



# Global Publication Trends in Second Language Willingness to Communicate Research: A Bibliometric Analysis from 2020 to 2025

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## Abstract

This present research aims to conduct a comprehensive bibliometric analysis and visual mapping of research trends and directions on second language willingness to communicate (L2 WTC) studies published between 2020 and 2025. Biblioshiny was used to conduct the bibliometric analysis, and VOSviewer for network visualization map. A total of 631 articles were collected from the Scopus database. The findings revealed a steady publication growth each year, with the highest rise in 2025. The three most productive and impactful authors included Lee, J.S., MacIntyre, P.D., and Peng, J-E. The most productive journal is the Language Teaching Research. China became the leading nation in both research production and international research collaboration. Finally, the keyword analysis showed seven clusters, with “WTC” as the largest node. Five emerging topics were identified, including emerging technologies, positive psychology, emotional regulations, intercultural and international orientations, and informal digital learning. Yet, scholarly interest around the foundational elements of L2 WTC, including individual and situational variables, remains relevant. Following the findings, implications for L2 teachers and future researchers are proposed in this study.

## Keywords

Bibliometric Analysis, Research Trends, Willingness to Communicate, L2 WTC.

## Introduction

L2 pedagogy currently emphasizes the significance of fostering learners' communicative competence in L2. This could be linked to the fact that English communication skill is becoming more important these days. Particularly, students, in this digital age, are expected to be able to communicate with other people across different cultures and regions. One of the most influential variables affecting learners' L2 communicative skill is WTC. WTC was originally a concept in L1 communication, and it was used to refer to an individual's inclination to communicate in L1. McCroskey and Baer (1985) developed this concept. It was, further, expended to examine WTC in L2 as well. MacIntyre et al. (1998) defined WTC as an individual's readiness

to communicate in L2. Unlike WTC in L1, which tended to be stable across different times and situations, WTC in L2 is considered more complex and multilayered, with personal and situational factors contributing to it (MacIntyre et al., 1998). WTC is deemed instrumental to L2 acquisition and development, if seen from the interaction hypothesis (Long, 1996). Students are more likely to speak in L2 if they have high levels of L2 WTC. This concept is necessary in students' L2 acquisition. It is because students need to produce L2 output and obtain L2 input. L2 WTC have been reported in various earlier studies as a determinant factor to L2 learning success (Azwar et al., 2021; Cao & Philp, 2006; Darasawang & Reinders, 2021; Kang, 2005; Lin, 2024; Riasati & Rahimi, 2018; Zhang & Zhang, 2023).

These accumulated empirical studies in the literature suggest a need to systematically review WTC research. Few studies have summarized publications in L2 WTC (e.g., Kirkpatrick et al., 2024; Riasati & Noordin, 2011; Syed et al., 2022; Zhang et al., 2018). Review research is necessary to comprehend the current research landscape of L2 WTC. Riasati and Noordin (2011), for example, reviewed prior studies to identify factors influencing WTC. They reported that WTC is shaped by various psychological, social, along with situational aspects. Another review study is Zhang et al. (2018). They systematically reviewed 35 studies to identify situational factors affecting learners' WTC. They concluded that factors, including interlocutors, tasks, classroom settings, confidence, as well as interest, may govern students' WTC.

More recently, studies from Syed et al. (2022) and Kirkpatrick et al. (2024) conducted a systematic literature review study. Syed et al. (2022) reviewed existing literature regarding WTC studies. They critiqued the traditional WTC research, which mainly considered WTC as static, linear, and psychologically driven variables. They propose a more comprehensive approach to examine WTC, which includes the nonlinear and context-sensitive aspects of WTC. Another review study from Kirkpatrick et al. (2024) reported that recent WTC studies mainly explored the dynamic and situational-dependent factors. These context-based variables are emerging trends in the field of WTC. The study also encouraged future studies to explore WTC in EFL digital contexts and teachers' roles and called for more robust methodological approaches to examine WTC.

Meanwhile, research using a bibliometric analysis method to review WTC research is still limited. Only one study from Ma et al. (2023) has been carried out to evaluate the research trends on WTC research. Ma et al. (2023) systematically reviewed 428 articles published between 1990 and 2022 on WTC. The articles were collected from the Web of Science database. They reported that there has been an increasing trend in WTC publications, with expansion to the education and linguistics fields. The USA was the most productive country in WTC research, Canada collected the most citations, and China was the leader in inter-country collaboration. In addition, MacIntyre was the most productive author, and System was the most impactful source.

Despite this, a systematic review study using bibliometric analysis is still needed to comprehensively understand the current publication trends in L2 WTC research, particularly in the proliferation use of artificial intelligence. Compared to the prior bibliometric study on WTC from Ma et al. (2023), this study used a different database (Scopus) and covered a different timeframe (2020 – 2025). This study's results would be beneficial for comparative and complementary insights into research trends on L2 WTC because it utilized a more recent publication window and a different database. Scopus database was chosen as the database due to its extensiveness and completeness, with its reputation in indexing high-quality research (Muskhir et al., 2024). Thus, this present research would contribute to a different gap in the literature by capturing the latest development of L2 WTC research and offering a refined map of the L2 WTC research landscape.

More specifically, this present study systematically reviewed L2 WTC publications in the past five years in Scopus-indexed journals. This study investigated the research trends on L2 WTC between 2020 and 2025, examined the top 10 authors, articles, and journals, and identified the most productive countries, international collaboration, and future research direction.

To address the issues in this study, four research questions were formulated: (1) How many L2 WTC publications have been published in the past five years? (2) Who are the top 10 authors, articles, and journals in the past five years?, (3) Which countries produced more articles in the field of L2 WTC research, and what patterns can be found in the international collaboration? and (4) What are the dominant research themes and emerging topics in L2 WTC?

## Method

This research utilized bibliometric analysis to systematically review an extensive number of WTC studies in the existing literature. Bibliometric analysis refers to systematic research that utilizes statistical methods to review and examine a large number of publications in a particular field (Passas, 2024). The primary objectives of bibliometric analysis are to uncover publication trends, patterns, and impacts of a particular field over a certain timeframe (Passas, 2024). Unlike Systematic Literature Review studies, bibliometric studies are capable of handling and summarizing larger volumes of prior research to offer insight into emerging areas in the studied field (Donthu et al., 2021). Due to the growing accessibility of scientific databases and bibliometric software, bibliometric research has been receiving attention from researchers in various fields (Donthu et al., 2021), yet its fullest potential is underexplored and underutilized (Passas, 2024). This study employed bibliometric analysis as the research method due to its capability to review and analyze a vast array of scientific publications, and the limited number of studies utilizing this methodology.

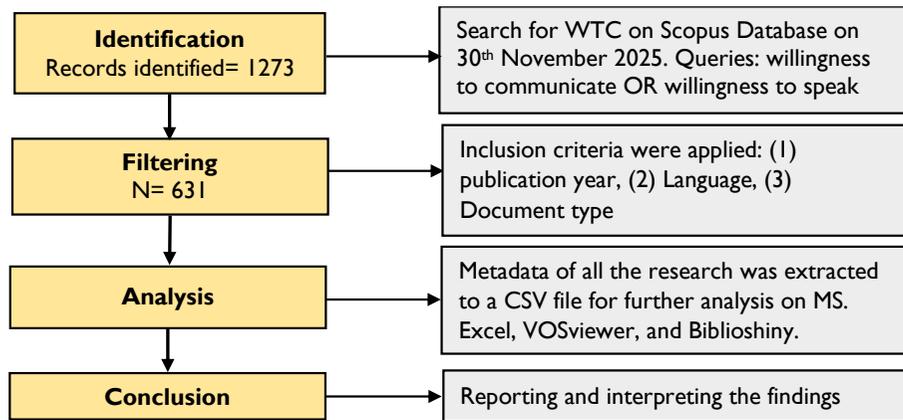
**Table I.** Inclusion Criteria and Search Formula

Criteria	Inclusion
Research Content	The included studies must be related to the willingness to speak English or the willingness to communicate.
Language	The studies were written in English.
Time Frame	The studies were published from 2020 to 2025.
Database	The studies were collected from the Scopus database.
Document Type	The studies must be journal articles.
Keyword and Search Formula	( TITLE-ABS-KEY ( "willingness to speak English" ) OR TITLE-ABS-KEY ( "willingness to communicate" ) ) AND PUBYEAR > 2019 AND PUBYEAR < 2026 AND ( LIMIT-TO ( DOCTYPE , "ar" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) )

This study followed four stages of conducting a bibliometric analysis as proposed by Samala et al. (2023), including identification, filtering, analysis, and conclusion (see Figure 1). Firstly, we identified the topic that would be used to search in the Scopus database. To retrieve relevant studies, this study only included earlier studies related to WTC. The search on the Scopus database was done within the research article, abstract, and keywords using Boolean logic operators and keywords pertaining to L2 WTC (Zyoud & Fuchs-Hanusch, 2017). The full query syntax can be seen in Table I.

Secondly, we applied some filters following the inclusion criteria of this study (see Table I for the inclusion criteria). To map the most recent scholarly work in L2 WTC, only publications published from 2020 to 2025 were included. Besides that, only research articles composed in the English language and indexed in the Scopus database were included in the analysis. Next, we began analyzing the collected metadata using computer software such as Microsoft Excel, Biblioshiny in R Studio, and VOSviewer. Finally, we reported the findings. The following figure summarizes the systematic process of this bibliometric analysis.

The analysis process began once all the metadata were successfully downloaded. Initially, we exported the metadata of the studies into Biblioshiny in R Studio for the most relevant authors, journals, most cited documents, and country scientific production and collaboration. In conjunction with Biblioshiny, we used Microsoft Excel to generate charts and tables. It was for better data visualization. We used VOSviewer to display the network visualization map. VOSviewer was chosen because it is a software, specifically intended to visualize bibliometric networks (Van Eck & Waltman, 2013).

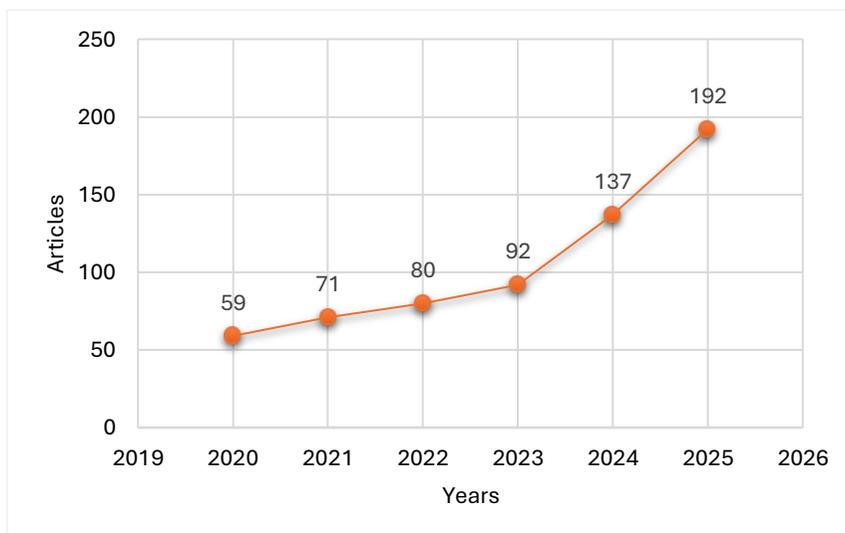


**Figure 1.** Research Procedure of This Bibliometric Research, adapted from Samala et al., (2023)

We also conducted a meticulous cleaning process in VOSviewer. It was to make sure the data validity as well as to increase accuracy. We removed unrelated and contextual keywords. This includes, such as “article”, “human”, and “education”. Similar keywords were uniformly coded. We created a thesaurus file to code similar terms. Keywords, for example, “willingness to speak English” and “willingness to communicate” were standardized to “WTC”. We set the minimum number of occurrences of a term to 10. Finally, we generated a network visualization map. A keyword analysis was done to interpret the map as well as to reveal emerging themes that are not explicitly discussed in the field (Muskhir et al., 2024).

## Findings & Discussion

This section elaborates on the results and discussion, structured around the research questions. This study has analyzed 631 records of research articles pertaining to WTC from the Scopus database within the last five years. This bibliometric analysis study highlights some key findings, including publication trends, most productive authors and journals, most influential papers, leading countries, countries’ research collaboration, and future research directions. The findings of each research question are presented in turn, followed by the interpretations of the findings.



**Figure 2.** The Annual Scientific Production of L2 WTC Publications from 2020 to 2025

### Yearly Publication Trend on L2 WTC

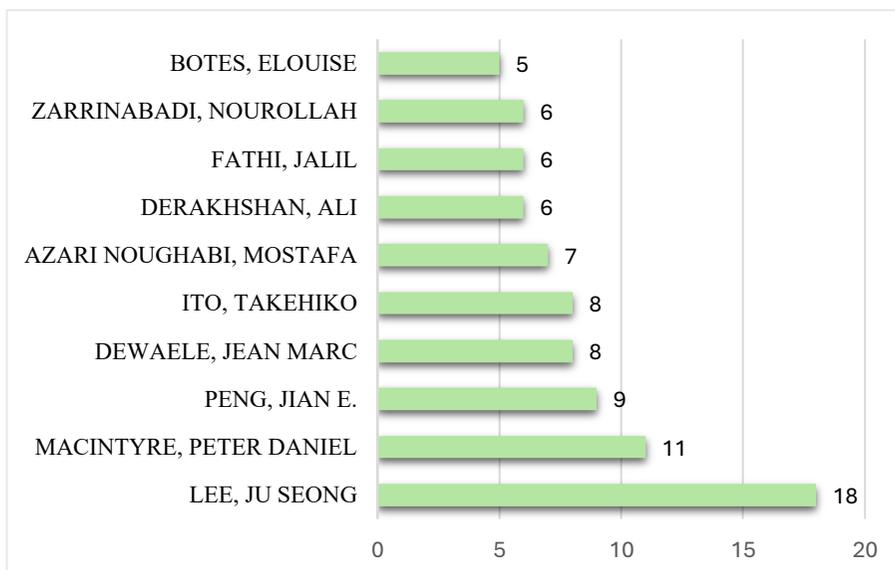
The line graph, as depicted in Figure 2, illustrates the global publication of L2 WTC research published over the last five years in Scopus-indexed journals. The total number of publications from the last five years is 631. Below is the figure of yearly trend in L2 WTC publications.

Figure 2 illustrated a consistent increase in the number of publications each year. The total number of publications from 2020 to 2025 yielded 59, 71, 80, 92, 137, and 192, respectively. The years 2024 and 2025 have the highest number of publications. The increase was 55 publications in 2024 and 192 publications in 2025. This suggests an increasing interest in L2 WTC. We can also a sudden fluctuation in the number of publications from 2023. This may be a result of the rise of generative artificial intelligence (Gen-AI). This tool was first introduced by Open-AI in 2022 (Zheng et al., 2024).

Ma et al. (2023), who also conducted bibliometric research on WTC from 2018 to 2022, observed a similar rising pattern. This growing scholarly attention might be caused by the significant position of L2 communication these days (Kirkpatrick et al., 2024). Another possible factor could be the emergence of Gen-AI. Since then, many L2 scholars have been trying to integrate this advanced tool (see Hidayat et al., 2025; Kartal & Yeşilyurt, 2024, for more detail). Fathi et al. (2024), for example, investigated the implications of artificial intelligence-mediated interactions to improve learners' L2 WTC.

### Top Authors, Articles, and Journals in L2 WTC Research from 2020 to 2025

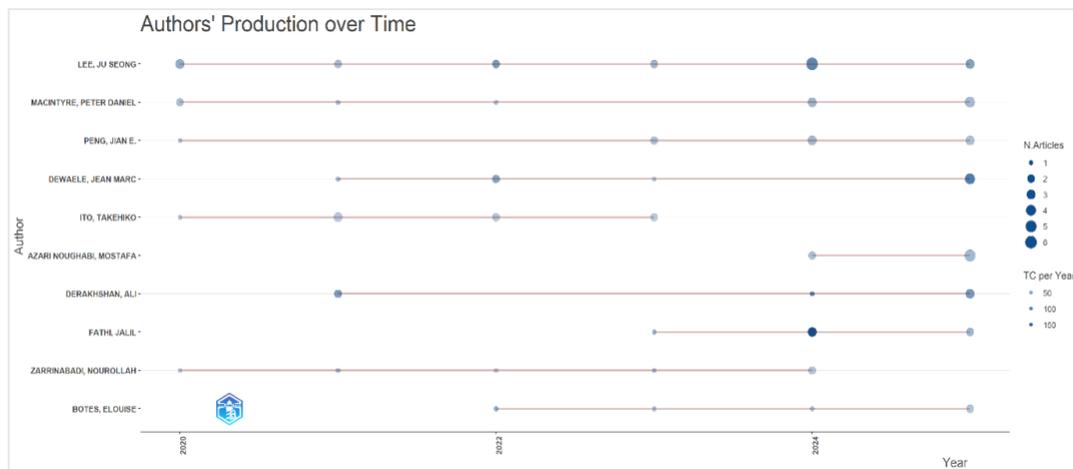
The analysis of authorship, based on the number of publications per author, identified the 10 most prolific contributors to L2 WTC research. This analysis aimed to reveal intellectual actors in this field who have been shaping the most recent L2 WTC research landscape. The following figure presents the chart of the 10 most productive authors in L2 WTC research.



**Figure 3.** Top 10 Authors in L2 WTC Research from 2020 to 2025

As shown in Figure 3, the most productive author in L2 WTC research between 2020 and 2025 is Lee, Ju Seong, with 18 publications. Lee, Ju Seong, is an associate professor in the Department of English Language Education, The Education University of Hong Kong. He had conducted numerous studies on informal L2 learning, computer-assisted language learning, and WTC. The second and third positions are MacIntyre, Peter Daniel, and Peng, Jian E., with 11 and 9 publications. Following these authors, the list includes Dewaele, Ito, Azari Noughabi, Zarrinabadi, and Botes, respectively.

In some respects, this result is consistent with Ma et al. (2023), who identified MacIntyre, P.D., as the most prolific and influential author in the field of L2 WTC. He has consistently published research within the WTC scope since 1995. His dominance continued into the present. Within the last five years, he has been the fourth most productive author in the field. Besides that, Ma et al. (2023) also identified Lee, J.S., as the third most productive author. Other researchers who were identified in Ma et al.'s (2023) study are Peng, J E., and Zarrinabadi, N. These researchers have been persistently studying WTC and have become experts in the field. The figure below depicts the authors' production over time to further examine these authors' consistency in L2 WTC research.



**Figure 4.** Authors' Production in L2 WTC Research from 2020 to 2025

As demonstrated in Figure 4, three authors were identified to consistently publish L2 WTC research each year for the past five years. The four authors are Lee, J.S., MacIntyre, P.D., and Peng, J-E., respectively. In addition, Zarrinabadi consistently published research on WTC from 2020 to 2024. Yet, no research on WTC from Zarrinabadi, has been published in 2025. Together, these findings showed a sustained involvement among the researchers.

Ma et al. (2023), in their bibliometric research, reported that MacIntyre, P.D., has been consistently involving in WTC research since 1995. His persistent contribution for over three decades suggests his ongoing dedication to advancing WTC research. Peng, J-E. is another key figure. She has recently published her book related to this field (Peng, 2024). Her research contributions in this field can be traced back to 2010 (Ma et al., 2023). Her enduring productivity positions her as a key contributor in L2 WTC research.

Lee, J.S., meanwhile, is considered a relatively fresh contributor in this field. He brought a new perspective and research agendas. He has consistently investigated WTC since 2019 (Ma et al., 2023). His novel perspective and research agendas have advanced this academic discourse into a new area. He has published various research papers on WTC within informal digital language learning settings (e.g., Lee, 2019; Lee et al., 2024; Lee & Drajeti, 2019, 2020; Lee & Sylvén, 2021). His publications have broadened and expanded WTC research into digital and technology contexts, shaping new research directions of L2 WTC. These aforementioned researchers have demonstrated their sustained scholarly involvement in this field and indicated their status as established experts. The following table summarizes most globally cited publications.

**Table 2.** Most Globally Cited Articles

Authors	Journals and DOIs	Titles	TC
Xie and Derakhshan (2021)	Frontiers in Psychology <a href="https://doi.org/10.3389/fpsyg.2021.708490">https://doi.org/10.3389/fpsyg.2021.708490</a>	A Conceptual Review of Positive Teacher Interpersonal Communication Behaviors in the Instructional Context	344
Lee (2020)	Journal of Multilingual and Multicultural Development <a href="https://doi.org/10.1080/01434632.2020.1746319">https://doi.org/10.1080/01434632.2020.1746319</a>	The role of grit and classroom enjoyment in EFL learners' willingness to communicate	217
Fathi et al. (2024)	System <a href="https://doi.org/10.1016/j.system.2024.103254">https://doi.org/10.1016/j.system.2024.103254</a>	Improving EFL learners' speaking skills and willingness to communicate via artificial intelligence-mediated interactions	212
Tai and Chen (2023)	Interactive Learning Environments <a href="https://doi.org/10.1080/10494820.2020.1841801">https://doi.org/10.1080/10494820.2020.1841801</a>	The impact of Google Assistant on adolescent EFL learners' willingness to communicate	194
Botes et al. (2022)	Studies in Second Language Learning and Teaching <a href="https://doi.org/10.14746/ssllt.2022.12.2.3">https://doi.org/10.14746/ssllt.2022.12.2.3</a>	Taking stock: A meta-analysis of the effects of foreign language enjoyment	186
Kruk (2022)	Computer Assisted Language Learning <a href="https://doi.org/10.1080/09588221.2019.1677722">https://doi.org/10.1080/09588221.2019.1677722</a>	Dynamicity of perceived willingness to communicate, motivation, boredom and anxiety in Second Life: the case of two advanced learners of English	167
Lee and Lee (2020)	Language Teaching Research <a href="https://doi.org/10.1177/1362168819831408">https://doi.org/10.1177/1362168819831408</a>	Affective factors, virtual intercultural experiences, and L2 willingness to communicate in in-class, out-of-class, and digital settings	147
Wang et al. (2021)	System <a href="https://doi.org/10.1016/j.system.2021.102529">https://doi.org/10.1016/j.system.2021.102529</a>	The roles of class social climate, language mindset, and emotions in predicting willingness to communicate in a foreign language	142
Dewaele and Pavelescu (2021)	Innovation in Language Learning and Teaching <a href="https://doi.org/10.1080/17501229.2019.1675667">https://doi.org/10.1080/17501229.2019.1675667</a>	The relationship between incommensurable emotions and willingness to communicate in English as a foreign language: a multiple case study	136
L. J. Zhang et al. (2022)	Journal of Multilingual and Multicultural Development <a href="https://doi.org/10.1080/01434632.2022.2100893">https://doi.org/10.1080/01434632.2022.2100893</a>	Testing a model of growth mindset, ideal L2 self, boredom, and WTC in an EFL context	113

Note: TC = Total Citations

The most globally cited article, as indicated in Table 2, is a study by Xie and Derakhshan (2021), with the title of "A Conceptual Review of Positive Teacher Interpersonal Communication Behaviours in the Instructional Context", published in *Frontiers in Psychology*, with a total of 344 citations. This publication elaborated on the importance of educators' positive interpersonal communication, which could facilitate various improved academic outcomes of students, including motivation, engagement, WTC, performance, success etc. This can be inferred that WTC is one of the variables that are taken into account in the psychology field.

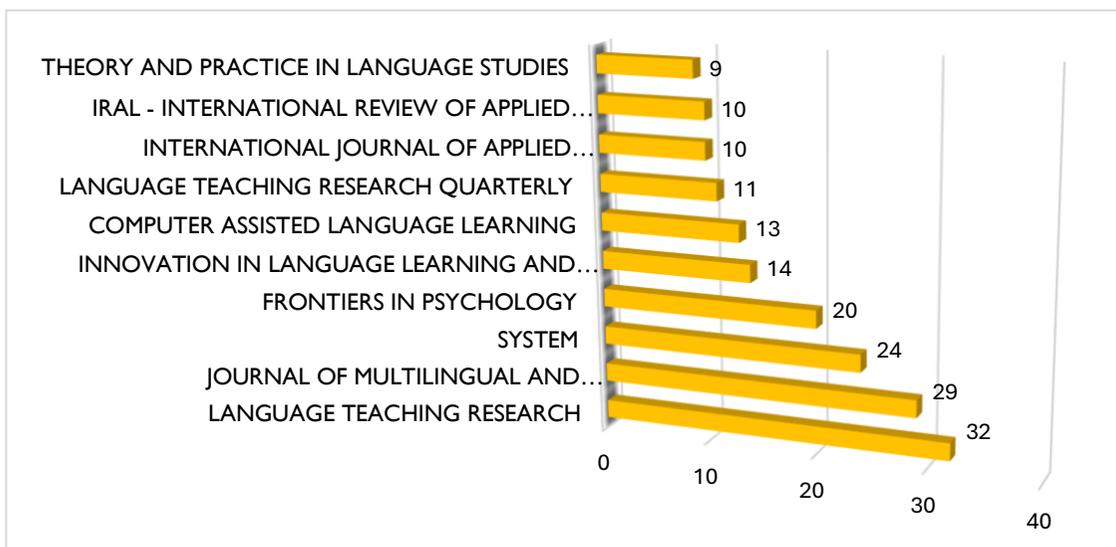
Next, the second most globally cited article is an article by Lee (2020), published in the *Journal of Multilingual and Multicultural Development*, with 217 citations. This article explores the contribution of grit and classroom enjoyment in EFL students' WTC. It underscored the significance of positive psychology variables like grit and classroom enjoyment in improving students' L2 WTC in classrooms. A study by Fathi

et al. (2024) is in the third position. The study has accumulated 212 citations. It focused on improving students' L2 communication and WTC through AI-mediated activities. The finding was considered pedagogically meaningful. It shows that AI may help improve students' L2 communication and WTC.

A publication by Tai and Chen (2023), likewise, evaluated the use of an advanced tool, that is, an intelligent personal assistant. They reported that the technology successfully augmented learners' communicative confidence, L2 WTC, and reduced their L2 anxiety. In the fifth position, a study by Botes et al. (2022), published in *Studies in Second Language Learning and Teaching*, with 186 citations, discusses the association of positive emotion of foreign language enjoyment with foreign language anxiety, WTC, and academic achievement, through a meta-analytic method. The study indicates the significant role of enjoyment in decreasing learners' L2 anxiety and in increasing learners' L2 WTC and academic achievement.

Taking these top five most cited articles together, it highlights a significant position of WTC as an outcome variable in various educational psychology studies, particularly involving L2 acquisition. Besides that, emerging technologies, such as AI, Automated Speech Recognition, and Interpersonal Personal Assistant, have started to shape the contemporary research landscape in L2 WTC.

In addition to the rest of the articles, they mostly obtain a high number of citations, with more than 100 citations. It suggests that these papers are frequently referenced in the existing literature, contributing to the methodological and theoretical foundations of research on L2 WTC. Moreover, these papers were mostly published in journals of language learning and teaching and sociolinguistics. This finding suggests these journals consider WTC as a key variable in L2 acquisition. Journals like the *Computer Assisted Language Learning* and the *Innovation in Language Learning and Teaching* also published L2 WTC research, indicating a rapidly expanding research area of L2 WTC into technology integration. To confirm these findings, the following table highlights the 10 most productive journals in L2 WTC research.



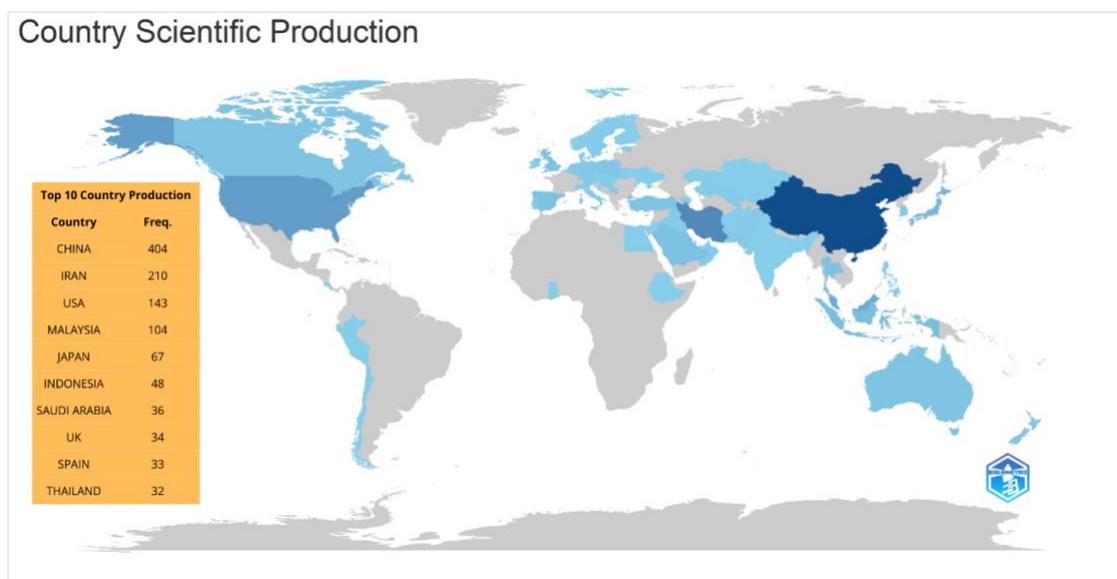
**Figure 5.** Most Productive Sources in L2 WTC Research from 2020 to 2025

As in Figure 5, L2 WTC research is most frequently published in the *Language Teaching Research* journal. This journal has published 32 articles related to WTC. *Journal of Multilingual and Multicultural Development*, in the second position, published 29 articles pertaining to WTC. The third journal comes from the *System* with 24 publications on WTC. *System* is an international journal of education technology and applied linguistics, published by Elsevier. In an earlier bibliometric study on L2 WTC by Ma et al. (2023), *System* was reported as the most impactful source in the field. It denotes a higher number of citations received by the journal. Ma et al. (2023) also identified two other influential journals, namely *Language Teaching Research*, and *Journal of Multilingual and Multicultural Development*.

The rest of the journals are in the fields of sociolinguistics, language teaching, applied linguistics, psycholinguistics, psychology, and technology in language learning. This finding corroborates this study's prior finding regarding the most globally cited article, suggesting a maturing research area of L2 WTC and a rapidly expanding research area of L2 WTC into the technology research field. The growing integration of WTC with modern technology like artificial intelligence and digital technology is likely to become the next future research agenda in this domain, as indicated by the presence of journals within the fields of technology. In essence, these 10 leading journals, in the list, have established their positions as preferred journals for scholars to publish their works and as leading journals in this discipline.

### Leading Countries in L2 WTC Research from 2020 to 2025

Country scientific production analysis was administered in Biblioshiny to illustrate the geographical distribution of research output. The following map presents the scientific production by country. It also includes a table of the top 10 leading countries in L2 WTC research within the last five years. The use of the blue color on the map represents the number of scientific publications from each country. The darker shade of blue indicates a higher number of research outputs produced by a country. Countries on the map that are in grey indicate minimally or are not found in the dataset.



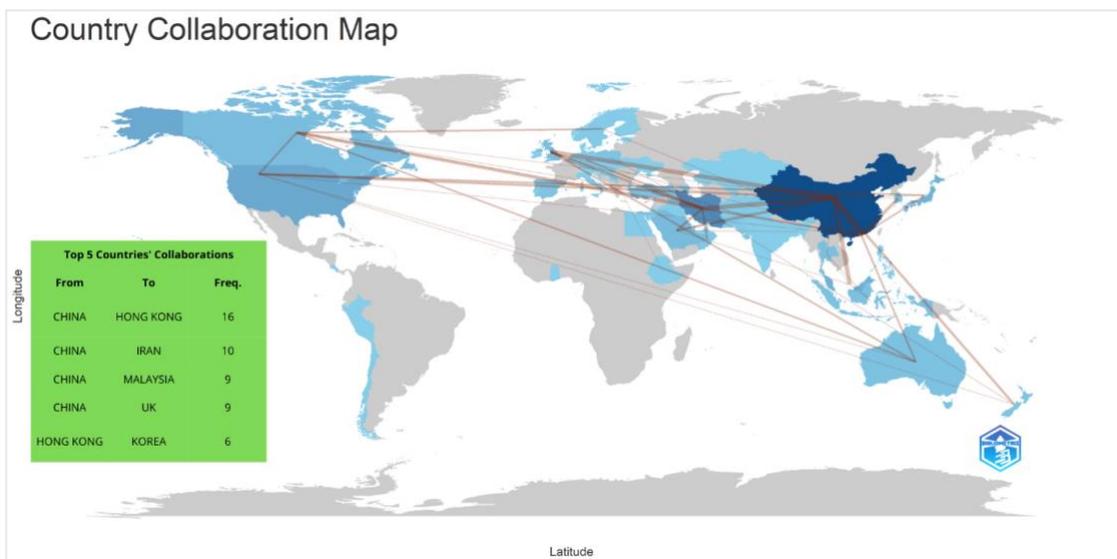
**Figure 6.** Country Scientific Production in L2 WTC Research from 2020 to 2025

The analysis of the country's scientific production, as shown in Figure 6, revealed that China, Iran, and the USA were the leading contributors to L2 WTC research. China has 404 publications. It is shown in a darker shade of blue. The color suggests a higher number of publications. Other countries with darker shades of blue are Iran and the USA. Iran has published 210 publications, while the USA has published 143 publications. The rest of the countries, in the list, contributing to L2 WTC research come from Malaysia, Japan, Indonesia, Saudi Arabia, the UK, Spain, and Thailand. These findings show the international interest in L2 WTC research and indicate the geographical concentration of L2 WTC research.

Meanwhile, [Ma et al. \(2023\)](#) identified similar patterns in the country's scientific production regarding the WTC field. They revealed the USA as the most prolific country in studying WTC, followed by China, Iran, Japan, Canada, Australia, Malaysia, etc. These countries are leaders in the field of WTC research. China, Iran, and the USA have been the top three contributors since 1995 ([Ma et al., 2023](#)). They are expected to continue their scientific productivity in this scope. Furthermore, to find out if these countries collaborate with other countries, the map below illustrates the country collaboration map.

Further, the country collaboration map (below), as depicted in Figure 7, illustrates the international research collaboration. This map visualizes the co-authorship connection between countries. The thickness of connecting lines denotes the strength of cooperation. The top five most productive collaborations, as presented in the table on the map, were observed between China and Hong Kong, China and Iran, China and Malaysia, China and the UK, and Hong Kong and Korea. These strong ties show that research in L2 WTC has been well-established, as shown by the networks on the map.

China dominated most of the collaborations. China was found to collaborate with numerous nations, as illustrated by the connecting lines from and to China. These results confirmed [Ma et al. \(2023\)](#), who outlined that China was a major leader in countries' scientific collaborations. China was found to have established cooperation with numerous countries. In contrast, despite being one of the most prolific countries, the USA still lacks in inter-country collaboration ([Ma et al., 2023](#)). Most of the publications produced by authors from the USA were from intra-country collaboration. Similarly, this study revealed that the USA was not among the top five countries in the collaboration network map.



**Figure 7.** Country Collaboration Network in L2 WTC Research from 2020 to 2025

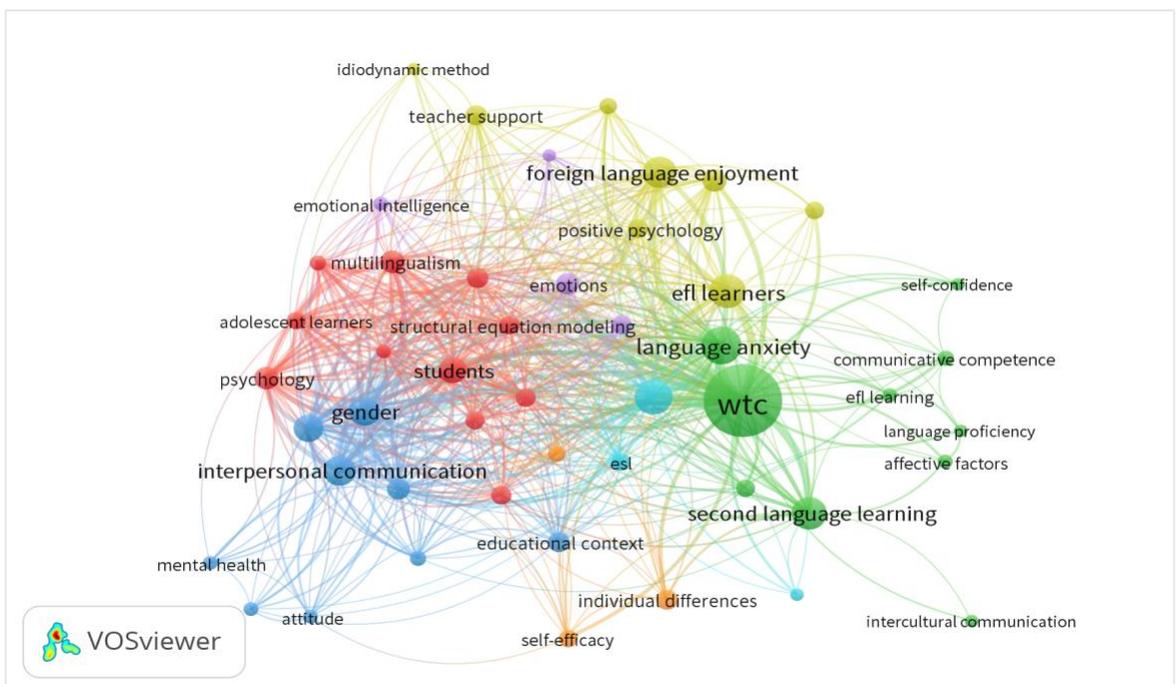
However, a closer examination at the map disclosed that the collaborations were mostly dominated by countries from Asia, Europe, Australia, and North America. Nations from the African and South American continents have not established research collaborations. Countries from Asia, Australia, North America, and Europe were also reported in the prior bibliometric research to dominate this field ([Ma et al., 2023](#)). This finding suggests that research collaborations in L2 WTC are still heavily concentrated between certain nations despite their expanding trends.

### **Future L2 WTC Research Direction based on Keyword Analysis**

The keyword co-occurrence analysis was administered to obtain information on the thematic structure of L2 WTC research. It helped identify the overarching ideas that form the current research landscape of L2 WTC. It displays the most frequently used keywords across publications to provide insight into key themes and research directions. VOSviewer was utilized to generate the map. The frequency of keyword occurrences is illustrated by the size of the nodes. The thickness of the connecting line and the proximity between keywords show the strength of the relationships. The following figure is the network visualization map, followed by the list of keywords identified in the map and their associated clusters.

As depicted in Figure 8, the largest and central node of the map is “WTC”, indicating a conceptual integration of many other concepts. This shows that WTC has evolved from being a dependent outcome to being a key and conceptual hub across multiple thematic areas. Next, the thematic analysis revealed seven different clusters. The red cluster becomes the most dominant cluster, with 11 terms, such as “adolescent learners”, “language development”, and “multilingualism”. These keywords suggested learner L2 Development, multilingualism, and educational contexts. The contexts of the research can be seen from keywords, namely “students”, “teachers”, as well as “universities”. These keywords show that L2 WTC research is typically carried out in formal and higher education. Meanwhile, we can see the psychological aspects of L2 communication based on the keywords, including “self-concept”, “psychology”, and “speaking skill”.

The second cluster is displayed in green. It is labelled as the affective, communicative, and emerging technology cluster. It is clearly seen by keywords, namely “language anxiety”, “self-confidence”, “communicative competence”, as well as “proficiency”. Evidentially, the affective variables of L2 WTC continue to receive interest among L2 WTC scholars. This is perhaps because of the central and foundational position of affective variables in L2 WTC’s concept. As what [MacIntyre et al. \(1998\)](#) explained, both individual and situational variables affected one’s L2 WTC. The individual variables include the affective aspects of an individual. We also observed a recent trend in emerging technologies as well as intercultural communication. It is conveyed by keywords of “intercultural communication” and “artificial intelligence”. These research topics are deemed pertinent to the current research in L2 WTC. One possible factor to this finding is the increasing interest in Gen-AI and multilingualism in L2 research ([Hidayat et al., 2025](#); [Kartal & Yeşilyurt, 2024](#); [Yang & Wang, 2025](#); [Yaseen & Alnakeeb, 2023](#)). For instance, [Yang and Wang \(2025\)](#) mapped publications in English teaching assessment. They confirmed that the growing trend in Gen-AI and multilingualism has also been observed within the field of English teaching assessment.



**Figure 8.** Co-Occurrence Network Based on Keyword Analysis

We can see a methodological and learners’ demographic background in the following cluster. This third cluster was shown in dark blue. The qualitative methods and survey suggest the common methods used. These methods were likely utilized to uncover students’ perceptions and experiences. Other keywords, including “gender”, along with “adult learners”, denotes the situational variables. The situational

variables may include gender and age of interlocutors. Cao and Philp (2006) validated that situational variable, that is, interlocutors and conversational contexts, could affect one's L2 WTC. It is also confirmed by Azwar et al. (2021). Students' L2 WTC are influenced by the age and gender of the interlocutors. They further elaborated that age, in a collectivist society, is a significant attribute of status. People are expected to show more respect to older people. When it comes to gender, Riasati and Rahimi (2018) discovered that people's tendency to speak more carefully to the opposite gender. This might contribute to students' L2 WTC.

Another trend in L2 WTC research is positive psychology and informal digital learning of English. It can be observed in the fourth cluster in yellow. Apparently, students' positive emotional experience along with supportive learning conditions are highlighted in this cluster. This is reflected by the keywords, including "foreign language enjoyment", "growth mindset", as well as "teacher support". It appears that scholars are now interested in examining how constructive emotional experiences and a supportive pedagogical environment could help students' L2 WTC. Next, we can see the concept of L2 WTC has been expanded into broader contexts. The prevalent keyword of "informal digital learning of English" means that the contexts of L2 WTC research has moved to informal and digital environment as well. Lee, Ju Seong is believed to be the leading author, successfully broadening L2 WTC discourse to informal digital learning. He has established the theoretical foundations in this research area. It can be verified by his publications (see, for example, Lee, 2019, 2020; Lee et al., 2024; Lee & Drajadi, 2019, 2020; Lee & Lee, 2020). One of his widely cited publications in this area is about how L2 WTC varies across different settings, including in-class, outside class, and in a digital environment as well (see, Lee & Lee, (2020), for more detail).

**Table 3.** List of Keywords Based on Clusters Shown in the Co-Occurrence Network

Group Color	Number of Terms	Group Theme	Keywords within Group
Cluster 1 (Red)	11 Terms	Learner L2 Development, Multilingualism, and Educational Contexts	Adolescent learners, language development, learning, multilingualism, psychology, self-concept, speaking skill, structural equation model, students, teachers, universities
Cluster 2 (Green)	10 Terms	Affective Variables, Communicative Competence, and Emerging Technology	Affective factors, artificial intelligence, communicative competence, EFL learning, intercultural communication, language anxiety, language proficiency, second language learning, self-confidence, WTC
Cluster 3 (Dark Blue)	9 Terms	Situational Variables, Research Methods, and Interpersonal Communication Contexts	Adult learners, attitude, educational context, gender, interpersonal communication, mental health, perception, qualitative methods, surveys
Cluster 4 (Yellow)	8 Terms	Positive Psychology and Informal Digital Learning of English in L2 WTC	EFL learners, foreign language enjoyment, growth language mindset, idiodynamic method, informal digital learning of English, L2 grit, positive psychology, teacher support
Cluster 5 (Purple)	4 Terms	Emotional Regulation in L2 Learning Environment	Boredom, emotional intelligence, emotions, learning environment
Cluster 6 (Light Blue)	5 Terms	Motivation and International Posture in L2 WTC	ESL, international posture, L2 motivation
Cluster 7 (Orange)	4 Terms	Individual Differences in Communicative Self-Efficacy	Communication skills, individual differences, self-efficacy

We also observed newer affective variables (i.e., boredom and emotional intelligence) in L2 WTC. Earlier L2 research, on the other hand, mainly focused on anxiety and enjoyment. The fifth cluster is thus labeled as emotional regulation in L2 learning environment. This may suggest that recent L2 WTC research begins to explore how learners manage and regulate emotions in classroom settings, which subsequently may contribute to their L2 WTC. Some earlier studies that examined boredom could influence L2 WTC, such as studies by Zhang et al. (2022) and Kruk (2022). Meanwhile, emotional regulation has recently caught L2 WTC scholars' attention. Some earlier studies on the topic of emotional regulation related to L2 WTC include studies by Alrabai (2024) and Qiangfu et al. (2025). These recently published articles discuss how emotional regulation could be an effective pedagogical intervention to address negative emotions influencing L2 WTC. It could be concluded that the current research landscape on L2 WTC has scrutinized viable pedagogical interventions to foster learners' L2 WTC.

The sixth cluster revolves around motivational and global orientation in L2 WTC. Although smaller in size, this cluster reflects learners' openness to international communities and global communication, which could link to learners' L2 motivation. Earlier studies have demonstrated how variables like international posture and L2 motivation are interrelated to L2 WTC (such as Balouchi et al., 2021; Balouchi & Samad, 2021; Mahmoodi et al., 2021; Yamaoka, 2024). Finally, the last cluster emphasizes individual differences and learners' beliefs about their communicative capabilities. This cluster complements the affective constructs identified in other clusters through the constructs of self-efficacy and individual differences. This cluster reinforces the foundational concepts of L2 WTC, consisting of situational and individual variables (Cao & Philp, 2006; Kang, 2005; MacIntyre et al., 1998).

Several emerging topics in L2 WTC for the past five years were identified, including (1) emerging technologies like AI and Intelligent Personal Assistant in L2 WTC, (2) informal digital learning and virtual learning as L2 WTC contexts, (3) positive psychological constructs fostering L2 WTC, (4) emotional regulations as L2 WTC pedagogical interventions, and (5) intercultural and international orientations of L2 WTC. While these emerging topics have recently shaped the L2 WTC research landscape, foundational concepts of L2 WTC remain central and relevant. Scholars continue to explore fundamental elements of L2 WTC, which are broadly divided into situational and individual constructs. However, current research in L2 WTC has extended these two constructs into more diverse and emerging both situational and individual factors, ranging from psychological to contextual and pedagogical factors.

In comparison to the earlier bibliometric analysis study by Ma et al. (2023). They predicted that the future directions of L2 WTC are likely to explore the influence of cultural variables. The second prediction is the view of L2 WTC as a dynamic variable rather than a static one. This shifted view implies that future researchers are likely to approach L2 WTC with different methodologies, allowing them to record the dynamicity of L2 WTC across classroom settings through observations and other more robust methods. Lastly, the role of teachers in fostering learners' L2 WTC in classrooms is projected to be one of the future research agendas. Scholars are likely to be interested in finding out pedagogical interventions that teachers can initiate to enhance L2 WTC.

However, this present research contributes to a novel prediction about future L2 WTC research directions. This study predicts that future research directions are likely to be about the leverage of advanced technology to facilitate L2 WTC improvement among learners. Scholars are possibly interested in harnessing modern technologies like artificial intelligence and generative artificial intelligence as a pedagogical intervention instrument for L2 WTC enhancement. In summary, WTC is a mature yet evolving field, where core scholarly interest is more likely to continue to explore situational and individual factors. Yet, it is expanding and evolving to other research areas such as technology, artificial intelligence, positive psychology, and informal digital language learning.

## Conclusion

This present research has shed light on how WTC research has evolved over the last five years. This research has contributed to a systematic mapping and overview of the contemporary research landscape in the field of L2 WTC. Following this present study's findings, we proposed several implications for L2 and English teachers. L2 teachers need to be aware that L2 WTC is shaped by multiple interacting factors. Therefore, L2 teachers need to be sensitive to learners' conditions by understanding factors that may hinder their L2 WTC. This means teachers need to create learning conditions that actively support learners' psychological readiness to engage in L2 communication. Teachers need to increase learners' positive emotional experiences (e.g., enjoyment, growth mindset) and reduce negative emotional experiences (e.g., anxiety, boredom). Several pedagogical interventions that L2 teachers may need to explore include integrating digital technologies and fostering learners' emotional regulation. L2 teachers may leverage online platforms, collaborative digital tasks, or artificial intelligence-mediated communication to allow learners to practice their L2 communication and build confidence.

Besides that, we also proposed implications for future researchers in the field of L2 WTC. Researchers in the field of L2 WTC may find this study's findings a valuable resource to develop their next research agendas and directions. They could explore those emerging topics, including positive psychological constructs, emerging technologies, pedagogical interventions to L2 WTC, and intercultural and international orientations of L2 WTC. These topics are considered relevant to contemporary L2 WTC research. Researchers may also explore both theoretical and practical foundations of these emerging topics in L2 WTC.

Despite providing valuable insight into mapping the most recent L2 WTC research landscape, this bibliometric study has limitations. A significant limitation is that this study only used the Scopus database as the source of the bibliometric analysis, which may cause subjectivity or bias in this study. Future studies can use a different database, which may include different research articles and offer a new perspective into the current and future research directions in the field. Despite being one of the most comprehensive academic databases, the exclusive use of Scopus has limited relevant publications beyond this database. Thus, using different or perhaps comparing different scholarly databases may provide a new perspective on this field and minimize the potential biased findings in using a single database.

## References

- Alrabai, F. (2024). Modeling the relationship between classroom emotions, motivation, and learner willingness to communicate in EFL: applying a holistic approach of positive psychology in SLA research. *Journal of Multilingual and Multicultural Development*, 45(7), 2465–2483. <https://doi.org/10.1080/01434632.2022.2053138>
- Azwar, T. A., Harahap, A., & Azwandi, A. (2021). Factors Influencing Indonesian EFL Learners' Willingness to Speak English in Classrooms. *Journal of English Teaching*, 7(2), 216–228. <https://doi.org/10.33541/jet.v7i2.2843>
- Balouchi, S., & Samad, A. A. (2021). The effect of perceived competence on second language communication frequency: the mediating roles of motivation, willingness to communicate, and international posture. *Education and Information Technologies* 2021 26:5, 26(5), 5917–5937. <https://doi.org/10.1007/S10639-021-10579-Z>
- Balouchi, S., Samad, A. A., Jalil, H. A., & Noordin, N. (2021). Motivation, international posture, and willingness to communicate as predictors of L2 communication in online contexts. *International Journal of Learning Technology*, 16(2), 158–177. <https://doi.org/10.1504/IJLT.2021.117766>

- Botes, E., Dewaele, J.-M., & Greiff, S. (2022). Studies in Second Language Learning and Teaching Taking stock: A meta-analysis of the effects of foreign language enjoyment. *SLLT*, 12(2), 2022–2205. <https://doi.org/10.14746/ssllt.2022.12.2.3>
- Cao, Y., & Philp, J. (2006). Interactional context and willingness to communicate: A comparison of behavior in whole class, group and dyadic interaction. *System*, 34(4), 480–493. <https://doi.org/10.1016/j.system.2006.05.002>
- Darasawang, P., & Reinders, H. (2021). Willingness to Communicate and Second Language Proficiency: A Correlational Study. *Education Sciences*, 11(9), 1–12. <https://doi.org/10.3390/educsci11090517>
- Dewaele, J. M., & Pavescu, L. M. (2021). The relationship between incommensurable emotions and willingness to communicate in English as a foreign language: a multiple case study. *Innovation in Language Learning and Teaching*, 15(1), 66–80. <https://doi.org/10.1080/17501229.2019.1675667>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Fathi, J., Rahimi, M., & Derakhshan, A. (2024). Improving EFL learners' speaking skills and willingness to communicate via artificial intelligence-mediated interactions. *System*, 121, 103254. <https://doi.org/10.1016/j.SYSTEM.2024.103254>
- Hidayat, D. N., Ramadhan, S., Mahlil, M., Mason, J., Hartono, R., & Muslimin, A. I. (2025). Research trends in artificial intelligence in English language teaching (ELT): A bibliometric analysis. *Studies in English Language and Education*, 12(2), 560–578. <https://doi.org/10.24815/siele.v12i2.39339>
- Kang, S. J. (2005). Dynamic emergence of situational willingness to communicate in a second language. *System*, 33(2), 277–292. <https://doi.org/10.1016/j.system.2004.10.004>
- Kartal, G., & Yeşilyurt, Y. E. (2024). A bibliometric analysis of artificial intelligence in L2 teaching and applied linguistics between 1995 and 2022. *ReCALL*, 36(3), 359–375. <https://doi.org/10.1017/S0958344024000077>
- Kirkpatrick, R., Vafadar, H., & Mohebbi, H. (2024). A scoping review of willingness to communicate in language education: premises to doubt, lessons to learn, and future research questions to examine. *Language Testing in Asia*, 14(1). <https://doi.org/10.1186/s40468-024-00284-2>
- Kruk, M. (2022). Dynamicity of perceived willingness to communicate, motivation, boredom and anxiety in Second Life: the case of two advanced learners of English. *Computer Assisted Language Learning*, 35(1–2), 190–216. <https://doi.org/10.1080/09588221.2019.1677722>
- Lee, J. S. (2019). EFL students' views of willingness to communicate in the extramural digital context. *Computer Assisted Language Learning*, 32(7), 692–712. <https://doi.org/10.1080/09588221.2018.1535509>
- Lee, J. S. (2020). The role of grit and classroom enjoyment in EFL learners' willingness to communicate. *Journal of Multilingual and Multicultural Development*, 0(0), 1–17. <https://doi.org/10.1080/01434632.2020.1746319>
- Lee, J. S., & Drajeti, N. A. (2019). Affective variables and informal digital learning of English: Keys to willingness to communicate in a second language. *Australasian Journal of Educational Technology*, 35(5), 168–182. <https://doi.org/10.14742/AJET.5177>
- Lee, J. S., & Drajeti, N. A. (2020). Willingness to communicate in digital and non-digital EFL contexts: scale development and psychometric testing. *Computer Assisted Language Learning*, 33(7), 688–707. <https://doi.org/10.1080/09588221.2019.1588330>
- Lee, J. S., & Lee, K. (2020). Affective factors, virtual intercultural experiences, and L2 willingness to communicate in in-class, out-of-class, and digital settings. *Language Teaching Research*, 24(6), 813–833. <https://doi.org/10.1177/1362168819831408>
- Lee, J. S., & Sylvén, L. K. (2021). The role of Informal Digital Learning of English in Korean and Swedish EFL learners' communication behaviour. *British Journal of Educational Technology*, 52(3), 1279–1296. <https://doi.org/10.1111/bjet.13082>

- Lee, J. S., Xie, Q., & Lee, K. (2024). Informal digital learning of English and L2 willingness to communicate: roles of emotions, gender, and educational stage. *Journal of Multilingual and Multicultural Development*, 45(2), 596–612. <https://doi.org/10.1080/01434632.2021.1918699>
- Lin, M. C. (2024). Exploring the effects of argumentation-based inquiry in dual-language courses on EFL students' oral presentation skills and willingness-to-communicate. *Cogent Education*, 11(1). <https://doi.org/10.1080/2331186X.2024.2429873>
- Long, M. (1996). The role of the linguistic environment in second language acquisition. *Handbook of Second Language Acquisition*.
- Ma, H., Ismail, L., Noordin, N., & Razali, A. B. (2023). Bibliometric analysis of willingness to communicate in the English as a second language (ESL) context. *Humanities and Social Sciences Communications*, 10(1), 1–17. <https://doi.org/10.1057/s41599-023-02109-8>
- MacIntyre, P. D., Dörnyei, Z., Clément, R., & Noels, K. A. (1998). Conceptualizing willingness to a L2: Communicate in confidence model situational. *The Modern Language Journal*, 82(4), 545–562. <https://doi.org/10.2307/330224>
- Mahmoodi, N., Ghafoori, N., & Beh-Afarin, S. R. (2021). The Relationship Between Iranian EFL Learners' International Posture and Willingness to Communicate Across High Versus Low English Proficiency Levels. *Journal of Applied Linguistics and Applied Literature: Dynamics and Advances*, 9(2), 151–170. <https://doi.org/10.22049/JALDA.2021.27167.1278>
- McCroskey, J. C., & Baer, J. E. (1985). *Willingness to communicate: The construct and its measurement*.
- Muskhir, M., Luthfi, A., Watrighthos, R., Usmeldi, Fortuna, A., & Samala, A. D. (2024). Emerging Research on Virtual Reality Applications in Vocational Education: A Bibliometric Analysis. *Journal of Information Technology Education: Innovations in Practice*, 23, 1–26. <https://doi.org/10.28945/5284>
- Passas, I. (2024). Bibliometric Analysis: The Main Steps. *Encyclopedia*, 4(2), 1014–1025. <https://doi.org/10.3390/encyclopedia4020065>
- Peng, J., E. (2024). Willingness to Communicate in a Second Language. In *Elements in Language Teaching*. Cambridge University Press. <https://doi.org/10.1017/9781009417884>
- Qiangfu, Y., Dazhou, X., & Qizheng, W. (2025). Exploring the relationship between L2 motivational self-system, academic emotions, and L2 willingness to communicate among university EFL learners in central and western China. *Acta Psychologica*, 261, 105969. <https://doi.org/10.1016/j.ACTPSY.2025.105969>
- Riasati, M. J., & Noordin, N. (2011). *Antecedents of Willingness to Communicate: A Review of Literature*. <https://doi.org/10.3968/j.sll.1923156320110302.326>
- Riasati, M. J., & Rahimi, F. (2018). Situational and individual factors engendering willingness to speak English in foreign language classrooms. *Cogent Education*, 5(1), 1–15. <https://doi.org/10.1080/2331186X.2018.1513313>
- Samala, A. D., Usmeldi, Taali, Daineko, Y., Indarta, Y., Nando, Y. A., Anwar, M., Jaya, P., & Almasri. (2023). Global Publication Trends in Augmented Reality and Virtual Reality for Learning: The Last Twenty-One Years. *International Journal of Engineering Pedagogy (IJEP)*, 13(2), 109–128. <https://doi.org/10.3991/ijep.v13i2.35965>
- Syed, H., Memon, S., Chachar, Z. A., Zameer, S., & Shah, T. (2022). Willingness to communicate in a second language and the promise of complex dynamic systems theory: A narrative review. *Research in Education*, 113(1), 41–58. <https://doi.org/10.1177/00345237211031261>
- Tai, T. Y., & Chen, H. H. J. (2023). The impact of Google Assistant on adolescent EFL learners' willingness to communicate. *Interactive Learning Environments*, 31(3), 1485–1502. <https://doi.org/10.1080/10494820.2020.1841801>
- Van Eck, N. J., & Waltman, L. (2013). VOSviewer manual. *Leiden: Univeriteit Leiden*, 1(1), 1–53. [https://aidi-ahmi.com/download/Manual\\_VOSviewer\\_1.6.19.pdf](https://aidi-ahmi.com/download/Manual_VOSviewer_1.6.19.pdf)

- Wang, H., Peng, A., & Patterson, M. M. (2021). The roles of class social climate, language mindset, and emotions in predicting willingness to communicate in a foreign language. *System*, 99, 102529. <https://doi.org/10.1016/j.SYSTEM.2021.102529>
- Xie, F., & Derakhshan, A. (2021). A Conceptual Review of Positive Teacher Interpersonal Communication Behaviors in the Instructional Context. *Frontiers in Psychology*, 12, 708490. <https://doi.org/10.3389/fpsyg.2021.708490>
- Yamaoka, K. (2024). Influence of CLIL with MOOCs on Japanese EFL students' L2 willingness to communicate and international posture. *TESOL Journal*, 15(4), e840. <https://doi.org/10.1002/tesj.840>
- Yang, Z., & Wang, P. (2025). Current status and research trend of English language assessment: a bibliometric analysis. *Language Testing in Asia*, 15(1), 1–28. <https://doi.org/10.1186/s40468-024-00317-w>
- Yaseen, M. G., & Alnakeeb, S. S. (2023). Exploring the Evolution of AI Integration in English as a Foreign Language Education: A Scopus-Based Bibliometric Analysis (1997-2023). *Mesopotamian Journal of Computer Science*, 2023, 143–158. <https://doi.org/10.58496/mjcs/2023/019>
- Zhang, J., Beckmann, N., & Beckmann, J. F. (2018). To talk or not to talk: A review of situational antecedents of willingness to communicate in the second language classroom. *System*, 72, 226–239. <https://doi.org/10.1016/j.system.2018.01.003>
- Zhang, J., & Zhang, W. (2023). Trait Emotional Intelligence and Willingness to Communicate in Foreign Language Learning. *Journal of Language Teaching and Research*, 14(6), 1535–1540. <https://doi.org/10.17507/jltr.1406.11>
- Zhang, L. J., Saeedian, A., & Fathi, J. (2022). Testing a model of growth mindset, ideal L2 self, boredom, and WTC in an EFL context. *Journal of Multilingual and Multicultural Development*. <https://doi.org/10.1080/01434632.2022.2100893>
- Zheng, Y., Wang, Y., Liu, K. S. X., & Jiang, M. Y. C. (2024). Examining the moderating effect of motivation on technology acceptance of generative AI for English as a foreign language learning. *Education and Information Technologies*, 29(17), 23547–23575. <https://doi.org/10.1007/s10639-024-12763-3>
- Zyoud, S. H., & Fuchs-Hanusch, D. (2017). A bibliometric-based survey on AHP and TOPSIS techniques. *Expert Systems with Applications*, 78, 158–181. <https://doi.org/10.1016/j.ESWA.2017.02.016>

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