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Research Article

Analysis of Studies on Interpreter's Role on International Journals by Citespace (2000-2022)

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Abstract

Interpreters play important roles in international communication, and the international research on interpreter's role has a history of over 50 years. This study use Citespace tool to analyse the data of Web of Science from 2000 to 2022 in order to understand the status quo and trend of research. It is found that such research saw a general trend of increase in fluctuation and there seems to be lack of cooperative research with much room for future cooperation between different research institutions. Current research can be categorized into conference interpreting, medical interpreting, court interpreting, prison interpreting, community interpreting, sign language interpreting, telephone interpreting, etc. It can also be classified into professional and non-professional interpreting, self-perspective and others ' perspective, interpreting practice, interpreting quality, interpreting history, professional and inter professional education, etc. Future research could further the traditional domains and integrate the research with other domains of interpreting studies and that of other sectors. It could be further combined with sociological theories, adopt more diversified research methods, take a broader view in terms of interpreter's working environment, and combine more closely with technology.

Keywords

Interpreter's Role, Knowledge Mapping, Citespace, Visualized Quantitative Analysis, Research Hotspots and Trends

1. Introduction

With the deepening of exchanges between countries, interpretation plays an indispensable role in assisting real-time communication, promoting mutual understanding of different cultures, and real-time and accurate transmission of information, and its importance has become more and more prominent. The study on the role of interpreter was first conducted by scholar nearly 50 years ago in 1976 [4]. In workplaces, interpreters' roles could encounter conflict with other positions ' roles, with interpretation norms and other moral norms, which occur from time to time. It went beyond the scope of language transfer and cross-cultural communication,

so it attracts the attention of scholars, and gradually becomes an important field in interpretation research.

In recent years, international scholars have done much research on the role of an interpreter. In China, scholars conducted research from the perspective of translator subjectivity in cross-cultural communication [66, 45, 10], the perspective of multiple identity and identity cognition [50, 36, 61], and the perspective of interpretation quality [57, 60, 16]. Some scholars also conducted research from the perspective of different types of interpreters, with the role and ethics of legal translators being the most discussed [72, 74, 76]. In

addition, there are community interpretation [73], medical interpretation [50, 35], simultaneous interpretation [77, 34, 58], sign language translation [64, 56, 43], etc. In addition, there is a historical research perspective combined with the history of translation [64]. Overall speaking, the research in this field has seen steady progress. Though the number of studies on this topic is on the rise in China, the number of study is still relatively limited compared with international publications. And it is important to understand the general development trend of this topic and to obtain a more comprehensive understanding of the research internationally in this field.

Chinese scholars conducted some review studies on this field. For example, *Progress and Thinking on the Role of Interpreters (1976-2014) --A Bibliometrics Analysis* [65]. It was a representative study in the field, however, it was mainly measured by manual deletion and selection, though it did provide an important reference at that time of publication. Due to the new progress in the research on the role of interpreter in recent years, it is necessary to re-review research. And using visual quantification tools to get a scientific understanding of the overall picture of the study is also necessary. Other reviews covered the interpretation of sociological perspective [62], of medical interpretation [35], of international legal interpretation [74], of community interpretation [72], etc. However, few review studies used bibliometric instruments to warrant a comprehensive quantitative analysis of the studies in this field.

2. Bibliometric Method

(I) Research tools

In this study, Citespace(6.1.R2) developed by Professor Li Jie and Professor Chen Chaomei based on Java language was used to analyze the distribution, research hotspots and trends of international study on the role of interpreters. Citespace Design and function has solid theoretical basis, with clear, readable visual language and space layout analysis. The evolution of the field is shown in the form of knowledge map, with characterization of research hotspot and cutting-edge trends, which helps scholars to master the knowledge in the field. [33] N in the graph indicates the total number of nodes, and E is the total number of connections in the network, indicating the status of the cooperation relationship. Network density describes the closeness of collaboration between authors or institutions.

(II) Data collection

In this study, the Web of Science (WOS) database was used to search relevant literature on interpreter role in international journals. The key words "role of interpreter" or "interpreter's role" were searched from the Web of Science core collection. And "review paper" or "paper" for nearly 22 years from 2000 to 2022 were selected, with the language "English". It display rule is based on relevance. With the selection

criteria being set, there were 1,282 articles left. With manual elimination of irrelevant literature, using Citespace to remove repeated articles, and finally there left 706 valid articles.[1]

3. Research Trend on the Role of Interpreter in International Journals
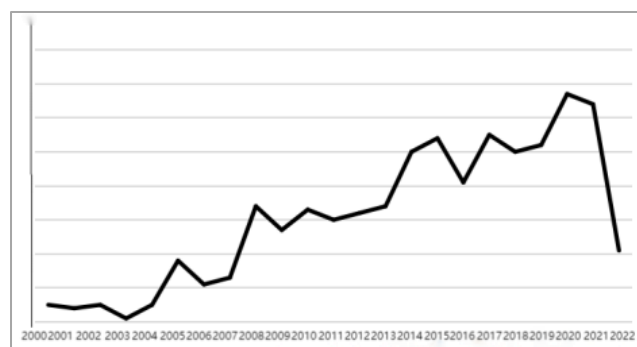

Figure 1. General publishing trend of the study of role of interpreters.

As can be seen from Figure 1, the number of articles grew with fluctuation from 2000 to 2004. However, after 2005, the general trend of the number of articles increased, indicating that the research in this field was gradually emphasized by researchers[2]. This reflects the fact that interpretation practice gradually developed from non-professional to professional, and the problems encountered in practice have gradually gained the attention of the academic circle. This is also related to the increase of international exchanges among various countries and the increase in the number of immigrants. For example, Canada saw the peak period of immigration after World War II in the 1990s, while in Australia in the 1970s, with the proportion of immigrants from Asia, Africa and Latin America increased significantly. [71, 15] The reality of these countries has increased the demand for interpretation in medical, court and other scenarios, thus a gradual increase in research.

However, the fluctuation of the growth of this field shows that the number of research in this field did not experience an explosive growth, which basically reflects the reality that the role of export interpreter caught the attention of the academic circle and the society but only to an limited extent.

(I) Analysis on the author of the articles

Statistical analysis of the number of publications and collaboration of authors can identify high-yielding authors and core research strength in this field. The knowledge map of authors were obtained with Citespace, which is shown in Figure 2.

Figure 2. Knowledge map of the authors.

Table 1. *Authors with two or more articles.*

Number of articles	Authors	Number of articles	Authors
9	Hsieh, E	3	Vranjes, J
6	Brisset, C	3	Davitti, E
6	Angelelli, C	3	Hale, S
6	Lee, J	3	Lung, R
4	Hlvac, J	3	Leanza, Y
4	Brône, G	3	Estrada, R
4	Feyaerts, K	3	Bot, H

Author co-occurrence analysis can identify core authors in a field and the strength of inter-author collaboration. The number of articles is shown in proportion to node size, and the closeness of the cooperation between authors is presented in the form of the thickness of lines. In Figure 2, there are 14 authors, 320 lines and network density 0.0026. Based on the definition of core authors by Price's Law, authors with 3 or more articles in this field are high-yielding authors. According to the analysis, there are 14 high-yielding authors in this field. In the network diagram, there are connections between Feyaerts, K, Vranjes, J, Bone, G, Bot, H, indicating that there is cooperation between these authors. In addition, there are certain cooperative networks among other authors as well.

From the whole picture, there are many isolated points, and there is no network connection among various groups, indicating that the academic cooperation between authors in this field is still lacking, and the research on the role of interpreters is still in a relatively scattered state.

Hsieh, E has the most articles in the field, and the research orientation is relatively concentrated, mainly from the perspective of the medical environment, including how the interpreter understands of the role, doctor and interpreter interaction, patient and interpreter interaction, interpreter as a co-diagnoser, etc. [21-25] The second most productive author is Brisset, C. In the study of the role of the interpreter, there is a review on the medical interpreter, and most of the papers are related to the role of the interpreter in the psychiatric diagnosis environment. [9, 28, 27] Angelelli, C is a well-known scholar in interpretation research, who has great achievements in the field of research on interpretation. In the field of interpretation role, she mainly focuses on community interpretation and medical interpreter. [5-7] Lee, J, is different from the previous three schoalrs, who mainly focuses on the role of court interpreters, including trials, expert testimony, asylum application, and telephone interpretation. [29-31] Hlvac, J's main research interests include medical interpreter role, interpreter role in cross-cultural environment, etc. [18-20] Vranjes, J, Brone, G, Feyaerts, K are collaborators. The main research direction is multimodality, including body movement, eye movement and other fields, and the research in this field therefore focuses on multimodal elements in the interaction of translators. [53-55]

(II) Institutional cooperation

Figure 3*. Knowledge Map on Research Institution Cooperation.*

The presentation method of the institutional cooperation is consistent with that of the author's cooperation. In Figure 3, there are 418 nodes and 211 connections, indicating that institutions have certain amount of research cooperation in the field of interpreter's role. Among them, Heriot Watt Univ had 16, the largest number, followed by Monash Univ 12. However, there are 39 universities with more than 3 articles, indicating that there are many high-yielding universities in this field, and this field is a relatively stable research field in many universities. Among them, the top two universities have 39 publications, accounting for 15% of the high-yielding universities, with the highest influence. At the same time, it can be seen that although there are many connections between universities, the cooperation network is still relatively scattered, indicating that there have not been clusters in the field of role research of foreign interpreters, and the leading research institutions are limited to individual universities, so there is still a large room for improvement in the cooperation between research institutions in this field in the future.

Table 2*. Colleges and Universities with more than 3 articles.*

Number of articles	Institution	Number of articles	Institution
16	Heriot Watt Univ	4	McGill Univ
12	Monash Univ	4	UCL
8	Hong Kong Polytech Univ	4	Katholieke Univ Leuven
8	Univ O Klahoma	4	Univ Alcala
8	Macquarie Univ	3	San Francisco State Univ
7	Univ Ghent	3	Bogazici Univ
6	Univ Calif Los Angeles	3	Bar IIan Univ
5	Guangdong Univ Foreign…	3	Dublin City Univ
5	San Diego State Univ	3	Univ Cent Lancashire
5	Ewha Womans Univ	3	Univ Manchester
5	Univ Amsterdam	3	Beijing Foreign Studies U...
5	Univ Melbourne	3	Deakin Univ
5	Univ Granada	3	Shanghai Jiao Tong Univ
4	Gallaudet Univ	3	Univ Leuven

Number of articles	Institution	Number of articles	Institution
4	Univ Laval	3	Dartmouth Coll
4	Univ Hong Kong	3	Columbia Univ
4	Univ Birmingham	3	Boston Univ
4	Hankuk Univ Foreign Studi…	3	Stanford Univ
4	Lingnan Univ	3	Hong Kong Baptist Univ
4	Univ Gothenburg		

Heriot Watt Univ is also the institution with productive author Angelelli, C, so the research orientation includes the role of community interpretation and medical interpreters. Another important research orientation of the agency is the role of the sign language interpreter, including the role of the sign language interpreter in a specific environment, the influence of the dialect to interpreter, and the influence of the character of the sign language interpreter to the role. Another research orientation is the role of an interpreter in the police and judicial environment. Monash Univ, together with the Australian Translation Association (AUSIT), has revised the code of translators, so the research orientation focuses more on the role and code of conduct and the training of translators. The university's research orientation also includes research on the role of translators in various immigrant environments.[3]
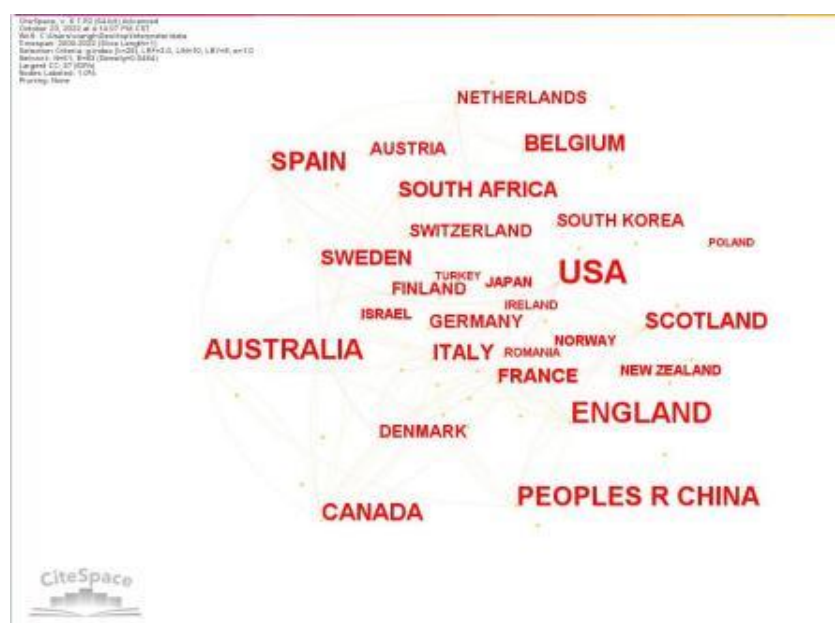
Figure 4. Co-occurrence of Countries.

Table 3. Quantity and centrality of high-yield countries.

Sequence	Number of articles	Centrality	Country	Sequence	Number of articles	Centrality	Country
1	167	0.23	USA	11	22	0.00	SWEDEN
2	79	0.13	ENGLAND	12	16	0.04	FRANCE
3	62	0.06	AUSTRALIA	13	14	0.00	GERMANY
4	52	0.07	PEOPLES R CHINA	14	12	0.01	FINLAND

Se-quence	Number of articles	Centrality	Country	Se-quence	Number of articles	Centrality	Country
5	45	0.16	SPAIN	15	12	0.00	SOUTH KOREA
6	31	0.10	CANADA	16	12	0.01	DENMARK
7	26	0.01	BELGIUM	17	12	0.07	NETHERLANDS
8	26	0.13	SCOTLAND	18	10	0.00	AUSTRIA
9	24	0.06	SOUTH AFRICA	19	10	0.00	SWITZERLAND
10	23	0.03	ITALY				

In the knowledge map of co-occurrence of countries, there are a total of 61 countries and regions, among which 19 countries have issued more than 10 articles. As can be seen from Table 3, the United States ranked first with 167 publications, followed by England (79), Australia (62), China (52), Spain (45) and Canada (31). The United States, Australia and Canada are all major immigrant countries in the world. There are many demands for cross-cultural exchanges in China, and they are also major translation research countries in the traditional sense. Therefore, there is more research on the role of translators. Although the number of published literature in China ranked 4th, the centrality ranking ranked 6th, less than 0.1.

The total output value of the global language service industry has reached 51.6 billion US dollars in 2021, and the output value of China's language service industry has reached 55.45 billion yuan, accounting for 15.6% of the output value of the global language service industry[4]. As a ma-jor country in the global language service industry, the number of articles published in the role of interpreters only accounts for 7.9% of the top 19 countries, indicating that the number and international influence of translators in the role of translators do not match the actual development and status of China's interpretation industry, and there is still room for significant improvement.

4. Research Hotspots and Frontier Analysis

(I) Analysis of research hotspots

Citespace helped to obtain the keyword and analyze the keywords in the knowledge map as shown in Figure 5. In this paper, "role of interpreter" and "interpreter's role" are used as the search keywords, so the two keywords will not be dis-cussed.

Figure 5. *Knowledge Map of Keywords.*

After the elimination of "role of interpreter" and "interpreter's role", keywords are analyzed. Not all high-frequency keywords have high centrality, and high-frequency keywords can not accurately determine the research hotspot. In Citespace software, the keywords with high centrality (Centrality> =0.1) are usually regarded as the inflection point of the keyword word frequency knowledge graph, which represents the research hotspot in this field to a certain extent. The keywords with centrality bigger than 0.1 were selected, as shown in Table 4.

Table 4. Keywords in the field.

Number of articles	Centrality	Keyword
69	0.16	communication
20	0.18	experience
24	0.17	care
19	0.14	challenge

The keywords with more than 10 frequency were selected, as they are generally considered as high frequency words. According to Table 4, the keywords with both high frequency and centrality are "communication", "experience", "care" and "challenge", which play an effective supporting role in the network. It can be seen that these keywords are the main research hotspots in this field. "Communication" represents the most important goal in the role of interpreters, as written in *The sociological turn in the interpreter's role: Discourse interpreting filters* [26], which discussed the characteristics of interpreter's on-site decision making in communication, and it was found that interpreters in communication is not simply playing a role of language mediation, but it a more complex and important social role. "Experience" means different experiences in undertaking interpretation services. For instance, *Between invisibility and over-visibility: Self-perception and user expectations of liaison interpreters in business settings* [75] investigated the role of an interpreter for people with different professional experiences, including professional translators, student translators and clients, making suggestions for the setting of professional standards and the training of translators."Care" is a part of "medical care", reflecting the number and importance of the role of the medical interpreter in this research area. For example, *The role of the health care interpreter in a clinical setting-A narrative*

review examined the role of translators in the medical environment [48] concluded that the role of translators should be clearly defined before medical treatment, so as to allow interpreters play a better role in medical treatment, and consensus should be formed on the basic principles of the role of interpreters. And "challenge" is a key word in many studies, illustrating the difficulties of exploring the interpreter role. For example, *"It keeps me on my toes": Interpreters' perceptions of challenges in telephone interpreting and their coping strategies* [58] discussed the likes and dislikes of telephone interpreters and their challenges in understanding, communication, pressure and other coping strategies.

(II) Research frontier trend analysis

Figure 6. Keywords surge.

The keywords burst index can detect the keywords with high rate of frequency change, so as to determine the frontier content of the research field. In order to track the inflection point of the research on the role if interpreters, the Burst function of Citespace found the surge of three keywords, namely "role", "consultation" and "medical interpreter", all of which appeared in 2010, and the burst trend ended in 2-5 years. It shows that the research focus of this field was on medical interpreters from 2010-2015.

(III) Theme cluster analysis

a. The clustering results

The LLR (Log-Likelihood Rate) algorithm was used for cluster analysis to classify the keywords, so as to understand the research subject categories of the role of interpreters. Using the clustering function in Citespace, 15 clustering results were obtained, including Modularity=0.7942 and Mean Silhouette=0.9315, indicating that the clustering was relatively successful. These 15 results are: #0 literature review, #1 impact, #2 encounter, #3 interpreter's role, #4 cross-cultural communication, #5 listener responses, #6 mental health, #7 conference interpreting, #8 health care, #9 interpreter-mediated interactions, #10 language brokering, #11 single-subject analyses, #12 anxiety, #13 healthcare interpreters, #14 computer-mediated communication. The clustering plot is shown in Figure 7.
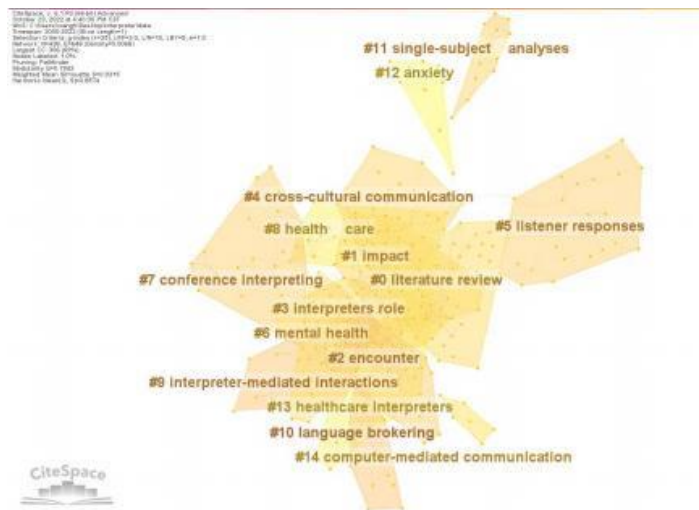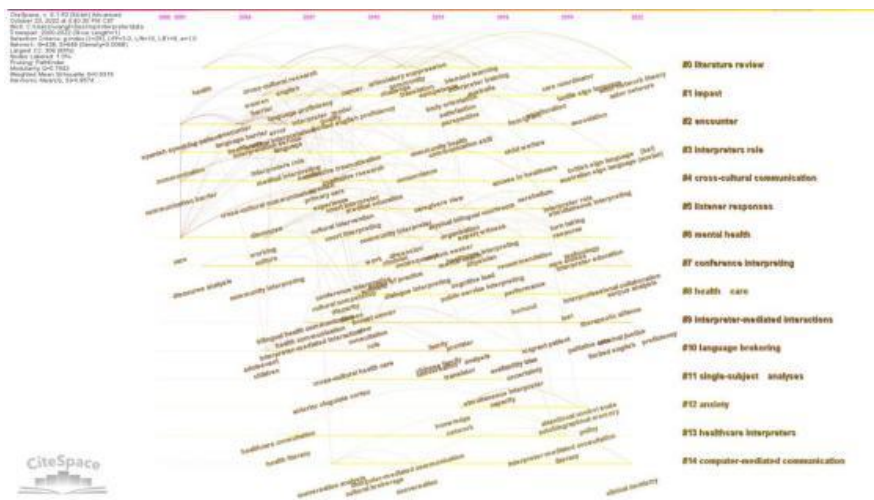
Figure 7. Keyword clustering plot.

Figure 8. Scientific Knowledge Map of interpreter role keyword clustering (Timeline view).

Table 5. Interpreters' role keywords clustering.

Sequence	Category	Keywords
#0	literature review	cross-cultural research, nursing research, interpreter training, specialized speeches
#1	impact	barrier, cultural competency, communication barriers, language services
#2	encounter	cultural competence, South Africa, interpreter services, error
#3	interpreter's role	visibility, medical interpreting, perception, text ownership
#4	cross-cultural communication	communication barriers, simultaneous interpreting, machine translation, cross-linguisitic communication
#5	listener responses	expert witness, evaluation, court interpreting, atypical bilingual courtroom
#6	mental health	healthcare interpreting, interpreter education, interpreters, care
#7	conference interpreting	discourse analysis, community interpreting, public service interpreting, corpus analysis

Sequence	Category	Keywords
#8	health care	pacific islander women, screening, breast cancer, refugee health
#9	interpreter-mediated interactions	health communication, medical interpreters, cross-cultural health care, health care provider-perspective and behavior
#10	language brokering	parent(s), involvement, conflicting role, ad-hoc interpreters
#11	single-subject analyses	executive functions, overt speech, simultaneous intepreters, FMRI
#12	anxiety	competitive advantage, interpreter bias, ensemble hypothesis, design
#13	healthcare interpreters	health literacy, interpreters' perceived strategies, patient-provider communication, carrying the bilingual conversation
#14	computer-mediated communication	patient-centered communication, sign langauge interpreting, turn organization, language and technology

b. cluster analysis

The research directions of different categories in this field can be investigated from two dimensions: interpreter type and research field.

In terms of the types of interpreters, the study covers many different types, such as conference interpreters, medical interpreters, court interpreters, prison interpreters, community interpreters, sign language interpreters, and telephone interpreters. For example, *Consecutive conference interpreters' perception of their role as intercultural mediators* [69] is about the conference interpreter's understanding of their own role; *The role of the health care interpreter in a clinical setting-A narrative review* [48]; the *Non-renditions and the court interpreter's perceived impartiality--A role-play study* [11] is a study on the impartiality of court interpreters; *Who defines role?: Negotiation and collaboration between non-professional interpreters and primary* [41] is about participants in prison settings; *Contextualization in telephone interpreting* [51] is a study of the working environment faced by telephone interpreters.

From the perspective of research field, it can be divided into (1) professional interpretation and non-professional interpretation; (2) self-perspective of interpreter and others; (3) implementation of interpretation operation; (4) quality standard of interpretation; (5) historical perspective of interpretation; and (6) vocational education and cross-vocational education.

Professional interpretation and non-professional interpretation

Professional interpretation and non-professional interpretation is a major classification of the role of translators. Based on the division of occupation and non-professional identity, the influence of habitus on the role of translators, the communication strategies of different identities, and the influence of social and political factors are studied. For example, *The participatory role of non-professional interpreters: A case in educational settings* [59] based on Goffman's participation framework and Bourdieu's sociological theory, through critical discourse analysis, found that non-professional interpreters showed more participation activities in educational interpretation due to their other professional academic background. *Non-professional volunteer interpreting as an institutionalized practice in healthcare: A study on interpreters' personal narratives studies the socialization and institutionalization of volunteer translators in Spanish NGOs* [1] found that non-professional volunteer translators are integral to their institutions, and the autonomy of the occupation is fully demonstrated in their cross-cultural coordination. *Informal Interpreters in Medical Settings research from the European Union* [46] was based on five European funded cooperation projects to study informal interpreters in different scenarios, including their experience, attitude, practice and differences. It was found that non-professional interpreter's visibility was higher, with different communication strategies in different environment. And they played different roles, and sometimes they could become the main speaker. In different cultural background and political environment, preference for formal and informal interpretation was different.

The interpreter's self-perspective and the other's perspective

In this category of research, there are the perspectives of self-cognition, users and third parties' perception, the positioning and understanding of the role of translators and others. For example, *Reconceptualising interpreter's role: a perspective from social identity theories* [68]. In view of the lack of theoretical research on the role of translators, it constructs an interdisciplinary theoretical framework for the influence of social identity on interpretation strategies based on the theory of social identity in social psychology. *User expectations and evaluation: A case study of a court interpreting event* [12] used a case study of the Danish court users of interpreter evaluation and interpreter understanding of their role. It was found that there were consensus between users and interpreters in the court to the role of interpreter, with the users evaluated the interpreter's role according to

their expectations, and the interpreter meet user's expectations. *The role of the interpreter in constructing asylum seeker's credibility: A hearing at the Spanish Asylum and Refugee Office* [14] conducted a discourse analysis on the Spanish-English interpretation in the hearing of Nigerian refugee applicants in Spain. It suggested that the changes in interpretation may have some impact on the credibility of refugee applicants. *The role of translators and interpreters in cascading crises and disasters: Towards a framework for confronting the challenges* [2] studied the important role of interpreter in disaster and crisis. And the work was affected by the disaster itself. And it was proposed that language use maybe an important factor in the escalation of the crisis.

Interpretation operation

Due to practical characteristics of the interpretation profession, the study of the role of the interpreter is inseparable from the practice of interpretation. Such research is often combined with the fields of linguistics, technology, translation and cognition. Linguistic perspectives are mostly from Chinese researchers, such as *Interpreter mediation at political press conferences: A narrative account* [32] which used narrative theory and Wadensjo's translation model to explore the influence of the translation strategy on the construction of image of political figures and the diplomatic communication of former US President Obama and his press conference. *Chinese medical interpreters' visibility through text ownership: An empirical study on interpreted dialogues at a hospital in Guangzhou* [70] found that interpreters have a high visibility. Although the aim is to promote communication, visibility may also have an opposite effect. *The Interpreter traits and the relationship with technology and visibility* [42] found that community interpreters have different tendencies of understanding roles than conference interpreters, and interpreters in different fields such as medical interpreters and court interpreters also have different tendencies in those aspects.

Interpretation quality

It is an important category of the overall interpretation research. The study of interpretation quality standards in this particular domain of the interpreter's roles is mainly combined with the interpreter work scenarios. *The Interpreting and knowledge mediation in the healthcare setting: What do we really mean by 'accuracy'?* [40] studied simulated medical situations, and the authors identified "accuracy" as a dynamic, context-related concept and made recommendations for the training of medical interpreters. *The accuracy of medical interpretations: A pilot study of errors in Japanese-English interpreters during a simulated medical scenario* [3] studied interpretation errors in 20 Japanese-English translators, and proposed that interpretation errors are related to the interpreter experience, and make recommendations for medical interpreters training. *Are close renditions the golden standard? Some thoughts on translating accurately in healthcare interpreter-mediated interaction* [8]believed that obtaining accuracy in medical interpretation requires a coor-

dinated effort, and that it is an important part of medical interpreter training. *Physician perceptions of the types of roles interpreters play in limited English proficient pediatric encounters and how they evaluate the quality of interpretation* [47] analyzed of semi-structured interviews of 11 pediatricians with live interpretation transcripts. It is believed that interpreters played multiple roles in pediatric diagnosis and treatment. And those roles are important for the quality of interpretation in the diagnosis and treatment setting. *Ensuring interpreting quality in legal and courtroom settings: Australian language service providers' perspectives on their role* [49] conducted a study of eight language service providers in Australia to explore interpreter support and skill improvement in ensuring the quality of interpretation in settings such as courts.

The historical perspective

The study of the historical perspective of interpreter's role is the combination of interpretation research and translation history research. For example, *Interpreters and the writing of history in China* [37] believed that interpreters played an important role in history, especially in the writing of Chinese history. *Interpreters, translators, and the spoken word in the nineteenth-century transatlantic slave trade to Brazil and Cuba* [17] argued that interpreters played an important role in the transatlantic slave trade in the 19th century, some helped slave traders and others disrupted slave trafficking. *On the history of interpreting in China* [38] explored the status, role, and identity of interpreters in China's diplomatic history before the 20th century. *Interpreters as historians in China* [39] analyzed the discourse characteristics of the interpretation activities based on historical records, and believed that the role of an interpreter could also be a historian or consultant. According to *Interpreting and translating in Nazi concentration camps during World War II* [52], interpretation ethics, norms and standards were no longer effective in extreme and violent circumstances. *Declining the interpreter's role in World War I* [13] analyzed the roles of three interpreters based on their personal autobiography and novels of World War I.

Professional education and inter-professional education

Professional education and inter-professional education are of great significance for interpreters to identify with their own role and the understanding other roles in the working environment. An example of professional education is *Rewriting the AUSIT code of ethics principles, practice, dispute* [44], which examined the revision of the AUSIT rules and compared them with other international codes. *Simulating the context of interpreter-mediated social work interactions via interprofessional education* [19] believed that although interpreters often work with social workers, there were few joint studies on those two profession. At Monash University in Australia, from 2017 to 2019, there was inter-professional education. According to the questionnaire survey of participating students, it was found that students' professional knowledge and their awareness of serving customers got

much improvement. *Interpreter-mediated doctor-patient interactions*: *inter-professional education in the training of future interpreters and doctors* [20] drew similar conclusions.

5. Characteristics and Development Trends

Through the above research content, it is found that the research on the role of interpreters in international journals is seeing the expansion of research horizon, and research depth has also been tapped. The research gradually shifted from focusing on overall communication earlier to different types of interpretation, including medical, conference, community, sign language, telephone, etc. Another aspect of the development is the combination of different fields of interpretation research, such as interpreter education and training, technology, etc. All these have gradually expanded and deepened the research field of the role of the interpreter, making it a mature research field, which can be further expanded and deepened.
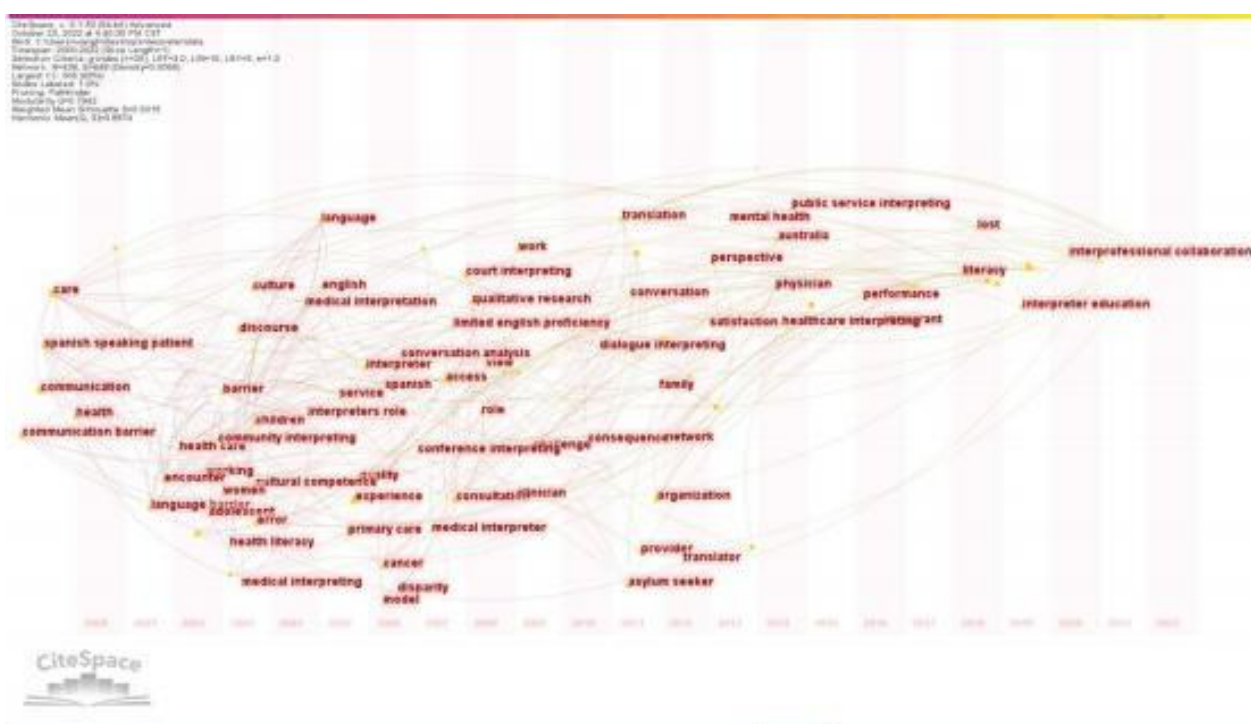
Figure 9. Keywords of research on interpreter's role (Timezone diagram).

With the Timezone diagram of interpreters, it is convenient to see the time span of the literature related to a topic. The analysis shows that this research field has been gradually developed in over 20 years time and has become a relatively mature field.

At present, the development of this field has the following several trends:

First, interpreter's role and other areas of interpretation research are combined. In the initial stage, this field focuses on simply discussing the role of the interpreter. After a long period of development, the field has been more integrated with critical discourse analysis, cognitive research, multimodal research, etc. The research methods tend to be diverse, and the research topics are more cutting-edge.

Second, the study of the interpreter's role is combined with different industries. For example, early study of interpreter's role were combined with industries with a broad scale, such as medical interpretation in general. But it tends

to be gradually segmented, such as interpreter role in palliative care, interpreter role in psychiatric treatment, etc. In addition, there are also studies on the role of interpreters in other fields such as disasters, which further deepen the research on the role of interpreters. The trend will be gradually unfolded in the future.

Third, it will develop gradually from the local study of interpreter's work to the overall study of interpreter's work. In the early stage, the education and training of interpreter role research focused more on the local working environment of interpreters, but now it has gradually developed into the research of inter-profesional education. This development trend is to combine interpreter's work with other professions in the workplace training, promote the understanding between different professions, making the others understand interpreter's role more deeply, also making talent training more in line with the needs of real work. It formed joint research of different professions and this trend will be im-

portant in interpreter education, practice, and academic research in the field.

Fourth, traditional research on interpreter's role will continue. Since "medical interpreter" became a buzzword, this research direction has been popular in this field. This field will remain a major research direction in the future due to the needs of interpreters in medical interpretation and the conflicting roles of interpreters working in the scenario.

Fifth, the research on interpreter's roles will be more closely integrated with the technological development. At present, the trend of technology development has affected all walks of life. Due to the large-scale online conferences after the pandemic, many interpreters provide online services, and the overall service form and content have changed greatly than before. However, in the research on interpreter's roles, this latest technology content is still relatively lacking, but it will become a trend in the research of interpreter's role in the future. At the same time, with the continuous development of meta-universe, artificial intelligence and other technologies, the update and iteration of the teaching technology system will have an important impact on the interpretation work and interpreter education, which will become an important research trend in the future.

6. Conclusion

Through the analysis of the annual publication volume of research literature, the situation of authors and cooperative institutions, hot spots, frontiers and development trends, it is found that in the past 20 years, the research on the role of foreign interpreters has shown a steady development trend. The number of studies is gradually increasing, the research content is gradually deepening, and the development is relatively stable. High yield research institutions and high yield authors are relatively concentrated, with high yield authors having relatively stable research directions. Due to the actual demand of the interpretation industry, the research related to medical interpretation showed a bursting trend, which gradually subsided later. With the development of technology and the impact of the epidemic, the interpreting profession has produced new changes. In the future, the role of interpreter may form new research hotspots in the overall research trend, such as the cultivation of interpreter role awareness, and the research on the combination of interpreting role and technology. Due to the social attributes of the interpreter role, the theoretical perspective of the research will be further combined with relevant sociological theories to form a deeper understanding of the role of the interpreter and provided guidance for the cultivation of the interpreter talents. Understanding of the social attributes of interpreters will also lead to a diversification of research methods, such as the use of ethnography, which are less used in the field. In the future, the research vision of interpretation roles will gradually expand from a single professional role to the interactive research with other professional roles.

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Conflicts of Interest

The authors declare no conflicts of interest.

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[1] Selected fields were: Linguistics, Language Linguistics, Public Environmental Occupational Health, Religion, Social Sciences Interdisciplinary, Communication, Healthcare Sciences Services, Law, Nursing, History, Philosophy, Health Policy Services, Medicine General Internal, Humanities Multidisciplinary, Hospitality Leisure Sports Tourism, International Relations, Multidisciplinary Sciences, Psychology Social, Area Studies, Clinical Neurology, Computer Science Interdisciplinary Applications, Demography, Dental Oral Surgery Medicine, Geosciences Multidisciplinary, Obstetrics Gynecology, Psychology, Education Scientific Disciplines, Rehabilitation, Sociology, Social Science Biomedical, Management, Psychiatry, Psychology Multidisciplinary, Political Science, Anthropology, Literature, Social Work, Business, Education Special, Public Administration, Social Issues, History Philosophy of Science, Asian Studies, Primary Health Care, Psychology Experimental, Ethnic Studies, Economics, Cultural Studies, Psychology Clinical, Women S Studies, Behavioral Studies, Computer Science Artificial Intelligence, Computer Science Software Engineering

[2] 2022 data is from the beginning of the year until July 20.

[3] https://ausit. The org / code-of-ethics /, landed on May 4, 2023.

[4] From the 2022 China Translation and Language Service Industry Development Report.