

Trend in the Study of Intercultural Competence: Bibliometric Analysis by Citespace

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Abstract

The literature search has shown that the number of research materials associated with intercultural competence has been increasing gradually over the past twenty years. And this apparently shows that a systematic review of intercultural competence is essential for researchers and the aim of this paper is to discuss the trend of transition in intercultural communication studies from the notion of “intercultural competence”, followed by “intercultural communication competence” and the latest notion is “intercultural communicative competence”. In doing so, the Scopus database was adopted, by which the analysis was carried out on the keywords and their diachronic development with retrieval of materials published with the keywords used were “intercultural communication competence” or “intercultural communicative competence” by periodicals from 1970 to 2021. The findings show that the acronym ICC is used to represent all the three notions. Most importantly, the three representative notions emerge in different time but with continuous trait in the study of intercultural communication. Further, the main research aspects are identified in the domain of “education”, involving in “higher education”, “student”, and “human experiment” as well as “study abroad”. The findings of bibliometric analysis provide a more specific insights into the term selection of intercultural communicative competence, its main research aspects, diachronic development and future research direction.

Keywords: trend; intercultural communicative competence; intercultural communication competence; intercultural competence; bibliometric analysis; diachronic development

Introduction

Intercultural competence is one of the most prominent areas in intercultural communication studies (Dai Xiaodong, 2011; Kim, 2001), and the term intercultural competence has evolved over time into intercultural communication competence and followed by intercultural communicative competence. These three terminologies share the same concept. Interestingly, all the three terms used the same acronym, which is ICC (Chen and Starosta, 1996; Wenzhong, 2013; Byram, 1997), and in this paper, the acronyms ICCa (intercultural competence), ICCb (intercultural communication competence) and ICCc (intercultural communicative competence) are used to differentiate the three terms.

“Intercultural communication competence” (ICCb) was introduced by [Chen \(1989\)](#) and is defined as “the ability to effectively and appropriately execute communication behaviors to elicit a desired response in a specific environment” ([Chen & Starosta, 2009](#)). The concept of ICCb has been widely used in the studies on language education ([Abrams, 2020](#)), model construction ([Spitzberg, 1991](#); [Gao, 2014](#); [Yangying & Zhuang, 2007](#); [Yang, 2014](#); [Zhang, 2012](#); [Yuan, 2021](#); [Arasaratnam and Banerjee, 2011](#)), adaptation theory ([Kim, 2001](#)) and communication ([Gudykunst, 1998](#)). In addition, [Spitzberg \(1991\)](#) used the term ICCb to elaborate his insight about the model of “intercultural competence” (ICCa).

The term “intercultural communicative competence” (ICCc) started to emerge after the year 2000 and was proposed by [Byram \(1997\)](#). The scope of ICCc mainly focuses on the model construction in the context of foreign language education ([Ge Chunping, 2016](#); [Xiaole, 2017](#)). People with intercultural communicative competence should be able to effectively interact with members of the target culture, displaying curious and open attitudes, demonstrating knowledge of the relationship between language and culture in the target culture, possessing interpreting and relating skills ([Byram, 1997](#)).

It is inevitable to include the origin of communicative competence theory by [Hymes \(1966\)](#) in discussing ICCc. [Hymes \(1972\)](#) defined communicative competence as the ability to convey and interpret messages as well as to negotiate meanings appropriately and interpersonally in specific context. This comprehension of communicative competence is firstly integrated with the concept of sociolinguistic. [Hymes \(1972\)](#) proposed four components of communicative competence; linguistic competence, sociolinguistic competence, discourse competence and strategic competence. Linguistic competence was viewed by [Canale and Swain \(1980\)](#) as grammatical competence which refers to knowledge mastery of vocabulary, phonetic, syntactic, semantic and morphological. This definition of grammatical competence is also accordance with linguistic competence proposed by [Chomsky \(Bagari & Mihaljevi, 2007\)](#). The sociolinguistic competence, in the model of communicative competence, comprises knowledge of rules and conventions of using language appropriately in different social cultural contexts ([Canale & Swain, 1980](#)). Discourse competence refers to the ability to combine grammatical form with semantic form for the purpose of achieving a unified spoken and written text in different genres ([Canale, 1983](#)). Strategy competence includes verbal and non-verbal communication strategies used to bridge the gap and provide a compensatory function in linguistic knowledge and in the process of communication, ([Canale and Swain, 1980](#); [Rababah, 2004](#)).

As mentioned earlier, the focus of this paper is on the transition from the term “intercultural competence” (ICCa) to “intercultural communicative competence” (ICCc). According to the bibliometric analysis of database conducted in the current study, it can be concluded that the period of transition between these two terms can be determined from two aspects: the earlier emerging time and their boom period, which will be elaborated in detail in the following sections. In addition, the primary areas of intercultural competence development during the two different periods will also be discussed by means of visualized map as pictured by Citespace. Having said that, this paper thus aims to answer the following research questions:

1. What is the transition period of research from intercultural competence (ICCa) to intercultural communicative competence (ICCc)?

2. What are the dominant fields of intercultural competence (ICCa) developed in the different periods of timeline?

2. Methodology

Bibliometric study is a quantitative study which aims to examine the research progress and comprehensive measurement of research trend (Hossain, 2020). Over the years, bibliometric studies, integrated with scientific mapping technology, have been used more frequently in the review articles to analyze the topic or emerging trend in various fields of interest by the presentation of citation in terms of journals, authors and reference (Valérie & Pierre, 2010).

Citespace is one of the available computer software written in Java for the purpose of visualizing and analyzing the emerging trend in a relevant knowledge domain (Chen, 2006). Since its introduction, more research areas, for example, information science, computer science, and medicine use Citespace for the statistical analysis and information visualization of the research development. Its most acknowledged function is the keyword co-occurrence, keyword time zone and literature co-citation, which can analyze the current research hotspots and its developmental process. In this study, we used the latest version Citespace 5.7R5W in conducting bibliometric and systematic analysis of intercultural communicative competence research.

As for the English literature, Web of Science (WoS) and Scopus are more available and are frequently used to access first-hand articles. Following Peng, Zhu and Wu (2020), who have adopted the WoS data as a research source in conducting the visualized review, this paper is an extension of their literature study on intercultural communicative competence using other comparatively comprehensive database, which was Scopus, for the bibliometric analysis.

The data were collected from Scopus database by keyed in the keywords, “intercultural communication competence” and then followed by “intercultural communicative competence”. The data consisted of materials published between 1970 to 2021. The materials collected were categorized into different types, which were journal articles, conference papers, review papers and books, and were uploaded on the Citespace for analysis. The time slice was set from 1970 to 2021 with a three-year division as for the parameter setting. Keywords were chosen for the part of Node Types. Node types mean the information that scholars intend to analyze in Citespace and they can be the materials’ author, institute, country, keyword, source, category, cited references, cited author, and cited journal.

Given the large amount of materials retrieved from Scopus, the selection criteria were essential for the material analysis. Having said that, the current study selected the top 10 levels of most cited or occurred keywords from each time slice. The last selection was about the Pruning, that is, a kind of method to cut the large data of materials into proper blocks to present a better vitalized map. There are four types: pathfinder, pruning sliced networks, minimum spanning tree and pruning the merged network. In the current study, pathfinder and minimum spanning tree were used as the main pruning method. Pathfinder network is designed to capture the significant relationships between keywords. Minimum spanning tree is a part of pathfinder network and it reduces the number of links which does not satisfy the selection criteria in the transformed network. Therefore, the visualization map generated by minimum spanning tree is clearer to see the trend of specific field. Given that the

keywords keyed in were hardly found in the literatures published before 1980s, the time slice was therefore altered from 1982 to 2021. Overall, 1388 available materials published over almost 40 years were collected. Then, the visualized maps of keyword co-occurrence and citation bursts as well as time zone were generated and were adopted for quantitative statistics.

3. Results and data analysis

This section is divided into two sub-sections: the first section deals with the transition of terminologies in intercultural communication research and followed by its research contexts.

3.1 The exploration of representative terms in intercultural competence

The findings of the keyword analysis by Citespace showed that there are 106 nodes with 309 lines in the visualization map. The node size represents the frequency of corresponding keywords, the higher the frequency, the larger the node. The lines of nodes represent the co-occurrence frequency, and the thicker the line, the closer the relationship between nodes. Figure 1 shows the research fields related to intercultural communication, which include “intercultural training”, “curriculum”, “empathy”, “multiculturalism”, and “diversity”. Based on Figure 1, it can be claimed that the prominent subject of interest is around the term ICCa, which is the largest node. The outer circle of the node colored in purple represents higher centrality value, which depicts its strong impact during the developmental progress of ICCa. The terms “intercultural competence”, “intercultural communicative competence”, “intercultural communication”, “intercultural communication competence”, “human”, “education”, “article” and “culture” are the key pivots linking to other extensive studies in the field of intercultural communication.



Figure 1. The visualization map of keyword in the field of Intercultural Communication

Figure 1 displays the primary fields in the intercultural communication. The existence

of ICCa, ICCb and ICCc are the researchable domains and extended to “language education”, “psychological adaptation”, “communication skill”, “cultural awareness” and “portfolio assessment”. Given the similarity and distinctive domains of these three concepts, the aim of this section is to discuss the transition of the concepts.

Spitzberg (1991) employed ICCb as the title of his article, but ICCa was employed alternatively in the article for elucidating the components in the ICCb model. Followed by Kim (2001) who studied the divergence between both concepts claimed that ICCa and ICCb are similar concepts. Fantini (2000), on the other hand, explained the notion of ICCc has the same meaning as ICCa and he used the same acronym, that is ICC, to represent both concepts. Apparently, many scholars use the same abbreviation, that is ICC, for ICCa, ICCb, and ICCc and regard them to mean the same concepts and these concepts are used interchangeably.

In addition, Chinese scholars outlined the three concepts from a cultural perspective. Yang and Zhuang (2007) perceived ICCa is similar to ICCb and ICCc, which is helpful for people to understand the communication from the perspective of intercultural rather than language communication. Hu (2013) employed the acronym ICC to represent the term “intercultural communication competence” to discuss its role in foreign language teaching. Gao (2014) believed that the ICCa includes ICCb and ICCc. Unlike ICCb or ICCc, ICCa involves not only social aspects but also non-social aspects.

Based on the substantial of papers around intercultural communication, most scholars concluded that all the three terms, intercultural competence, intercultural communication competence and intercultural communicative competence, are the same concept. The usage of these three terms has its periodical trait and a closer look reveals that the usage frequency and their pivot as well as the research fields are quite different. Table 1 and Figure 2 clearly show the transition points of the terms used.

Table 1. *Keywords Co-occurrence*

| No. | Frequency | Centrality | Year | Keywords |
|-----|-----------|------------|------|--|
| 1 | 585 | 1.04 | 1993 | Intercultural competence |
| 2 | 120 | 0.84 | 1990 | Intercultural communication |
| 3 | 112 | 0.23 | 2002 | Intercultural communicative competence |
| 4 | 75 | 0.26 | 2007 | Culture |
| 5 | 64 | 0.26 | 1995 | Human |
| 6 | 57 | 0.13 | 2009 | Intercultural education |
| 7 | 50 | 0.15 | 1995 | Education |
| 8 | 48 | 0.07 | 2009 | Higher education |
| 9 | 44 | 0.41 | 1995 | Article |
| 10 | 40 | 0.10 | 2009 | Student |
| 11 | 40 | 0.00 | 2012 | Study abroad |
| 12 | 37 | 0.42 | 1989 | Intercultural communication competence |

Table 1 shows the most prominent theme is “intercultural competence” with the highest

frequency value 585 and centrality figure 1.04. This keyword was coined by Björkman and Gertsen (1993) and Jacobson et al. (1999) conducted a study on college students for the purpose of developing ICCa by means of Intensive English Program.

The term “intercultural communication competence” has high centrality value (0.42) and was introduced by Chen (1989). There are four dimensions of ICCb which includes personal attribute, communication skills, psychological adaptation and cultural awareness. Chen and Starosta (1989) conducted an empirical study to explore the relation between these dimensions on international students in America. Starosta’s (1996, 2000) ICCa model and instrument to assessing competence level are widely used in the research of ICCb and ICCc (Yunus et al., 2017; Mostafaei Alaei & Nosrati, 2018). Another high influential term shown in Table 1 is “intercultural communicative competence” (ICCc) with high frequency (112) and centrality (0.23). It started to appear in 2002 in the fields of intercultural foreign language education and teaching practices in Europe (Sercu, 2002).

Figure 2 illustrates the distribution of published materials on ICCa, ICCb and ICCc over twenty years. There are three lines with different colors showing the temporal development of transition from ICCa to ICCc. The red line represents materials related to ICCa which has increasingly developed after 2000, peaking around the year of 2018 with more than 200 materials. The number of published materials with the theme ICCc reaches the summit of 50 around 2018. On the other hand, papers with theme ICCb dropped to the lowest point in 2018.

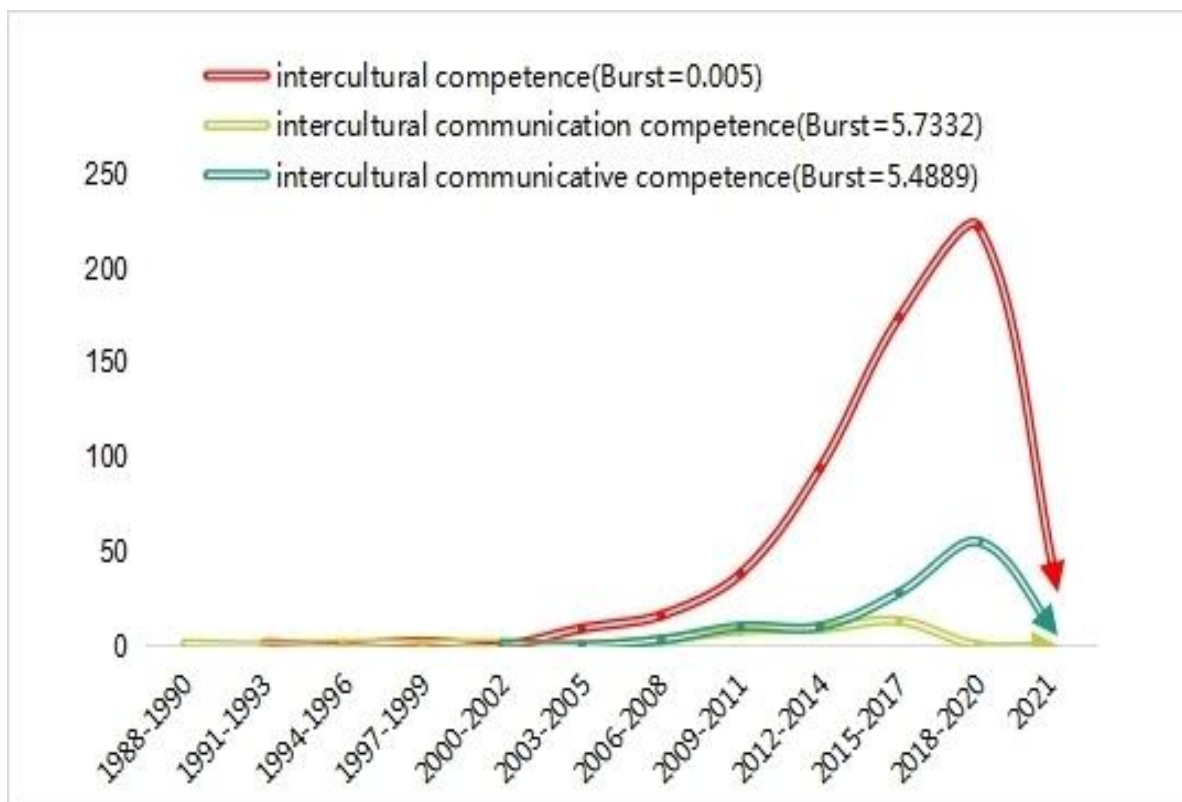


Figure 2. Temporal development of Intercultural communication research

The tendency of terms employed in ICCa, ICCb and ICCc partly proves which keywords are more favorable and accessible in intercultural communication research. From the perspective of time span, ICCc is used in the latest research and has more potential proponents. Figure 3 illustrates the life span of the top 10 keywords related to intercultural communication by showing its strongest citation bursts. The citation bursts are depicted in red line. The keyword bursts can be explained from two aspects respectively: time span and strength of bursts. Strengths bursts means the density of materials which are published on the respective keywords in a specific duration of time. Given the lower strength bursts of ICCa which is 0.05, this section focuses on ICCb and ICCc.

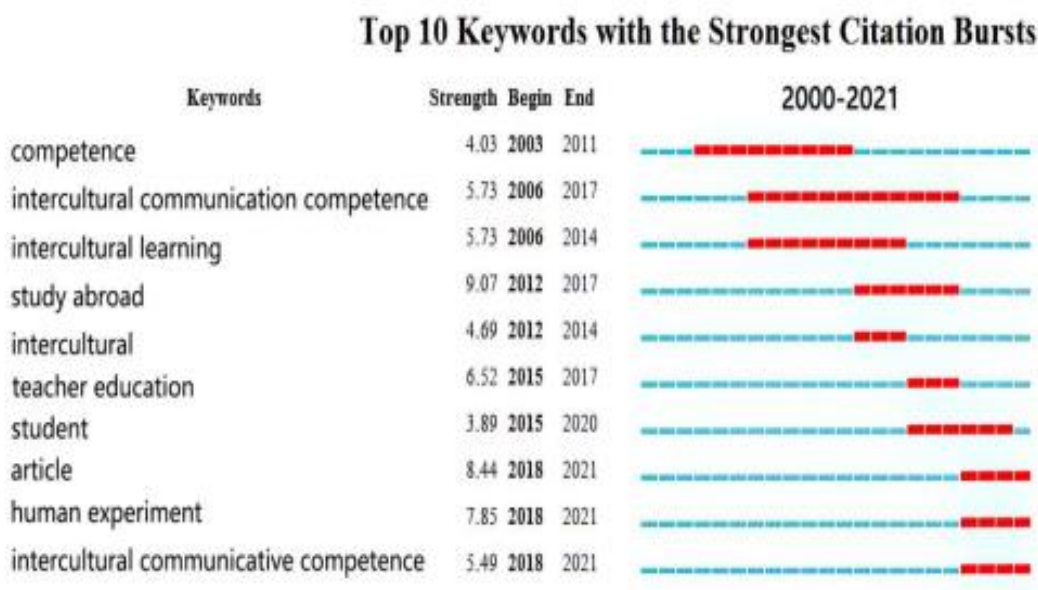


Figure 3. Visualization map of keyword bursts

In terms of time span, “intercultural communication competence” (ICCb) has the longest time bursts as shown in Figure 3 since 2006 until 2017. It shows that researchers during this time were in favor of ICCb research of intercultural communication in the aspects of multicultural context, model construct, intercultural sensitivity and cultural identity in the third culture, as well as cultural intelligence applied in business education (Holmes, 2006; Holmes & Dervin, 2016; Arasaratnam & Banerjee, 2011; Moore & Barker, 2012; Lyttle et al., 2011; Tuleja, 2014). Simultaneously, the specific fields like “intercultural learning”, “study abroad”, and “teacher education” have the overlapped bursts during the time with “intercultural communication competence” (ICCb), mainly focusing on the study of facilitating competence among students and teachers as well as assessing the instrument and research approach of ICCb (Behrnd & Porzelt, 2012; Wang & Zhou, 2016b; Yunus et al., 2017; Nadeem et al., 2018). The burst of use of “intercultural communicative competence” (ICCc) starts in 2018 until present. Due to the link of burst time between ICCb and ICCc, it can be stated that the study of intercultural competence is a continuous process and prove the continuum trait between these two concepts. It shows the trend moving from ICCb to ICCc.

As for the strength dimension, the data of “intercultural communication competence” (ICCb) is similar to “intercultural communicative competence” (ICCc), which shows separately 5.73 and 5.49. Although the density of ICCc is 0.24 less than ICCb, it is still considered as one of the most recognized terms in intercultural communication. [Figure 4](#) displayed the use of ICCa, ICCb and ICCc in different periods from 1986 to 2021. Further, the keyword “study abroad” with 9.18 bursts from 2012 to 2017, which is the highest number of the keyword burst. Referring to [Figure 3](#), there is overlap between ICCb and “study abroad”, which means more materials around “study abroad” in ICCb. Materials on “study abroad” mainly discuss the influence and function of staying abroad on the improvement of ICCb for higher education students. [Parsons \(2010\)](#), for example, has conducted an empirical study on the effects of internationalized education experience on students’ intercultural competence in the United States and Australian universities. His findings showed that the primary components, such as study abroad, communication with international students, internationalized curriculum and frequency of attendance at international events, were significantly related items to ICCb.

[Behrnd and Porzelt \(2012\)](#) did a comparative study on effects of studying abroad experiences on the development of ICCa. Their findings showed that studying abroad experiences have effects on cognitive intercultural competence, affective intercultural competence and conative intercultural competence. Students with longer duration period being abroad showed a significant relation on cognitive, affective and conative intercultural competence. Additionally, the duration of staying abroad has positive effect on problem solving, individual, and social intercultural competences.

In addition, [Lee \(2012\)](#) conducted a study on American undergraduate students’ intercultural communicative competence and his participants were foreign students who studied in a Spanish university. The results of his study showed that studying abroad can have an impact on the improvement of ICCc by means of completing blog tasks and exchanging cultural perspectives with natives for one semester. Therefore, his study confirmed the accessibility and effectiveness of networking in the development of ICCc. [Lee and Song \(2019\)](#) conducted a comparative study on the development of ICCc through study abroad, telecollaboration and on-campus language study. Telecollaboration refers to use online communication tools in class to interact with native speakers of target language for the purpose of developing foreign language students’ linguistic competence and ICCc ([O’Dowd, 2015](#)). The results indicated that study-abroad group displayed the most significant improvement in cognitive, affective and behavioral aspects of ICCc. Telecollaboration has the similar improvement as study abroad on ICCc, and is also regarded as an effective learning approach in developing linguistic competence. On-campus language learning, on the other hand, shows little improvement on ICCc. In order to address the foreign language learning in monocultural environment, [Roarty and Hagley \(2021\)](#) advanced International Virtual Exchange project, which means students can use English as foreign language to connect with class activities in a limited environment. Students engaged in the project have enhanced both linguistic and cultural competence.

[Figure 3](#) shows the continuum trait of the trend in the study of intercultural competence, which develops from “intercultural competence” (ICCa) to “intercultural communicative competence” (ICCc). Therefore, the new trend is the use of “intercultural communicative competence” (ICCc), which can be the future study in the field of intercultural communication.

3.2 The Evolution of Research Domains

The definition of ICCa, ICCb and ICCc has been discussed for over 20 years and scholars have come to a consensus on the definition and elements in ICCa (Deardorff, 2006). This paper aims to demonstrate the trend of intercultural competence research using time zone map in Citespace.

The outset of research on communicative competence can be found since 1970s, during which the studies were around effective behavior in the intercultural context. The tentative studies were involved in behavior assessment for the purpose of intercultural adaptation (Ruben, 1976), intercultural effectiveness (Hammer et al., 1978), cross-cultural sensitivity (Hull, 1972), and proposal of sympathy and empathy (Bennett, 1979). However, the keywords retrieved reveal that the term “intercultural communication competence (ICCb)” and “intercultural communicative competence (ICCc)” started to appear in the 1980s. Having said that, Figure 4, which illustrates the time zone view of the co-occurrence of keywords, includes the materials collected from 1985 to 2021.

The time slice was divided based on the five-year duration due to the large database. The map is applied to the minimum spanning tree as the pruning method to make the keyword development trend more accessible. Accordingly, there are 86 nodes and 252 links composed into this map. After excluding irrelevant nodes, the transition of the keywords becomes clearer. The node size as shown in Figure 4 represents the frequency level and the link shows the connection among the keywords. The number of keywords burst in certain duration demonstrates significant research achievements and an active development of relevant field in correspondent time zone. There are many keywords in the relevant years, more keywords mean more significant development in this field during this period.

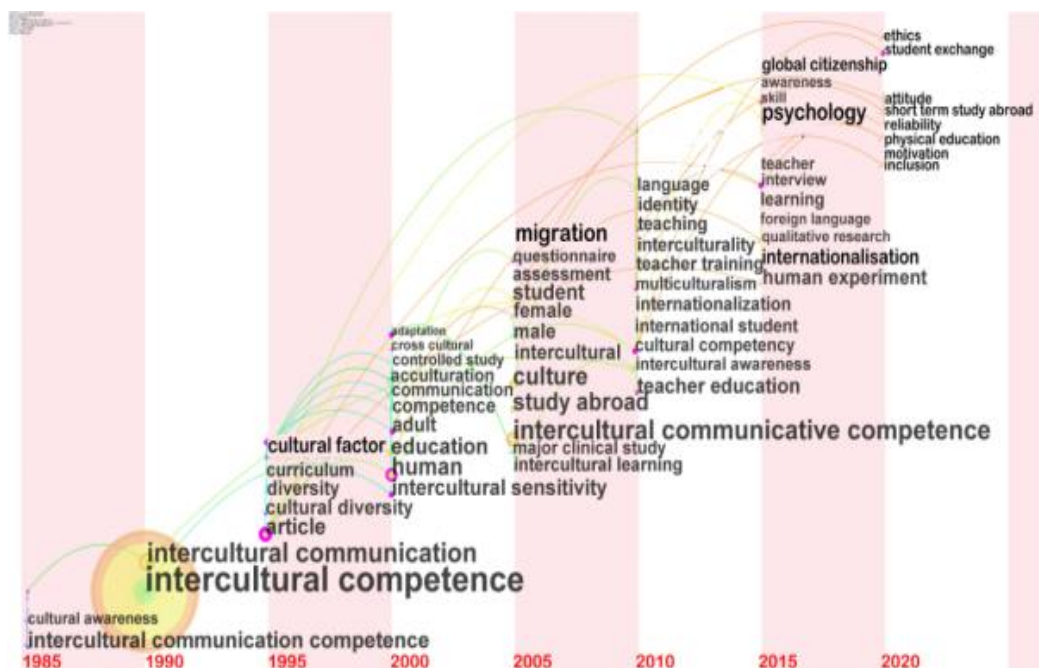


Figure 4. The time zone view of the co-occurrence of keywords

Based on the data shown in [Figure 4](#), there were not many materials on ICCb and ICCc published before 1985 and therefore the data used in generating the time zone for the occurrences of these two terms, as shown in [Figure 4](#), were taken starting from 1986 and beyond. It is apparent that ICCb appeared in the duration from 1985 to 1989. ICCb was introduced in the early of 1990s, and ICCc was introduced after 2000. The time zone visualized map provides on the other position a clear indication that the explanation of these three acronym terms on ICC above is accordance with [Figure 2](#).

One of the most important keywords in [Figure 4](#) focuses on the “assessment” exploration. Given the interest in assessing ICCa, ICCb and ICCc specifically, attempts and efforts have been extended to develop the proper instrument to assess people’s intercultural competence since the late of 1970s. At that time, studies on ICCa focused on the research related to effectiveness of behaviors in the progress of intercultural communication. [Ruben \(1976\)](#) conducted a pilot study to collect and analyze the behavioral data to generate reliable assessments of interaction competence in multicultural context. [Ruben \(1976\)](#) considered that there was a gap between knowledge and performance. He viewed the gap as “the inconsistencies between one’s verbal/cognitive competencies and one’s behavioral competencies” (p.335). Ruben also separated verbal from behavioral measurement and he highlighted that behavioral competence should be measured through displaying individual’s ability in his behavior rather than his knowledge, attitude, willingness, etc. Following this, Ruben proposed seven dimensions to measure intercultural behavior competence and the dimensions are display of respect, interaction posture, orientation to knowledge, empathy, self-oriented role behavior, interaction management and tolerance for ambiguity.

Along with the essential sense of creating instrument to assess communicative competence in intercultural environment, researchers made great efforts and attempts to develop accessible and available behavioral assessment instrument in 1980s and 1990s. [Koester and Olebe \(1988, 1989\)](#) proposed the behavioral assessment scale for intercultural communication effectiveness (BASIC) based on the modification of Ruben’s scale of behavioral competence. BASIC also includes nine items: display of respect, interaction posture, orientation to knowledge, empathy, task related roles, relational roles, individualistic roles, interaction management and tolerance for ambiguity. Their findings revealed that items of display of respect and empathy has the most significant correlation with intercultural communication effectiveness.

[Bhawuk and Brislin \(1992\)](#) developed the Intercultural Sensitivity Inventory (ICSI) to test businessmen’s intercultural sensitivity in different cultural environments. This instrument was developed from the individualism and collectivism perspective. There are three elements in ICSI: the understanding of behaviors in different cultures, level of open-mindedness to culture differences and behavioral flexibility in host culture. Nevertheless, this instrument focuses on the capture of behavior, rather than cultural awareness.

[Chen and Starosta \(2000\)](#) coined a 24-item scale for measuring the ICCb through assessing “intercultural sensitivity”, which is named intercultural sensitivity scale (ISS). This 24-item scale includes interaction engagement, respect for cultural differences, interaction

confidence, interaction enjoyment and interaction attentiveness. Many scholars in China used ISS in the group of English or non-English majors to examine college students' development of ICCb (Hu, 2011; Zhang, 2016; Jing, 2014; Jingyun, 2016). For the purpose of measuring the college students' ICCb, some scholars attempted to adapt the ISS into a better version which can better accord with the native situation (Wang & Zhou, 2016a).

Another important scale of assessing intercultural sensitivity is intercultural development inventory (IDI) which was constructed based on the theoretical framework of development model of intercultural sensitivity (DMIS) to measure the orientations of cultural differences which were described in DMIS. (Hammer, Bennett & Wiseman, 2003). Five dimensions of DMIS were confirmed and these dimensions were measured with "DD (Denial/Defense); R (Reversal); M (Minimization); AA (Acceptance/Adaptation); EM (Encapsulated Marginality)" (P.434).

In addition, Chen and Starosta (1996) proposed their model on ICCb based on the synthesis of previous studies. They concluded three dimensions in ICCb: affective process, cognitive process and behavioral process. Intercultural sensitivity is viewed as affective process, which includes self-concept, open-mindedness, being-nonjudgement and social relaxation. Intercultural awareness is viewed as cognitive process, which includes self-awareness and cultural awareness. Intercultural adroitness is viewed as behavioral process, which includes message skills, behavioral flexibility, social skills and interaction management. Chen and Starosta highlighted "intercultural awareness (cognition) is the foundation of intercultural sensitivity (affect), which in turn leads to intercultural competence (behavior)" (1996).

Apart from Chen and Starosta's ICCb model, Deardorff's pyramid model about ICCa has been given more attention in the field of intercultural communication. Deardorff (2004) used mixed approaches of quantitative and qualitative to seek for the basic consensus of definition and components of ICCa. Deardorff (2004) stated that among many terminologies, ICCb and ICCa are the preferable terminologies scholars often used in their materials and there is no significant difference between ICCa and ICCb. And she overviewed the development of both ICCb and ICCa respectively for the purpose of more comprehensive understanding of these two terminologies. ICCa was used in her material due to her research purpose of finding the consensus of definition and assessment of this terminology. Deardorff (2006) highlighted leading scholars of ICCa research and summarized their opinions on the option of ICCa research methodology, which included observation of others/host culture, case studies, student interviews, etc. Additionally, Deardorff elaborated the pyramid model of ICCa in detail with its five components which are attitude, knowledge, skills, internal outcomes and external outcomes. Among those components, attitude is regarded as the foundation for the development of ICCa. It begins with attitudes (respect, openness, curiosity and discovery), and then move to knowledge (cultural self-awareness, deep cultural knowledge and social linguistic awareness) and skills (to listen, observe and evaluate; to analyze, interpret and relate).

The models of ICCa and ICCb both present the dimensions and their components respectively. The development of ICCa and ICCb is elaborated clearly and every model

has its foundational level, based on which other upper level components can be developed accordingly. As for ICCa, the upper level components include cultural self-awareness, deep cultural knowledge and social linguistic awareness; listening, observation and evaluation, analysis, interpretation and relation; adaptability, flexibility, ethno-relative view and empathy; and finally, effective and appropriate communication and behavior in an intercultural situation. As for ICCb, the upper level components are relatively simple, including self-concept, open-mindedness, being-nonjudgement and social relaxation; and finally, message skills, behavioral flexibility, social skills and interaction management. Although there are some similar components in both models, the components are comprised of different dimensions in both models. For example, openness in pyramid model is in the level of attitude which is one of foundational components for the development of ICCa, while open-mindedness in ICCb is one of components in intercultural sensitivity (affect), which develops based on intercultural awareness (cognition). Another difference in these two models is the distinction of concepts in every dimension. In ICCb model, Chen and Starosta also highlighted intercultural sensitivity, intercultural awareness and intercultural competence are separated concepts, which is not mentioned in pyramid model. However, the studies on the relationship between intercultural awareness and intercultural sensitivity are scarce and require further studies.

As shown in [Figure 4](#), there is a link between “cultural factor” and “communication”. [Holmes \(2006\)](#) investigated Chinese students’ ICCb in multicultural context and pointed out Chinese students cannot fully explain the culture in multicultural context, which limited communication competence in multicultural classroom. Holmes explained that Chinese students should reconstruct their understanding about dialogue and reshape their ideas about empathy and reciprocity when they are in communication with New Zealand students. At the same time, Chinese students also questioned their understanding about constructing harmonious relations and politeness strategy. Holmes believed it was the result of cultural-general approach, which is the limitation to the most extent for the improvement of ICCb. Therefore, for the purpose of ICCb development in multicultural context, Holmes proposed the effectiveness of culture-specific approach, which enables people to explore and focus on the deep structure of culture, such as world view and belief, religion, community structure, etc. [Hofstede \(2011\)](#) elucidated that national culture exists relatively in (visible and conscious) practices as regard to the way people perceive what is happening in their social environment ([Noor, Fareed, Isa, & Abd. Aziz, 2018](#)). Either Chinese students or New Zealand students who have specific culture knowledge in multicultural context will develop ICCb better than those only with an ambiguous general culture knowledge.

Based on the keywords shown in [Figure 4](#), it is suggested that every duration has its main research themes. For example, during 1985 and 1989, [Chen \(1989\)](#) introduced the term ICCb and elaborated four dimensions with their own four components respectively in his research. He tested the significant correlation among personal attribution, communication skills, psychological skills. However, there was no relationship among cultural awareness, personal attributes and psychological adaptation. [Chen and Starosta \(1996\)](#) overviewed and integrated the literatures on the concepts of intercultural effectiveness, intercultural awareness and

intercultural sensitivity. They concluded the model of ICCb which regarded intercultural sensitivity as the dimension of intercultural affective and intercultural awareness as intercultural cognitive. The development of intercultural sensitivity is based on intercultural awareness. And both intercultural sensitivity and intercultural awareness can affect the behavioral effectiveness and appropriateness. In 2000, Chen and Starosta constructed intercultural sensitivity scale (ISS) to measure ICCb.

However, studies of intercultural competence are more likely to focus on the external factors like effectiveness or outcome to assess the success in intercultural communication (Lisheng, 2011). Compared to those studies focusing on behavioral effectiveness, Chen and Starosta (1997) highlighted intercultural sensitivity as interactants' "ability to develop a positive emotion towards understanding and appreciating cultural differences that promotes appropriate and effective behavior in intercultural communication" (p.5). Chen and Starosta suggested six elements in intercultural sensitivity: self-esteem, self-monitoring, open-mindedness, empathy, interaction involvement and non-judgment. Bennett (1986, 2017) proposed the intercultural sensitivity from the perspective of dynamic development of personal growth. There are six stages from ethnocentrism to ethno-relativism: denial, defense, minimization, acceptance, adaptation and integration. Bennett's theory of development model of intercultural sensitivity (DMIS) is a dynamic process from ethnocentrism to ethnorelativism. Chen and Starosta's elaboration on intercultural sensitivity is intended to sum up the elements which are related to personal attributes.

Due to the acceleration of the global integration process, the research of intercultural competence began to involve in the "migration" and "study abroad" in "education" field around 2005. As is shown in Figure 4, the focus of ICCb or ICCc is mainly about the general field, such as "cultural diversity", "cultural factor", "cultural awareness" which highlight the theoretical building and construction with less empirical studies before 2000. However, in the following two decades, scholars went for the ICCb or ICCc empirical studies more specifically, like "education", "study abroad", "assessment".

In 2016, the keyword of "human experiment" indicates that the researches of ICCb or ICCc focus more on empirical studies, which are involved in "global citizenship", "psychology", "teacher", "foreign language", and "internationalization". In 2021, there exists another important keyword "exchange student", which has higher centrality value with purple outer circle, indicating more frequency and intension of international cooperation in the field of education.

Based on the available visualized map, it can be suggested that the research direction changed over times from a general view to more specific area, focusing mainly on "education" and "students". The trend of world integration in 1990s turns out to be the reason and motivation of developing ICCa, ICCb and ICCc. The trend of intercultural competence is from ICCa to ICCc, which means more specific research direction focusing on the communicative competence in intercultural context.

4. Discussion

With the creation of new technique of software which can picture the historical procedure of ICCa more impressively, this article presents and narrates the literature review by distinctive visualized maps generated by CiteSpace. This section discusses the overview of trend for the study of ICCa in terms of two aspects: timeline and domain research areas.

Firstly, the retrieval literature in the current paper is selected from 1970 to 2021, which covers comprehensive scale of ICCa, ICCb and ICCc. Although fewer literature review of ICC was conducted and reviewed through Citespace to analyze the data, some scholars conducted the literature of ICCb in 2020 (Peng et al., 2020). They analyzed the data of temporal distribution, cited journals, cited countries, cited authors, cited references and hotspots in ICC from 2000 to 2018 by visualized maps.

From the timeline perspective, the present study employed various visualized maps to delineate the developmental trend in the field of ICC in terms of keyword co-occurrence, keyword citation bursts, and keyword time zone to interpret specifically the term of ICCa, ICCb and ICCc. The purpose of this study was to confirm the transition duration of the research from ICCa to ICCc from the overview data. Accordingly, ICCc is the newest term and the trend of study on it lasts to 2021, while studies of ICCb lasted from 2006 to 2017, which means the communicative competence in intercultural context still the popular research domain. Studies of ICCa, ICCb and ICCc are a continuous process from timeline analysis.

Additionally, some areas have been done on ICCb, such as psychological adaptation, cultural awareness, personal attribute and culture stress, which represent cultural dimensions. By contrast, ICCc focuses more on the field of foreign language education, intercultural learning, higher education and students, while ICCa stresses portfolio assessment, intensive English program, human resource management, and international student. These research domains are distributed in different time zones, and the trend of research domains develop from a comparatively general insight to a specific perspective of higher institution education which research subjects focus on students' ICCc development.

It is inevitably to mention the limitation of this article. Firstly, retrieved research articles is from Scopus, which are almost written in English, especially focusing on the region of United States, Australia and European countries. Future direction of this study should focus more on comprehensive research in other domains and languages. Secondly, more related keywords should be retrieved apart from ICCb and ICCc, such as "cross-cultural competence, global intercultural competence and intercultural communication competency". With more comprehensive keywords, there will be more full-scale review.

5. Conclusion

The terms of ICCa, ICCb and ICCc and the subside research domains are shown through bibliometric analysis by using visualized maps generated by Citespace. The findings in present study explain the transition of research from ICCa to ICCc and prove that studies on

competence in intercultural context go with a continuous process from the term ICCa to ICCc. It is also confirmed that although the term of ICCa is used more than other two terms around 2018, its burst or the growing trend is the weakest among the three terms. Comparatively, studies on ICCb became popular in 2006 and ended in 2017, which was the longest research duration. According to the data shown in keyword burst, ICCc is the newest term and is applied the most in the previous studies from 2018 to 2021.

The findings in the present study also show that even though ICCa, ICCb and ICCc have similar meanings, the research domains in these three terms are distinct separately. ICCa focuses more on a relatively wide range from “human resource management” to “portfolio assessment”. ICCb highlights the dimension of cultural research, involving “cultural awareness”, “culture stress”, and “psychological adaptation”. ICCc highlights dimension of “higher education” and “foreign language education”. Given the widely use of ICCc in recent years, its research domain in education field is the emerging interest for many scholars. According to keyword burst, developing and promoting ICCc in the context of higher education will be the tendency.

The findings of present study fill in the gap of overview for the trend studies in intercultural competence. Some studies may be overlapped, but the data were selected from different database, which can be regarded as a supplement for the literature review of ICCa, ICCb and ICCc using the emerging technique. According to the analysis, the future study of ICCc is mainly on higher education, foreign language education and exchange students as well as short term study abroad. However, there is fewer research about the psychological factors affecting on the development of ICCb and ICCc. In addition, less materials are involved in examining the relationship between affective and cognitive dimensions in ICCb, especially how much the cognitive dimension has impact on affective dimension. This can be a researchable field which requires more attention in the future studies.

As we encounter the most prosperous multicultural society, the deep and careful study on intercultural communicative competence (ICCc) is increasingly becoming urgent and necessary (G.-M. Chen & Starosta, 1996). Spitzberg (1991) also mentioned that “though we may not have fully become a ‘global village,’ there is no denying that the various cultures of the world are far more accessible than ever before, and that the people of these cultures are coming into contact at an ever increasingly rate” (p.379). As increasingly interaction among the global market and more accessible business, the necessity for the intercultural communication competence had never been greater (Ruben, 1989). To better understand the development process of intercultural competence, the present study uses the visualized maps to overview the trend of intercultural competence from perspectives of timeline and domain research areas. Particularly, the keyword co-occurrence and bursts analysis indicate the kinds of main research domains. The keyword bursts can be used to predict the boom of research direction and the future development trend of ICC studies. The further study should focus on the causes for improving ICCc in depth from the perspective of psychology and personal attribution. Exploration of personally inner factors which can advance the understanding of improvement for ICCc is essential and emergent. In the regard of culture awareness, it is necessary to recognize the effects of implicit culture belief of individuals on the construction

of ICCc under the context of higher institution. This is the available research point in the future ICCc study from psychological angle.

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