

# Research Trends in Transnational Professional Development Programs: A Bibliometric Analysis

Qiong Zhang<sup>1,2</sup>, Anping Wu<sup>1</sup>, Yong Cen<sup>1</sup>

<sup>1</sup>Research Center of Industrial Economy around Hangzhou Bay, Ningbo Polytechnic, Ningbo 315800, China

<sup>2</sup>School of Education, Western Sydney University, Locked Bag 1797, Penrith NSW 2751, Australia

## **Abstract:**

As the volume of explorations on transnational professional development increments significantly in the past twenty years, a systematic review of the diverse literature and its development process becomes essential. This study conducted a bibliometric analysis for the knowledge domain of overseas academic programs by using 280 research articles spanning from 2000 to 2021 in the Web of Science (WoS) database. Knowledge maps of transnational professional development research were envisioned by CiteSpace. The research findings show that in the field of educational internationalization research, the number of published articles shows a fluctuated upward trend in terms of temporal distribution since 2000; the first five highly cited countries are the USA, China, UK, Spain, and Turkey; the first five highly cited authors are Miri Yemini, A Cendel Karaman, Sadhana Manik, Belem Barbosa, and Cheryl J Craig; Abroad, higher educational institutions, experience, China and adjustment are found to be top five research hotspots. These findings provide considerable insights into research trends, topics, journals, authors, and hotspots concerning teachers studying abroad from the diachronic perspective. Perception investigation of the educator transnational experience writing by defining a graphical and visualization study may be advantageous for researchers and educators to follow the advancement concentrating on transnational professional development studies.

**Keywords:** *Transnational professional development, Educational internationalization, CiteSpace.*

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## I. INTRODUCTION

### 1.1 Background

The study on teachers' transnational experiences is a newly-appeared interdisciplinary domain in teacher educational domain. Teachers, as the handlers in the classroom, who understand how culture shapes beliefs can cultivate the students about the diversity of the world and improve students' multicultural awareness [1]. Studying abroad for teachers provides the different perspectives often needed to better understand their home contexts with more objectivity [2] and can also stimulate the desire to provide services to students from diverse cultural and linguistic backgrounds [3].

Enormous countries and regions implement policy and provide support with the growth of teachers studying abroad. There are many benefits to studying abroad for pre-and in-service teachers, such as being

exposed to different education systems, understanding different cultures and increasing teacher knowledge and new skills.

The reason to prepare their teachers as global-minded teachers in western countries is that the population will become culturally and linguistically diverse in the coming future. For instance, the U.S. Census Bureau projects that the foreign-born population in the United States will reach nearly 15% by the year 2028 [4]. Thus, it is indispensable for teachers to prepare themselves to work with a changing demographic of students in their classrooms.

## 1.2 Significance

The significance of teachers studying abroad has been studied in terms of language acquisition, intercultural competence development, professional development, teacher identity formations and so on [1, 5, 6, 7].

Firstly, experts have noticed the relationship between transnational experience and language acquisition and proved that language communication ability and writing ability have been improved at different levels. Based on the evidence of Chinese students' linguistic identity transformation through learning in a bilingual and multilingual context, Maeder-Qian (2017) [6] employed a pilot study to examine Chinese international students' linguistic identity transformation. Because most Chinese international students were English as lingua franca (ELF) users, they revealed positive attitudes in language identity transformation. But the lack of German language led these ELF users to the role of "bystander" in Germany. The acquisition and frequency of language ability showed its strong positive relationship with language, identity, and context. On the contrary, some scholars take the context into the consideration while different results appeared. Moreover, Jackson (2017) [8] indicated that the influence of environmental factors varied according to personal differences. She elaborated that some participants built their self-efficacy to motivate their language learning while others were trapped by the language and cultural barriers. She suggested that effective interventions could bolster language enhancement and intercultural engagement. In the same vein, Zhang (2020) [9] found that immersion in the language context slightly influences the learning outcomes of Chinese grammar for beginning learners. Studying in the target language countries seldom influenced the learning outcomes of beginning learners, which indicated that transnational experience cannot positively affect second language learning.

Along with language improvement, preparing preservice teachers with global perspectives and intercultural communication competence is another assessment of teacher studying abroad projects. According to Byker (2019) [10], the Critical Cosmopolitan Theory has been used as a lens to analyze teacher candidates' global competence during the process of studying abroad. It indicated that studying abroad experience as socio-emotional learning positively influenced teacher candidates to be critically conscious global citizens, by investigating the world, recognizing perspectives, communicating ideas, and taking action.

Besides, the improvement of self-reflexivity in overseas context drive teachers to rethink, reconstruct, reflect on their identity formations. Kang & Pacheco (2020) [11] explored how individual sojourners build their knowledge of semiotic resources and awareness of these resources about communicative situations, such as envoicing linguistic identities, recontextualizing communicative contexts, and entextualizing linguistic resources. Likewise, Mikulec (2019) [12] elaborated preservice teachers have benefited from studying abroad in terms of personal development and professional development regardless of financial and academic loads. For personal development, preservice teachers admitted the growth in self-confidence, autonomy, flexibility, adaptability and the development in interpersonal skills and tolerance for ambiguity. For professional development, preservice teachers were increasingly aware of the role of culture in education and intercultural pedagogies and instructional strategies in the future classroom. Inspiringly, participants in Mikulec (2019) [12]'s were from U.S. universities who travelled to the U.K. Although these two countries are representative Anglo-Saxon countries, teachers experienced the intercultural contexts and learned various educational philosophies and pedagogies. It leads to further studies on teachers' learning through transnational experience.

Studying abroad profits teachers with the personal and emotional aspects as well. Okken, Jansen, Hofman and Coelen (2019) [13] examined the long-term impact of studying abroad among experienced teachers in terms of personal development and professional application. It found that teachers have experienced positive personal development in increasing confidence, improving English language ability, changing educational philosophy, and adjusting their teaching philosophy, while the professional application largely depended on teachers' personal decisions. Due to different levels of working load and reflection about studying abroad, the application of professional development in teachers studying abroad could be categorized as 'applicable, not applicable due to high workload, not applicable due to discrepancy educational philosophy' [13].

Large evidence proved the effects and significance of being exposed in a foreign context for teachers. Experts discussed teachers studying abroad from different aspects. For the objects, teachers from different majors, such as language, science and medicine, from diverse stages, such as pre-service, in-service and senior service teachers, have been discussed by scholars to make a deepen explanation and comparisons to judge the efficiency of project design. For the investigate aspects, experts chose topics they are interested in and areas of expertise to explore the meaning and provide suggestions on the further development of interactional projects. The domains vary from the learning of the semantic meaning of language, sense of sympathy to diverse cultural background students, identity formations and critical thinking about their teaching pedagogies and teaching philosophies. There is no doubt that the studies of teachers studying abroad have become a specific domain in teacher education.

Regardless of all the benefits, the high cost and delay of graduation posed a barrier to access the cross-cultural experiences afforded by studying abroad, which makes a limitation of studying abroad is the relatively small sample size. Qualitative research, especially case studies, has become the main method. Many scholars employed several analysis tools to elaborate on the phenomenon based on the interview data. For example, thematic analysis has been widely used to explain how and why teachers experienced their

personal growth and professional development during abroad sojourns [14, 15, 16]. Besides, Freed, Benavides and Huffling (2021) [17] framed the Culturally Competent Pedagogy to investigate U.S. students' cultural awareness in a short-term undergraduate study abroad in the Netherlands or Peru. The Development Model of Intercultural Sensitivity which was conducted by Bennett was employed to analyze prosperous Turkey teachers' intercultural sensitivity before they began their journey to Italy [18, 19]. Wernicke (2020) [20] creatively employed membership categorization analysis to explain a Canadian French second-language teacher's experience in France. From the existing literature, it can be clearly seen that scholars have conducted in-depth studies on teachers' overseas study projects as a case by case. However, the connection and relevance between each study are not strong. The cohesion among articles is mainly based on the critical review of others' literature. In terms of research methods, qualitative research methods are mostly used, mainly in the form of semi-structured interviews and questionnaires. Although articles [21] on the improvement of cross-cultural communication ability in the process of studying abroad can be carried out by using quantitative methods, such as the scale, the quantitative method is not the mainstream in the domain.

However, regardless of qualitative and quantitative methods, few articles emphasize the comprehensive evaluation and summary of trends. Since teachers studying abroad have become a heated topic in teacher professional development, it is necessary to summarize the clustering topics and keywords, to provide the development vein for researchers and teacher educators to improve the teachers studying abroad programs.

## **II. RESEARCH METHOD**

### **2.1 Research Questions**

In the past twenty years, the teachers studying abroad program has been rapidly developed and the representative authors, influential articles, and established research themes have come out. In the study, the major publication countries/regions and institutions, journals and research hotspots are considered to be. Specifically, there are four research questions needed to investigate in the following:

1. Who are the main authors that studied teacher studying abroad issues?
2. What are the main countries that are interested in teacher studying abroad programs?
3. What are the core field (according to keywords) in teachers studying abroad?

### **2.2 Research Tool**

CiteSpace is a scientometrics-based visual citation analysis software that examines the underlying knowledge of analytical scientific analysis [22, 23]. Keywords, Cited Author, Cited Journal, Cited Reference, Keyword Emergence, and so on are some of the features of the CiteSpace program. Hot trends and future trends in teachers studying abroad experiences/programs can be more fully depicted using these functions.

The researcher employed CiteSpace as the research tool to investigate the trends and features of teachers studying abroad programs [22]. The data of this study were retrieved from journals indexed by the Social Science Citation Index (SSCI) in the Web of Science. First, the topic was set as “teacher study abroad” or “teacher internationalization” or “visiting scholar program” and the time was set from 2000 to 2020. The database was selected as “Social Science Citation Index”. Secondly, the retrieved essays were refined in the following steps: the document type was refined into “article” and the language was refined into “English”. Thirdly, author, title, source, abstract, citation, and other information were extracted and saved into plain text. Finally, after the removal of duplication by CiteSpace, a total of 280 valid papers were obtained. The data of the samples were updated till June 2021.

### III. RESEARCH RESULTS

#### 3.1 Temporal Distribution of Published Papers

The number of papers published in the teacher studying abroad field roughly represents the research hot area. To grasp the research trend of the teacher studying abroad theme, this paper analyzes the overall trend of the number of documents issued by teachers studying abroad from 2000 to 2021, as shown in Figure 1. In 2001, there is only one relevant article discussing teachers studying abroad. From 2001 to 2008, the number of relevant papers was small. However, the annual number of papers was not exceeding 10 that period; From 2009 to 2013, the annual number of articles began to grow rapidly, and reached a peak of 22 in 2013; From 2014 to 2018, the number of articles published fluctuant increased again at a high speed; The recent peak is 37 in 2020. The globalization of politics, economy, and education, when combined with current literature, is the primary cause of this phenomenon [24]. The fluctuant ascending curve presented that the topic about teachers studying abroad was increasingly concentrated in teacher professional development. Although the pandemic of COVID-19 influenced the global population movements, cultivating the talents with global insights constantly poses its importance in educational development, which leads the number of papers to rise further.

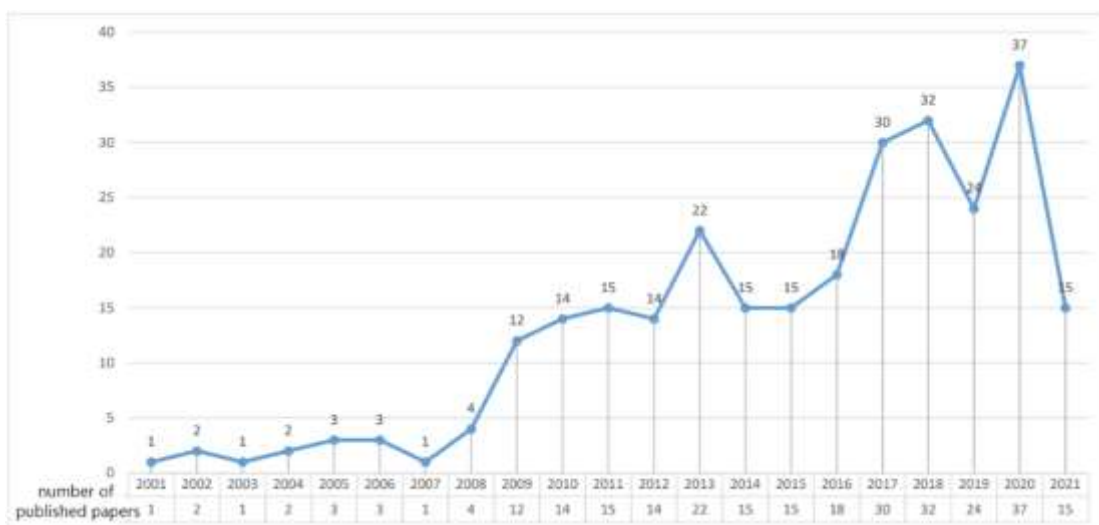


Fig 1: Trend chart of Published papers

### 3.2 Co-Authorship Network

The total number of papers published in journals represents the author’s academic status in this field to a certain extent. The author cooperation network reflects the core author group and cooperative relationship of teachers studying abroad area. This study uses the CiteSpace software to visually analyze the data. The operation results are shown in the author and cooperative network knowledge map shown in Figure 2. The font size represents the number of papers published by the author, the connection between nodes represents the cooperative relationship between different authors, and the thickness of the connection represents the degree of close cooperation. By analyzing the number of papers published by authors and the cooperation relationship between authors, we can find high-yield authors and high influential authors.

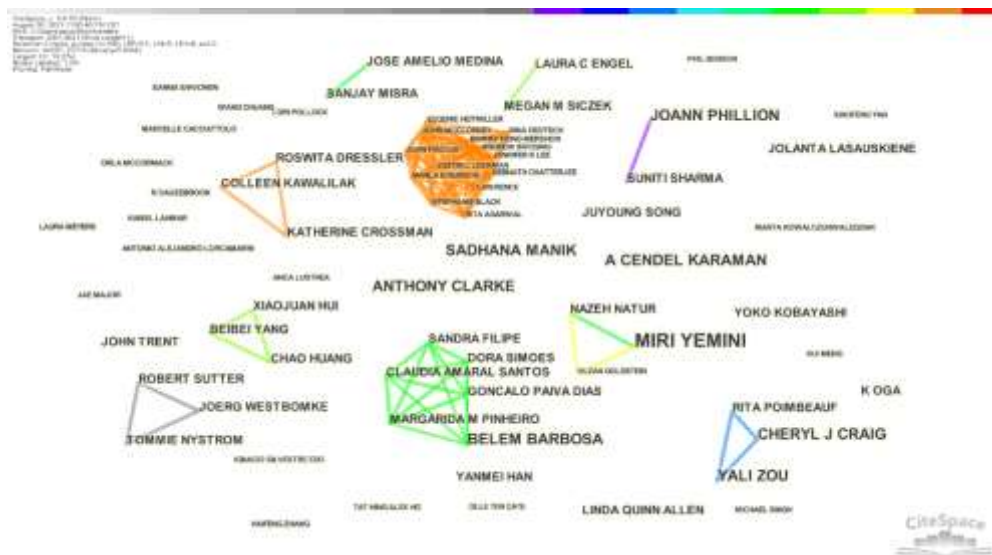


Fig 2: Author and cooperative network knowledge map

**TABLE I. Top 10 high yield authors**

NO.	AUTHORS	NUMBER OF PUBLISHED PAPERS	YEAR	CONNECTIVITY
1	MIRI YEMINI	5	2014	10
2	A CENDEL KARAMAN	3	2010	2
3	SADHANA MANIK	3	2007	0
4	BELEM BARBOSA	3	2017	6
5	CHERYL J	3	2014	3

	CRAIG			
6	JOANN PHILLION	3	2009	6
7	YALI ZOU	3	2014	3
8	ANTHONY CLARKE	3	2016	7
9	ROSWITHA DRESSLER	2	2020	4
10	DORA SIMOES	2	2017	5

As can be seen from Figure 2, there are 597 nodes and 776 connections, and the overall network density is 0.0044. There are three main cooperative groups of the author. Network 1: it is composed of Stephanie Black, Justine Lockman and so on, which is the group with the most authors. This group of authors focused on the medical field, which displayed the cooperation results of studying abroad and the practical cooperation among international organizations; Network 2: composed of Belem Barbosa, Goncalo Paiva DIAS, etc. Belem Barbosa is a high-yield author, who is focusing on the internationalization of higher education. Network 3: it is composed of Miri Yemini and the other three people, which is the network of the most productive authors. Miri Yemini is working at Tel Aviv University, Israel. The domain that Miri Yemini focused on was global citizen education, which required international perspectives from teachers and teaching strategies.

The cooperative network of some high-yield authors is not obvious. The most recent in the time series is the cooperative network composed of Roswita Dressler [25, 26], Colleen Kawalilak and Katherine Crossman. Roswita Dressler is an associate professor from the University of Calgary while Colleen Kawalilak is a professor from the same University in Canada. Their research interests are adult learning, adult education, language learning and professional development. Katherine Crossman also comes from Bow Valley College, Canada, whose research focuses on language and education. They have completed and published articles about teachers studying abroad from 2018.

In terms of the number of papers published by the research authors, the number of papers issued is not large per author (Table 1). Miri Yemini ranked first with 5 papers about education internationalization. Others did not publish relevant articles more than 3. In terms of the cooperation degree of the research authors, only Miri Yemini [27, 28, 29] (10), Anthony Clark (7) and Belem Barbosa (6) among the main authors have a high degree of cooperation. Combined with figure 2, it can be considered that a strict and mature cooperation network has not been formed in relevant fields. By consulting the literature of relevant authors, it is found that the number of citations is small, and there is a lack of literary sources as the basis of research. The reason might be that the topic of teachers studying abroad is a new appearing topic and potential to be further discussed. Besides, teachers study abroad as a part of teacher education which regards as a program previously, so researchers focus on the program evaluation instead of analyzing the learning process and results.

### 3.3 Research Institution Network

The cooperative network map of research institutions explains the spatial distribution of research power in this field. To find the institutions that promote the research and development of teachers studying abroad, this study uses the cooperative network analysis function in the CiteSpace software to mine the network relationship of research institutions in the research field of teachers studying abroad, which can intuitively reflect the cooperation between institutions and provide a reference for the influence of scientific evaluation institutions in the academic scope. The time-slicing of the software is set to “2001-2021”, the years per slice is set to “1”, the node types of panels selects “institution”, and other options are the system default options. The distribution network map of teachers studying abroad research institutions can be obtained by running, as shown in Figure 2, in which the node size represents the number of journal papers published by the research institution. The connection between nodes indicates the cooperation intensity between different institutions.



Fig 3: The cooperative network map of research institutions

**TABLE II. Top 10 high yield institutions**

NO.	INSTITUTIONS	NUMBER OF PUBLISHED PAPERS	YEAR	COOPERATION DEGREE
1	Tel Aviv Univ	5	2014	6
2	Guangdong Univ Foreign Studies	3	2020	1
3	Univ Houston	3	2014	1
4	Hong Kong Polytech Univ	3	2010	1



5	Hong Kong Inst Educ	3	2009	1
6	Purdue Univ	3	2009	1
7	GOVCOPP Res Unit Governance Competitiveness & Pub	3	2017	7
8	George Washington Univ	3	2018	5
9	Univ Autonoma Barcelona	3	2010	1
10	Univ British Columbia	3	2016	3

As can be seen from Figure 3, the research sample contains 356 nodes in total, 243 connections, and the network density is 0.0038, indicating that the scale of institutions studying teachers study abroad is quite a large amount, but the cooperation intensity between research institutions is relatively weak. Thus, the institutions focusing on teachers study abroad experiences are relatively scattered, so a strong and extensive cooperative network relationship has not been formed. Among them, two obvious institutional cooperation networks have been formed, namely network 1: go corp res unit governance Competitiveness & Pub and Univ Aveiro ISCA UA, which is the cooperation network with the largest cooperation density; Network 2: it is composed of four institutions, including Massey Univ and Univ Hong Kong, which is the most recent cooperative network in time series. To deeply analyze the achievements and cooperation relationship of research institutions, further data mining is carried out in Figure 3 to obtain the top ten research institutions with the number of documents, as shown in Table 2. The five articles of Tel Aviv Univ have the largest number of articles. According to figure 2 and table 2, the cooperation network relationship of the top three institutions in the research results is not significant, which shows that even if the research unit is a high-yield institution, it is not necessary to have a close cooperation relationship with other high-yield research institutions. In terms of the degree of cooperation of the units, the cooperation density of go corp res unit governance Competitiveness & Pub (7), Tel Aviv Univ (6) and George Washington Univ (5) is high, and the rest are less than 3, indicating that the current research on teachers studying abroad experiences is mostly carried out by independent institutions. There is still a large space for cooperation between institutions, which needs to be studied from interdisciplinary and more in-depth cooperation between research institutions across regions.

### 3.4 Distribution of Research Countries/Regions

This paper sets the node type of city space as countries/regions, that is, by analyzing the distribution of research countries/regions, we can get the visual map of the cooperation network between countries/regions, as shown in Figure 4. The node size represents the number of papers published by the country/regions, the connection between nodes represents the cooperative relationship between different countries/regions, and the thickness of connection represents the degree of close cooperation. As shown in Figure 4, there are 53 nodes and 59 connections, and the overall network density is 0.0428, indicating that there is close cooperation among research countries/regions in the teachers studying abroad field. Among them, the United States is the largest research country, followed by China and Britain, and the cooperation network among various countries is relatively close. The top ten high-yield countries in Table 3 can be obtained through the statistics of the number of documents issued by different countries. The authors in the United

States have published 78 articles, far ahead of other countries. From the perspective of cooperation degree, there is a certain positive correlation between the number of articles issued by most countries/regions and the degree of cooperation, but the degree of cooperation among China, Turkey and Japan is not in direct proportion. It shows that although the above number of papers is high, there is less cooperation with other countries. Thus, the cooperation relationship with other countries/regions could be improved. For study abroad programs, it is possible to study the topic from sending countries and receiving countries which might enrich the perspective to understand the issue. The evaluation and judgement of the study abroad program could be beneficial to both sending and receiving institutions to improve the service and quality of teachers studying abroad programs. The lack of author organization cooperation and document citation need to be strengthened in the future, to achieve teachers' expectations and requirements of the transnational programs.

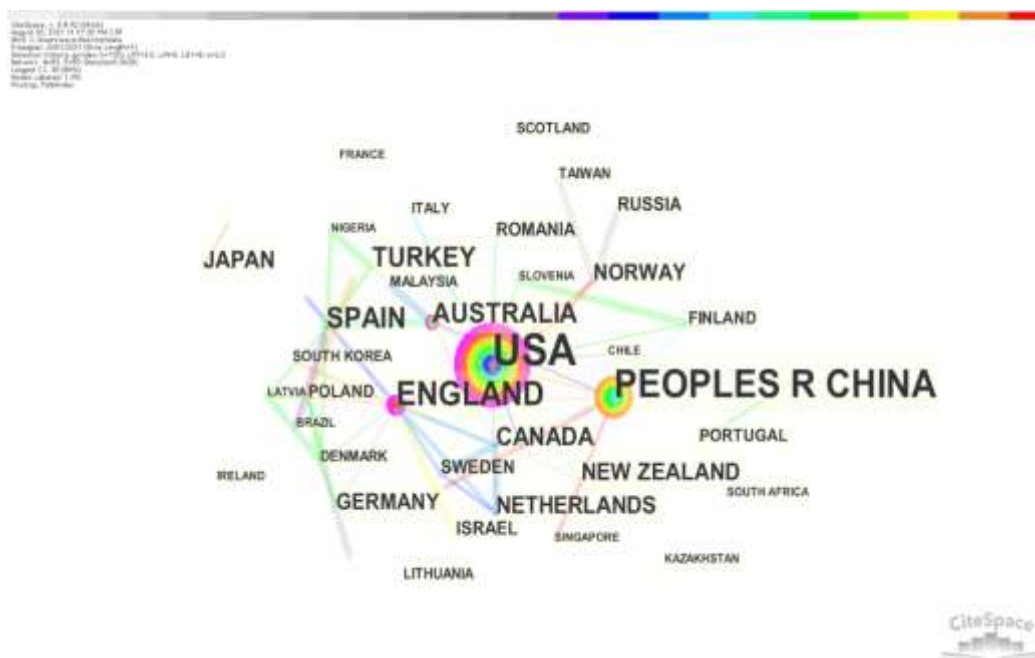


Fig 4: Distribution map of research countries/regions

TABLE III. Top10 high yield countries/regions

NO.	INSTITUTIONS	NUMBER OF PUBLISHED PAPERS	COOPERATION DEGREE	BEGINNING YEAR
1	USA	78	15	2002
2	PEOPLES R CHINA	41	7	2009
3	ENGLAND	23	12	2006
4	SPAIN	16	6	2010
5	TURKEY	14	3	2009
6	AUSTRALIA	14	5	2011
7	CANADA	10	5	2011

8	JAPAN	9	1	2008
9	NEW ZEALAND	8	4	2012
10	NETHERLANDS	8	4	2002

### 3.5 Keywords Co-Occurrence

Through the study of high-frequency keywords, it can be seen the research hotspots in a certain field. According to the keywords in the literature, a total of 371 keywords were found, forming 765 connections. The co-occurrence map of hot keywords in the literature is shown in Figure 5. In Figure 5, the text size represents the frequency of keywords, the connection between nodes represents the connection established at different times, and the thickness of the connection represents the intensity of keyword co-occurrence. It can be seen that “study abroad” is the largest node, followed by “education” and “teacher”. The greater the node degree of a node, the higher the degree of centrality of the node and the more important the node is in the network. From the degree centrality index representing the importance of nodes (see Table 4), there is great intensity between “education”, “experience” and “higher education” and other hot keywords. Relevant research is carried out around these keywords. From the period counted in the software, “higher education”, “children”, “language”, “experience” and “mobility” appeared earlier, while recently there were keywords such as “teacher professional development”, “empirical learning”, “engagement”, “short term” and “language practice”, It is expected to become a new direction of teachers studying abroad research in the future.

From the new appearing keywords, the hot topics showed the subdivisions of the topic. Diverse elements have been taken into consideration to depict the study abroad process. For instance, the length of durations in foreign countries/regions. The efficiency of programs is relevant to the learning durations, which can be categorized as short-term and long-term programs. Since the “short-term” has been calculated in CiteSpace, it showed that short-term programs occupied the mainstream of current programs. Besides, the program design transformed from piecemeal actions to holistic activities, which indicates the study abroad programs become regular activities worldwide. Learning in a different context and cultural background leads to an efficient way to cultivate teachers. Moreover, with the larger scale of teachers studying abroad, different levels of teachers who varies from primary schools to higher education have attended into transnational experience while the position of visiting scholar mainly belongs to higher education before. And language acquisition is the main target to be achieved followed by intercultural competence and professional development. Participants and researchers alike commonly agree that one of the most effective and competent means for becoming capable in a second language is studying abroad. Pellegrino (1998) also employed introspective techniques to find out that learners often report great satisfaction with their language development during studying abroad. Since one of the influential studying abroad achievements are to enhance second language acquisition and learning the target language circumstance, the hot of language learning and acquisition in studying abroad domains will continue. The impressive word in the chart is “challenge”, although it ranks at the bottom of the top 10 high-frequency keywords. It showed the critical thinking of the significance of studying abroad. The further understanding of challenges for the individual participant, program organizers, and receiving institutions could improve the service qualities and learning results.

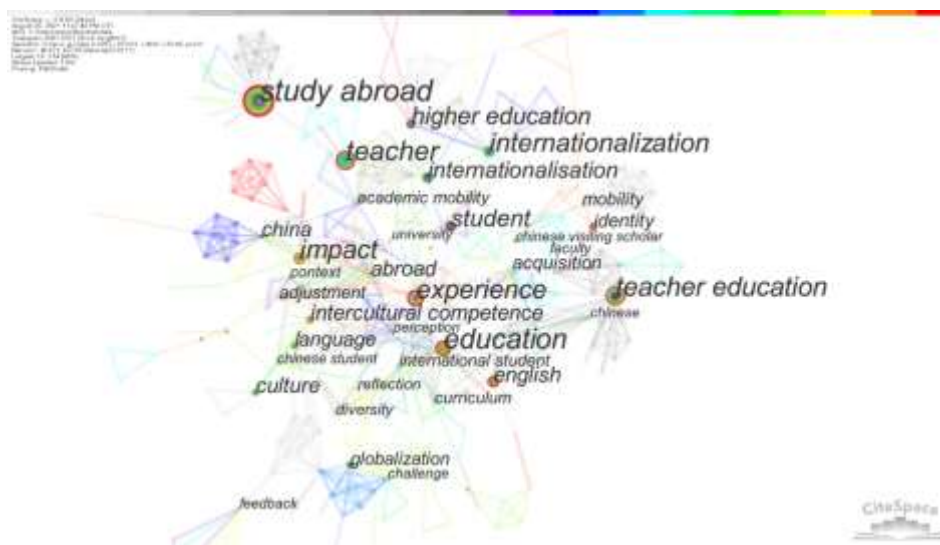


Fig 5: Co-occurrence map of hot keywords

TABLE IV. Top 10 high-frequency keywords (sorted by degree centrality)

NO.	KEYWORDS	FREQUENCY	DEGREE CENTRALITY
1	education	32	23
2	experience	24	22
3	higher education	18	22
4	abroad	12	21
5	China	11	21
6	study abroad	39	19
7	teacher education	24	18
8	acquisition	8	16
9	challenge	4	16
10	teacher	27	15

The intermediary centrality of keywords is not only an important index to judge the research hotspot in this research field, but also an imperative basis to judge the focus of scholars. From the intermediary central indicators representing the promotion role of nodes (see Table 5), the communication between “abroad”, “higher education” and “experience” and other hot keywords is strong. It can be seen that relevant research uses these keywords. From the chart, it witnessed that although the frequency of keywords such as “adjustment”, “Curriculum” and “academic mobility” is not high, its intermediary centrality is high, indicating that it is often in the path of communication with other keywords, which plays a positive role in the mutual citation relationship between documents. Unlike the high-frequency keywords which majority about features of studying abroad, the intermediary centrality of keywords presented the path and the

tendency of research directions. So far, higher education, such as universities, colleges, scientific institutions, plays the leading role in studying abroad. Despite the statistical results of studying abroad, participants adaptation and adjustment in receiving context has been paid enough attention to explain the personal development and satisfaction. The identity and special role of teachers lead the studying abroad program a unique program because the influence will not only on teachers themselves but also the students instructed by these teachers. “Academic mobility” and “curriculum” represents the goals and achievements of teachers studying abroad, which were the communication and innovation in the scientific field and teaching methods.

**TABLE V. Top 10 keyword centrality (sorted by intermediary centrality)**

NO.	KEYWORDS	FREQUENCY	MEDIATING CENTRALITY
1	abroad	12	0.36
2	higher education	18	0.25
3	experience	24	0.23
4	China	11	0.18
5	adjustment	7	0.17
6	curriculum	6	0.17
7	education	32	0.16
8	academic mobility	6	0.16
9	study abroad	39	0.16
10	teacher	27	0.15

### 3.6 Keyword Clustering

Research hotspot is the focus of scholars in a specific academic field, and it is also the embodiment of the main problems discussed in this field in a certain period. As an important part of academic papers, keywords condense the essence of papers and are often used to study and explore hot issues in a certain field. Based on this, CiteSpace software is used for keyword co-occurrence cluster analysis to intuitively reflect the research hotspot of teachers studying abroad. The keyword cluster view is shown in Figure 6, and the colour block represents the cluster area. Node  $n = 371$ , number of connections  $e = 765$ , network density = 0.0111. The module value  $Q$  is related to the density of nodes. The larger the  $Q$  value, the better the clustering effect. It can be used for scientific clustering analysis. The average contour value  $s$  can be used to measure the homogeneity of the cluster. The larger the  $s$  value, the higher the homogeneity of the network, indicating that the cluster has high reliability. As can be seen from Figure 6,  $q = 0.9207$ , indicating that the clustering effect of the network structure is good;  $S = 0.8564$ , with high homogeneity and good classification of different clusters. The Table 6 shows ten clusters, led by “Curriculum”, “Chinese learner” and “global citizenship nationalism”. The average year of the top five clusters is about 2011-2015. The main keywords are “teacher education”, “language”, “intercultural competence” and “global citizenship nationalism”. It can be seen that “intercultural competence” and “global citizenship nationalism” is mainly concerned at present.

As the world becomes tightly connected, the concept of a “global village” has taken root, which influences each country’s idea of educating “future citizens”. China is an open and inclusive country, so it has made a lot of explorations in education internationalization. The internationalization of Chinese teachers is also one of them. Among the clustering keywords, the emergence of “Chinese learners” and “Chinese visiting scholars” indicates that Chinese teachers at different stages are actively involved in overseas learning projects [30, 31, 32].

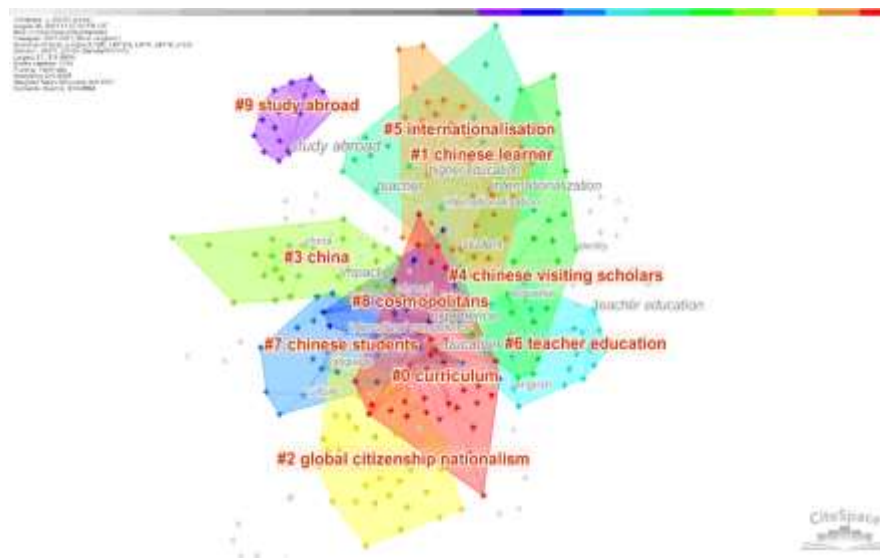


Fig 6: Keyword clustering map

TABLE VI. Main keywords of clustering

NO.	CLUSTERING THEME	MAIN KEYWORDS	AVE. YEAR	AMOUNT OF KEYWORDS
1	curriculum	cross-cultural studies (8.05, 0.005); education (7.9, 0.005); international students (7.9, 0.005); diversity (7.9, 0.005)	2012	35
2	Chinese learner	teacher mobility (8.27, 0.005); experiential learning (8.27, 0.005); EFL (8.27, 0.005); TESOL (8.27, 0.005)	2011	34
3	global citizenship nationalism	learners' perceptions (5.18, 0.05); conversation (5.18, 0.05); EMI (5.18, 0.05); interlanguage (5.18, 0.05)	2012	32
4	China	ccs (4.67, 0.05); international clinical practice (4.67, 0.05); Norway (4.67, 0.05); international networking (4.67,	2014	29

		0.05)		
5	Chinese visiting scholars	language practices (11.94, 0.001); Dominican Republic (5.93, 0.05); ethnicity (5.93, 0.05); teacher training (5.93, 0.05)	2015	26

### 3.7 Time Zone Map

To study the development and evolution of teachers studying abroad research from the time dimension, this paper uses the time zone map in the CiteSpace tool to analyze it. The time zone map can display the updates of documents and the relationship between documents in two-dimensional coordinates with time as the horizontal axis, as shown in Figure 7. In the time zone diagram, the node size indicates the frequency of occurrence of the keyword, the year in which the node is located indicates the time when the keyword first appears, and the connection between nodes indicates that different keywords appear in an article at the same time, indicating the inheritance relationship between different periods; The number of documents in different years represents the results published at that time, and also indicates the period or stage of the field. As can be seen from Figure 7, the largest node in “study abroad” and “teacher education” related literature is the study abroad first proposed in 2008. It can be seen that the concept of “language acquisition” was formally put forward around 2002, and the keyword at this time is high education. The related concepts of “intercultural” research span a long time and have a wide range of influences. The high-frequency words are concentrated in 2005-2012, indicating that the research heat in this period is high. Relevant research continues until now, and subsequent research gradually puts forward different concepts. The most recent concept is to put forward new keywords such as “short term”, “teacher professional development”, “empirical learning”, “higher education internationalization”.

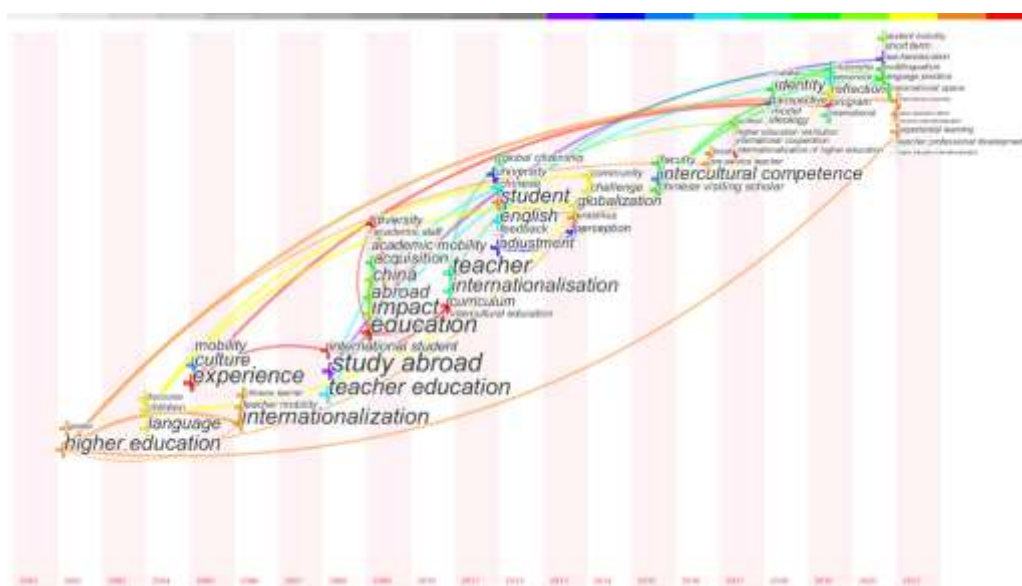


Fig 7 Keyword time zone map

### 3.8 Keyword Emergence

Through the cluster analysis of keywords, the emergent words in a certain period are detected. Emergent words are words that appear frequently in a certain period. Their changes can reflect the hot spot of scholars' research in this field in this period, and it is also a judgment basis for the evolution and development trend of this field, which can be displayed from the start time, emergent intensity, and emergent duration. To better understand the evolution and development trend of a teacher studying abroad, this paper obtains the emergent words in the research field of a teacher studying abroad. The results are shown in Table 7, including the beginning year, duration, and intensity of emergence. On this basis, this paper prospects the development trend of a teacher studying abroad research from the perspectives of emergence intensity, duration, and emergence time.

**TABLE VII. Keyword emergence**

KEYWORD S	YE AR	STREN GTH	BEGIN	EN D	2001 -2021
mobility	2001	1.09	2005	2010	
acquisition	2001	1.69	2009	2015	
diversity	2001	1.02	2009	2012	
internationali sation	2001	2.95	2010	2014	
curriculum	2001	1.79	2010	2012	
culture	2001	1.32	2010	2011	
discourse analysis	2001	1.15	2011	2012	
Chinese	2001	1.07	2011	2017	
teacher education	2001	1.44	2012	2013	
academic mobility	2001	1.09	2012	2014	
feedback	2001	0.96	2012	2016	



globalization	2001	1.94	<b>2013</b>	2014	
Erasmus	2001	1.37	<b>2013</b>	2016	
teacher	2001	4	<b>2014</b>	2016	
adjustment	2001	1.31	<b>2014</b>	2015	
challenge	2001	0.98	<b>2014</b>	2019	
higher education	2001	2.33	<b>2015</b>	2017	
international student	2001	1.7	<b>2015</b>	2017	
faculty	2001	1.56	<b>2015</b>	2018	
academic staff	2001	1.03	<b>2016</b>	2017	
intercultural competence	2001	2.75	<b>2018</b>	2021	
Catalan	2001	0.96	<b>2018</b>	2019	
collaboration	2001	0.96	<b>2018</b>	2019	
impact	2001	3.28	<b>2019</b>	2021	
education	2001	3.2	<b>2019</b>	2021	
reflection	2001	2.34	<b>2019</b>	2021	
citizenship	2001	0.93	<b>2019</b>	2021	

From the perspective of time series, “mobility”, “acquisition” and “diversity” appear the earliest; “Reflection” and “citizenship” start at the latest and continue until now, which will be the connection point for future research. In addition, in terms of the duration of emergence, “acquisition” and “Chinese” have the

longest duration, up to 7 years; The emergence time of “collaboration” is only 2 years. The emergence time of “mobility”, “challenge” and “internationalization” is also very long, indicating that they have been the focus of relevant research for a long time; According to the emergent intensity of emergent words, it can be found that the emergent intensity of “teacher” (strength = 4), “impact” (strength = 3.28) and “education” (strength = 3.2) is very high, indicating a significant change in its frequency. Generally speaking, “Intercultural Competence”, “reflection” and “education” not only have high emergence intensity but also are close to time, so they can be considered as the latest research hotspots.

In short, the new-appeared words are relevant to the details of teachers’ experience. Despite knowledge acquisition and ability development, the critical reflection about studying abroad experience and achievements is becoming the research hotspot. By focusing on teachers’ perspectives on study abroad programs, researchers fully analyzed the studying abroad programs in terms of participants’ perspectives and quantifiable capacity development and knowledge enhancement [33, 34, 35, 36]. The changes of research hotspots indicate that the effects and influence of studying abroad on teachers’ professional development, intercultural competencies, language acquisition and globalization concept has been fully analyzed and explained in the research development. Besides, the goal of teachers studying abroad has transformed from a single purpose of knowledge development to multiple purposes to strengthen teachers’ thoughts and concepts on self-reflection. The typical instance is “global citizenship development”. It is the requirement of teachers themselves and their pedagogies about cultivating students to raise the awareness of being a global citizen in the future.

#### **IV. FINDINGS**

According to the analysis of temporal distribution, cited countries, cited journals, cited authors, cited references and hotspots in the field of teachers studying abroad research from 2000 to 2020, this study identifies the knowledge scope and research hotspots in the field. Unlike other quantitative research tools, CiteSpace analyzes potential knowledge in the literature and predicts the structure, regularity, and distribution of scientific information, which is based on scientometrics. Through the analysis, scholars are provided with empirical data and evidence from multiple perspectives in teachers studying abroad domain. Moreover, the cluster analysis of hotspots indicates the emphasis and future direction of research for scholars.

Firstly, based on the analysis of the core authors and institutions of teachers studying abroad research, it is found that the core author group has not yet formed, and there is no universal cooperation among authors and institutions. It indicates that although teachers studying abroad has been increasingly managed, the studies were conducted as researchers’ interests while teachers’ internationalization as the part of teacher education has not been developed so far.

Secondly, the studies on teachers studying abroad are insufficient. First, from the perspective of teachers’ sources, studies on higher education teachers account for most of the existing literature [37, 38, 39], while other sources of teachers, such as primary teachers and secondary teachers have not been fully

considered. Besides, since language acquisition is the main topic in the domain from the very beginning, the studies on language teachers, especially English teachers, occupied most of the published articles.

Thirdly, the main topics in shifting from the feedback and evaluation of the projects to professional development and personal achievement. Through the analysis of the hot issues of teachers studying abroad issues, it is found that heated topics involve that “professional development”, “intercultural competence”, “global citizenship internationalization” and “reflection”. From the emergent words, the studies about the topic are increasing with multiple perspectives. In the beginning, scholars focused on the results of studying abroad, such as the frequency of the second language [40, 41]. With the development of the studies, internal factors, such as teachers’ satisfaction and feedback about the sojourn have emerged recently. The analysis of these research questions further clarifies the role and value of overseas visiting experiences.

Forth, the research on teachers studying abroad is steadily developed through years by years. After 2000, the found articles increased from 3 to 20 per year. The development is prosperous with the development of globalization, without disturbing by the pandemic of COVID-19. As an innovative method of teacher education, studying abroad can lead to the internationalization of teachers of different stages. Teachers will take more opportunities to interact, understand and tolerate different cultural backgrounds to meet the shortage of internationalization perspectives.

## V. CONCLUSION

The article identifies the research tendency through the analysis of temporal distribution, cited countries, cited journals, cited authors, cited references and hotspots in the domain of teachers studying abroad from 2000 to June 2021. Diverse perspectives in teachers studying abroad research have been provided with empirical observation data through the analysis. More importantly, the cluster analysis of hotspots indicates the emphasis and future direction of research for scholars, which is conducive to the expansion of the researchers’ ideas and the in-depth exploration in teacher education, professional development, and perspective transformation. Inevitably, this study has its limitations. On one hand, during the data collection, the keywords were limited to “teacher study abroad” or “teacher internationalization” or “visiting scholar program”, which could not cover all the other different terms like educational tourism, transnational experience, research abroad, etc. For future studies, more considerations could be taken into tracking more relevant terms and exploring their vital points in the field of teachers studying abroad. On the other hand, all the retrieved research articles from the SSCI database through Web of Science are English based, which might ignore publications with other languages like French, German, Italian and so on. Thus, with more papers from multi-language, the results might be more comprehensive, especially in the Chinese language, due to its high frequency in keywords. Further study could make a comparison among different languages from different academic databases in the domain of teachers studying abroad. For instance, the CNKI database in China could be employed to calculate and predict the tendency of China’s teachers studying abroad programs in different countries.

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