

Anxiety in Second Language Acquisition: A Bibliometric Analysis on Studies from 2015 to 2025

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Abstract

Anxiety has long been recognized as a significant affective factor influencing second language acquisition (SLA). This study presents a comprehensive bibliometric analysis of scholarly literature on language anxiety published between 2015 and 2025. Drawing data from the Social Sciences Citation Index (SSCI) of Web of Science (WOS), a total of 776 publications were analysed using VOSviewer. The analysis examines publication trends, influential countries and journals, contributing authors and keyword co-occurrence patterns. Results reveal an increasing attention to the field of anxiety in SLA. Thematic clustering of keywords highlights the emergence of positive psychology, including foreign language enjoyment and grit, as counterpoints to anxiety. This study identifies leading research hubs, collaboration patterns, and evolving thematic shifts within the field. Findings offer valuable insights for SLA researchers, educators, and curriculum developers seeking to understand and mitigate the impact of anxiety on language learners. Limitations of the study and implications for future bibliometric research are also discussed.

Keywords: Anxiety, Second Language Acquisition, Negative Emotions, Positive Emotions, Bibliometric Analysis

Introduction

In an era of globalization and digital communication, acquiring a second language is both a social necessity and a personal aspiration. Second language acquisition (SLA), as an academic discipline, has been a growing interest of language researchers investigating how learners acquire a second language since 1960s (Ellis, 2015). SLA is a complicated process that deserves deeper exploration. Gass et al. (2020) suggested that the field of psychology significantly influenced the study of SLA. Specifically, according to Ortega (2014), our understanding of why the effects of learners in learning a second language differ so greatly would be incomplete if we did not consider the role of affect in L2 learning. Research on emotions in SLA can be divided into three broad phases: the first phase can be called Emotion Avoidance Phase roughly between the early 1960s and the mid 1980s; the second phase is

the Anxiety-Prevailing Phase from the mid-1980s to the early 2010s; the third phase is the Positive and Negative Emotions Phase emerging in the early 2010s (Dewaele & Li, 2020).

For a long period in the past, anxiety in SLA has been the focus and highlight of research. Learning a foreign language is a challenge (Horwitz et al., 2010) and an anxiety-provoking experience (MacIntyre & McGillivray, 2023) for many learners. The theory Affective Filter Hypothesis (Krashen, 1982) states how affective factors like anxiety relate to the second language acquisition process. The expectancy-value theory of anxiety proposes that anxiety is generated by expectancies of future events which are perceived negative (Pekrun, 2024). To enhance second language learners' sense of achievement and efficiency in second language learning, identifying and reducing anxiety is an effective approach. It has also been proved that anxiety significantly influences academic achievement in second language learning (Botes et al., 2020; Teimouri et al., 2019; Smyth et al., 2021), which confirmed the important role of anxiety in SLA.

Afterwards, research on emotions in SLA gradually moved from the focus on anxiety to a wide range of positive and negative emotions. Anxiety in SLA is studied combined with other emotions in SLA since the early 2010s. This indicates that there is a turning point of research on anxiety in SLA after the early 2010s. In addition, despite extensive research on L2 anxiety, no comprehensive bibliometric mapping of the last decade exists, and the field is expanding into new contexts such as online learning (Russell, 2020; Resnik et al., 2023) and multilingual settings (Bensalem, 2019; Botes et al., 2020). Therefore, it is believed that a bibliometric analysis on studies of anxiety in SLA from 2015 to 2025 may offer a valuable lens to map the intellectual structure, research trends, and influential contributors to the field of language anxiety. This study aims to provide a comprehensive bibliometric analysis of scholarly publications on second language anxiety from 2015 to 2025, focusing on publication trends, influential authors and institutions, citation patterns and thematic evolution. The research questions of this study are as follow:

1. What's the publication trends in the field of anxiety in SLA?
2. What are the major countries of anxiety in SLA research?
3. What are the major journals publishing anxiety in SLA research?
4. Who are the most productive authors of anxiety in SLA research?
5. What are the most used keywords of anxiety in SLA research?

Literature Review

Second language acquisition (SLA), also known as L2 acquisition, is generally regarded as the all-encompassing term for any language after learning the first language (Ellis, 2015; Ortega, 2013). It is understanding how a second language is learned and how non-native speakers use that language that allows us to distinguish the problems arising from cross-cultural communication from the issues of stereotyped behaviours or personal traits (Gass et al., 2020).

Second language is often discussed with first language (L1) by researchers. Some researchers believe that L2 usually occurs following L1. For example, Spada and Lightbown (2019) suggested that the research in second language acquisition is concerned with the development and use of a language by learners who already know at least one other

language, which is called first language (Spada & Lightbown, 2019). Similarly, according to Ellis (2015), at the beginning, L2 acquisition takes place after L1 acquisition, and it is affected by the L1. When it comes to the differences between L2 acquisition and L1 acquisition, L1 acquisition is almost always completed in the early stages of a child's life, while L2 acquisition can take place at any age based on the acquisition of L1 (Ellis, 2015).

Emotions exist in individuals' daily personal and professional issues, including the process of learning (L2) (Kruk & Pawlak, 2022). There are three reasons justifying the importance of emotions in learning: first, emotions are predicting factors in learners' psychological well-being; second, emotions can affect students' learning achievement in different ways; third, when learners emotionally engage in the learning of a subject, they can gain better results because they become more interested in the subject (Khajavy et al., 2018). Furthermore, emotions are considered important influencing factors in SLA. Basic emotions play an important role in SLA; however, the role of basic emotions in SLA has been undervalued in both education practice and research. (MacIntyre & Vincze, 2017). Krashen's (1982) Affective Filter Hypothesis postulates that input is the primary causative variable in SLA, and emotional variables including anxiety, motivation, and self-confidence act to hinder or facilitate the delivery of input to the language acquisition device. This hypothesis clearly explains the relationship between affective variables and success or failure of SLA (Oteir & Al-Otaibi, 2019), and anxiety is a noteworthy emotion in SLA.

Anxiety has been one of the most- investigated emotions among negative emotions in foreign language research (Kruk & Pawlak, 2022). Anxiety is generated under the perceived existence of risk perceptions. It is a response to the prediction of possible but currently non-existing situations (Papi & Khajavy, 2023). Likewise, foreign language anxiety is defined as "worry and negative emotional reaction aroused when learning or using a second language" (MacIntyre, 1999; Khajavy et al., 2018). Hardacre and Güvendir (2020) thought that second language anxiety could be the result of a combination of internal factors such as physiological processes and external factors such as the context. Second language anxiety have a significant impact on L2 performance and achievement (Hardacre & Güvendir, 2020; Smyth et al., 2021). To be more precise, it could harm the student's quality of learning experience since it has inhibitory effects on learners' L2 comprehension and use (Papi & Khajavy, 2023). Research has shown that foreign or second language anxiety has negative impacts on the performance in SL such as students' willingness to communicate (Oteir & Al-Otaibi, 2019; Bai, 2023). L2 learners with anxiety commonly report experiencing tenseness and palpitations in their L2 classes. They may underperform and be distracted in class; they may also try to avoid the L2 and even forget what they mean to say, resulting the trouble speaking in the new-learned language (Papi & Khajavy, 2023).

Based on the above discussion, we can see that anxiety is an important emotion that cannot be ignored in the research on learners' second language acquisition. Hence, the present study uses the tool VOSviewer to conduct a bibliometric analysis on studies of anxiety in SLA published between 2015 and 2025 from the Social Sciences Citation Index (SSCI) database of Web of Science (WOS), aiming to provide researchers with a valuable reference on publication trends, influential authors and countries, thematic evolution, and citation patterns in the field of anxiety in SLA.

Method

Research Method and Tool

Bibliometric analysis was adopted in this study. Bibliometric analysis, as a popular and rigorous method, is a systematic study carried out on large volumes of scientific literature for uncovering collaboration patterns, emerging trends, research constituents, and the intellectual construction of a specific field. (Passas, 2024; Donthu, 2021). Bibliometric analysis enables us to map the cumulative scientific knowledge and evolutionary nuances of a specific field, while shedding light on the emerging trends in that field (Donthu, 2021). Bibliometrics has become popular is probably because the information is easy to handle, highly compact and objective (Diem & Wolter, 2013). There are two categories of the techniques for bibliometric analysis: performance analysis and science mapping. Specifically, performance analysis includes publication-related metrics (e.g. total publications, number of contributing authors), citation-related metrics (e.g. total citations, average citations) and so on, accounting for the contributions of research constituents; science mapping includes citation analysis (relationships among publications, most influential publications), co-citation analysis (relationships among cited publications), co-word analysis (existing or future relationship among topics), co-authorship analysis (social interactions or relationships among authors, authors and author affiliations like institutions and countries) and so on, focusing on the relationships between research constituents (Donthu, 2021).

The research tool used in this study is VOSviewer. VOSviewer is a software package used to construct and reveal bibliometric relationships between a variety of variables (Kirby, 2023). It has been applied in a large number of published studies (Van Eck et al., 2010; Kirby, 2023). Bibliometric software VOSviewer enable the analysis of the large volumes of bibliometric data in a very pragmatic way (Donthu, 2021). VOSviewer uses data from Web of Science, PubMed and Scopus, and it creates maps which represent networks of keywords, researchers and research organizations and their countries, scientific publications and journals. Items in these networks can be connected by co-authorship, co-occurrence, bibliographic coupling, citation, or co-citation links (Arruda et al., 2022; Kirby, 2023; McAllister, 2022).

Data Source and Screening

Data source of the present study is from Social Sciences Citation Index (SSCI) of Web of Science (WOS) database. WOS database is the most widespread and reliable citation database in the world with numerous high-quality publications which covers different scientific fields (Guz & Rushchitsky, 2009; Wang et al., 2023; Chadegani et al., 2013). Since the topic of this study is the anxiety in second language learning, the keywords “anxiety”, “second language” and “L2” were used in the advanced search of WOS. The extra search criteria are: (1) publication years should be from 2015 to 2025 and (2) published language should be English. Finally, the search string in WOS is as follow:

#1 (TS=("second language")) OR TS=("L2")

#2 TS=(anxiety)

#1 AND #2 and 2025 or 2024 or 2023 or 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 (Publication Years) and English (Languages)

Through retrieval, a total of 776 articles were obtain, which were imported into the software VOSviewer for further data analysis. This study conducted a bibliometric analysis on

time trends of publications, countries, journals, authors, and keywords by using VOSviewer based on the data exported from SSCI of WOS database.

Results and Discussion

Time Trend Analysis of Publications

The time trend analysis covers publications from January 2015 to May 2025. According to the statistical result, the 776 articles included in this study were written by 1363 authors from 684 institutions in 54 countries and published in 149 journals, with a total of 26533 references cited from 9985 journals. Figure 1 shows the time distribution of papers published in the field of anxiety in SLA. Overall, the number of papers published in this field is showing a continuous upward trend. The growth rate varies in different periods. Between 2015 and 2020, the number of published articles increased from 13 to 53, which is a relatively slow growth. After 2020, the number of published papers in this field showed a rapid growth, reaching 171 in 2024. Since we only count the number of publications up to May 2025, there are currently only 63 publications in 2025. However, according to this growth trend, it is predicted that by the end of 2025, the number of publications is likely to be higher than that of 2024. In conclusion, the research on anxiety in SLA has received increasing attention from researchers in the past decade.

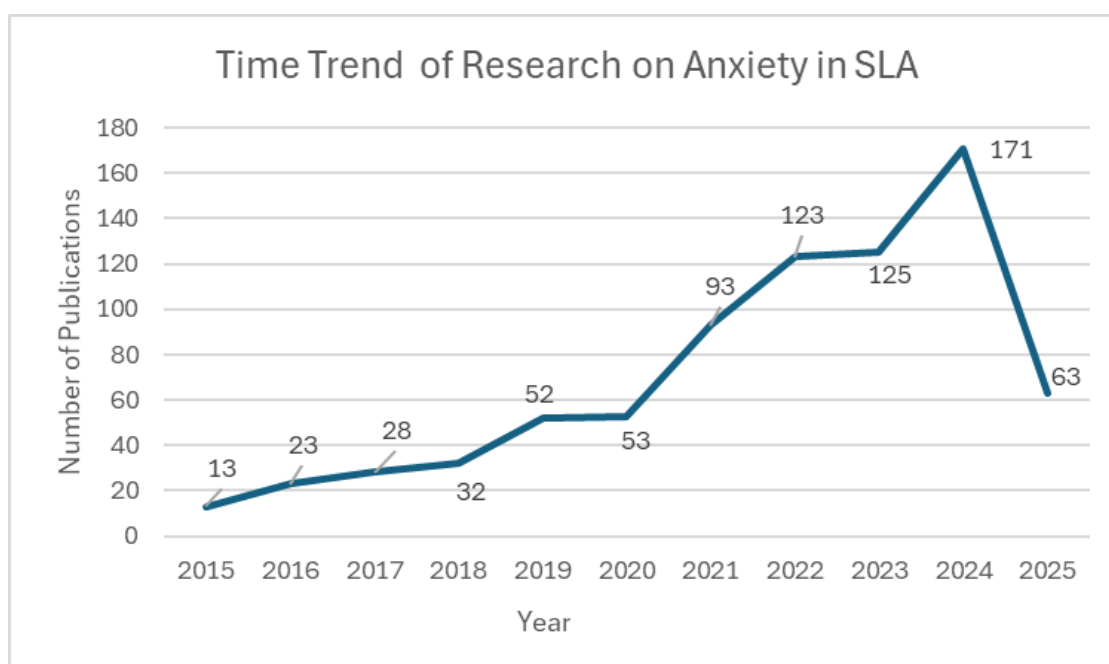


Figure 1 Time Trend of Publications on Anxiety in SLA

Analysis of Countries

To understand which countries have made the most prominent contributions in the field of anxiety in SLA and the cooperation networks between countries, this study analysed the publications of 54 countries. Table 1 shows the top five countries with the largest number of publications, namely China, United States of America (USA), Iran, the United Kingdom (UK) and Canada. Obviously, China ranks first with 318 publications, accounting for 40.98% of the papers in this field, indicating that Chinese scholars have contributed the most scientific research papers in this field. However, it is worth noting that although Chinese publications have a total citation of 6953, the average citation per publication is only 21.86, which is the

lowest among the five countries. This indicates that on average, the influence of Chinese articles is not as strong as the other four countries. On the contrary, although the UK has only 61 publications, the citation count has reached 3013, with an average citation rate of 49.39 per publication, far higher than the average citation rates of other four countries, showing the significant and prominent impact of British scholars in this field.

Table 1

Top 5 Countries in the Field of Anxiety in SLA

Rank	Author	Documents	Citations	Average Citation/Publication
1	China	318	6953	21.86
2	USA	129	3266	25.32
3	Iran	112	3443	30.74
4	UK	61	3013	49.39
5	Canada	51	1552	30.43

To gain a more intuitive understanding of the publication status and cooperation networks among countries, VOSviewer was used to visualize countries with a publication volume greater than 10. The result is shown in Figure 2. In Figure 2, each circular node represents a country, and the larger the circular node, the more publications the country has; The links between circular nodes represent the strength of the relationship between countries. The thicker the link, the more collaborative publications between the two countries. Chinese scholars have closely collaborated with scholars from USA, the UK, Iran, and New Zealand. In addition, Iranian scholars have had close cooperation with scholars from USA and Poland. Countries like China, USA, Iran and the UK have formed a relatively stable and close cooperation network. What's more, the distribution of countries publishing in this field is very uneven, with most papers written by scholars from a few countries.

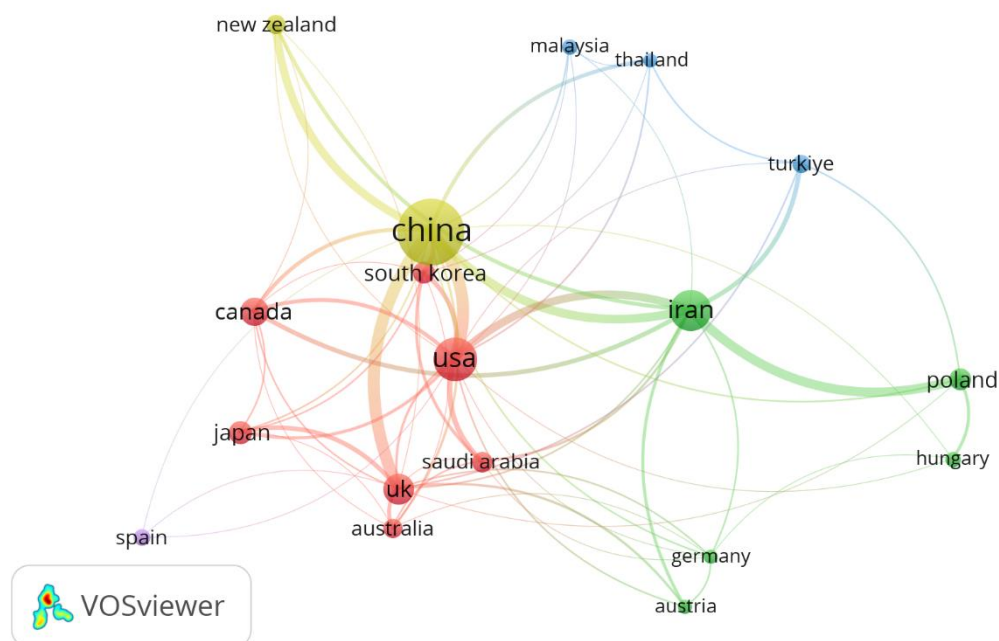


Figure 2 Network Visualization on Countries

Analysis of Journals

To identify the major journals publishing papers of anxiety in SLA studies, an analysis of 149 journals has been conducted. Table 2 shows the top ten journals with the largest number of publications in this field. *Frontiers in Psychology* ranks first with a publication volume of 90. However, its total citation count, which is 1840, is lower than that of *System* with 2188. According to the table, *Studies in Second Language Acquisition* is the journal that has the highest average citation per publication, which indicates that among these ten journals, *Studies in Second Language Acquisition* has the highest quality of articles and the greatest impact on the field. *Studies in Second Language Acquisition* not only contains essays on current theoretical matters but also research articles of quantitative, qualitative, and mixed-methods nature, providing comprehensive and meaningful references for peers. In addition, *Computer Assisted Language Learning*, with an average citation per publication of 44.28, also demonstrates the high quality and strong influence of the journal's research articles. *Computer Assisted Language Learning* contains studies featuring on experimental or observational method and focuses on technology-mediated language learning process.

Table 2

Top 10 Journals in the Field of Anxiety in SLA

Rank	Source	Publications	Citations	Average Citation/Publication
1	Frontiers in Psychology	90	1840	20.44
2	System	74	2188	29.57
3	Language Teaching Research	61	1479	24.25
4	Journal of Multilingual and Multicultural Development	45	1387	30.82
5	Studies in Second Language Acquisition	22	1381	62.77
6	Innovation in Language Learning and Teaching	21	441	21.00
7	Computer Assisted Language Learning	18	797	44.28
8	International Journal of Applied Linguistics	18	71	3.94
9	Iral-International Review of Applied Linguistics in Language Teaching	18	106	5.89
10	Asia-Pacific Education Researcher	17	363	21.35

Using VOSviewer, journals with a minimum number of 10 documents were included in the analysis, resulting in a network of 18 core journals clustered into four major groups. As shown in Figure 2, the thick links between *System* and the three journals including *Frontiers in Psychology*, *Language Teaching Research* and *Journal of Multilingual and Multicultural Development* represent strong relationships between *System* and each of the three journals with frequent mutual citation. *Frontiers in Psychology*, *System*, *Language Teaching Research*, and *Journal of Multilingual and Multicultural Development* emerged as the most frequently cited sources, suggesting their central role in shaping the field. Cluster analysis revealed four major thematic groups: language education, applied linguistics, psycholinguistics, and computer assisted language learning.

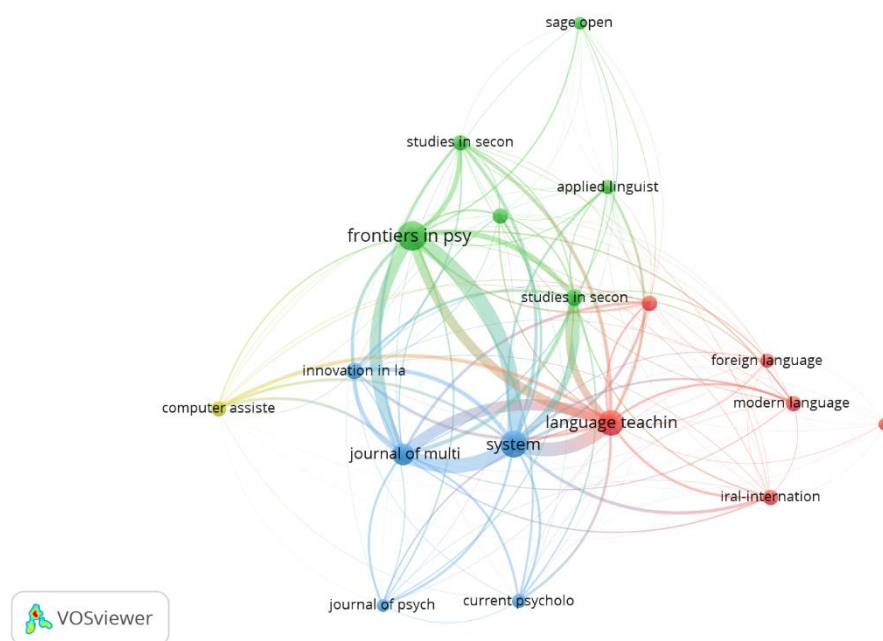


Figure 2 Network Visualization on Journals

Analysis of Authors

The analysis of authors can help us reveal thought leaders and experts who have significantly shaped the field and understand collaboration trends through co-authorship networks. An analysis of 1363 authors has been conducted. Table 3 shows the most important authors with a publication volume greater than 10 (including 10) in the field of anxiety in SLA. According to the statistical result, Kruk Mariusz and Pawlak Mirosław are the authors with the highest publication volume in this field, reaching up to 20 articles. As a leader in this field, Dewaele Jean marc has an average citation per publication of 97.06, ranking first among twelve authors, making him a highly influential author in this field.

According to Price's Law, the minimum number of publications for a core author in a certain field is $m = 0.749 \times \sqrt{n_{max}}$, where n_{max} is the number of papers published by the most productive author in the field. In this study, $n_{max} = 20$, so the minimum number of publications for core authors in the field of anxiety in SLA is $m = 0.749 \times \sqrt{n_{max}} \approx 0.749 \times 4.47 \approx 3$. Therefore, authors with more than three publications (including three) are positioned as core authors in the field. Using VOSviewer, authors with a minimum number of 3 documents were included in the analysis, resulting in a network of 97 core authors clustered into eleven major groups (see Figure 3). Therefore, there is a total of 97 core authors who have published 558 publications, accounting for 71.9% of the total publications. It has met the half standard proposed by Derek J. de Solla Price. That is, the group of productive authors contributes over 50% of the research results in a specific field. In addition, according to Figure 3, there are obvious network structure among authors with high publication volumes, indicating that research teams in the field of anxiety in SLA have basically formed a global scale. Therefore, it can be considered that a relatively stable group of author collaborations has formed in this field.

Table 3

Most Important Authors in the Field of Anxiety in SLA

Rank	Author	Documents	Citations	Average Citation/Publication
1	Kruk, Mariusz	20	580	29.00
2	Pawlak, Mirosław	20	532	26.60
3	Fathi, Jalil	18	575	31.94
4	Lee, Ju Seong	18	961	53.39
5	Li, Chengchen	18	1482	82.33
6	Dewaele, Jean-marc	16	1553	97.06
7	Derakhshan, Ali	14	900	64.29
8	Khajavy, Gholam Hassan	13	866	66.62
9	Shirvan, Majid Elahi	12	378	31.50
10	Taherian, Tahereh	11	371	33.73
11	Zarrinabadi, Nouroollah	10	201	20.10
12	Zhao, Xian	10	188	18.80

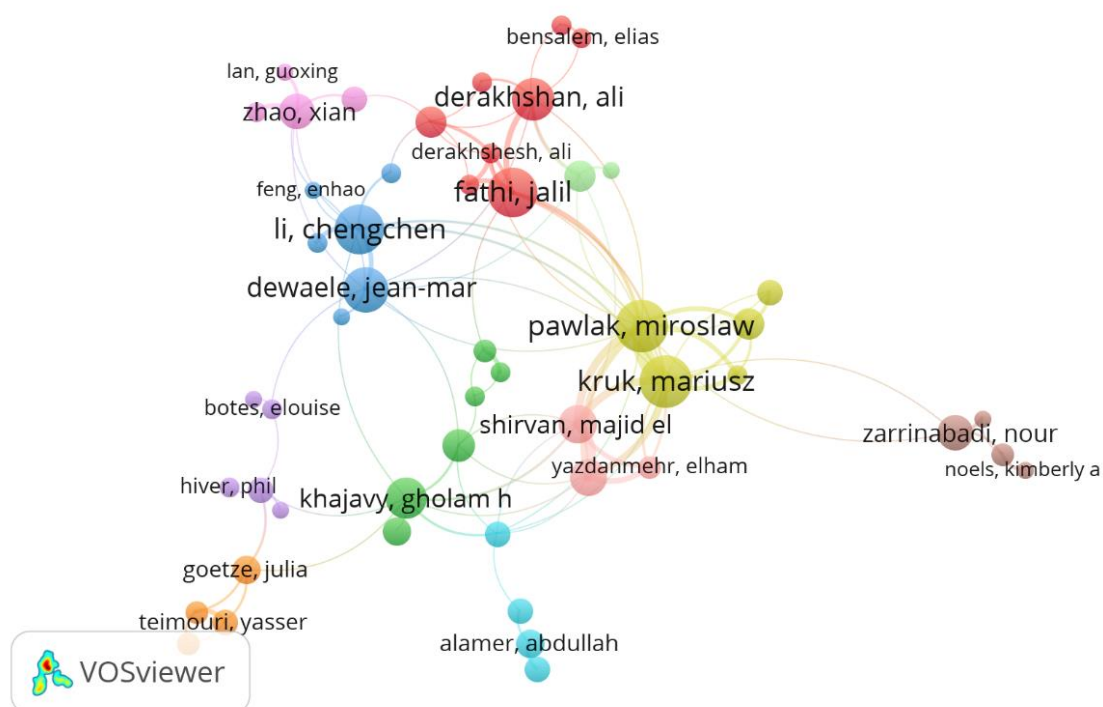


Figure 3 Network Visualization on Authors

Analysis of Keywords

Keyword analysis was conducted to identify hot research topics and emerging trends in the field of anxiety in SLA over the past decade. Keywords were extracted from 776 articles indexed in WOS. VOSviewer was used for co-occurrence network visualization. A total of 2832 unique keywords were extracted from the dataset. Table 4 shows the top 20 most frequently

occurring keywords. The most frequently occurring keywords were “anxiety” (n = 430), “motivation” (n = 223), and “English” (n = 182). This indicates that, in addition to anxiety in SLA, English as second language learning and motivation in SLA is also a research focus of researchers.

Table 4

Keywords with High Frequency of Occurrence

No.	Keyword	Occurrences	Total Link Strength
1	Anxiety	430	1971
2	Motivation	223	1161
3	English	182	974
4	Students	150	693
5	Enjoyment	138	733
6	Emotions	130	709
7	Achievement	126	691
8	2nd-language	118	691
9	Model	117	677
10	Learners	115	615
11	Positive Psychology	103	613
12	L2	97	563
13	Performance	96	446
14	Willingness	88	533
15	Language	83	345
16	Foreign Language Enjoyment	70	417
17	Language Anxiety	63	237
18	Attitudes	62	321
19	Willingness to Communicate	62	448
20	Self-efficacy	60	316

The co-occurrence network of keywords was visualized using VOSviewer, which enabled the identification of thematic clusters based on keyword co-occurrence patterns. Keywords with a minimum occurrence of 20 were included in the network analysis. The co-occurrence analysis revealed four major clusters (see Table 5 and Figure 4): Cluster 1 (Red), which includes keywords such as anxiety, motivation, beliefs, EFL, proficiency and self-efficacy, represents a topic of affective and cognitive factors influencing English as a Foreign Language (EFL) learning; In Cluster 2 (Green), keywords include enjoyment, emotions, anxiety, personality and so on, indicating a focus on the role of emotions and personality traits in SLA; Keywords such as confidence, grit, willingness to communicate and EFL learners in Cluster 3 (Blue) suggest a focused research theme on willingness to communicate among EFL learners; In Cluster 4 (Yellow), The set of keywords, including achievement emotions, willingness, communicate, engagement and variables, indicates a research theme centered on the relationship among psychological factors in SLA.

Clustering Analysis of Keywords in the Field of Anxiety in SLA



Figure 5 presents the overlay visualization showing the average publication year of keywords. Terms like anxiety, motivations and attitudes were prominent in the late 2010s, while self-efficacy, performance, writing anxiety and confidence have gained traction after 2020. This temporal shift suggests a movement from negative emotions particularly anxiety in SLA toward positive emotions in SLA. Notably, enjoyment, grit, out-of-class, in-class and achievement emotions are recent additions, reflecting a growing concern with positive experience of EFL learners.

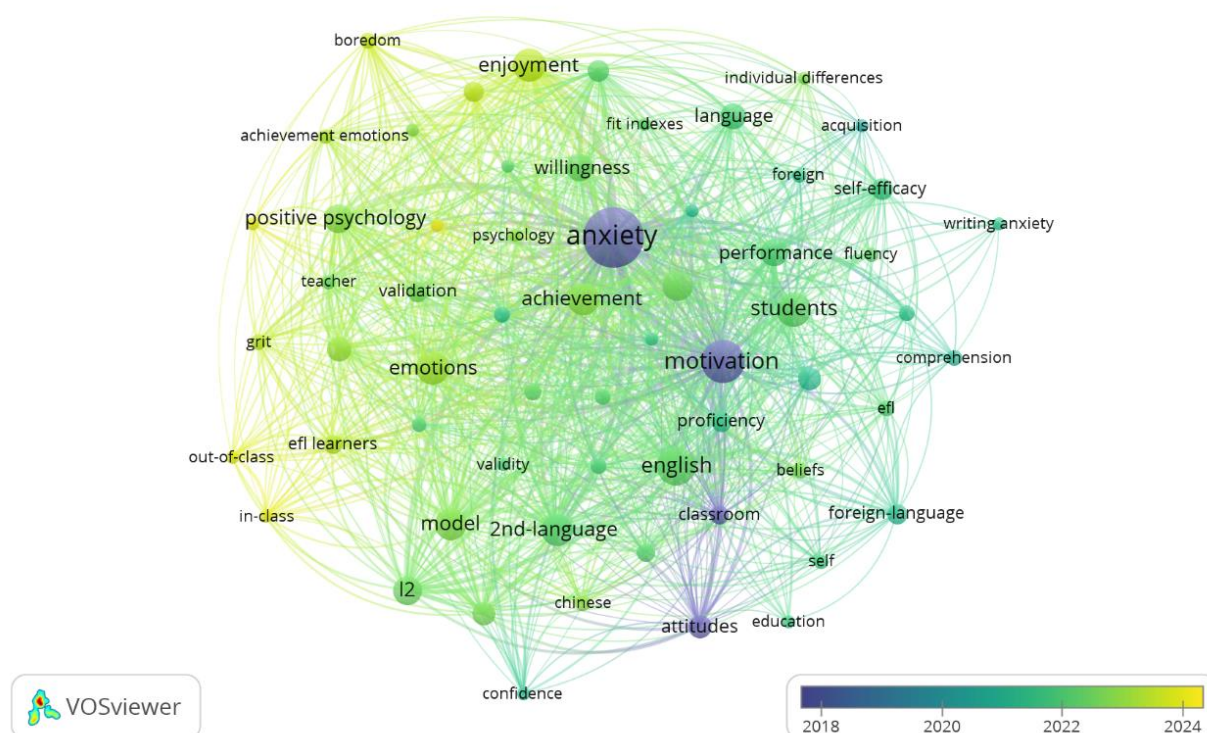


Figure 5 Co-occurrence Overlay Visualization on Keywords

Research Limitations and Implications

This bibliometric analysis has several limitations. First, the dataset was restricted to publications indexed in the Social Sciences Citation Index (SSCI) of Web of Science (WOS) database, which may exclude relevant research found in other core collections of WOS such as Social Science Index Expanded or other sources such as Scopus. Second, only English-language articles were included, potentially omitting valuable contributions published in other languages. In addition, while the bibliometric tool VOSviewer provides valuable insights into patterns and trends, they cannot explain the underlying causes or theoretical depth behind those patterns.

The findings of this study have several implications for researchers and practitioners in the field of SLA. First, the analysis on countries, journals and authors provides researchers and practitioners with clearer patterns of intellectual structure and influential contributors to the field of language anxiety in SLA. Second, by identifying key research trends and emerging topics such as foreign language enjoyment and grit, this study provides a roadmap for future research directions. Educators and curriculum designers can also benefit from understanding how affective variables like motivation and anxiety have evolved in the literature.

Methodologically, this study highlights the need for multi-database analyses and multilingual inclusion to better capture global scholarship and intellectual structure. Future bibliometric studies may also explore longitudinal changes with more granular time intervals or thematic evolution using dynamic topic modelling.

Conclusion

This study used bibliometric methods to analyse literature data from WOS using the VOSviewer software. Research has found that: 1. The research on anxiety in SLA has received increasing attention from researchers in the past decade; 2. China, United States of America (USA), Iran, the United Kingdom (UK) and Canada are the top five countries with the largest number of publications in this field. Chinese scholars have contributed the most scientific research papers; 3. *Frontiers in Psychology* is the most productive journal. In addition, among the ten journals extracted, *Studies in Second Language Acquisition* has the highest quality of articles and the greatest impact on the field; 4. Kruk Mariusz and Pawlak Mirosław are the authors with the highest publication volume, while Dewaele Jean marc is a highly influential author in this field. 5. Enjoyment, grit, out-of-class, in-class and achievement emotions are recent additions, reflecting a growing concern with positive experience of EFL learners. The findings of this study offered a valuable insight to map the intellectual structure, research trends, and influential contributors to the field of language anxiety.

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