

# A Visualization Analysis of Foreign Language Enjoyment Research Based on CiteSpace (2015-2024)

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**Abstract:** Driven by the research on emotions in positive psychology and educational psychology, foreign language enjoyment (FLE), a positive emotion in foreign language learning, has become a research hotspot. This paper takes the relevant literature in the Web of Science Core Collection database from 2015 to 2024 as the data source and uses CiteSpace software for visual analysis to explore the development trends, hotspots, and frontiers of FLE research. The study indicates a consistent increase in the volume of research articles on FLE over the last ten years. A core author group has not yet been formed, and the cooperation among authors and institutions needs to be strengthened. The research concentrates on the correlations between FLE and individual variables, including anxiety, motivation, willingness to communicate, and classroom social climate, etc., alongside its influence on learning outcomes. The research frontiers have undergone a transformation from focusing on internal factors to the interaction between FLE and external factors. Future research can strengthen interdisciplinary cooperation, expand the scope of research subjects, apply new technologies and longitudinal research designs, and focus on teaching practice to promote the further development of FLE research.

**Keywords:** Foreign Language Enjoyment; Positive Psychology; CiteSpace; Visual Analysis

## 1. Introduction

For a long time, foreign language teaching has focused on cultivating learners' cognitive abilities while neglecting the important role of learners' affective factors. Thanks to the combined influence of positive psychology and studies on emotions in education, researchers in second language acquisition (SLA) have started to recognize how important emotions are in learning a foreign language, leading to a rise in studies about emotions in this area (Dewaele and Li 2020). Investigations of emotions in second language acquisition have traditionally concentrated on negative emotions experienced by learners, such as foreign language anxiety. Recently, there has been a favorable development in SLA emotion research, with foreign language enjoyment (FLE) emerging as a significant positive emotion, which is defined as "the positive emotion that learners experience after overcoming difficulties in foreign language learning, completing academic tasks, and fulfilling their psychological needs" (Dewaele and MacIntyre 2014).

Reviews of FLE have predominantly employed traditional literature review methods, such as systematic reviews (Zhang, Gao, and Liu 2024), with few studies utilizing bibliometric tools like CiteSpace for objective analysis. Therefore, this paper employs the CiteSpace bibliometric visualization software to visually analyze research on FLE from 2015 to 2024, taken from the Web of Science (WOS) Core Collection database. The study aims to provide a comprehensive visualization analysis of FLE in terms of research trends, hot topics, and frontiers.

## 2. Research Methodology

### 2.1 Research Questions

This paper seeks to examine the following three research questions:

- 1) What is the distribution of the publications on FLE from 2015 to 2024?
- 2) What are the hot topics in the research on FLE?
- 3) What are the frontier issues in the research on FLE?

## 2.2 Data Sources

The data for this paper were sourced from the Web of Science Core Collection database. The database types were set to Science Citation Index Expanded (SCI-EXPANDED) and Social Sciences Citation Index (SSCI). We retrieved journal articles using the advanced search function, applying the following criteria: The search terms were TS=(enjoyment) AND TS=(foreign language OR second language); the document type was set to Article; the language was specified as “English”; and the time span was from 2015 to 2024. After the search was completed, irrelevant and duplicate articles were manually removed following a careful review of the titles and abstracts, resulting in a final sample of 295 valid articles. We then exported the “full records and references” in a “plain text file” format.

## 2.3 Research Methods

To comprehensively investigate the development of the research on FLE, this paper utilized the bibliometric analysis tool CiteSpace software (version 6.4.R1) to conduct a visual analysis of the research data on FLE from 2015 to 2024. CiteSpace, a tool for analyzing scientific knowledge mapping, can intuitively present the knowledge structure, hotspot evolution, and frontier trends of a particular research field through bibliometric and visualization techniques (Chen 2006). We first generated co-occurrence maps of author collaboration and institution collaboration. Keyword frequency and clustering analyses were then employed to provide an overview of the hot topics in FLE research. Finally, keyword burst analysis was used to examine the frontier research in the field of FLE. Lastly, a macro-analysis of the research on FLE was conducted to propose feasible suggestions for the in-depth development of this field.

## 3. The Basic Overview of FLE

### 3.1 Annual Publication Volume

The number of publications in a research field reflects its development trends and status. This paper uses CiteSpace software and Excel to create a graph of annual publication output. As shown in Figure 1, the number of publications on FLE has generally been on the rise, indicating that the topic has gradually garnered the attention of scholars from 2015 to 2024. Its development can approximately be divided into three phases: From 2015 to 2017, research on FLE was in its infancy, with related studies being relatively scattered. From 2018 to 2020, under the guidance of the “positive turn” in positive psychology, FLE entered a period of stable development. From 2021 to 2024, research on FLE entered a period of high productivity, with a rapid increase in related studies, reaching 134 publications in 2024. It is evident that based on accumulated previous research, scholars have continued to introduce new perspectives to invigorate the study of FLE. It can thus be predicted that the research on FLE will continue to grow. Future research topics and methods will become more diversified, with a greater emphasis on in-depth exploration of this field.

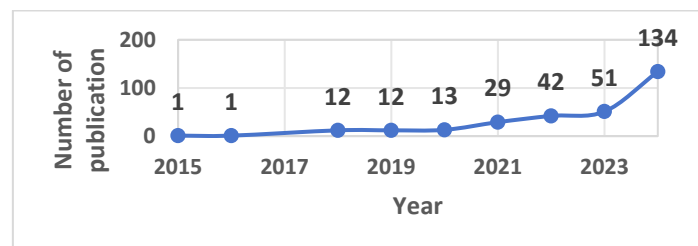


Figure 1: Time distribution chart of publications on FLE research from 2015 to 2024.

### 3.2 Core Authors and Collaborative Relationships

By analyzing the publication output of the first authors of 295 articles on FLE, as shown in Table 1, it was found that the most prolific author, Dewaele, Jean-Marc, published 33 papers. Referring to the formula for calculating the high-frequency threshold (Price 1963) :

$$M = 0.749 \times \sqrt{N_{max}}$$

(M represents the minimal number of publications for core authors, and  $N_{max}$  is the publication count of the most prolific author in the subject over the specified statistical period.) An author is deemed a core

author in the discipline when their publishing output surpasses M. When the total number of publications by core authors attains 50% of the total in the discipline, it signifies the establishment of a core author group. Consequently, it was concluded that core authors in the domain of FLE must have published a minimum of five works. The findings revealed that 13 core authors jointly produced 123 publications, or 42% of the overall sample. Consequently, it may be inferred that a core author group has yet to be established in the domain of FLE research, indicating significant opportunities for further investigation.

Further co-occurrence analysis of the authors using CiteSpace software generated the author co-occurrence network map. This map illustrates that the size of the nodes corresponds to the quantity of publications by each author, while the thickness and number of links between authors signify the intensity of their collaboration relationships. As shown in Figure 2, the overall pattern of the map is characterized by authors with higher publication output being at the center, such as Dewaele, Jean-Marc, and Pawlak, Mirosław, who have close connections with other authors. In contrast, authors with fewer publications have less dense connections, and some authors still prefer to conduct research independently or in small groups. This indicates potential for enhancement in author collaboration. This may be related to the increasing complexity of research topics or the rising tendency of interdisciplinary collaboration. However, it is worth noting that the darker the node color, the more recent the publications, indicating that collaboration among authors in the field of FLE has become increasingly close in recent years.

Table 1: Major authors on FLE research from 2015 to 2024.

Number	Authors	Publication Volume	Centrality
1	Dewaele, Jean-Marc	33	0.09
2	Li, Chengchen	11	0.02
3	Fathi, Jalil	10	0.02
4	Pawlak, Mirosław	10	0.03
5	Kruk, Mariusz	9	0.03
6	Botes, Elouise	8	0.01
7	Lee, Ju Seong	7	0
8	Shirvan, Majid Elahi	7	0.01
9	Zhao, Xian	5	0
10	Ma, Lihong	5	0.01
11	Khajavy, Gholam Hassan	5	0
12	Derakhshan, Ali	5	0.01
13	Taherian, Tahereh	5	0.01

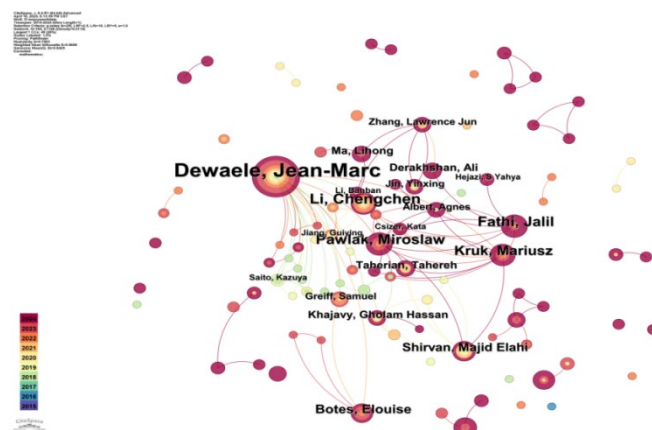


Figure 2: Author co-occurrence network of FLE research from 2015 to 2024.

### 3.3 Research Institutions and Collaborative Relationships

As shown in Table 2, the institution with the largest number of publications in the domain of FLE research from 2015 to 2024 is the University of London, with a total of 39 publications. In addition, Birkbeck University of London, the Education University of Hong Kong, and Huazhong University of Science & Technology are among the top 10 institutions that have also demonstrated significant influence in this research area.

Figure 3 demonstrated the collaboration among research institutions, the University of London and the University of Auckland serve as the main centers of cooperation. Geographically, research institutions in China have emerged as an influential country in the field of FLE. They have established relatively close connections with major domestic and international institutions, such as the University of Auckland, Birkbeck University of London, and Guangdong University of Foreign Studies.

Table 2: High-volume research institutions on FLE research from 2015 to 2024.

Number	Institutions	Publication Volume	Centrality
1	University of London	39	0.24
2	Birkbeck University London	31	0.03
3	Education University of Hong Kong	14	0.03
4	Huazhong University of Science & Technology	13	0.06
5	Chinese University of Hong Kong	13	0.2
6	Guangdong University of Foreign Studies	13	0.05
7	University of Auckland	12	0.09
8	Adam Mickiewicz University	12	0.07
9	University College London	9	0.01
10	University of Zielona Gora	9	0.03



Figure 3: Institution co-occurrence network of FLE research from 2015 to 2024.

## 4. Research Hot Topics and Frontiers Analysis

### 4.1 Research Hot Topics

Keywords reflect the core content and key themes of the research. This study utilized CiteSpace to extract keywords from 295 core Web of Science documents and create a co-occurrence network of keywords of the research on FLE. To enhance the precision of the keyword network and highlight research foci, synonyms (e.g., achievement & performance) and hyponyms/hypernyms (e.g., enjoyment & FLE) were merged.

Figure 4 presents the co-occurrence network of keywords related to FLE, which includes 371 nodes (N value) and 1,044 links (E value), with a network density of 0.0152. The keywords from 295 documents were sorted by frequency, and the top 10 most frequent keywords were identified (as shown in Table 3) to understand the frequency distribution of keywords over the past decade. Excluding the search terms “enjoyment” and “2nd language,” the remaining keywords indicate the following characteristics of research in the field of FLE:

Firstly, anxiety is often studied alongside FLE to explore their relationship. Secondly, with the “affective turn” in foreign language acquisition, current research primarily adopts a positive psychology perspective. The researchers no longer focus solely on negative emotions (e.g., foreign language anxiety) but increasingly investigate positive emotional experiences and positive personal traits (e.g., FLE, grit) in the learning process. This approach investigates the complex emotional experiences of learners and analyzes the influence of emotions on foreign language learning from a broader perspective. Thirdly, the

correlation between FLE and motivation has emerged as a prominent area of research. Fourthly, the influence of FLE on academic achievement has attracted considerable interest. Lastly, most studies on FLE focus on English as the target language and learners in foreign language classrooms. Quantitative analyses often employ models for discussion, such as structural equation modeling (SEM).

1	enjoyment	191	0.02
2	anxiety	181	0.02
3	positive psychology	101	0.04
4	emotions	97	0.1
5	learners	93	0.01
6	motivation	86	0.03
7	achievement	79	0.1
8	English	47	0.08
9	model	35	0.07
10	2nd language	33	0.07

Figure 4: Keyword co-occurrence network of FLE research from 2015 to 2024.

After clustering the research findings, as shown in Figure 5, it is evident that over the past decade, the research areas closely related to FLE have primarily focused on the following aspects: willingness to communicate, classroom social climate, ideal L2 self, academic engagement, learner attitudes, reading enjoyment, and emotion regulation.

**#Classroom social climate.** The social atmosphere prevalent in the classroom is a key factor influencing FLE. Wang et al. (2021) conducted an investigation into the factors affecting WTC among 811 Chinese college students. Their study analyzed how classroom social climate, language mindset, and academic emotions (including enjoyment, pride, anxiety, and boredom) impact WTC both inside and outside the classroom. The findings showed that classroom social climate affects in-class L2WTC solely through academic emotions. Mohammad Hosseini et al. (2022) explored the influence of classroom social climate and FLE on student engagement among 386 intermediate EFL learners in Iran. By using SEM to analyze the survey data, they found that both classroom social climate and FLE can significantly predict student engagement, with FLE being a more powerful predictor. Additionally, classroom social climate has a slight positive impact on FLE. These results support the role of positive psychology in L2 learning, emphasizing the significance of a positive learning environment and enjoyable emotions.

**#Ideal L2 self.** The ideal L2 self refers to learners' capacity to visualize themselves as proficient and competent users of a second language in the future. This vision can greatly enhance their motivation to exert more effort in L2 learning by highlighting the disparity between their current proficiency level and their ideal future self, thus prompting them to take actions to bridge this gap (Dörnyei 2009). Researchers have verified the positive relation between ideal L2 self and FLE. Fathi et al. (2023) found that FLE mediates the relationship between the ideal L2 self and foreign language achievement. Zhao et al. (2023) investigated the relationships among Chinese university EFL learners' ideal L2 writing selves, enjoyment, writing strategy use, and their L2 integrated writing performance within the self-regulated learning framework. Data were collected from 239 participants via questionnaires and an English integrated writing task. The results showed that learners motivated by a strong ideal L2 writing self and those who derive enjoyment from L2 writing tend to employ more writing strategies to improve their writing. A serial mediation effect was discovered, with enjoyment and strategy use mediating the relationship between the ideal L2 writing self and integrated writing performance.

**#Academic engagement.** Academic engagement refers to students' active involvement and participation in learning activities (Reeve 2012). Wang (2022) empirically demonstrated through quantitative research that the academic engagement of 490 Chinese students can be positively predicted by their enjoyment in second language learning. Zhao & Yang (2022) carried out a quantitative analysis using SPSS on 1,094 Chinese high school students, examining their perceived teacher support, enjoyment, and academic engagement. Their findings indicated that enjoyment mediates the interaction between academic engagement and perceived teacher support. Derakhshan & Noughabi (2024) used SEM to investigate the impact of learners' foreign language peace of mind, FLE, and psychological capital on their academic engagement. Among these factors, FLE was identified as the most significant predictor of academic engagement. These research findings emphasize the importance of FLE as a positive emotion in promoting learners' engagement in foreign language learning.

**#Learner attitudes.** Research on learner attitudes and FLE is also a focal point. Learners' positive attitudes towards the target language and their teachers are important predictors of FLE. For instance, several studies have explored the relationship between FLE and a range of learner-internal and teacher-centered factors. The findings indicate that higher levels of FLE are associated with more positive attitudes towards the foreign language, the teacher, and language use in the classroom (Dewaele et al. 2018; Li 2022).

**#Reading enjoyment.** Recent research has concentrated on enjoyment in relation to specific language skills such as reading enjoyment. In an effort to measure enjoyment specific to reading, Jin et al. (2024), aiming to measure reading-specific enjoyment, developed an English reading enjoyment scale for Chinese university students. Guided by Scherer's component process model of emotion, the research adopted a sequential mixed-methods approach. In the qualitative stage, 29 Chinese university students shared their understandings of English reading enjoyment, and these were analyzed using grounded theory to identify 52 thematic categories. The 12 most mentioned categories were used to construct the initial scale. In the quantitative stage, principal components analysis and confirmatory factor analysis were performed, resulting in an 11-item scale. Some scholars have recognized the role of FLE in language learning with the aid of artificial intelligence (AI). Lee et al. (2023) explored the application of an AI-based content generator in second-language teaching and learning. The study involved 121 young EFL learners, with half participating in an AI-based content generator activity and the other half receiving traditional reading instruction. The results showed that the AI-based activity was more effective in enhancing FLE and increasing interest in reading English books, which has implications for the use of AI in second-language teaching.

**#Emotion regulation.** Recent research has also focused on enjoyment in relation to the emotion regulation strategies. Alqarni (2024) investigated the impact of emotion-regulation strategies (cognitive



reappraisal and expressive suppression), FLE, and perceived academic stress on the achievement of 215 undergraduate Saudi EFL students. Using partial least squares structural equation modeling, the study found that emotion-regulation strategies do not directly affect EFL achievement but have an indirect influence through FLE and perceived academic stress. Cognitive reappraisal is associated with higher levels of FLE and perceived academic stress, while expressive suppression is related to lower perceived academic stress without affecting FLE. Zheng & Zhou (2022) explored how FLE is influenced by emotion regulation and two cooperative learning factors—positive goal interdependence and peer personal support—among 115 Chinese university EFL freshmen. Regression analyses showed that EFL students with stronger emotion regulation abilities experience greater enjoyment in learning, and that positive interdependence and interpersonal support in cooperative learning are essential for FLE, confirming the importance of emotion regulation and cooperative learning in fostering high-level learning enjoyment.

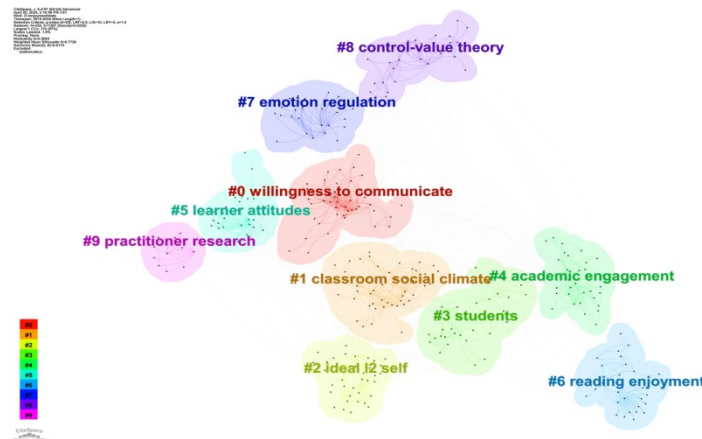


Figure 5: Keyword cluster network of FLE research from 2015 to 2024.

#### 4.2 Research Frontiers

Keywords with bursts are important indicators of the activity level of research topics. Summarizing these burst terms helps to grasp the research hot topics and evolutionary trends in specific periods. By setting the display option in CiteSpace software to “Burstness” and clicking “view,” the top 10 burst key terms can be obtained. “Begin” denotes the commencement of the keyword burst, “End” signifies that the keyword end and “Strength” reflects the intensity of the burst. The larger the value, the greater the influence of the keyword. According to the research development on FLE, the following characteristics can be observed in the evolution of FLE research over the past decade:

#### Top 10 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2015 - 2024
communicate	2016	1.75	2016	2022	<div><div></div></div>
experiences	2018	1.77	2018	2019	<div><div></div></div>
immersion	2018	1.76	2018	2020	<div><div></div></div>
acquisition	2019	2.27	2019	2021	<div><div></div></div>
academic performance	2020	1.91	2020	2021	<div><div></div></div>
cognition	2021	2.2	2021	2022	<div><div></div></div>
strategy use	2021	1.76	2021	2022	<div><div></div></div>
social support	2022	2.85	2022	2024	<div><div></div></div>
school engagement	2022	2.49	2022	2024	<div><div></div></div>
environment	2016	2.22	2022	2024	<div><div></div></div>

Figure 6: Top 10 keywords with the strongest citation burst of FLE research from 2015 to 2024.

As shown in Figure 6, since 2016, research on FLE and communication has remained a hot topic in the field for a full decade, mainly involving students’ willingness to communicate. Between 2018 and 2022, researchers successively explored the correlation between FLE and learners’ internal factors, including experience, cognition, and strategy use. From 2022 to 2024, the emerging keywords mainly included “social support,” “school engagement,” and “environment.” The data indicates that not only were internal factors influencing learners’ FLE studied, but external factors such as teacher support and classroom environment also began to emerge as research hot topics during this period. Additionally, the relationship between FLE and school engagement became a research hotspot during this period. As of

2024, the emergence of these keywords is still ongoing, which also suggests the main directions and topics for future research on FLE.

## 5. Reflections and Prospects

Regarding the research topic, there is a need to strengthen interdisciplinary collaboration with fields such as psychology and sociology. In addition to existing research on variables such as emotions and WTC, the relationship between FLE and other psychological variables should be explored. Such investigations will yield a more thorough comprehension of the mechanisms by which FLE functions in the SLA process. Drawing on theories and methodologies from related disciplines can offer richer theoretical support and practical guidance for research on FLE and examine this topic from a multidisciplinary perspective.

In terms of research participants, currently, research on FLE primarily focuses on undergraduates, with relatively few studies on primary and secondary school students and postgraduate students. Moreover, there is insufficient research on FLE among students in economically underdeveloped areas and regions with scarce educational resources, such as rural areas. With the increasing application of distance education in foreign language learning, technology-mediated environments have given rise to new types of learner populations. Future research should strengthen investigations across different regions, educational stages, learning contexts, and learner groups; expand sample sizes; and examine the characteristics of FLE in various contexts to make the research more comprehensive and targeted.

In terms of the research method, AI, such as affective computing and natural language processing, provides new tools for the dynamic tracking of FLE. Future research could combine eye-tracking and voice emotion analysis technologies to capture the micro-fluctuations of FLE in real time and its associations with learning behaviors, thereby overcoming the static limitations of traditional questionnaires. Additionally, most studies have employed cross-sectional research designs, making it difficult to determine the dynamic development of FLE and the causal relationships between variables. Future research could consider adopting longitudinal research designs to track changes in FLE among participants at different time points, thereby verifying the relationships with other variables. Moreover, a combination of quantitative and qualitative research methods, such as questionnaires, interviews, observations, and case studies, should be used to make the research findings more comprehensive and profound.

Finally, future research on FLE can focus on teaching practice. Conducting teaching practice research based on FLE can explore how to cultivate and enhance learners' FLE in the teaching process. For example, designing and implementing specific teaching activities, methods, and interventions, and testing their effects on improving learners' FLE and foreign language proficiency.

## 6. Conclusion

Drawing on the Web of Science Core Collection database and using CiteSpace visualization software, this paper examines the development trend, hot topics, and research frontiers of FLE research from 2015 to 2024. First, the overall upward trend in the number of publications, with a recent peak, indicates that FLE research is becoming an increasingly important focus in the field. Second, the analysis of author co-occurrence and institution co-occurrence networks reveals a lack of dense collaborative relationships among authors and institutions. Strengthening collaboration among authors and institutions in the future will help advance FLE research. Finally, through keyword co-occurrence, clustering, and keywords with burst analysis, the study identifies research hotspots and frontiers in FLE research. FLE studies have primarily concentrated on the correlations between FLE and psychological variables such as anxiety, WTC, ideal L2 self, learner attitudes, emotion regulation, and motivation, as well as the predictive role of FLE on learning outcomes such as achievement and engagement. Recently, research topics and content have diversified, with increasing attention to the interaction between FLE and external factors related to learners (such as teacher support and classroom environment). There is still considerable room for development in the research topics and content of FLE studies.

In conclusion, the author reviewed FLE and provided recommendations. It is hoped that this paper will provide references for SLA scholars to capture research hotspots and frontiers in FLE and promote the development of FLE research into a new stage.



## Acknowledgements

This work was Supported by Industry-University-Research Program, Ministry of Education of China (grant No.240702507164110) Exploring the Digital Teaching Path of University Courses under the Perspective of Cultural Confidence, Northeast Forestry University Special Study on Casting a Strong Sense of Community among the Chinese People (Grant No. DGYZY2024-05) Action Research on Ethnic Integration Nurturing in University English Teaching and Research Program on Higher Education Teaching Reform in Heilongjiang Province (Grant No. SJGZY2024048) Research on the Supply and Implementation Path of ideological and political Content of Graduate Students' Public English Courses.

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