

Original Paper

Review of International Translation Studies: A Visualized Scientometric Analysis in Citespace (2008-2022)

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Abstract

Taking research articles published in 11 SSCI-indexed translatology journals in Web of Science from 2008 to 2022 as example, this paper attempts to use Citespace to depict and visualize the overall development of international translation studies in terms of academic publication, highly influential scholars and institutions, key words, burst terms, and high-influence literature. Therefore, it is conducive to detect new frontiers in international research on translation with the aim of clarifying the structure of translation studies and its changes over time, so as to provide reference for the study of translation studies and the development of the discipline.

Keywords

international translation studies, citespace, literature review, visualized analysis, research interests and trends

1. Introduction

The publication of *The Name and Nature of Translation Studies* written by James Holmes in 1972 has opened up a new period in which translation studies emerged and flourished as an independent discipline. Over the past half century, translation studies has witnessed great progress in both theory and practice, and many achievements have been made. However, some questions are still insufficiently answered. For example, what is the development trend, what are the research interests and and frontiers, and what inspiration does it give to the development of Chinese translation studies?

Based on the above mentioned, this study takes articles published in 11 international journals of translation studies included in *Web of Science* (2008-2022) as the corpus, and uses Citespace to depict the development of international translation studies in the past 15 years in terms of academic journal publications, high-influence scholars and institutions, keywords, burst terms, and high-influence

literature, with a view to clarifying the development of translation studies, exploring the development trend of this discipline, and putting forward relevant suggestions for further advancement.

2. Research Design

2.1 Data

This paper took 11 important journals of translation studies included in the Social Sciences Citation Index (SSCI) as the sample for analysis (see Table 1), and analyzed 2,678 articles published in these journals from the year of 2008 to 2022, including information such as title, author, journal name, keywords, abstract, references, and other information. The data was last updated on November 1st, 2023.

Table 1. 11 International Journals in Translation Studies (2008-2022)

No.	Journal	Country	Year	Publications	Percentage
1	<i>Across Languages and Cultures</i>	Hungary	1999	188	7.02%
2	<i>Babel</i>	Netherlands	1995	389	14.53%
3	<i>Interpreting</i>	Netherlands	2008	154	5.75%
4	<i>Interpreter and Translator Trainer</i>	United Kingdom of Great Britain and Northern Ireland	2007	277	10.34%
5	<i>Journal of Specialised Translation</i>	United Kingdom of Great Britain and Northern Ireland	2015	170	6.35%
6	<i>Linguistica Antverpiensia New Series—Themes in Translation Studies Perspectives-Studies in</i>	Belgium	1987	166	6.20%
7	<i>Translation Theory and Practice</i>	Denmark	1993	288	10.75%
8	<i>Target-international journal of translation studies</i>	Netherlands	1989	253	9.45%
9	<i>Translation and Interpreting Studies</i>	Netherlands	2006	232	8.66%
10	<i>Translation Studies</i>	United Kingdom of Great	2008	275	10.27%

		Britain and Northern Ireland United Kingdom of Great			
11	<i>Translator</i>	Britain and Northern Ireland	1995	286	10.68%

2.2 Data Analysis Tool

This paper conducted the research based on CiteSpace 6.1.R6, a knowledge mapping and information visualization software developed by Professor Chen Chaomei, a Chinese-American scholar at Drexel University (Chen, 2004). Based on the theory of co-citation analysis and the path-finding network algorithm, this software measured the literature of a specific field in order to explore the evolution of the subject area, and analyzed the potential dynamic mechanism of the evolution of the subject area.

3. Analysis of Translation Studies Based on Citespace

3.1 Publication

From 2008 to 2022, the average annual publication of the 11 journals was about 178 articles (see Figure 1). Based on this standard, annual publication from 2008 to 2015 was lower than the average, but the actual publication gradually rose and tended to be close to the average; the annual publication from 2016 to 2022 was higher than the average, ranging from about 200 articles to 310 articles. However, the overall trend showed a “steady increase in small fluctuations”, reflecting the attention that international scholars have attached to the study of translation.



Figure 1. Annual Publication in 11 Journals (2008-2022)

In terms of annual publication, 309 and 306 research papers were published in 2019 and 2021 respectively, reaching two short-term peaks. This change was mainly due to a sudden increase in the number of articles published in journals, such as *Interpreter and Translator Trainer*, *Perspectives*, and *Translation Studies*, which saw a nearly 100% year-on-year increase in the number of research papers

published in 2019.

Subsequently, when examining the publication of each and every journal, *Babel*, *Perspectives*, *Translator*, *Interpreter and Translator Trainer*, and *Translation Studies* had a relatively high proportion of publications throughout the entire period, accounting for 14.53%, 10.75%, 10.68%, 10.34%, and 10.27% respectively, making them the journals with higher publication in international translation studies.

3.2 Highly Influential Authors and Publishing Institutions

The number of scholars, their influence, and the output of scientific research achievements are important indicators for evaluating the development of the field. The high influence authors, publishing institutions, and their collaborative relationships, to some extent, reflect the gathering of academic research.

3.2.1 Highly Influential Authors and Collaborative Relationships

Using Citespace to generate a co-occurrence graph of authors (see Figure 2), where the scholars were high-yield ones and had collaboration with each other. The low overlap rate among scholars indicated that most of the articles in this field were independently written by different authors. Table 2 showed the top 15 scholars with high publication in core international translation journals in the past fifteen years (all were with not lower than 6 papers) (values have already been processed by Citespace, and the same below).

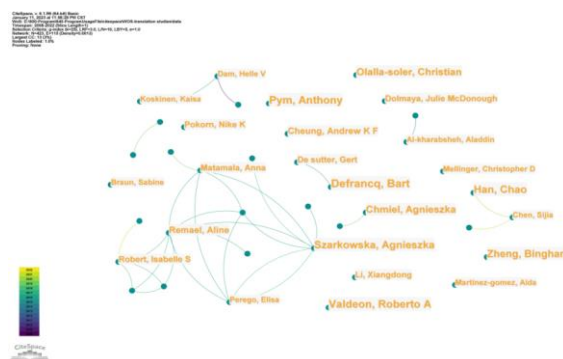


Figure 2. Authors and their Collaborative Relationships (2008-2022)

Table 2. List of High Yield Authors and Their Publication (2008-2022)

No.	Author	Frequency	Year
1	Defrancq, Bart	13	2015
2	Pym, Anthony	12	2014
3	Valdeon, Roberto A	12	2010
4	Han, Chao	11	2016
5	Szarkowska, Agnieszka	11	2016

6	Zheng, Bingham	10	2017
7	Chmiel, Agnieszka	9	2008
8	Olalla-soler, Christian	9	2018
9	Cheung, Andrew K F	7	2012
10	Remael, Aline	7	2016
11	De sutter, Gert	6	2012
12	Dolmaya, Julie McDonough	6	2010
13	Li, Xiangdong	6	2015
14	Matamala, Anna	6	2016
15	Pokorn, Nike K	6	2013

Among these scholars, Defrancq Bart ranked first. He studied Romance Linguistics at Ghent University from 1987 to 1991 and obtained a PhD in Linguistics in 2002. In 2010, he was trained as a conference interpreter and was appointed as an assistant professor of interpretation and translation in the same year. Since 2010, he has been working as an interpreter training officer at Ghent University and have collaborated with scholars such as Plevvoets Koen, Magnifico Cádric, and Verliefde Sofie to publish articles, becoming a leading scholar in interpreting research.

Pym Anthony, a scholar at the University of Melbourne in Australia and one of the representative figures in translation history research, ranked second in publication. In the past fifteen years, he has mainly focused on translation teaching and training, such as translator vocational training (Pym & Torres Simón, 2016), translation teaching (Pym et al., 2016; Hao & Pym, 2021a), translation career planning (Hao & Pym, 2021b; Hao & Pym, 2022), and other aspects.

Another scholar with the same amount of publications as Pym was Professor Valdeón Roberto A from University of Oviedo in Spain. He mainly focused on practical text translation, such as audio-visual translation and news translation; he also showed a strong interest in Chinese translation and collaborated with Chinese scholars to publish articles. For example, he explored the importance of pragmatics in translation by examining two interjections expressing positions in Spanish and Chinese (Huang & Valdeón, 2019), and systematically studied the role of literary translation in consolidating Chinese translation research (Valdeón & Zhao, 2020).

According to Figure 2 and Table 2, we can see some encouraging results: (1) International journals have diversified their publications, widely absorbing the research achievements of scholars from various countries and continuously enriching the content of them; (2) Professor Li Xiangdong, a Chinese scholar from Xi'an International Studies University, has published a large number of articles focusing on translation learning, interpretation training etc., occupying a place in international translation studies.

3.2.2 Highly Influential Publishing Institutions and their Distribution Characteristics

With the help of Citespace, a knowledge map of the sources of papers published was drawn (see Figure 3). It can be seen that the main scientific research institutions that have published more than 30 articles on international translation studies included Barcelona Autonomous University (69), Ghent University (57), Haime I University (39), Manchester University (38), Macquarie University (34), Geneva University (33) and Hong Kong Polytechnic University (32). Among nearly 300 scientific research institutions, the above institutions (not limited to) have significant cooperative relationships, but most of them were independent publications and lacked collaborative researches, showing characteristics of singularity and independence.

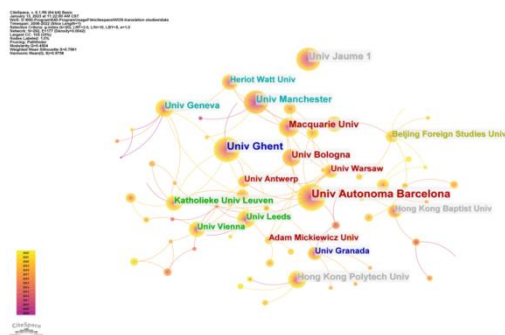


Figure 3. Publishing Institutions and their Relationships (2008-2022)

3.3 Keyword Analysis, Research Hotspots and Frontiers

3.3.1 Keyword Co-occurrence and Clustering

CiteSpace is a software that based on word frequency analysis to calculate the frequency of keywords and the co-occurrence frequency between different keywords. It automatically calculates the centrality of each keyword and generates a co-occurrence network knowledge graph using visual methods to showcase research hotspots. The author has compiled high-frequency and high centrality keywords, as well as their frequency and centrality, which represented, to some extent, the core topics of international translation studies. Referring to Table 3 for details.

Table 3. High Frequency and High Centrality Keywords (2008-2022)

No.	High frequency words	High centrality words		
	High frequency words	Frequency	High centrality words	Centrality
1	translation	127	translation	0.21
2	language	109	translation study	0.14
3	audiovisual translation	98	literary translation	0.13
4	literary translation	71	language	0.13
5	competence	58	English	0.12

6	translator training	57	competence	0.08
7	English	57	translator training	0.08
8	machine translation	48	simultaneous interpreting	0.08
9	simultaneous interpreting	47	communication	0.08
10	translation study	44	audiovisual translation	0.07
11	audio description	33	quality	0.07
12	interpreter training	33	performance	0.07
13	quality	31	student	0.07
14	translation strategy	31	translation process	0.06
15	cognitive load	30	information	0.06

After removing general keywords such as “Translation”, “Language”, and “English”, we have identified the popular keywords in international translation studies as: Literary translation, Competence, Translator training, Translation process, Quality, Audiovisual translation, Machine translation, and Simultaneous interpretation. By deleting nodes with lower frequencies and merging synonymous keywords, we obtained the co-occurrence knowledge graph of keywords (see Figure 4).

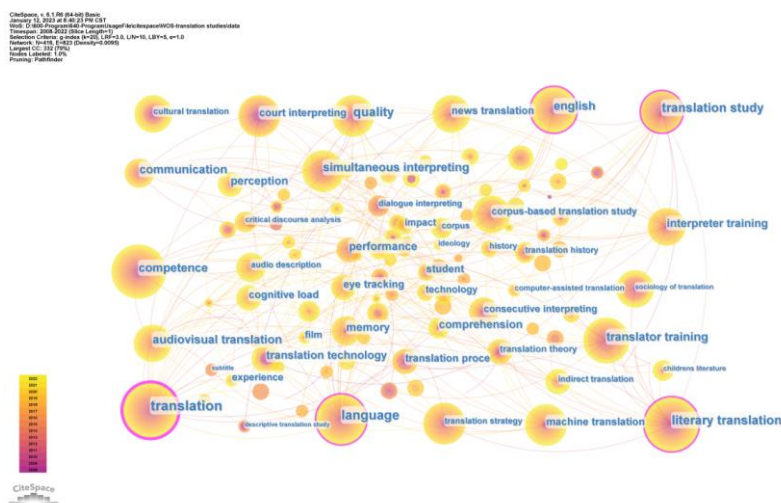


Figure 4. Keyword Co-occurrence Map (2008-2022)

In the visualization diagram, ① the larger the node, the higher the frequency of keyword occurrence; ② the purple circle around the node indicated that it was an important node, reflecting a high degree of centrality; ③ different colored lines between nodes indicated the co-occurrence of specific two keywords in a paper: the closer the color of the connection was to purple, the closer the co-occurrence time of the keywords was to 2008; the closer the line color was to yellow, the closer the co-occurrence time of keywords was to 2022; ④ the thickness of the connections between nodes varied: the thicker

the line, the higher the co-occurrence frequency.

In the high-frequency and high-centrality keyword list, the one after “Translation” was “Literary translation”, and in the co-occurrence graph of keywords, “Literary translation” also existed in the form of a large node, indicating that literary translation has become an important research topic in international translation studies in the past fifteen years, and the number and proportion of published articles were relatively large. The several co-occurrence keywords associated with it were “Children’s literature”, “Sociology of translation”, “Ideology”, and “Computer-assisted translation”, which explained the following three points:

Firstly, translation research was gradually moving towards refinement and emphasizing more subtle observations, as evidenced by the shift from general literary research to a focus on a particular type of literary text, such as children’s literature. Zhang et al. (2020) examined the changes in personal pronouns when translating children’s literature into Chinese and found that translation became more explicit; Yuan (2020) examined three Chinese translations of *Peter Pan* from a diachronic perspective, exploring the influence of English culture on translation in the constantly changing social and cultural context of China.

Secondly, in literary translation, not only text-reading mode was adopted, but also active integration into social development and ideology, studying their influence relationships. Among them, preliminary achievements have been made in research related to children’s literature translation and colonialism (Kruger, 2011), sex related content (Yuan, 2020), sexual minorities/LGBTQ (Morillas, 2023), gender and translation (Williams, 2022), and so on.

Thirdly, literary translation has begun to enter a digital stage. Machine translation has done better when dealing with practical texts such as politics, economy, technology, and law, while it is prone to give errors when dealing with literary texts. However, some scholars have begun to pay attention to the combination of literature and computer-aided translation, in order to promote the integration of literary translation and machine translation. Slessor (2020) conducted a questionnaire survey to examine the use of translation technology and digital resources. The results indicated that literary translators have extensively utilized electronic resources, but have used less specialized techniques. The author suggested that in the future, there is a need to further improve digital tools and resources to meet the special needs of literary translators.

“Translation competence”, “Translator training/interpreter training”, and “Translation process” were closely related to translators involved in translation activities. In this analysis, “Translation ability” appeared 58 times, with a centrality of 0.08; “Translation/interpretation training” appeared 90 times, with a centrality of 0.08; the centrality of the “Translation process” was 0.08, which belonged to the more obvious node data. Translator’s ability existed in a multidimensional space where elements such as environment, translator, and knowledge interact. Therefore, paying attention to professional development of oral and written translators is of great significance to the development of translation

studies. We can not only seek ways to improve their quality and literacy, but also strengthen their understanding of translation activities and translated texts, and promote the continuous integration, comprehensiveness, and systematization of disciplinary research.

“Translation quality” was a hot topic of continuous concern. In recent years, scholars from various countries have proposed various quality evaluation models for oral and written translation based on different theories and practical experiences. In this analysis, there were two highly cited literature related to translation quality research (both cited 47 times): firstly, Lee (2008) developed a scoring system consisting of three criteria based on commonly used quality standards in interpretation research, namely researchers’ intuitive perception of interpretation quality, and second language assessment scoring standards, exploring the effectiveness and reliability of using this rating scale as a tool for evaluating interpretation performance; secondly, Braun (2013) compared the translation quality of on-site interpretation and remote interpretation in the legal environment, analyzed the feasibility of remote interpretation based on video conferencing in the legal environment. This study was conducted in the context of many scholars exploring the application of remote interpretation in the conference and healthcare industries, but almost no scholars have ever involved in remote interpretation in legal litigation.

“Audiovisual translation” was an important newcomer in translation studies. Audiovisual translation node in Figure 4 was relatively large, with almost no purple ring color and an overall tendency towards yellow. We can infer that its research started at a relatively late time, but its development was relatively fast. The several co-occurrence keywords associated with it were “Subtitle”, “Film”, “Media”, “News translation”, and “Audio description”. Ramos (2015) connected translation studies and psychology, using questionnaire survey methods and heart rate measurement techniques to explore whether there were differences in emotional experiences between movie audio and movies containing visual components, in order to provide visually impaired individuals with experiences similar to those available in audiovisual formats such as movies, dances, or dramas. This study took humanism as the starting point and disciplinary integration as the path, focusing on real life experiences of marginalized groups in society, and has become the most cited article in the field of audiovisual translation research. In addition, under the context of globalization, film and television works have become important carriers of cross-cultural communication and the most important component of audiovisual translation research. Desilla (2014) explored the synergistic effect between cognitive pragmatics and film, and found that the methods used by source language audiences and target language audiences to understand hints were different, which differed from the expectations of film producers. This highlighted the subjectivity and creativity of audience reactions, providing new reference and thinking for cross-cultural film and television subtitle translation. Furthermore, many scholars have explored the special form of subtitle translation and achieved a series of results (McLoughlin & Lertola, 2014; Szarkowska & Gerber Morán, 2019; Yang, 2021).

With the development of technology, researched on “Machine Translation” have been vigorously carried out internationally, and the co-occurrence keywords associated with it were “History”, “Eye-tracking”, “Translation technology”, and “Computer-assisted translation”. As a leading figure in machine translation research, Koponen mainly studied post-editing in machine translation, while Lee’s research focused on how machine translation interpreted the meaning of literary texts, especially poetry (2011a; 2011b).

Compared what have been mentioned before, there was relatively less research on interpretation, with a focus on “Simultaneous interpretation”, “Cognitive load”, “Memory”, “Advance preparation”, “Conference interpretation” etc.

CiteSpace can cluster closely-related keywords through algorithms and assign them values in sequence. The keyword with the highest value in the same cluster is the label of the cluster, starting from the number of 0. The larger the value, the fewer keywords it contains. The author further used Citespce to draw a keyword clustering knowledge graph (see Figure 5) and obtained clustering label information (see Table 4).

Before analyzing the clustering view, it is necessary to pay attention to two indicator values: (1) Modularity: clustering module value (Q value). $Q > 0.3$ clustering structure is significant; (2) Silhouette: cluster average contour value (S value). Clusters with $S > 0.5$ are reasonable, while clusters with $S > 0.7$ have higher confidence. Q value in this analysis was 0.5565, and the S value was 0.8805, both of which can verify the credibility of the clustering graph, indicating the rationality and reliability of the subsequent analysis.

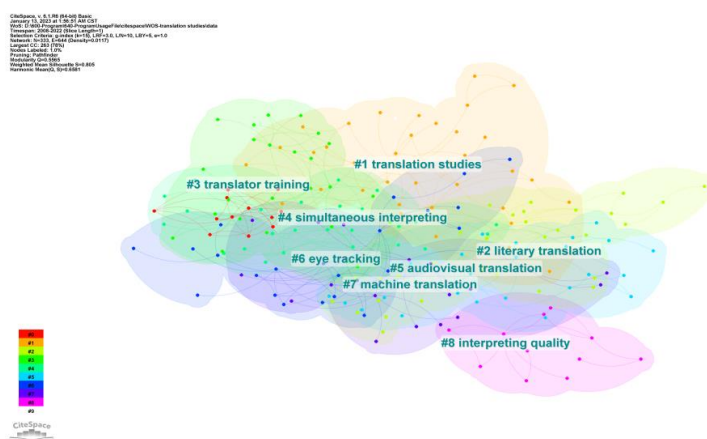


Figure 5. Keyword Clustering Knowledge Graph (2008-2022)

Table 4. Keyword Clustering Label Information

Cluster ID	Size	Cluster tag	Top terms (LSI)
0	43	Interpreter training	interpreter training; vocational education training; applied linguistics; communication apprehension
1	37	Translation studies	translation studies; translation profession; translation agents; doctoral training; translation quality assessment
2	32	Literary translation	literary translation; popular fiction; comics translation; target audience; cognitive processing
3	26	Translator training	translator training; Chinese-English translation; graduate employability; lexical cohesion; translation education
4	26	Translation process	translation process; multiplex persona; online collaborative translation; digital ethnography
5	24	Audiovisual translation	audiovisual translation; media accessibility; audio description process research; think-aloud protocols
6	24	Eye tracking	eye tracking; cognitive effort; think-aloud protocols; machine translation; welsh translation
7	19	Machine translation	machine translation; translation theory; translation systems; translation automation; professional translators
8	11	Interpreting quality	interpreting quality; analytic rating scales; topic familiarity; student interpreters; interpreter education

Among the 8 keyword clusters, tag # 1 “Translation studies” was a summary explanation that reflected the research topic, while the rest have been mentioned and elaborated in the previous text. Tag # 6 “Eye tracking” should be given special attention. Eye-tracking is a technique that studies an individual’s internal cognitive processes by recording eye tracking and extracting data such as gaze points, gaze duration and frequency, eye skip distance, and pupil size. As a relatively accurate scientific research tool, its introduction into translation studies has not been long. In addition, the use of eye-tracking technology also reflected a new trend and path in translation studies, that was, from examining the text and language features of translation in the early stage, to examining the cognitive processes of translators in the later stage, showing trend from “outward exploration to inward exploration”, and finally returning to the study of “human”. Translation studies have deepened their research content from theory to practice, from single texts to multiple composite texts (corpora) and then to subjective dynamic cognitive processes, gradually moving towards scientific and precision.

3.3.2 Keyword Timeline

The long-term publication in international journals represents the mainstream and evolution of translation studies, and can indirectly reflect future research trends. According to the CiteSpace timeline (see Figure 6), we can see that in international translation studies over the past fifteen years, the main research content has been roughly divided into 8 categories, namely “Translation process”, “Translation training”, “Corpus translation studies”, “Simultaneous interpretation”, “Audio-visual translation”, “Cultural translation”, “Literary translation”, and “Translation learning”. Observing these eight clustering timelines in detail, it can be found that they all showed significant circular nodes in 2009 and 2010, such as “Interpreter training”, “Machine translation”, “Literary translation” etc., indicating an increase in the number of publications at these two stages. In addition, by observing each timeline separately, it can be found that the connection between the nodes of timeline # 2 to # 7 extended to 2022, indicating that the relevant research continues to this day on the original basis and still has development momentum, which was also the main content that can continue to be focused on and researched.

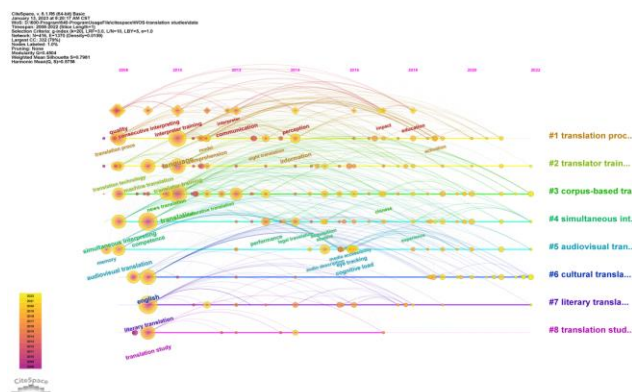


Figure 6. Keyword Timeline Graph (2008-2022)

3.3.3 Burst Terms

Burst terms refer to terms that suddenly increase in frequency or appear in a short period of time. CiteSpace, by using mutation detection algorithms, can extract burst terms and their start and end times from data sources, thereby identifying and tracking the research frontiers and development trends in this field. Figure 7 showed 16 burst terms.

Top 16 Keywords with the Strongest Citation Bursts

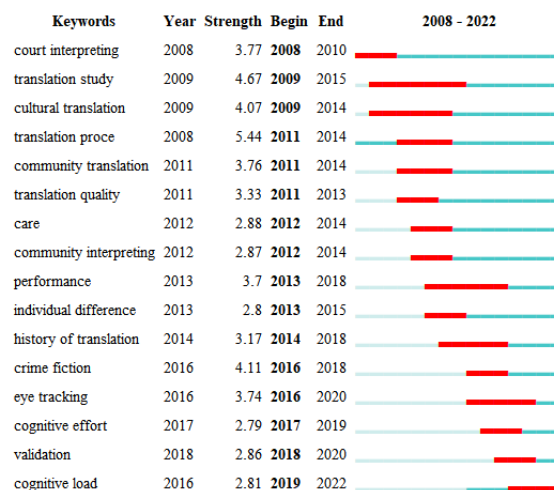


Figure 7. Burst Terms in International Translation Studies (2008-2022)

In the burst terms graph, the “Begin” and “End” columns represented the starting and ending times of them respectively, and the red line represented the time span of its existence. According to Figure 7, we can observe that: (1) before 2010, the main terms were “court interpretation”, “translation learning”, and “cultural translation”. In fact, due to the political form and judicial composition of Western countries, court translation has always been regarded as an important component of translation activities; (2) “translation learning” and “cultural translation” emerged in 2009-2015 and 2009-2014 respectively, with a relatively long duration and becoming important cutting-edge research topics during that period; (3) after 2010, there have been studies on translation process, community translation, translation performance, subjectivity, translation history, eye-tracking techniques, and cognitive (effects/load) research. With the evolution of time, research on the translation process has shifted from relying on independent texts for judgment to scientific reading based on eye movements and cognition. Translation research not only focused on the text itself, but also on the translator’s translation process, and the translation research system was constantly becoming more complete and comprehensive.

In addition, we can infer that the forefront topic of future international translation studies was the study of translation process and translation performance, which was based on high-end technology to visualize and analyze translation behavior, and to clearly present cognitive processing and processing mechanisms. Therefore, scholars should actively seek cooperation among scholars, research institutions, and disciplinary fields, achieve knowledge and technology sharing, actively grasp the forefront research of translation and cognition, and occupy a place in it.

3.4 Exploring the Development Path through Cited Literature

The citation frequency of an article is a commonly used measure of its impact, as the citation frequency of a document can to some extent reflect its degree of influence. Using CiteSpace, the author calculated the most frequently-cited literature in the past fifteen years, and drew a co-occurrence chart (see Figure 8).

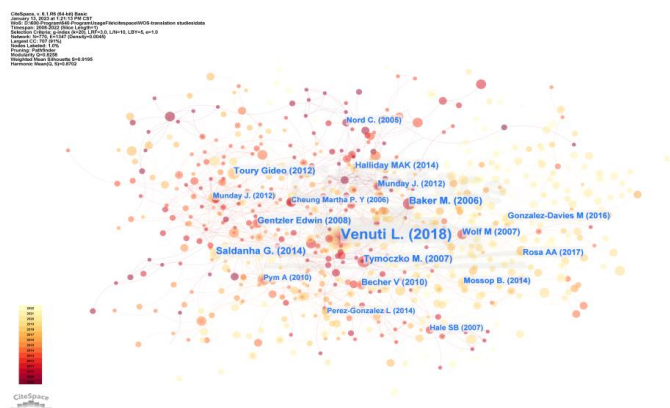


Figure 8. Citations in International Translation Journal (2008-2022)

The largest node located at the center of the graph was Lawrence Venuti's book *The Translator's Invisibility: A History of Translation*, which has been cited 170 times with a centrality of 0.56, the highest among all cited references. In this book, the concept of "translator invisibility" was first proposed, which meant that the translator did not add their own subjective understanding and claims in translation, and was completely faithful to the original text, allowing readers to fully experience the personality and characteristics of the original text. In addition, the author also proposed a set of contradictory translation strategies of "domestication" and "foreignization", which has become a topic of continuous exploration by many scholars in both theory and practice in later generations. Throughout the development and research history of translation theory, it can be found that the concepts of domestication and foreignization were similar to free translation and literal translation, but at the same time they expanded and deepened them—free translation and literal translation focused on how to handle the relationship between text form and meaning at the linguistic level, while domestication and foreignization broke through the limitations of language factors and extended their horizons to multiple fields such as politics, society, culture, aesthetics, etc., exploring language correspondence in a broader space.

The second most cited literature was Mona Baker's work *Translation and Conflict: A Narrative Account*. This work has been widely cited, reflecting the attention of international translation studies to social phenomena, ethics, politics, and morality. In this book, the author provided numerous examples to illustrate the relationship between translation and politics, and many research articles were related to it. For example, Inghilleri (2008) explored the relationship between society, ethics, and politics in the

translation activities of translators on the geopolitical stage based on the work of military linguists in the context of the war on terror; Tryuk (2010) studied the prisoner records of Auschwitz Birkenau concentration camp, revealing the work of camp interpreters and their attempts to alleviate the suffering of other prisoners.

In addition, in Figure 8, we can also see other core literature, such as Gideon Toury's *Descriptive Translation Studies and Others*. He believed that translation was based on explanatory hypotheses formed by a large number of descriptive studies, increasing attention to external factors of the text. Besides, M. A. K. Halliday's systemic functional linguistics works presenting the linguistic turn of translation studies and the interdisciplinary integration of similar disciplines; Munday's introductory work on translation; Gentzler Edwin's introduction and explanation of translation, especially interpreting.

Based on the above analysis, it can be found that the overall context of international translation studies research included in-depth exploration of traditional translation topics, as well as gradually moving towards translation in real society and practical life, reflecting on translation ethics and translation processes.

4. Insights and Suggestions

From 2008 to 2022, in the past fifteen years, international translation studies has continuously expanded and deepened, achieving significant scientific research results. Since the 21st century, Chinese translation studies have entered a new period of development, but there were still significant differences compared to international translation studies. However, looking forward to the future, translation studies in China will face many opportunities. For example, Chinese culture going global and the Belt and Road Initiative. It can be improved from the following aspects:

(1) Enhance the influence of scholars. The quantity and quality of scholars and their research achievements are important indicators for evaluating the development of disciplines. In international translation studies, some scholars actively establish personal influence, and their classic works have become highly cited literature in the field, leading the development of the discipline in the past and future; some scholars extensively seek cooperative relationships, relying on various scientific research resource platforms to create a scientific research cooperation grid, with the idea of "fusion radiation", constantly exploring and reflecting on the deep integration of scientific research. However, in many research fields, collaborative relationships between researchers are not clear, and the distribution of research institutions is concentrated. Therefore, it is necessary to seek extensive cooperation among scholars, institutions, and countries, deepen traditional topics in translation studies, broaden emerging research content, increase the publication rate of domestic scholars in important international translation journals, and enhance the recognition and international influence of translation research among international peers.

(2) Expand research content of translation studies. For a long time, translation has been considered a secondary activity and has not been widely recognized and valued by the academic community. With the construction of translation theory and the advancement of research methods, resolving major differences and contradictions, keeping pace with the progress of the times, and resonating with the development of the discipline, it will become an important aspect to consolidate the foundation of the discipline and accelerate its development. Currently, the themes of translation research in China are becoming increasingly diversified, which not only retains the characteristics of traditional Chinese translation research, but also basically maintains consistency with the development direction of international translation research. In the future, more attention can be paid to refined literary translation, translators' action and cognitive process, translation quality evaluation, various types of audio-visual translation, machine translation, etc., drawing on relevant research results at home and abroad, and striving to align with international development. In addition, in traditional topics, scholars should actively explore various new research methods, analytical tools, and discourse methods, enrich research dimensions, and gradually form important research nodes, making it a more modern and innovative research content in translation studies.

(3) Enrich research techniques and methods. With the advancement of technology and translation practice activities, there have been significant changes and progress in the use of methods in translation studies both domestically and internationally. For example, it has gradually moved from early introspective, speculative, textual, and experiential research towards scientific, systematic, empirical, and rational research. In addition, research on translated works has gradually shifted from focusing solely on the text to utilizing data statistics and analysis techniques for multidimensional analysis. Scholars need to deepen their understanding of data statistical analysis tools, such as Chi-square test, T-test, ANOVA, Correlation, Regression analysis, Inference tree, Random forest etc. (Granger & Lefer, 2020), and flexibly apply existing emerging technologies such as corpus, auditory thinking, eye-tracking technology, keyboard-recording, EEG etc., combining quantitative and qualitative analysis methods to expand research ideas.

(4) Improve the research system of translation studies. China's active participation in global governance, proactive assumption of international responsibilities, and all-round, wide-ranging and multi-level opening up to the outside world have provided a broad platform for the development of the language service industry. However, modern translation studies was originated in countries such as Europe and America, where the selection of research materials, the design of research tools, and the steps of analysis methods were mostly based on the characteristics of languages such as English. In later research, English also become the main research language. However, as two vastly different languages, Chinese and English exhibit significant differences in linguistic metrics, lexical grammatical features, syntactic forms, discourse, and other aspects. Therefore, in order to truly promote the development of translation studies in China and advance translation research related to Chinese,

scholars should base themselves on reality, critically study and draw on foreign research results, innovate and optimize the research system, and make it a theoretical and systematic framework for translation research with Chinese characteristics. In addition, the establishment of a theoretical system is a long-term and lengthy process. As an interdisciplinary translation research, its path and methods do not need to be limited to a certain type.

5. Conclusion

This study used CiteSpace to analyze papers published in 11 international translation journals included in *Web of Science* from 2008 to 2022. Firstly, comprehensively understand the overall situation of publications; secondly, analyze high influence authors and publishing institutions; thirdly, based on keyword co-occurrence, clustering, timeline, and burst terms, identify hot topics, research frontiers, and development trends in translation studies, such as literary translation, translation ability, translation training, translation process research, audio-visual translation, machine translation, etc.; fourthly, through cited literature, understand the development and path of international translation studies; finally, provide suggestions for Chinese translation research and disciplinary development.

This study was conducted from multiple dimensions, visualizing the overall development trajectory and research frontiers of international translation studies. The aim was to clarify its knowledge profile and historical changes, in order to provide reference for Chinese translation studies research and disciplinary development.

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