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A bibliometric analysis of research on foreign language classroom anxiety using CiteSpace[1]

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Abstract

This study presented a bibliometric analysis of foreign language classroom anxiety (FLCA) research published between 2002 and 2024. Using the Web of Science (WoS) database as the primary data source, CiteSpace software was employed to generate scientific knowledge maps, illustrating the evolutionary trajectory of FLCA scholarship. Findings indicated a fluctuating yet overall upward trend in publication frequency, reflecting the growing academic interest in this domain. The analysis revealed a well-established core research team engaged in sustained contributions, fostering scholarly advancements. Three primary research clusters emerged: (1) Factors influencing FLCA, including intrinsic learner traits and external classroom dynamics; (2) Development and validation of FLCA measurement instruments, particularly the Foreign Language Classroom Anxiety Scale (FLCAS) and its adaptations; and (3) The impact of FLCA on language learning outcomes, highlighting its correlation with academic achievement and pedagogical strategies. Based on identified limitations in current research, this study finally proposed directions for future investigation.

1. Introduction

Since the 1970s, scholars have increasingly recognized the significance of emotions in teaching effectiveness, with anxiety emerging as a critical factor influencing language learning. Research on foreign language anxiety has expanded substantially, following Brown's (1973) early investigation into emotional factors in language acquisition. Brown suggested that anxiety could significantly impact learners' language acquisition processes. In 1986, Horwitz et al. introduced the concept of foreign language anxiety, defining it as "a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (Horwitz, Horwitz, & Cope, 1986, p. 128) Anxiety is widely regarded as a major emotional variable affecting foreign language learning, influencing learners' language competence, academic achievement, and teacher assessments (Gardner, 1985; Steinberg & Horwitz, 1986; Young, 1991). Due to its pivotal role in language education, anxiety has become a central focus of research in foreign language teaching.

Horwitz et al. (1986) expanded on Foreign Language Classroom Anxiety (FLCA), establishing three connected components: (a) communicative apprehension, (b) dread of unfavorable assessment, and (c) exam anxiety. Communication apprehension refers to an individual's anxiety during actual or anticipated interactions (McCroskey, 1984). Fear of negative evaluation describes distress associated with perceived judgments from others (Watson & Friend, 1969), while test anxiety involves excessive worry regarding performance outcomes in evaluative situations (Sarason, 1984). Subsequent studies have reinforced the idea that FLCA encompasses a broad spectrum of anxieties linked to classroom learning and specific language skills such as speaking and reading (e.g., Pae, 2013). Horwitz (2016) created the Foreign Language Classroom Anxiety Scale (FLCAS) to measure language anxiety within educational environments. This scale has been extensively used in empirical studies focusing on second language acquisition.

Despite growing academic interest in FLCA, there remains a scarcity of bibliometric reviews examining this field comprehensively. CiteSpace, a widely recognized bibliometric tool, enables researchers to map knowledge structures and identify emerging trends. Applying CiteSpace to FLCA research published from 2002 to 2024 can offer valuable insights into the current state of scholarship, highlight prevalent research themes, and provide guidance for future studies.

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2. Systematic Review Supported by CiteSpace Software

2.1. Data Collection and Selection Criteria

This study utilized the Web of Science (WoS) database, maintained by the Institute for Scientific Information in the United States, as the primary data source. To ensure comprehensive retrieval, search terms included "foreign language classroom anxiety", "second language classroom anxiety", "anxiety in foreign language classroom", and "anxiety in second language classroom". A subject-specific search was conducted within the SSCI and SSCI-EXPANDED sub-databases, covering the publication period from January 1, 2002, to December 31, 2024. Only journal articles and conference papers were considered. Following the initial retrieval, CiteSpace software was employed for deduplication, yielding a total of 659 articles. A subsequent manual screening process further refined the dataset, resulting in the selection of 123 relevant publications that met the study's inclusion criteria. The complete records and cited references from these papers were exported in plain text format. Titles, authors, abstracts, keywords, and reference information were saved as txt files for subsequent visual analysis using knowledge graph methodologies.

2.2. Research Methodology

This study employs bibliometric analysis and scientific mapping techniques, utilizing CiteSpace 6.3.R1 as the primary analytical tool to examine foreign language classroom anxiety (FLCA) research published between 2002 and 2024. CiteSpace 6.3.R1, developed by Professor Chaomei Chen, is a widely recognized software for information visualization (Mao, 2022). It enables temporal and dynamic visual analysis through scientific knowledge graph representation, assisting researchers in identifying emerging trends and core topics within a given field.

Through CiteSpace-generated visual representations, this study conducts analyses on keyword co-occurrence, author and countries collaboration networks offering insights into the current research landscape and future directions in FLCA scholarship. Specifically, the aim of this research is to explore the following research questions:

- What is the distribution of FLCA-related publications over time?
- Which countries have contributed most significantly to FLCA research?
- What are the most highly cited publications in FLCA studies?
- What are the key research hotspots in FLCA scholarship?

3. Results of the Bibliometric Analysis

3.1. Publication Trends
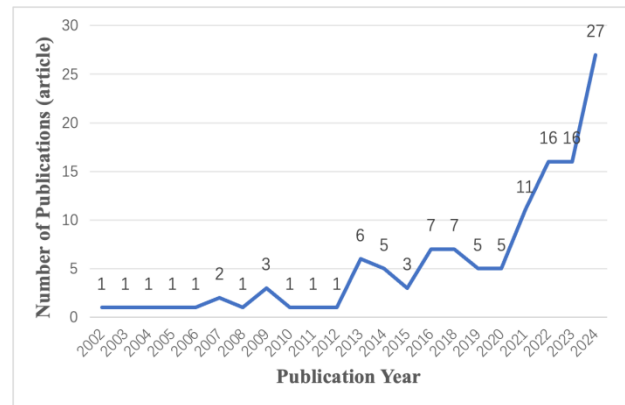
Figure 1. Annual publications in the research literature

Using CiteSpace and Excel, this study mapped the publication trends in foreign language classroom anxiety (FLCA) research since 2002. As illustrated in Figure 1, the evolution of research in this field exhibits fluctuations and can be broadly categorized into three distinct phases: (1) Slow Start Phase (2002–2007). During this initial stage, the number of annual publications remained exceptionally low, averaging only one article per year, except for 2006, when two articles were published. This indicates that FLCA had not yet emerged as a widely recognized research topic, and scholarly interest was still in the exploratory phase with limited research output. (2) Stable Fluctuation Phase (2008–2013). Although academic interest in FLCA increased, research output remained relatively modest. In 2008, three articles were published, and the number fluctuated between one and three in subsequent years, reaching six in 2013. This trend suggests that while scholarly engagement in FLCA was growing, research expansion remained gradual and inconsistent, with no large-scale surge observed. And (3) Rapid Growth Phase (2014–2024). A notable increase in research output began in 2014, when five articles were published, followed by fluctuations in subsequent years. Between 2015 and 2021, annual publication counts ranged from three to seven articles. However, a substantial rise was observed from 2022 onward, with 11 articles published in 2022, 16 in 2023, and a peak of 27 articles in 2024. This surge indicates growing academic recognition of FLCA, likely driven by advancements in language education research and evolving pedagogical needs. The increasing number of publications highlights FLCA's emerging significance and suggests sustained interest in this domain.

3.2. Top Frequency Co-citation References

Citation frequency is a crucial indicator of the academic influence and impact of scholarly contributions. To examine the most influential works in foreign language classroom anxiety (FLCA) research, this study identified the six most frequently cited articles in the field, as summarized in Table 1. Analyzing these studies provides valuable insights into the predominant research directions and emerging trends in FLCA scholarship.

Table 1. Top 6 Top frequency Co-citation references

No.	Article	Author	Citation frequency	Publication year
1	How unique is the foreign language classroom enjoyment and anxiety of Chinese EFL learners?	Jiang, Y. & Dewaele, J. M	299	2019
2	Does the effect of enjoyment outweigh that of anxiety in foreign language performance?	Dewaele, J. M. & Alfawzan, M	256	2018
3	Recasts, language anxiety, modified output, and L2 learning	Sheen, Y.	197	2008
4	Effects of Language Anxiety on Three Proficiency-Level Courses of Spanish as a Foreign Language	Marcos Llinás, M. & Garau, M. J.	163	2009
5	An exploration of speaking-in-class anxiety with Chinese ESL learners	Mak, B	162	2011
6	The effect of classroom emotions, attitudes Toward English, and teacher behavior on willingness to communicate among English foreign language learners	Dewaele, J. M.	147	2019

The most highly cited study by Jiang et al. (2019) investigated the relationship between Foreign Language Enjoyment (FLE) and FLCA among Chinese undergraduate students learning English as a Foreign Language (EFL). Their findings revealed that FLE was significantly higher than FLCA in English classrooms; however, the overall anxiety level among Chinese learners remained higher than that of an international sample. A moderate negative relationship was identified between FLE and FLCA, indicating a substantial shared variance. While gender did not have a substantial influence on either construct, FLE was found to be predominantly influenced by teacher-related factors, such as interactions with instructors and peers. In contrast, FLCA was largely driven by learners' internal psychological variables and was more closely associated with self-oriented concerns. The second most commonly referenced study, carried out by Dewaele and Alfawzan (2018), examined how Foreign Language Enjoyment (FLE) and Foreign Language Classroom Anxiety (FLCA) impact language performance. Their results showed that FLE exerted a more significant positive influence on academic results, emphasizing the role of instructional methods in molding learners' emotions and study-related choices. Sheen (2008) investigated the link between anxiety and recasts during language learning. The study found that learners with lower anxiety levels showed better performance in speeded dictation and writing posttests, generating more revised output and self-corrections. These results imply that varying anxiety levels may affect how effective corrective feedback is in the process of language acquisition. Marcos (2009) investigated anxiety levels among 134 Spanish language learners, using questionnaire data. The study found that advanced learners reported higher anxiety levels; however, high anxiety did not necessarily correspond to lower academic performance. The majority of learners exhibited moderate anxiety, which appeared to have no significant impact on their grades. This suggests that a certain level of anxiety may serve as a motivational factor for language learning rather than a hindrance. Mak (2011) applied questionnaire-based factor analysis to a sample of 313 Hong Kong university students, identifying five key factors

contributing to speaking anxiety in the classroom. The study emphasized the impact of variables such as unprepared speaking and teacher feedback, offering pedagogical implications for anxiety reduction in language instruction. Lastly, Dewaele (2019) examined the relationship between FLCA and communication willingness among 210 Spanish EFL learners. Their results indicated that FLCA negatively predicted learners' willingness to communicate, whereas FLE and teachers' use of the target language had a positive influence, underscoring the importance of instructional strategies that foster enjoyment and engagement.

3.3. Author Collaboration Networks

Using CiteSpace software, this study conducted an author-based network analysis to visualize the co-author relationships in foreign language emotion research, as illustrated in Figure 3. The co-author network provides valuable insights into the key researchers and prominent research teams who contribute to the area. In this network visualization, node size and label prominence correspond to each author's number of publications, while connecting lines show collaborative links. Thicker lines indicate stronger and more frequent cooperative efforts among scholars. Figure 3 reveals multiple sub-network structures, reflecting active scholarly communication and collaboration within the field. Notably, the network structure led by Dewaele stands out as a particularly significant cluster. Authors with high publication output have established stable collaboration networks, suggesting that FLCA research has achieved a certain level of academic maturity. The presence of these structured networks indicates a strong emphasis on academic exchange and cooperative research efforts among scholars. Dewaele, as the most prolific author in foreign language emotion research, has contributed sixteen publications to this domain. His extensive work and collaborative engagements highlight his influential role in shaping FLCA scholarship and advancing theoretical and empirical studies in the field.
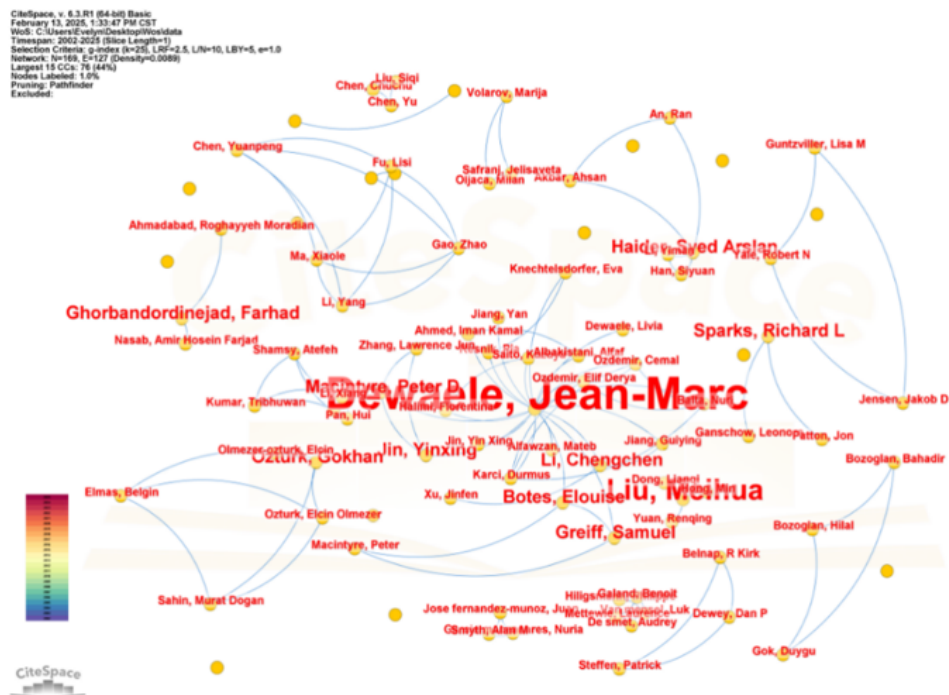
Figure 2. A visualization of the author collaboration network

Table 2. Top 10 authors

Ranking	Authors	Count	Centrality	Year
1	Dewaele, Jean-Marc	16	0.03	2013
2	Liu, Meihua	5	0	2021
3	Kim, Sung-Yeon	2	0	2009
4	Ozturk, Gokhan	2	0	2021
5	Greiff, Samuel	2	0	2022
6	Botes, Elouise	2	0	2022
7	Sparks, Richard L	2	0	2007
8	Park, Gi-Pyo	2	0	2013
9	Dordinejad, Farhad	2	0	2013
10	Haider, Syed Arslan	2	0	2022

3.4. Country Collaboration Networks

This study examines international collaboration in FLCA research, focusing on cooperative relationships among countries and the distribution of key contributors. The analysis of country-level collaboration reveals a network comprising 89 nodes and 145 links, as illustrated in Figure 3. Additionally, Table 3 presents the number of publications and betweenness centrality scores for the five most research-productive countries. The thickness and density of the links connecting nodes indicate the strength of collaborative ties among nations, with China demonstrating the most extensive cooperation with other countries. China holds a dominant position in FLCA research, with 44 publications - significantly surpassing other contributors. The United States and the United Kingdom follow as the second and third most productive countries, respectively. South Korea, ranked fourth, and Spain, ranked fifth in terms of publication output, also emerge as notable contributors within the collaboration network.

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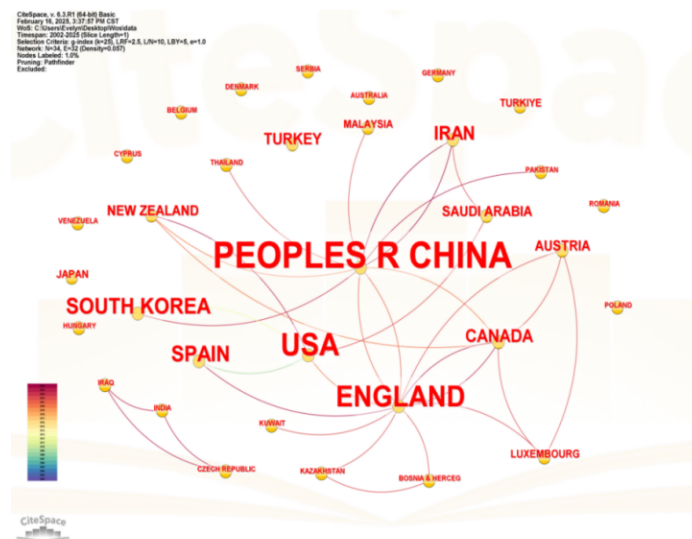
Figure 3. A visualization of the country collaboration network

Table 3. Top 5 most productive countries for foreign language classroom anxiety research

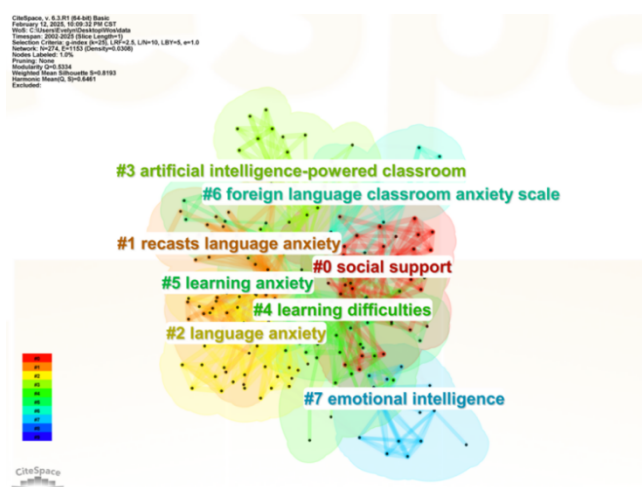| Ranking	Country	Count	Centrality	Year
1	People's Republic of China	44	0.22	2011
2	USA	23	0.06	2002
3	England	19	0.23	2013
4	South Korea	8	0.01	2009
5	Spain	8	0	2009

3.5. Analysis of Research Hotspots

Figure 5. Keywords cluster analysis and visualization mapping

As crucial markers for encapsulating the central themes of academic papers, keywords play a vital role in scholarly communication. By conducting keyword analysis with CiteSpace, researchers can effectively identify emerging research hotspots and thematic evolution within a discipline. CiteSpace assesses the quality of clustering based on network architecture and cluster distinctiveness, relying on two key metrics: the modularity value (Q) and the average silhouette value (S). According to Chen et al. (2015), a Q value above 0.3 signifies a meaningful clustering structure, an S value over 0.5 indicates reasonable clustering validity, and an S value surpassing

0.7 confirms the robustness of the clustering results.

In this study, the keyword clustering module (Q) is 0.5334, while the average silhouette value (S) for the cluster is 0.6461. These metrics indicate that the clusters exhibit substantial internal connectivity and demonstrate strong thematic coherence. The co-cited literature keyword clustering knowledge map generated by CiteSpace identifies eight primary co-cited literature network clusters: #0 Social Support, #1 Recasts and Language Anxiety, #2 Language Anxiety, #3 Artificial Intelligence-Powered Classrooms, #4 Learning Difficulties, #5 Learning Anxiety, #6 Foreign Language Classroom Anxiety Scale, and #7 Emotional Intelligence (see Figure 5). Overall, FLCA research can be categorized into three primary thematic areas: (1) Factors influencing anxiety in foreign language classrooms, (2) Measurement scales for assessing foreign language classroom anxiety, and (3) The impact of anxiety on language learning outcomes. These findings offer valuable insights into prevailing research trends and emerging directions in FLCA scholarship.

3.6. Factors Influencing FLCA

The factors contributing to FLCA can be categorized into three primary dimensions: (1) the relationship between FLCA and individual intrinsic factors, (2) the influence of external environmental variables on anxiety levels, and (3) the impact of FLCA on academic achievement.

3.6.1. Individual Intrinsic Factors

Most studies examine the interplay between emotions and internal psychological traits. For instance, Dewaele (2013) explored the relationship among personality traits

(Psychoticism, Extraversion, Neuroticism), language proficiency, and FLCA in adult multilinguals. Results showed a notable association between FLCA and Neuroticism, with anxiety levels staying consistent across various languages. Moreover, multiple studies have examined the relationship between trait emotional intelligence and language anxiety.

Park and Brian (2013) employed the Foreign Language Classroom Anxiety Scale (FLCAS) to examine gender differences among Korean university students learning English. Their findings revealed that female students exhibited higher anxiety levels despite achieving better grades. And Teachers need to be aware of it and create supportive environments to reduce anxiety and encourage participation. Li (2019) reported a moderate association between students 'emotional intelligence, foreign language enjoyment (FLE), and foreign language anxiety (FLA). It is feasible for teachers to design intervention programs anchored in emotional intelligence, such as integrating the "ARGUER" positive psychology model with diary reflection activities. These initiatives enable students to enhance emotional awareness, recognition, and regulation skills while cultivating a positive emotional climate in the classroom. Chen et al. (2021) investigated the interconnections among trait emotional intelligence (EI), foreign language learning anxiety (FLA), and foreign language learning enjoyment (FLE) in foreign language oral classroom. The research findings indicated significant correlations among these three factors. Specifically, trait emotional intelligence had a stronger predictive effect on learning anxiety than on learning pleasure. And the researchers proposed that teachers ought to place great emphasis on cultivating students' characteristic emotional intelligence. For example, provide more targeted support and guidance for students with high anxiety to help them overcome anxiety disorders.

3.6.2. External Environmental Factors

Increasing research attention has focused on the relationship between FLCA and external influences. Ewald (2007) conducted a qualitative study on anxiety experiences among advanced Spanish learners, demonstrating that classroom dynamics - such as peer abilities, teacher behaviors, and fear of mistakes - contributed to heightened anxiety levels. The study emphasized the teacher's role in either mitigating or exacerbating student anxiety, advocating for a supportive classroom environment. Mak (2011) investigated classroom speech anxiety among Chinese ESL learners in Hong Kong, identifying five key contributors: speech anxiety, fear of negative evaluations, discomfort in speaking with native English speakers, negative attitudes toward the curriculum, and fear of academic failure. Additionally, classroom practices such as inadequate preparation time, immediate correction in front of peers, and restrictive language policies - were found to intensify anxiety levels.

Resnik et al. (2023) conducted a comparative study on the disparities in foreign language classroom anxiety (FLCA) experienced by students in online English classes before and during the epidemic. The results indicated that students' FLCA levels in online classes were remarkably lower compared to those in offline classes. Additionally, the sources of anxiety in online classes diverged from those in offline settings. Factors such as the utilization of technology and the ambiguity of course requirements were identified as the main contributing elements. Therefore, this study suggests that foreign language teaching should address the varying anxiety triggered by shifts in instructional modes. For offline teaching, cultivating an inclusive atmosphere is key to reducing students' anxiety during class discussions and peer comparisons. Timely feedback can also ease their concerns about understanding course content. By first addressing technical issues in the online teaching, teachers can then systematically outline course expectations and assessment criteria. Enhancing interaction through group discussions and peer collaboration further alleviates students' anxiety about technological unfamiliarity and ambiguous task guidelines.

A study by Wu et al. (2024) explored how teacher traits affect learners' foreign language learning enjoyment (FLE) and classroom anxiety (FLCA). The results indicate that learners taught by male teachers exhibit higher levels of FLE compared to those instructed by female teachers. Teacher characteristics demonstrate a stronger predictive capacity for FLE than for FLCA. Among these characteristics, teachers' positive emotions emerge as the most significant predictor of learners' FLE, whereas teachers' strictness is identified as having the most substantial influence on learners' FLCA. Lan (2024) found that both in-class flip instruction (IFI) and conventional flip instruction (CFI) can improve students' oral expression ability in business English more effectively. Among these two flipped teaching models, IFI has a better effect, which can reduce students' anxiety levels and improve students' participation and satisfaction. Teachers are advised to proactively explore and implement innovative teaching models like the flipped classroom, with particular emphasis on the IFI model. By optimizing the design of classroom activities and rationalizing time allocation, educators can provide more timely feedback and personalized support to students. This approach not only helps alleviate learning anxiety effectively but also enhances students' learning motivation and academic outcomes.

Regarding the reduction of students' anxiety in foreign language classes, Chinese English teachers in online classroom settings primarily employ five key strategy categories to alleviate learners' anxiety. These include fostering a non-threatening environment, boosting language learners' autonomy, involving students in learning tasks, increasing pair or group work, and attending to group dynamics Moreover, experienced and qualified teachers use these coping strategies more frequently than inexperienced and uncertified teachers. Liu (2023) found that interfere with cognitive performance the Hybrid SCMC (BYOD) model reduces student 'anxiety levels and is superior to the traditional FTF teaching and pure SCMC models in terms of interaction and learning experience.

3.7. Assessment of FLCA

The Foreign Language Classroom Anxiety Scale (FLCAS) is widely recognized as a reliable instrument for measuring FLCA. Empirical studies frequently employ questionnaires, assessments, and structured interviews to evaluate anxiety measurement tools across various contexts.

Despite its increasing use, the Short Foreign Language Classroom Anxiety Scale (S-FLCAS) required further validation. To address this, Botes et al. (2022) examined its reliability and validity using a sample of 370 language learners. Through exploratory and confirmatory factor analyses, they confirmed the S-FLCAS's single-factor structure, acceptable internal consistency, and evidence of convergent and discriminant validity.

In China, Dong and Huang (2023) set out to assess the psychometric properties—specifically reliability and validity—of the Chinese adapted version of the Short Foreign Language Classroom Anxiety Scale (S-FLCAS) in evaluating Foreign Language Classroom Anxiety (FLCA) among Chinese college students. The findings revealed that the Chinese version of S - FLCAS emerged as a reliable and valid unidimensional measurement tool. It is well - suited for gauging FLCA within the context of Chinese universities. And the scores are comparable among different genders and second language learner groups.

Öztürk et al. (2022) sought to integrate four skill-based foreign language anxiety scales into a unified framework and assess its predictive validity. Their study involved 385 Turkish EFL learners and employed five distinct anxiety scales. Structural equation modeling and confirmatory factor analysis demonstrated that the four skill-based anxieties could be merged into a single measure (SB-FLLAS), which effectively explained 88% of the variance in FLCA as assessed by FLCAS.

3.8. Impact of FLCA on Learning Outcomes

Empirical research predominantly indicates a negative correlation between FLCA and language performance (Horwitz et al., 1986). Ghorban Dordinejad and Nasab (2013) investigated FLCA as a mediating factor between perfectionism and English achievement among Iranian high school students. Their findings confirmed that FLCA was inversely correlated with English performance but positively associated with perfectionism. However, anxiety did not moderate the relationship between perfectionism and academic success.

During the COVID-19 pandemic, Liu (2023) examined the interconnections among FLCA, learning styles, and English achievement among 691 Chinese university students. Their research revealed a negative correlation between FLCA and academic performance, whereas learning styles showed a positive association with achievement. While gender and academic discipline influenced learning style preferences, they did not significantly affect FLCA levels. In foreign language teaching, teachers can foster a non-threatening online classroom environment by establishing social learning groups and integrating formative assessment with self-assessment. Granting students class autonomy, incorporating digital games, and teaching self-study skills can enhance their learning independence. For classroom activities, involving students in syllabus design, increasing collaborative tasks like group projects and online discussions, and leveraging peer interaction can reduce anxiety.

Some scholars explored the influences of learning motivation, anxiety and learning strategies on the Chinese academic performance of adult Chinese learners in Thailand during online learning. Anxiety is the most stable factor affecting learners' self-assessed Chinese proficiency and shows a negative prediction. Learning strategies have a certain positive predictive effect. The predictive effect of motivation is not significant. (Xu et al., 2022) In foreign language education, teachers should prioritize addressing learners' anxiety by creating a supportive environment and incorporating local culture to ease tension. It is also important to systematically train learners in self-regulated learning strategies like goal-setting and time management.

While FLCA research has historically relied on cross-sectional studies, an increasing number of longitudinal investigations provide deeper insights into temporal variations in anxiety. Sparks and Ganschow (2007) conducted a 10-year longitudinal study on 54 learners of Spanish, French, and German, finding that lower FLCA scores correlated with stronger native language skills and improved foreign language performance. Elahi Shirvan and Taherian (2018) applied potential growth curve modeling (LGCM) and data triangulation to examine changes in FLE and FLCA among university students over a semester. Their findings revealed that while FLE increased and FLCA decreased, initial anxiety levels did not predict long-term fluctuations.

4. Future Research Directions and Critical Analysis

Research visualization analysis indicates a growing academic focus on foreign language classroom anxiety (FLCA), with international journals increasingly publishing work in this domain. Both research themes and methodologies have evolved substantially, contributing to a more sophisticated understanding of FLCA. The progression of research in this field is primarily reflected in three key dimensions: research perspectives, research content, and research methodologies.

Early studies on FLCA primarily centered on language acquisition and pedagogical methods. However, as applied linguistics and second language acquisition research have advanced, interdisciplinary influences—particularly from cognitive science and psychology—have become integral to shaping the conceptual framework of FLCA. Increasingly, research in this field draws from cognitive psychology, demonstrating a clear trend toward integration with psychological theories.

Regarding research topics, contemporary studies emphasize diverse emotional experiences, examining the emotional states of language learners across different linguistic and cultural backgrounds, as well as various factors contributing to these emotions. Despite considerable scholarly output, systematic and multi-dimensional investigations remain relatively scarce. Additionally, mediating variables influencing FLCA are

often fragmented, limiting comprehensive insights into the complexity of foreign language anxiety. Another critical gap in existing research is the predominant focus on external anxiety-reduction strategies, with relatively few studies addressing self-regulation strategies rooted in learners' internal coping mechanisms. Future research could further examine self-regulation approaches to enhance understanding of how learners autonomously manage FLCA.

Various intrinsic and extrinsic factors contribute to FLCA, yet existing methodological approaches predominantly employ qualitative and quantitative techniques. Traditional data analysis relies on t-tests and analysis of variance (ANOVA) to examine FLCA under varying conditions (e.g., Park et al., 2013; Li & Xu, 2019). More recently, scholars have incorporated advanced statistical models, such as mixed-effects models and structural equation modeling, to explore interactions among multiple influencing variables (e.g., Öztürk et al., 2022). While efforts to develop innovative methodologies continue, empirical research in FLCA remains predominantly quantitative. Future studies should integrate a broader range of methodological approaches - such as longitudinal, experimental, and mixed-method designs to provide a more comprehensive perspective on FLCA dynamics.

Current FLCA research predominantly examines adult learners, particularly those from diverse linguistic and cultural backgrounds. However, research involving primary and secondary school learners remains limited, despite the relevance of foreign language anxiety at earlier stages of education. Similarly, the classroom anxiety experienced by foreign language teachers has not received sufficient scholarly attention. Future studies should broaden the scope of investigation to include younger learners, incorporating developmental perspectives to assess how FLCA manifests across different age groups. Additionally, expanding research on instructors' anxiety would offer deeper insights into the reciprocal emotional dynamics between teachers and students.

Most existing FLCA studies adopt cross-sectional designs, limiting the ability to track diachronic variations in foreign language anxiety over time. Given that language learning represents a dynamic process, future research ought to give priority to longitudinal studies for a deeper comprehension of the changing characteristics of FLCA. Although some longitudinal investigations have emerged, their number and scope remain restricted. For instance, Mariusz (2018) presents a valuable example of paired production studies, yet existing literature remains scarce, and the temporal range of analysis is relatively narrow. Long-term diachronic studies extending over several years could provide deeper insights into fluctuations in FLCA, offering more robust findings for pedagogical intervention.

5. Conclusion

This study presents a comprehensive visual analysis of foreign language classroom anxiety (FLCA) research published between 2002 and 2024. A systematic review of literature from the Web of Science database was conducted to identify research hotspots and emerging trends in the field. Findings indicate that FLCA research has undergone a three-stage developmental trajectory, beginning with an initial period of slow growth, followed by a phase of fluctuating expansion, and culminating in rapid scholarly advancement. Key research themes include factors influencing FLCA, the practical application of anxiety measurement scales, and the impact of classroom anxiety on learning outcomes. Methodologically, FLCA studies predominantly employ quantitative and qualitative approaches. To further advance this field, future research should integrate diverse theoretical frameworks and innovative methodologies, fostering a more comprehensive and nuanced understanding of FLCA dynamics.

In foreign language teaching, educators should address student individual differences, especially the diverse impacts of emotional intelligence facets. By doing so, they can design targeted teaching strategies to foster comprehensive foreign language proficiency. Considering the negative impacts of foreign language classroom anxiety, teachers should create a friendly and supportive learning environment to ease such anxiety. Providing positive feedback, using encouraging language, and setting realistic expectations can build students' confidence and promote active classroom participation.

To effectively reduce anxiety, teachers can adopt strategies such as creating a low-pressure learning environment, promoting student autonomy, designing varied activities, facilitating group collaboration, and monitoring classroom dynamics. Moreover, educators should acknowledge and differentiate for differences in gender, academic backgrounds, and learning styles (e.g., visual, auditory, and kinesthetic). Using varied teaching materials and activities to meet these diverse needs can enhance instructional effectiveness. Teachers should also monitor students' mental health, promptly identifying and providing intervention for those with severe anxiety or learning challenges. Offering psychological counseling, academic guidance, and emotional support helps students overcome obstacles and maintain a positive learning attitude. Lastly, novice and inexperienced teachers, in particular, require targeted training in skills like managing foreign language classroom anxiety, identifying diverse learning styles, and implementing differentiated instruction.

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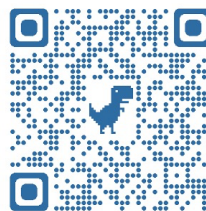
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