScienceDirect database. The visualization of co-occurrences of the keyword "translation" showed that a substantial amount of research has been conducted about translation studies, such as translation related to culture, higher education, the use of questionnaires in such research, translation studies in China or France, and several other aspects. This also revealed that research on the use of Artificial Intelligence (AI) for translation had not been extensively conducted, such as the translation using ChatGPT, Google Bard AI, DeepL Translate, and others. Second, regarding authorship visualization, the visualization provided by VOSviewer helped researchers quickly identify authors or researchers who could be referenced in translation studies.

INTRODUCTION

Translation studies have become increasingly significant in our interconnected world, facilitating communication across linguistic and cultural boundaries. As globalization intensifies, the need for accurate and effective translation grows, highlighting the crucial role of translation in various sectors, including literature, science, technology, and international diplomacy. According to Munday (2016), Translation is not just about words, it's about making intelligible a whole culture. This encapsulates the essence of translation's importance in bridging cultural gaps and fostering mutual understanding.

Over the years, translation studies have evolved significantly. Initially, the focus was predominantly on the linguistic aspects of translation, aiming to achieve equivalence between source and target texts.

However, contemporary translation studies have broadened to include interdisciplinary approaches, incorporating insights from fields such as cultural studies, sociology, and cognitive science. This evolution reflects a shift from a purely linguistic endeavor to a multifaceted academic discipline that addresses the complex interplay between language, culture, and society. As Bassnett (2002) notes the history of translation is the history of the transformation of cultures.

In this context, bibliometric analysis has emerged as a powerful tool for understanding research trends in translation studies. By systematically analyzing large volumes of academic publications, bibliometric methods can reveal patterns and trends that might not be immediately apparent. These analyses help identify key research areas, influential scholars, and evolving themes within the discipline. According to van Raan (2005), Bibliometrics provides a quantitative insight into the scientific process, uncovering the dynamic patterns of scientific research. This underscores the value of bibliometric analysis in offering a comprehensive overview of the field's development and guiding future research directions.

Translation, fundamentally, involves the process of rendering text or speech from one language into another, ensuring that the meaning, style, and tone of the original content are preserved. According to Catford (1965), Translation is the replacement of textual material in one language (source language) by equivalent textual material in another language (target language). This definition highlights the primary goal of achieving equivalence between the source and target texts. However, the scope of translation extends beyond mere word-for-word substitution; it encompasses the transfer of cultural nuances and contextual meanings, making it a complex and multifaceted activity.

Translation plays a crucial role across a multitude of disciplines. In literature, translation enables the global dissemination of literary works, allowing readers to experience stories and ideas from different cultures. As Venuti (2008) states translation is a way to open the door to the other, to allow access to foreign literary works and traditions. In science and technology, translation is vital for the exchange of knowledge and innovation. Scientific research and technological advancements often depend on the accurate translation of documents, research papers, and technical manuals. Similarly, in the field of international relations and diplomacy, translation is essential for effective communication and negotiation between countries.

Despite its importance, translation is fraught with numerous challenges. One of the primary issues is maintaining the balance between fidelity to the source text and the readability of the target text. Translators often grapple with the dilemma of staying true to the original content while making it accessible and engaging for the target audience. Another significant challenge is the translation of cultural-specific elements, which may not have direct equivalents in the target language. As Baker (1992) points out translation involves much more than finding lexical equivalents; it is about conveying the culture, values, and experiences of the source language into the target language context. Additionally, the rapid advancement of technology presents both

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opportunities and challenges for translators, with tools like machine translation and CAT (Computer-Assisted Translation) software changing the landscape of the profession.

Bibliometric analysis is a research method that utilizes quantitative techniques to analyze academic literature and publications. It involves the use of statistical tools to measure various aspects of written communication, such as citation patterns, publication trends, and author productivity. According to Pritchard (1969), bibliometrics is the application of mathematics and statistical methods to books and other media of communication. The primary purpose of bibliometric analysis is to provide a systematic and objective evaluation of research output, enabling researchers to identify influential works, key authors, and emerging trends within a specific field.

One of the main advantages of bibliometric analysis is its ability to offer a comprehensive and quantitative overview of research developments. By analyzing large datasets of publications, bibliometric methods can uncover patterns and trends that might not be immediately apparent through qualitative analysis alone. For instance, citation analysis can highlight the most cited works and authors, indicating their impact and influence in the field. As van Leeuwen (2004) explains Bibliometrics offers an empirical basis for evaluating the dynamics and structure of scientific research. This quantitative approach provides valuable insights that can inform research strategies, funding decisions, and policy-making.

Bibliometric analysis has a wide range of applications across different academic disciplines. In the field of translation studies, bibliometric techniques can be used to map the evolution of research topics, identify leading scholars and institutions, and track collaboration networks. This helps to illuminate the intellectual structure of the field and guide future research directions. Additionally, bibliometric analysis is widely used in other fields such as medicine, engineering, and social sciences to assess research performance and impact. For example, in medical research, bibliometric analysis can help identify key areas of innovation and development, guiding the allocation of research funding. According to Moed (2005), the systematic collection and analysis of bibliometric data allow for an objective assessment of research trends and scientific progress. This underscores the versatility and utility of bibliometric analysis in enhancing our understanding of various scientific domains.

VOSviewer is a widely used software tool for constructing and visualizing bibliometric networks. Developed by Van Eck and Waltman (2010), VOSviewer specializes in creating maps based on network data, particularly those involving scientific publications. The tool is designed to handle large-scale bibliometric datasets, making it a valuable resource for researchers conducting comprehensive literature reviews and analyses. As Van Eck and Waltman describe, VOSviewer focuses on visualizing bibliometric networks in an intuitive and user-friendly manner.

VOSviewer offers several powerful features for visualizing and analyzing bibliometric data. One of its main strengths is its ability to create detailed visual maps that represent relationships among publications,

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authors, or keywords. These maps can illustrate co-authorship networks, citation patterns, and keyword co-occurrences, providing a clear and interactive way to explore complex datasets. Additionally, VOSviewer excels in clustering data, allowing users to identify groups of related items and understand the underlying structure of research fields. As noted by Waltman and Van Eck (2013), the clustering functionality of VOSviewer helps in revealing the main topics and themes in a research field by grouping similar items together.

The process of bibliometric data collection typically involves several key steps. First, researchers need to select an appropriate database from which to gather their data. Commonly used databases include Web of Science, Scopus, and Google Scholar, each offering extensive coverage of scientific publications across various disciplines. The choice of database depends on factors such as the field of study and the specific research questions being addressed. Once the database is chosen, researchers define the period for data collection, which may range from a few years to several decades, depending on the scope of the analysis.

Next, relevant keywords must be identified to ensure that the data collected is pertinent to the research topic. These keywords are used to query the database and retrieve a comprehensive set of publications. For example, in a bibliometric analysis of translation studies, the keyword was “translation”. The retrieved data is then processed and formatted for analysis using VOSviewer. According to Van Eck and Waltman (2010), careful selection of keywords and time periods is crucial for obtaining a representative dataset that accurately reflects the research field being studied.

The primary aim of this bibliometric analysis is to systematically examine the trends and patterns in research articles on translation over a specified period. By employing tools like VOSviewer, this study seeks to map the intellectual structure of translation studies, identify key areas of focus, and understand how these have evolved over time. According to Van Raan (2003), bibliometric analysis can uncover the dynamics of scientific development and the complex interrelationships within the research landscape, which is the core objective of this study.

This analysis aims to answer several critical research questions: What are the predominant themes and topics in translation studies? Who are the leading authors and institutions in this field? How have research trends in translation studies evolved over the years? Are there any emerging subfields or underexplored areas within translation studies?

This research holds significant benefits for various stakeholders within the field of translation studies. For researchers and academics, the findings provide a comprehensive overview of the current state of research, highlighting influential works and emerging trends. This can guide future research directions and foster collaboration among scholars. As suggested by Moed (2005), a thorough bibliometric analysis offers valuable insights that can inform research agendas and funding priorities. For practitioners, such as translators and policymakers, understanding the prevailing trends and emerging areas can enhance their

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practices and decision-making processes. This analysis can reveal practical applications of recent research findings and identify gaps that need to be addressed to improve the quality and effectiveness of translation services.

The results of this bibliometric analysis have the potential to significantly contribute to the understanding of research trends in translation studies. By identifying the most influential publications and researchers, this study provides a foundation for recognizing the key contributions that have shaped the field. Furthermore, by mapping the evolution of research topics, this analysis can highlight emerging areas that warrant further investigation. According to Garfield (1979), bibliometric indicators can reveal areas of rapid growth and underdeveloped topics, guiding future research efforts towards unexplored frontiers. In addition to that, this bibliometric analysis also aims to provide a detailed and insightful examination of the landscape of translation studies, benefiting researchers, academics, and practitioners alike by offering a clearer understanding of past developments and future directions in the field.

METHODS

The data for this bibliometric analysis was collected from the ScienceDirect database, https://www.sciencedirect.com/. The search focused on articles related to translation studies published between 2015 and 2024. The keyword used was “translation” to identify relevant publications. This initial search yielded a dataset comprising thousands of articles, which were then filtered to include only peer-reviewed journal articles to ensure the quality and reliability of the data.

The collected data was processed to extract bibliometric information such as authors, titles, publication years, abstracts, keywords, and citation counts. This information was organized into a structured dataset suitable for analysis using VOSviewer. VOSviewer, a software tool specifically designed for constructing and visualizing bibliometric networks, was employed for the analysis. The were two specific steps were undertaken. First, *Co-authorship Analysis*, this analysis identified the collaboration patterns among researchers in the field of translation studies. By mapping co-authorship networks, we could identify influential authors and research groups. Second, *Keyword Co-occurrence Analysis*, this analysis explored the relationships between keywords in the dataset to identify major research themes and trends over time. Keywords were clustered based on their co-occurrence, revealing the main topics and emerging areas in translation studies.

The visualizations generated by VOSviewer provided an intuitive and interactive way to explore the bibliometric data. Network maps displayed clusters of related items, such as groups of keywords or co-authorship networks, with nodes representing individual items and links indicating relationships. These visualizations helped to identify key patterns, trends, and influential contributions in translation studies. While this bibliometric analysis offers valuable insights, it is essential to acknowledge certain limitations.

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The reliance on the ScienceDirect database means that some relevant articles indexed in other databases might not be included. Additionally, bibliometric indicators like citation counts can be influenced by factors unrelated to the academic quality of the work, such as publication language and accessibility. Despite these limitations, the methodology employed provides a robust framework for understanding research trends and dynamics in translation studies.

By utilizing VOSviewer to conduct a comprehensive bibliometric analysis, this study aims to illuminate the key trends, influential works, and emerging areas within the field of translation studies. The insights gained from this analysis can guide future research directions, foster collaboration, and contribute to the ongoing development of the discipline.

RESULTS AND DISCUSSION

This research utilized the ScienceDirect database. Using the keyword "translation," the researcher found 140,842 results related to this theme. In the initial search phase, no search filters were applied. The results span publications from the years 2000 to 2024, with the following distribution: 5,310 articles in 2024, 8,972 in 2023, 8,604 in 2022, 8,344 in 2021, 7,549 in 2020, 6,401 in 2019, 6,100 in 2018, 5,767 in 2017, 5,627 in 2016, 7,030 in 2015, 5,757 in 2014, 4,883 in 2013, 4,525 in 2012, 3,932 in 2011, 3,695 in 2010, 3,469 in 2009, 2,907 in 2008, 2,616 in 2007, 3,275 in 2006, 1,969 in 2005, 1,794 in 2004, 1,609 in 2003, 1,405 in 2002, 1,340 in 2001, and 1,333 articles in the year 2000.

These articles vary in type, with the following breakdown: 4,862 review articles, 109,362 research articles, 3,465 encyclopedia entries, 5,133 book chapters, 3,666 conference abstracts, 4,192 book reviews, 83 case reports, 299 conference info pieces, 250 correspondences, 1,672 discussions, 1,423 editorials, 39 errata, 1 examination, 376 mini-reviews, 310 news pieces, 1 patent report, 5 practice guidelines, 43 product reviews, 6 replication studies, 2,137 short communications, and 3,517 others.

These works are spread across various journals, including Social Science & Medicine (5,570), Procedia - Social and Behavioral Sciences (4,844), Value in Health (4,046), Journal of Pragmatics (2,622), World Development (2,606), Journal of Environmental Management (2,122), Computers in Human Behavior (2,092), Lingua (1,998), Geoforum (1,916), Children and Youth Services Review (1,783), Land Use Policy (1,671), System (1,610), Teaching and Teacher Education (1,581), Nurse Education Today (1,470), Futures (1,446), Computers & Education (1,409), Journal of Clinical Epidemiology (1,378), Environmental Science & Policy (1,357), International Journal of Nursing Studies (1,323), Information Processing & Management (1,282), Energy Research & Social Science (1,268), International Journal of Disaster Risk Reduction (1,262), Journal of Rural Studies (1,238), Women's Studies International Forum (1,228), and Cities (1,221).

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Subsequently, the search was refined to specify the data used. The researcher focused on the last ten years, from 2015 to 2024, and included only research articles. Additionally, the researcher specified access types, including only open access and open archive articles. This resulted in 16,892 results. These results are spread across several publication titles, including Procedia - Social and Behavioral Sciences (1,425 articles), Transportation Research Procedia (717 articles), Social Science & Medicine (563), Energy Research & Social Science (382), Value in Health (357), Environmental Science & Policy (332), SSM - Population Health (330), World Development (311), International Journal of Disaster Risk Reduction (309), Social Sciences & Humanities Open (285), Land Use Policy (269), Journal of Environmental Management (257), Geoforum (237), Journal of Rural Studies (216), Transportation Research Interdisciplinary Perspectives (216), Cities (211), Global Environmental Change (206), Teaching and Teacher Education (200), Children and Youth Services Review (188), Climate Risk Management (187), SSM - Qualitative Research in Health (180), Environmental Innovation and Societal Transitions (171), Computers in Human Behavior (158), Journal of Pragmatics (147), and Resources, Conservation and Recycling (146).

After refining the search, the researcher downloaded the database in RIS file format. The researcher selected the top 1,000 articles that were most relevant to the search keyword as recommended by ScienceDirect. These 1,000 articles were summarized into 10 RIS files. The RIS files were then imported into the VOSviewer application. The results from this process were divided into two major visualization groups: co-occurrences visualization and co-authorship visualization.

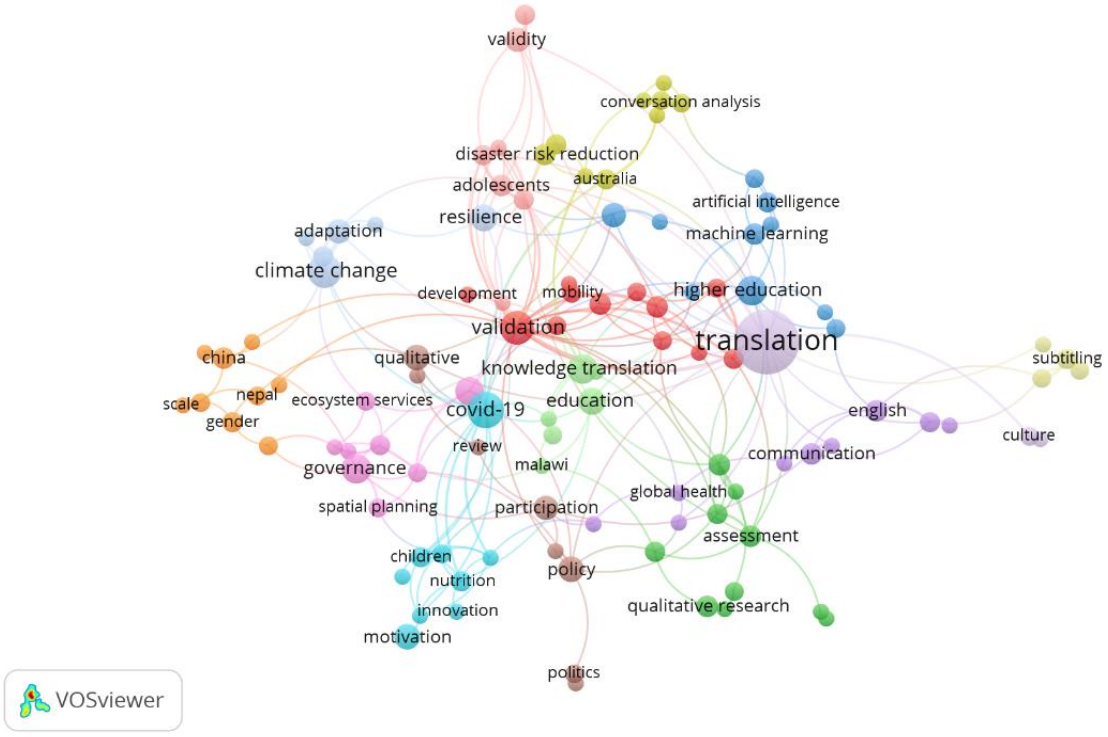

Figure 1. Co-occurences Network Visualization of "Translation" Keyword

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Network visualization in VOSviewer is a powerful method for exploring and understanding the complex relationships within bibliometric data. By leveraging features such as clustering, density visualization, and interactive exploration, researchers can gain valuable insights into the dynamics of scientific collaboration, influence, and thematic development. These insights are crucial for guiding future research efforts, fostering collaboration, and advancing knowledge within a field. The results from the co-occurrences visualization are further divided into three types: network visualization, overlay visualization, and density visualization.

VOSviewer is a powerful software tool designed for constructing and visualizing bibliometric networks. One of its core functionalities is network visualization, which allows researchers to explore relationships and patterns within large datasets of scientific publications. Network visualization in VOSviewer provides an intuitive and interactive way to examine the interconnectedness of authors, publications, keywords, and other bibliometric entities.VOSviewer supports various types of bibliometric networks. First, co-authorship networks illustrate the collaboration patterns among authors. In these networks, nodes represent authors, and links indicate co-authorship relationships, revealing the structure and dynamics of research collaboration within a field. Next, co-citation networks show how frequently pairs of articles are cited together. Here, nodes represent articles or authors, and links indicate co-citations, helping to identify seminal works and influential authors. Then, keyword co-occurrence networks depict the relationships between keywords used in publications. Nodes represent keywords, and links indicate their co-occurrence within articles, highlighting major research themes and trends. Lastly, citation networks visualize citation relationships between publications. Nodes represent articles, and links indicate citations, showing how research influences and builds upon previous work.

Features and Advantages of VOSviewer Network Visualization VOSviewer offers several key features that enhance network visualization. First, clustering is a feature where VOSviewer automatically identifies and visualizes clusters of related items. These clusters are groups of nodes that are closely connected, representing communities or themes within the data. Clustering helps in understanding the structure and subfields of a research domain. Next, density visualization allows users to see the density of items in different parts of the network. Higher density areas indicate regions with many closely related items, providing insights into the concentration of research activity. Then, overlay visualization enables VOSviewer to overlay additional information on the network, such as publication year or citation impact. This helps track the evolution of research topics and the influence of particular works over time. Lastly, interactive exploration allows users to interact with the network by zooming in and out, selecting nodes, and viewing detailed information about specific items. This interactivity makes it easier to explore and analyze complex datasets.

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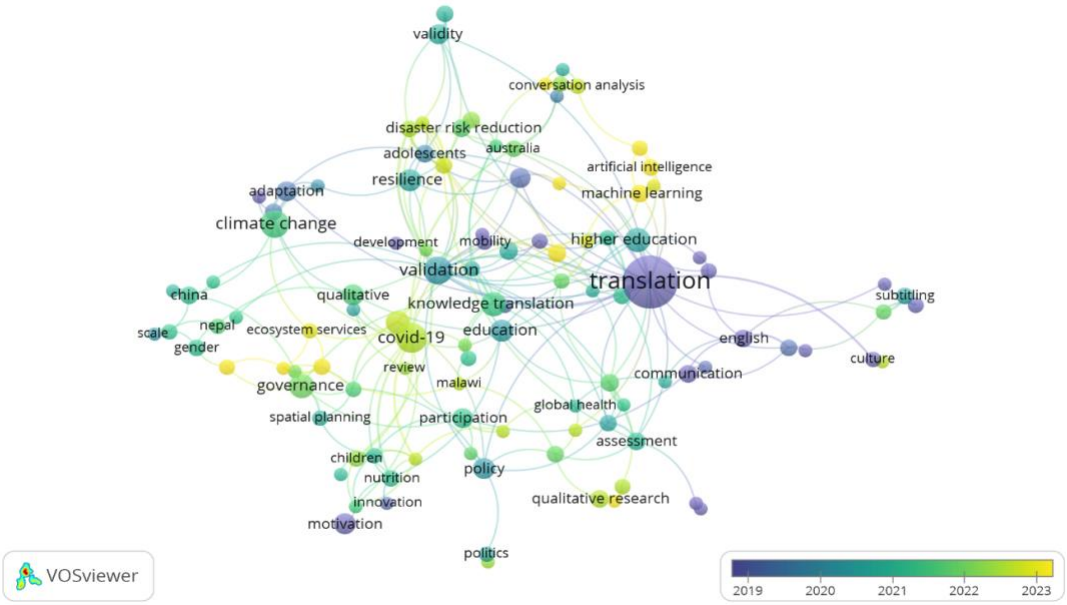

Figure 2. Co-occurrences Overlay Visualization of "Translation" Keyword

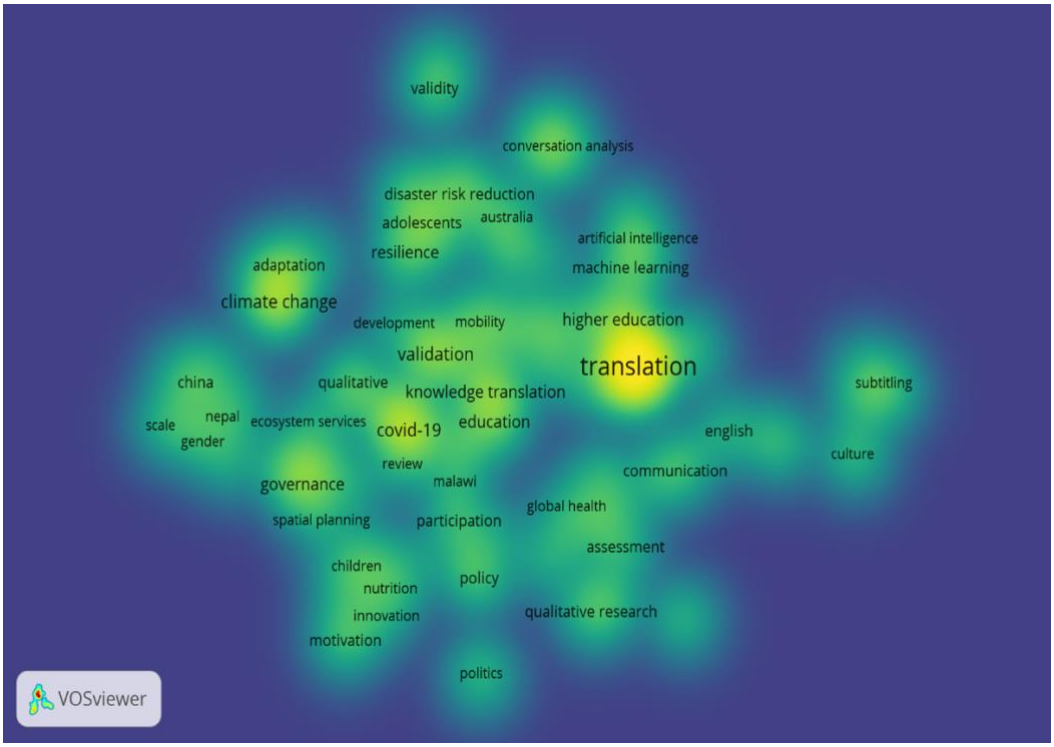

Figure 3. Co-occurrences Density Visualization of "Translation" Keyword

Figures 1, 2, and 3 illustrate how the keyword "Translation" is closely related to several themes, such as machine translation, education, culture, the translation process, assessment, and so on. The visualizations generated by VOSviewer indicate that symbols of larger size represent keywords that are most frequently found. This means that the larger the symbol displayed, the more often research related to that theme has

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been conducted by researchers. Conversely, the smaller the symbol displayed, the less frequently that theme has been addressed or published. This is also shown in Figure 4.

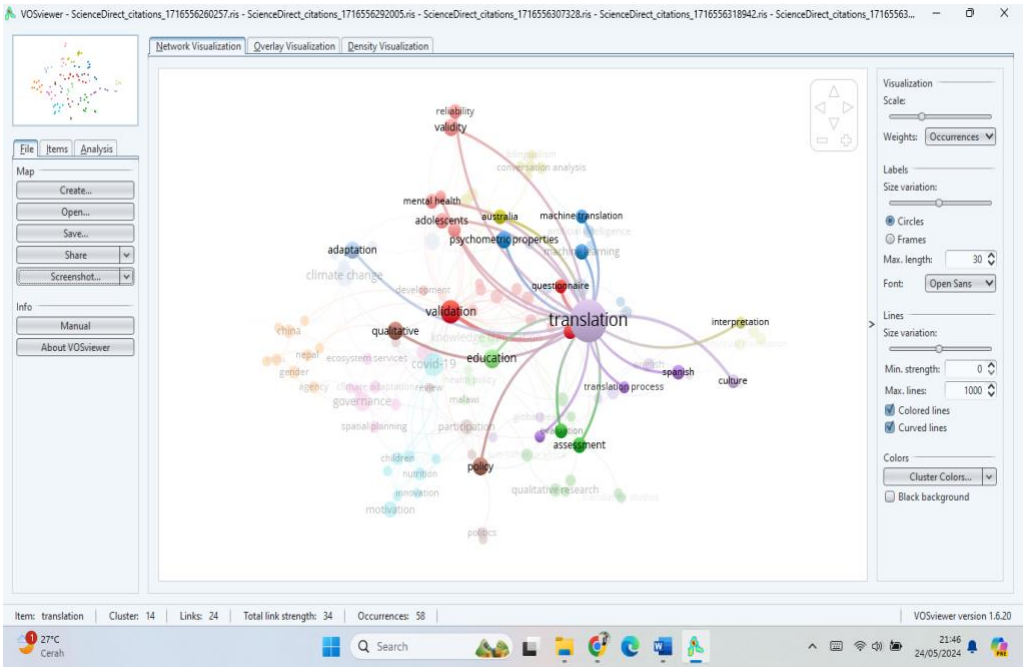

Figure 4. The Relationship Between the Keyword "Translation" and Several Other Keywords

Based on other visualizations, it was also found that the dominance of translation research is associated with keywords such as machine learning, questionnaire, and validation. This indicates that research related to these themes is quite prominent within the context of the ScienceDirect database. However, these findings might differ when using databases from other sources, such as Web of Science, DOAJ, or Google Scholar.

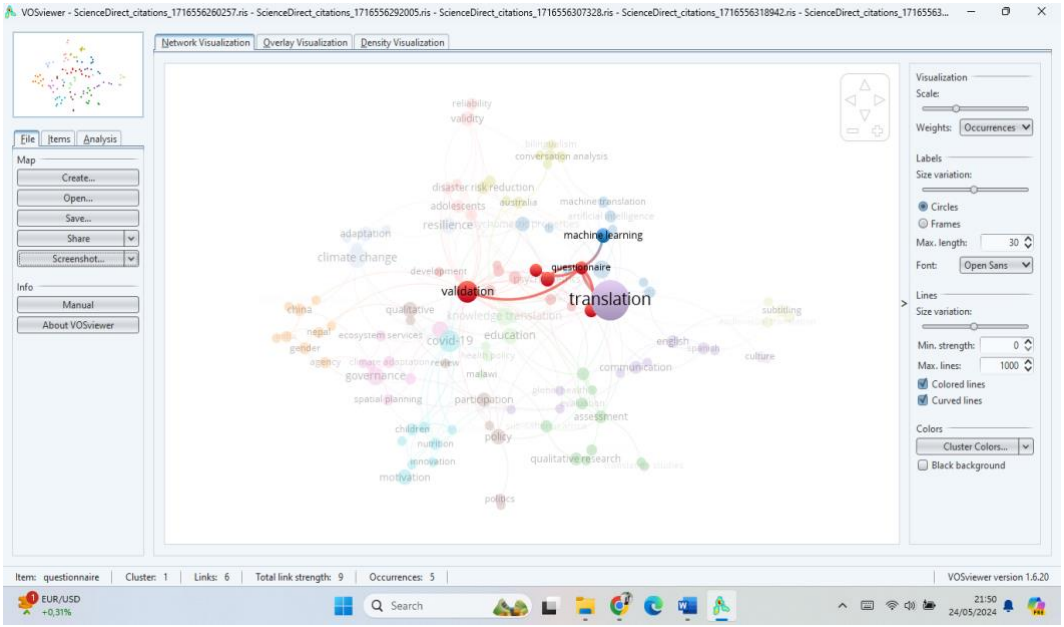

Figure 5. Relationship Between the Keyword "Translation" and Several Other Keywords

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Figure 6 shows an interesting observation where the keywords Higher Education, Artificial Intelligence, and Machine Translation have a close relationship, even though these three keywords are not directly connected to the keyword Translation. Although these keywords are visualized as smaller symbols, these themes are beginning to gain attention and are being researched.

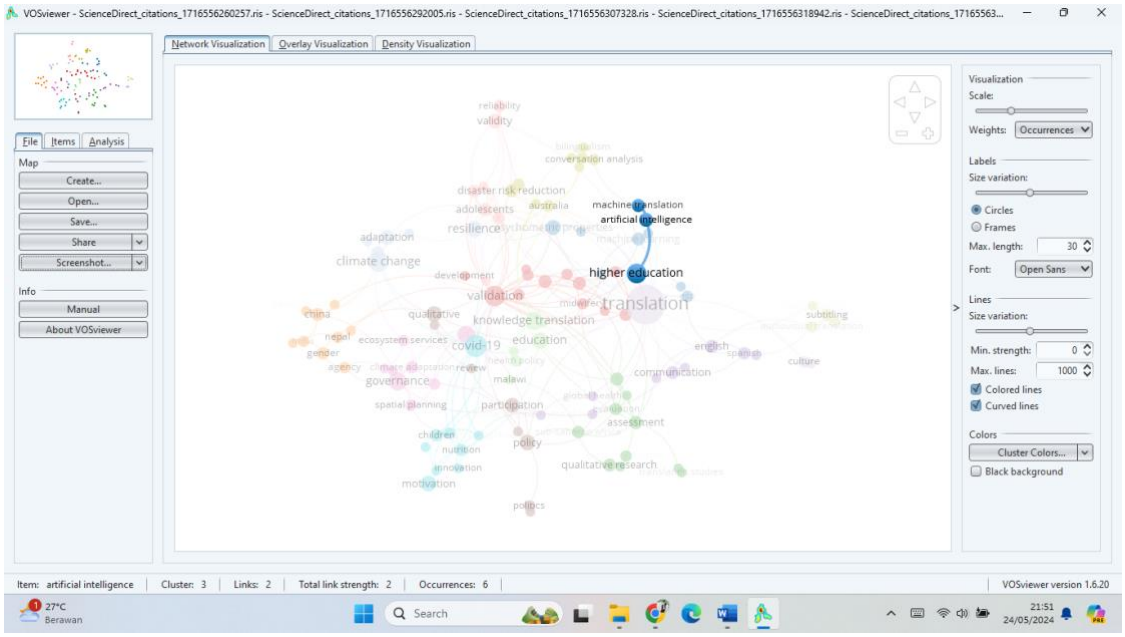

Figure 6. Relation of Keyword Higher Education, Artificial Intelligence, and Machine Translation

Figure 6 shows an interesting observation where the keywords Higher Education, Artificial Intelligence, and Machine Translation have a close relationship, even though these three keywords are not directly connected to the keyword Translation. Although these keywords are visualized as smaller symbols, these themes are beginning to gain attention and are being researched.

The integration of Artificial Intelligence (AI) into translation processes has revolutionized the field, enhancing both the efficiency and accuracy of translations. AI-driven translation tools, particularly those employing neural machine translation (NMT) models, have seen significant advancements in recent years, promising to bridge language barriers more effectively than ever before. The development of neural machine translation (NMT) represents a major breakthrough in the use of AI for translation. NMT systems, which leverage deep learning techniques, have shown superior performance compared to traditional statistical machine translation (SMT) systems. As noted by Wu et al. (2016), NMT models can achieve more fluent and accurate translations by considering entire sentences as context, rather than translating piece by piece. This holistic approach allows for better handling of idiomatic expressions and contextual nuances, which are often challenging for SMT systems.

AI-powered translation tools are widely used across various sectors, including business, healthcare, and education. These tools enable real-time translation, facilitating communication in multilingual

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environments and providing accessibility to information. For example, Google Translate, powered by NMT, supports over 100 languages and is used by millions of people daily. Research by Johnson et al. (2017) highlights that AI-driven translation systems have significantly reduced the time and cost associated with multilingual content creation and localization.

Despite the significant advancements, AI translation systems still face several challenges. One major issue is the handling of rare languages and dialects, where the lack of substantial training data can result in less accurate translations. Furthermore, AI systems can sometimes produce translations that are grammatically correct but contextually inappropriate, reflecting a limitation in understanding cultural and contextual subtleties. Koehn and Knowles (2017) emphasize that while NMT has improved translation quality, ongoing research is necessary to address these limitations and to enhance the system's ability to handle diverse linguistic phenomena.

The future of AI in translation is promising, with ongoing research focused on improving the adaptability and contextual understanding of NMT models. Innovations such as unsupervised learning and zero-shot translation, which allow AI systems to translate between language pairs without direct training data, are being explored to overcome data scarcity issues. Artetxe et al. (2018) note that these advancements are crucial for extending the reach of AI translation systems to underrepresented languages and improving overall translation quality.

AI has significantly transformed the landscape of translation, offering powerful tools that enhance communication across languages. While challenges remain, the continuous advancements in AI research promise to further improve the accuracy and reliability of translation systems. As AI technology evolves, it will undoubtedly play an increasingly vital role in bridging language barriers and fostering global communication.

Currently, the use of AI such as ChatGPT and Google Bard AI is increasingly becoming the preference for various groups, for instance, students who tend to prefer using AI for translating scientific articles over Google Translate. This aligns with the research by Hidayati (2024). The research stated that the landscape of translation tools has evolved significantly, with an increasing reliance on artificial intelligence (AI) systems for various tasks. This study investigated the changing preferences among college students, especially those majoring outside of English departments, regarding the translation of abstracts from international journal articles. Besides, the authors also compared the translation results of Google Translate, ChatGPT, and Google Bard AI. This research employed a qualitative methodology. The research results showed that the students prefer using AI tools such as ChatGPT or Google Bard AI. Moreover, whether the users used Google Translate, ChatGPT, or Google Bard AI, the translation results showed that they fell into the SL emphasis category.

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To further specify the visualization results, the research re-sorted keywords deemed less relevant, resulting in the following visualization:

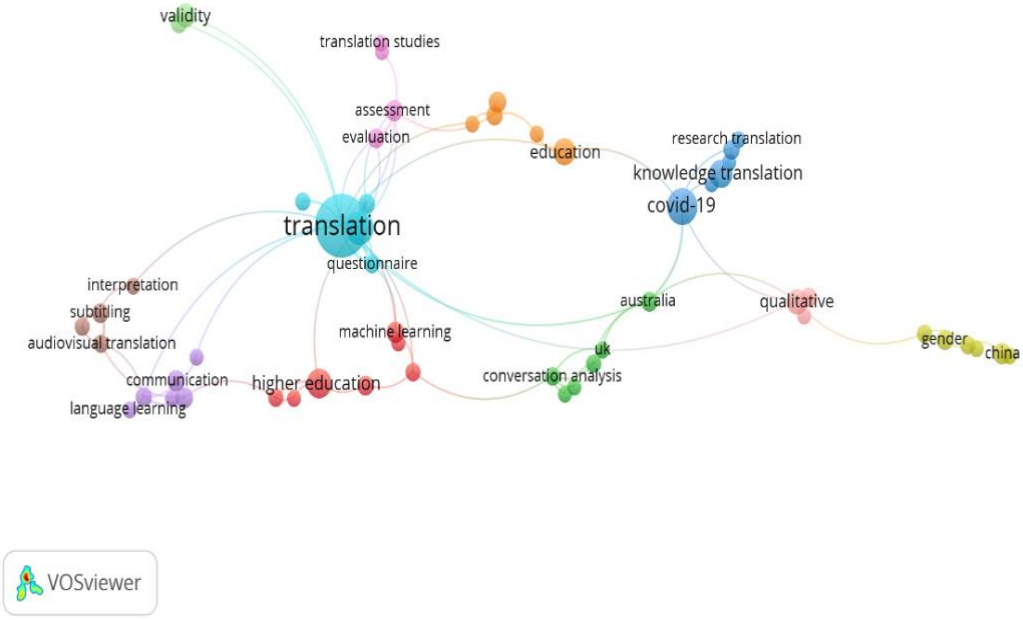

Figure 7. Network Visualisation

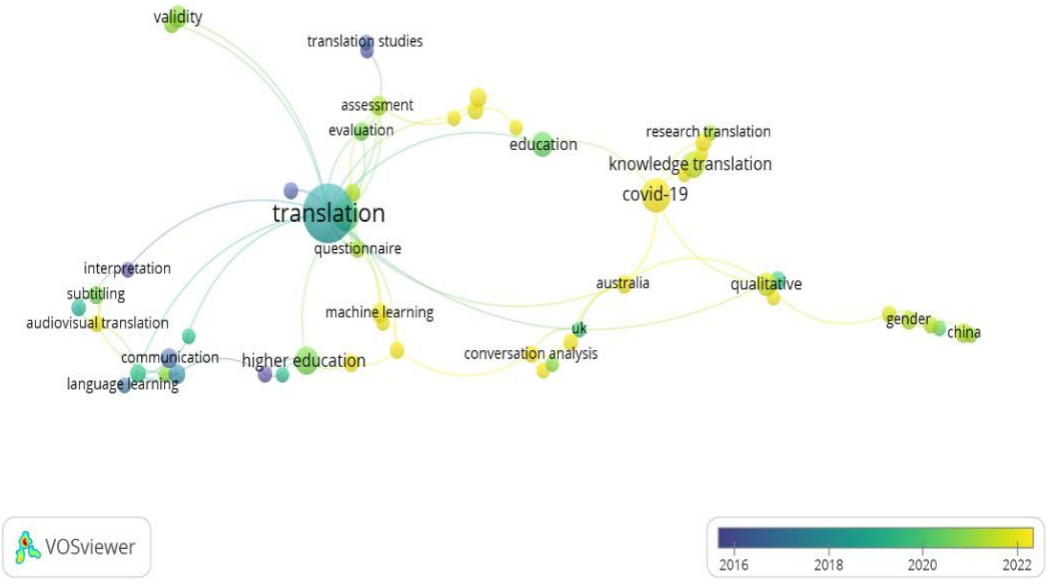

Figure 8. Overlay Visualization

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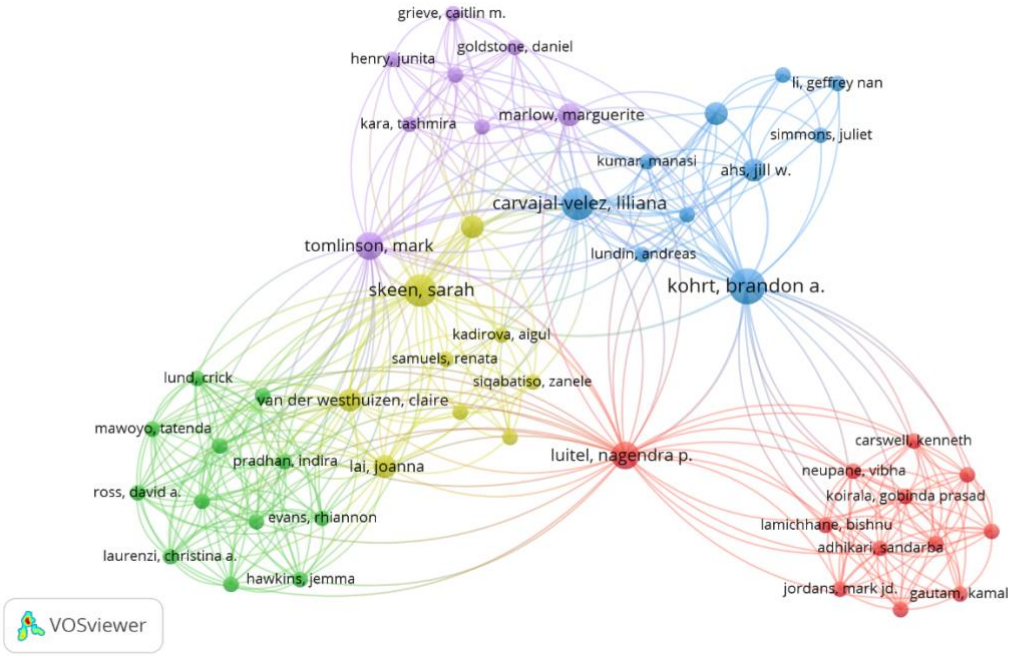

Figure 9. Density Visualization of Co-Authorship on "Translation" Keyword

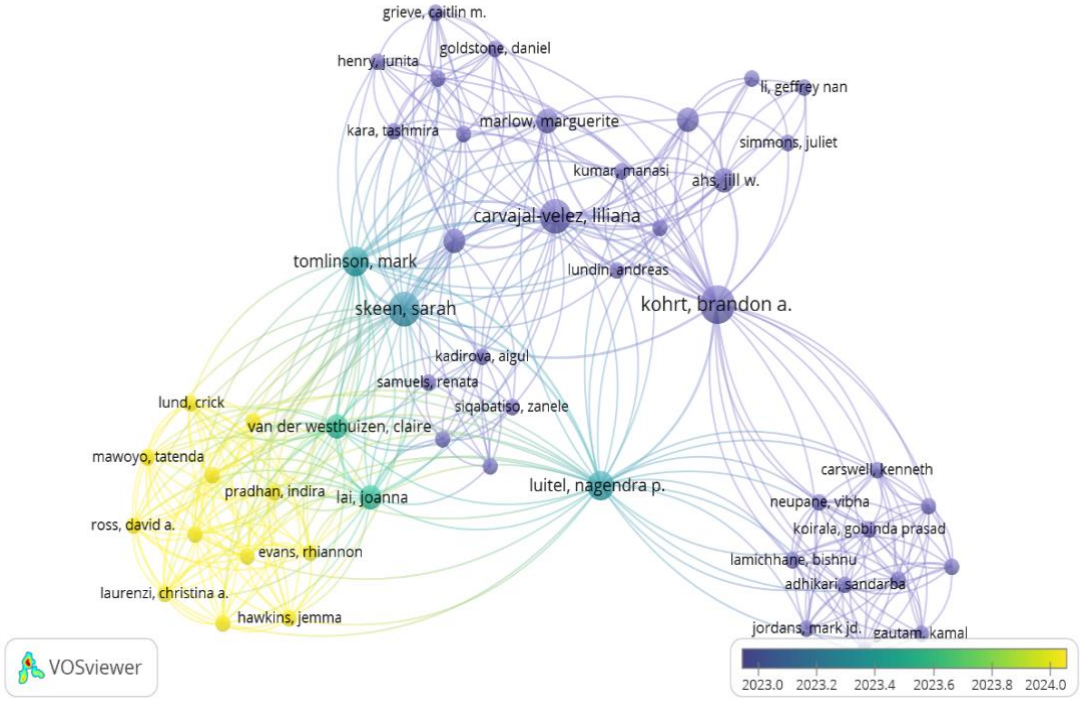

Figure 10. Overlay Visualization of Co-Authorship on "Translation" Keyword

Co-authorship visualization is a significant feature of VOSviewer that helps in mapping and understanding the collaborative relationships among researchers in a given field. This visualization technique

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represents authors as nodes and their collaborative links as edges, creating a network that highlights the extent and nature of academic collaborations. In VOSviewer, co-authorship networks are constructed by analyzing publication data to identify instances where authors have worked together on the same paper. The software then visualizes these relationships, where Nodes represent individual authors, Edges (links) indicate co-authorship relationships, Node size can be adjusted to reflect the number of publications or citations of an author. Edge thickness can represent the frequency of collaboration between two authors.

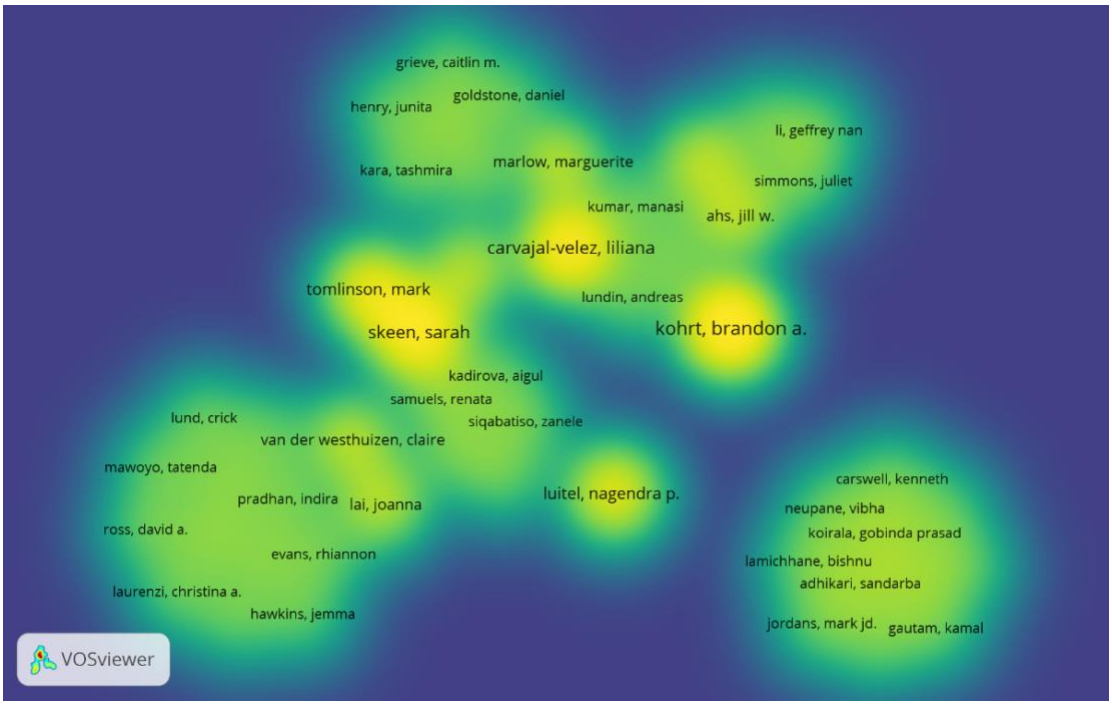

Figure 11. Density Visualization of Co-Authorship on “Translation” Keyword

Additionally, VOSviewer uses clustering algorithms to group authors into clusters based on their collaboration patterns. This clustering helps in identifying research groups or communities within a larger academic field. Co-authorship visualization provides several benefits, including identifying Key Collaborators: It helps to identify influential researchers and key collaborators within a field, understanding Collaboration Patterns: Visualizations reveal patterns in how researchers collaborate, which can be linked to institutional affiliations, geographic locations, or specific research projects, and enhancing Research Networking: Researchers can use these visualizations to identify potential collaborators and understand existing networks.

Previous studies on co-authorship have utilized various tools and methods to analyze collaboration patterns. For instance, Glänzel and Schubert (2005) used bibliometric data to study co-authorship trends and found that collaborative research tends to increase citation impact. However, traditional bibliometric tools often lack the advanced visualization capabilities of VOSviewer. A significant advancement brought by VOSviewer, as highlighted by Van Eck and Waltman (2010), is its ability to produce more intuitive and

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interactive visualizations compared to older bibliometric tools. VOSviewer's clustering and overlay visualization features offer a more detailed and nuanced view of co-authorship networks, making it easier to identify research communities and their interactions.

A practical comparison can be drawn from studies on scientific collaboration in the field of medical research. In a study by Newman (2004), network analysis of co-authorship patterns was conducted using traditional network analysis software. While effective, the visualizations were less interactive and lacked the depth provided by VOSviewer. In contrast, a more recent study utilizing VOSviewer by Adams et al. (2019) analyzed co-authorship networks in neuroscience. This study benefited from VOSviewer's ability to handle large datasets efficiently and produce clear, high-resolution maps of collaboration patterns. The authors noted that VOSviewer provided more detailed insights into the structure and dynamics of scientific collaboration networks, allowing for a better understanding of how research communities evolve and interact (Adams et al., 2019).

Co-authorship visualization in VOSviewer represents a significant enhancement over traditional bibliometric tools, offering detailed and interactive maps of research collaboration networks. By enabling the identification of key collaborators and understanding collaboration patterns, VOSviewer aids in fostering more effective and strategic academic partnerships.

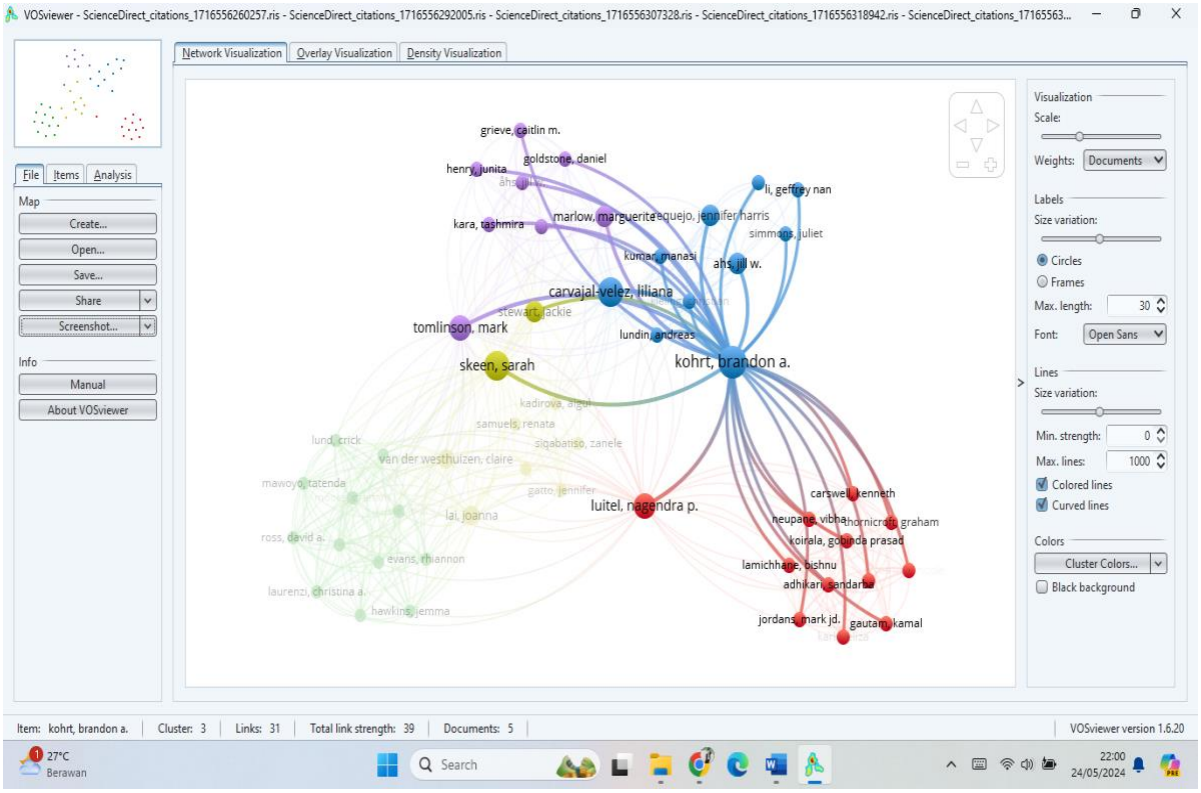

Figure 12. Visualization of the Dominant Co-Authorship (1)

: https://doi.org/10.47766/jetlee.v4i2.2868

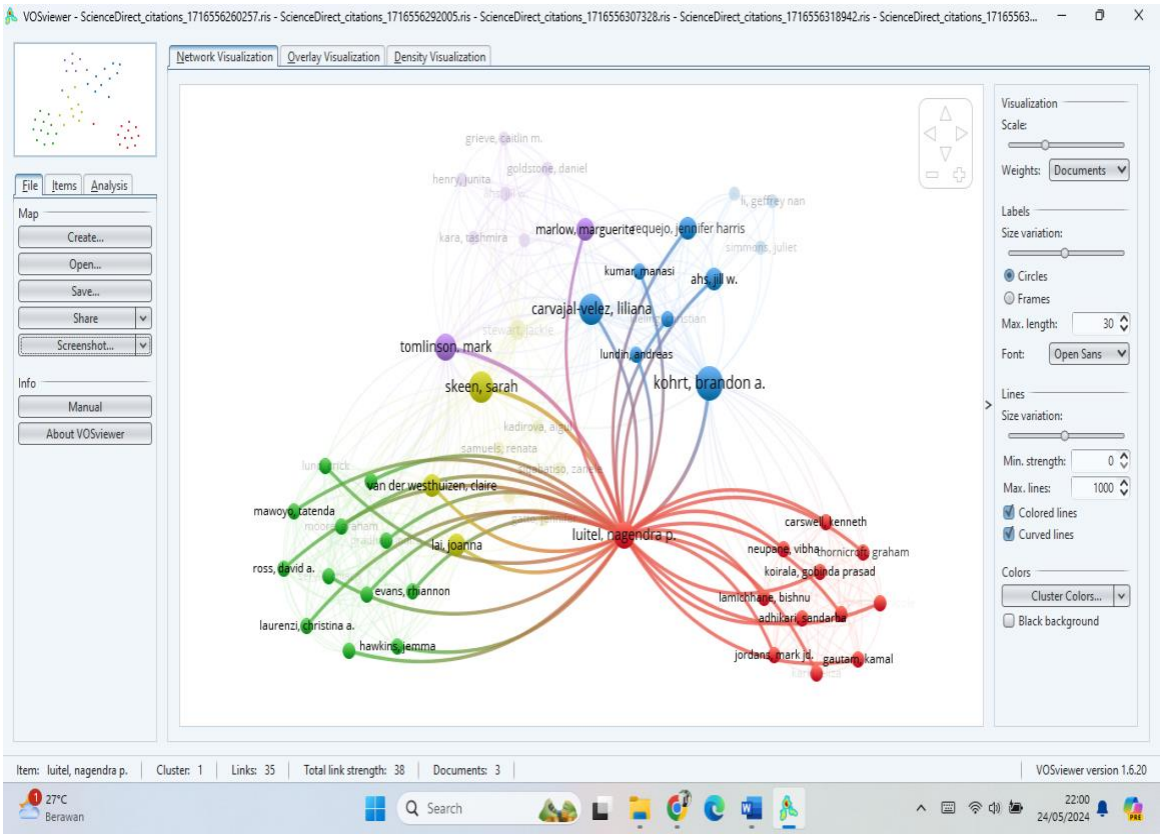

Figure 13. Visualization of the Dominant Co-Authorship (2)

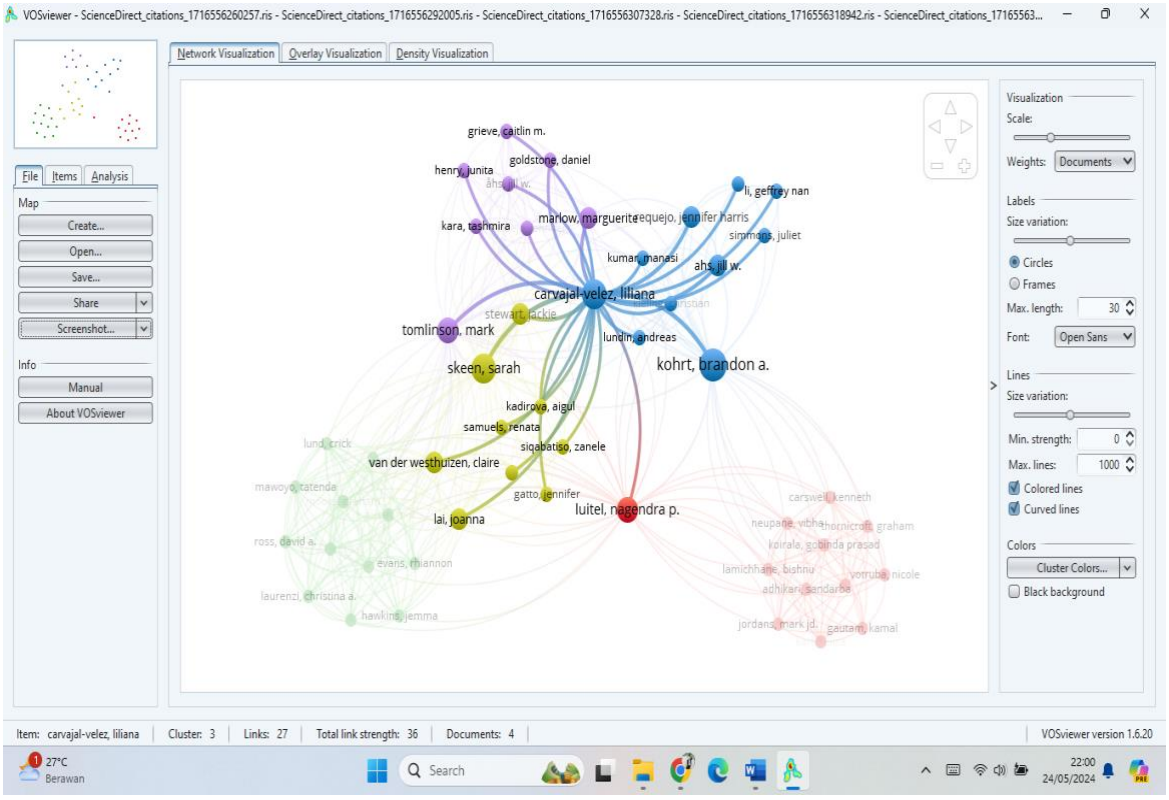

Figure 14. Visualization of the Dominant Co-Authorship (3)

: https://doi.org/10.47766/jetlee.v4i2.2868

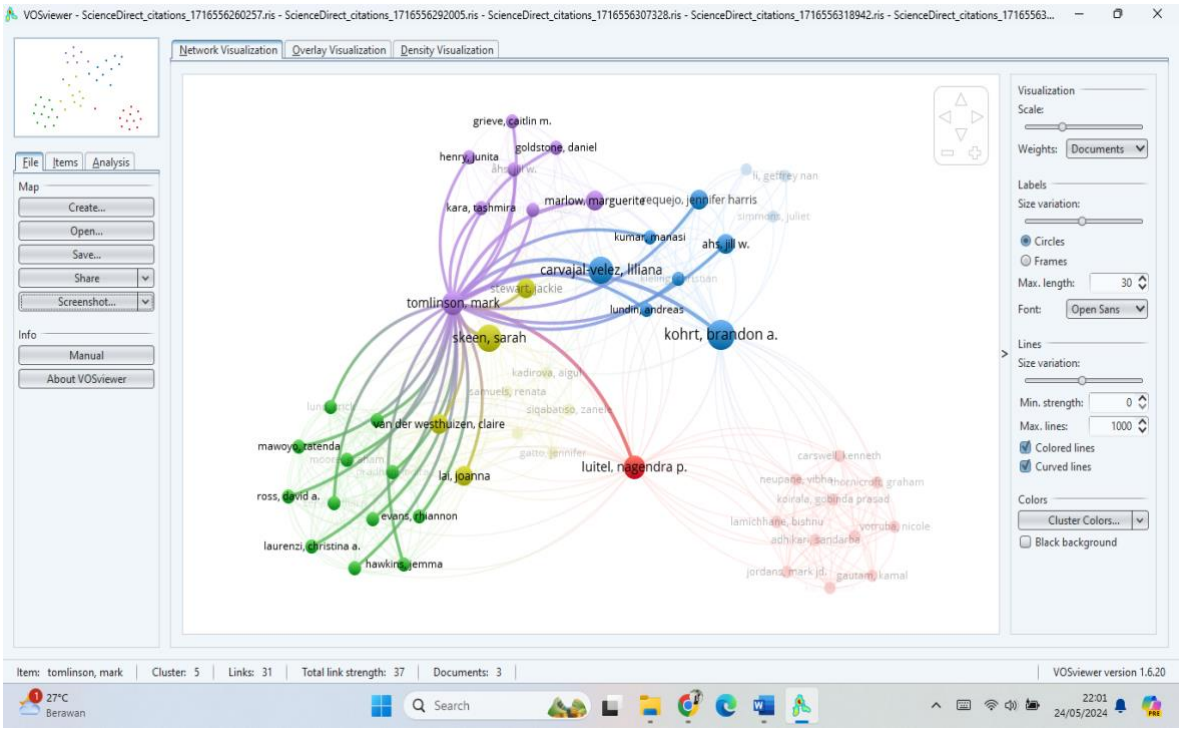

Figure 15. Visualization of the Dominant Co-Authorship (4)

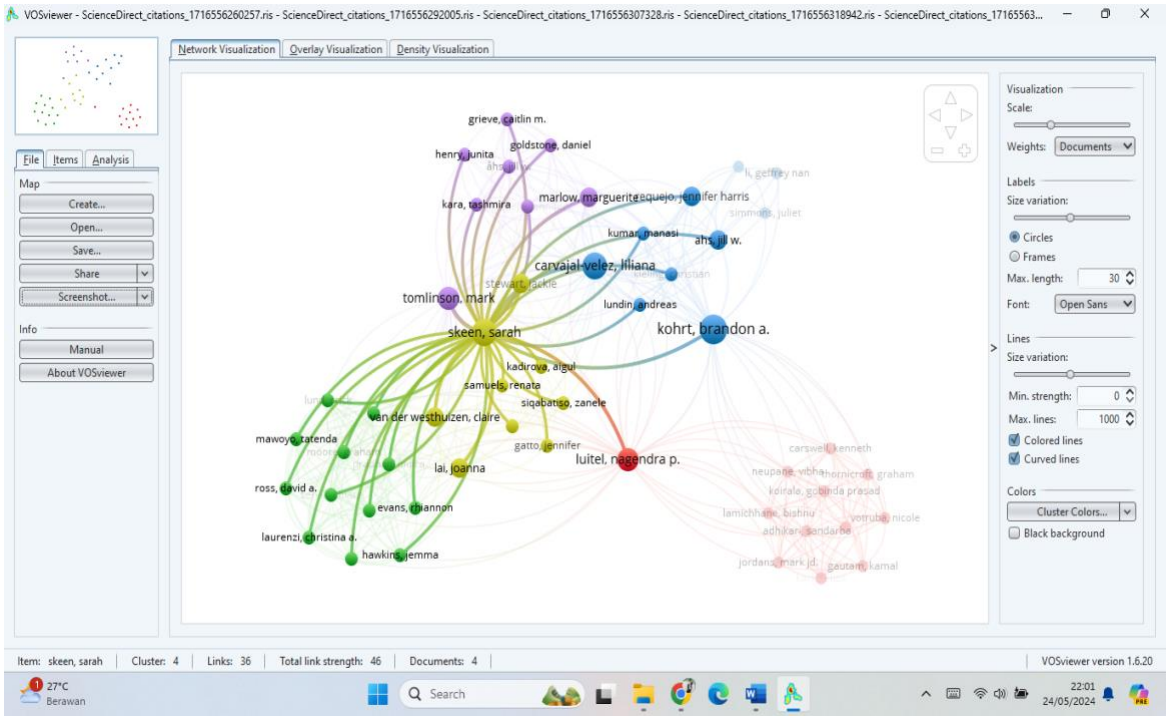

Figure 16. Visualization of the Dominant Co-Authorship (5)

Figure 12, Figure 13, Figure 14, Figure 15, and Figure 16 showed the authors who had conducted researches on translation and published them on journal. The size of the big circle icon on the visualization showed that they had dominant publications. In this case, the next researchers are able to track those authors for being their references.

: https://doi.org/10.47766/jetlee.v4i2.2868

CONCLUSION

Two main conclusions can be drawn from this research. First, VOSviewer provides a global map of existing research, in this context based on the ScienceDirect database. The visualization of co-occurrences of the keyword “translation” shows that a substantial amount of research has been conducted about translation studies, such as translation related to culture, higher education, the use of questionnaires in such research, translation studies in China or France, and several other aspects. This also reveals that research on the use of Artificial Intelligence (AI) for translation has not been extensively conducted. Therefore, this represents a gap that can be explored further. Additionally, research using the VOSviewer application in the context of translation is also not widely found, particularly in the ScienceDirect database. Second, regarding authorship visualization, the visualization provided by VOSviewer helps researchers quickly identify authors or researchers who can be referenced about translation studies.

Furthermore, this research has limitations because the researcher only used a single source, namely the ScienceDirect database. Therefore, it cannot be generalized if different database sources are used, such as Web of Science, DOAJ, Dimensions, or Google Scholar. Future researchers could use databases from these sources to conduct further research. Additionally, comparative studies between two or more sources would be even more interesting in bibliometric studies using VOSviewer in the context of translation studies

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