

A BIBLIOMETRIC ANALYSIS OF LEXICAL COMPLEXITY RESEARCH IN EFL/ESL CONTEXTS (2015–2025)

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ABSTRACT

This study presents a bibliometric analysis of lexical complexity research in EFL/ESL contexts published between 2015 and 2025. Using data retrieved from the Scopus database, a total of 141 peer-reviewed articles were analyzed to map the intellectual landscape, identify dominant research themes, and trace publication trends over the decade. The findings reveal a significant upward trend in publication output, particularly after 2020, suggesting growing scholarly attention to lexical complexity in second language acquisition. The most productive journals include System and Assessing Writing, while China, the United States, and Iran emerge as the leading contributing countries. Keyword co-occurrence analysis identified 66 keywords organized into nine clusters. These clusters can be broadly grouped into three dominant thematic areas: the CAF framework, Task-Based Language Teaching, and L2 writing assessment. The most cited document is Yoon and Polio (2017) with 233 citations. The study highlights persistent research gaps, including limited investigation of lexical complexity in receptive skills and underrepresentation of learners from Southeast Asian EFL contexts. These findings offer practical implications for researchers, curriculum designers, and language educators, and point to productive directions for future inquiry.

Keywords: bibliometric analysis, lexical complexity, EFL/ESL, second language acquisition, VOSviewer

ABSTRAK

Penelitian ini menyajikan analisis bibliometrik terhadap penelitian kompleksitas leksikal dalam konteks EFL/ESL yang dipublikasikan antara tahun 2015 hingga 2025. Menggunakan data yang diperoleh dari basis data Scopus, sebanyak 141 artikel jurnal yang telah melalui proses peer-review dianalisis untuk memetakan lanskap intelektual, mengidentifikasi tema penelitian dominan, dan menelusuri tren publikasi selama satu dekade. Temuan menunjukkan tren kenaikan output publikasi yang signifikan, khususnya setelah tahun 2020, yang mengindikasikan meningkatnya perhatian akademis terhadap kompleksitas leksikal dalam pemerolehan bahasa kedua. Jurnal paling produktif meliputi System dan Assessing Writing, sementara Tiongkok, Amerika Serikat, dan Iran muncul sebagai negara kontributor terkemuka. Analisis ko-okurensi kata kunci yang dilakukan melalui VOSviewer mengidentifikasi sembilan kluster kata kunci yang dapat dikelompokkan ke dalam tiga tema utama penelitian: triad CAF (Complexity, Accuracy, and Fluency), Pembelajaran Berbasis Tugas (TBLT), dan penilaian menulis L2. Dokumen paling banyak dikutip adalah Yoon dan Polio (2017) dengan 233 sitasi. Studi ini menyoroti kesenjangan penelitian yang masih ada, termasuk terbatasnya investigasi kompleksitas leksikal dalam keterampilan reseptif dan kurangnya representasi pelajar dari konteks EFL Asia Tenggara. Temuan ini menawarkan

implikasi praktis bagi peneliti, perancang kurikulum, dan pendidik bahasa, serta menunjukkan arah penelitian yang produktif untuk kajian mendatang.

Kata Kunci: analisis bibliometrik, kompleksitas leksikal, EFL/ESL, pemerolehan bahasa kedua, VOSviewer

A. Introduction

Lexical complexity has long been regarded as one of the central constructs in second language acquisition (SLA) research, encompassing a range of dimensions including lexical density, lexical richness, lexical diversity, and lexical sophistication.

Lexical density refers to the proportion of content words relative to the total number of words in a text, serving as an indicator of informational load and textual sophistication (Halliday, 1985). Lexical richness, often operationalized through measures such as type-token ratio (TTR) and its variants, captures the range and variety of vocabulary employed by a writer or speaker. Lexical diversity extends this notion by accounting for the statistical relationship between vocabulary range and text length, while lexical sophistication concerns the degree to which a learner employs low-frequency or advanced vocabulary items that distinguish expert from novice language use (Kyle & Crossley, 2015; Lu, 2012). Although these

dimensions are conceptually distinct, they are frequently examined in conjunction in SLA research, reflecting the multidimensional nature of vocabulary knowledge and use. In the present study, lexical complexity is employed as an umbrella term encompassing all of these dimensions, consistent with its usage in the broader applied linguistics literature.

The growing prominence of lexical complexity in applied linguistics research reflects a broader shift toward quantitative and corpus-based approaches to language analysis. Automated measurement tools such as TAALES (Tool for the Automatic Analysis of Lexical Sophistication) and Coh-Metrix have enabled researchers to analyze large corpora of learner language with greater precision, contributing to an accelerated growth in empirical studies examining lexical complexity across diverse instructional settings (Kyle & Crossley, 2015). Despite this proliferation, the field lacks a comprehensive synthesis of how this body of research has

evolved over time, which scholarly communities have driven it, and what thematic territories remain underexplored.

Bibliometric analysis has emerged as a powerful methodological framework for mapping the intellectual structure of academic disciplines. By applying quantitative techniques to bibliographic data, researchers can identify influential publications, trace co-authorship networks, and visualize keyword co-occurrence patterns that reveal the thematic architecture of a field (Donthu et al., 2021; Pritchard, 1969). This approach has been increasingly adopted in applied linguistics and language education research to provide systematic overviews of research trajectories (Qin & Lei, 2022; Zhu & Liu, 2020).

However, to date, no comprehensive bibliometric study has specifically focused on lexical complexity research within EFL/ESL contexts over the past decade. Previous reviews have tended to be narrative or scope-limited, leaving a gap in our systematic understanding of how the field has developed since 2015, a period that witnessed both a methodological turn toward automated analysis and the disruption caused by

the COVID-19 pandemic, which reshaped language learning environments globally.

The present study addresses this gap by conducting a bibliometric analysis of 141 Scopus-indexed articles on lexical complexity in EFL/ESL contexts published between 2015 and 2025. Guided by seven research questions, this study aims to map publication trends, identify key contributors and influential outlets, and reveal the dominant thematic clusters shaping the field. The findings are expected to provide a data-driven foundation for future research agendas and to offer practical insights for educators and curriculum designers working in EFL/ESL settings.

This study is guided by the following research questions: (1) What are the publication trends of lexical complexity research in EFL/ESL contexts from 2015 to 2025? (2) Who are the most prolific authors contributing to this field? (3) What are the most influential journals publishing lexical complexity research? (4) Which countries and institutions have contributed most to the field? (5) What are the most frequently occurring keywords and thematic clusters? (6) What are the

most cited documents? (7) What are the dominant research themes and potential gaps in lexical complexity research in EFL/ESL contexts?

B. Research Method

This study employs bibliometric analysis as its primary methodological approach. Bibliometrics is a quantitative method that applies statistical and mathematical techniques to bibliographic data in order to evaluate research output, map scholarly networks, and identify intellectual trends within a discipline (Donthu et al., 2021). This method is particularly suited to the aims of the present study, as it allows for a systematic and replicable examination of a large corpus of literature without the subjectivity inherent in narrative reviews.

Data for this study were retrieved from the Scopus database, selected for its comprehensive coverage of peer-reviewed literature in applied linguistics and language education. The search query used was: TITLE-ABS-KEY (("lexical density" OR "lexical complexity" OR "lexical richness") AND ("EFL" OR "ESL" OR "English as a foreign language")), filtered to include only journal articles

published in English between 2015 and 2025, within the Social Sciences subject area. The search query initially retrieved 199 documents from the Scopus database. After restricting the publication years to 2015–2025, the number of records was reduced to 163. Additional filters were then applied, including document type (journal articles), publication language (English), and subject area (Social Sciences), resulting in a final dataset of 141 articles. The inclusion criteria comprised: (1) peer-reviewed journal articles, (2) publications written in English, (3) articles published between 2015 and 2025, (4) articles indexed under the Social Sciences subject area in Scopus, and (5) studies substantively addressing lexical complexity in EFL/ESL learning or teaching contexts. The filtering process was applied directly within the Scopus database to ensure the relevance and consistency of the dataset used for bibliometric analysis. The final dataset of 141 articles was exported in CSV format and analyzed using two primary tools. Descriptive bibliometric statistics, including publication trends, top authors, journals, and citation counts, were calculated using Scopus Analyze

Results. It is acknowledged that raw citation counts may favor older publications that have had more time to accumulate citations; no normalization for publication year was applied, which represents a limitation of the present analysis. Network visualization and keyword co-occurrence mapping were conducted using VOSviewer (version 1.6.20), a widely-used software tool for constructing and visualizing bibliometric networks (Van Eck & Waltman, 2010). For keyword co-occurrence analysis, a minimum threshold of two occurrences per keyword was applied, resulting in a network of 66 keywords organized into nine thematic clusters. Cluster detection was performed using VOSviewer's default modularity-based clustering algorithm, with a resolution parameter of 1.0.

The data selection process was informed by PRISMA principles. All data were processed and analyzed between March and April 2026.

C. Results and Discussion

1. Publication Trends (RQ1)

The annual distribution of the 141 articles reveals a clear upward

trajectory in lexical complexity research within EFL/ESL contexts over the study period. Publication output remained relatively modest between 2015 and 2019, ranging from four to eight articles per year. A noticeable increase began in 2020, with the number of publications continuing to rise through 2021 and 2022 before reaching a peak of 32 articles in 2025, the highest annual output in the dataset. This pattern suggests growing scholarly interest in lexical complexity as an important construct in second language acquisition and EFL/ESL research. The increasing number of publications may also reflect the wider adoption of corpus-based and quantitative approaches in applied linguistics, which have facilitated more systematic investigations of lexical features in learner language.

The temporal pattern observed in this dataset is consistent with findings from broader bibliometric studies in applied linguistics, which have documented a general upward trend in research output following the global shift to remote and hybrid learning environments after 2020 (Donthu et al., 2021). It is also noteworthy that publication output experienced a brief

dip in 2016 before recovering in 2017, which may reflect a transitional period in the field as researchers began integrating automated measurement tools into their methodological repertoires. The sustained growth from 2022 onward suggests that lexical complexity has consolidated its position as a productive and contested area of inquiry within EFL/ESL research, with no signs of saturation in the near term.

Table 1. Annual Publication Output (2015–2025)

Year	Number of Articles
2015	7
2016	4
2017	8
2018	4
2019	6
2020	11
2021	13
2022	17
2023	16
2024	23
2025	32
Total	141

2. Prolific Authors (RQ2)

Co-authorship analysis using VOSviewer identified Mahmoud Abdi Tabari as the most prolific author in the dataset, contributing 13 publications and receiving 185 citations. Other notable contributors include Yizhou Wang, with five publications, and Mahsa Farahanynia, with three publications. The co-authorship network consists of six authors organized into two clusters, with a total link strength of 12, indicating a relatively limited level of collaboration within the field. Most collaborative relationships occur within small research groups, while cross-national and cross-institutional partnerships remain comparatively infrequent. These findings suggest that lexical complexity research in EFL/ESL contexts is currently driven by a relatively small group of active researchers, highlighting opportunities for broader international collaboration and knowledge exchange.

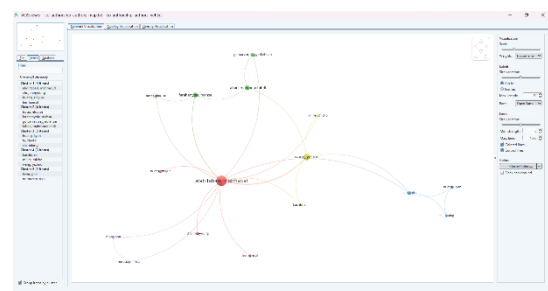


Figure 1. Co-authorship Network of Authors (2015-2025)

3. Most Influential Journals (RQ3)

Table 2 presents the top ten journals by publication count and total citations. System leads with 11 articles and 240 cumulative citations, followed by Assessing Writing with 10 articles and 145 citations. Although the Journal of Second Language Writing contributed only four articles, it accumulated 217 citations, indicating a substantial influence relative to its publication volume. Language Teaching Research and SAGE Open also appear among the leading publication outlets. These findings suggest that lexical complexity research in EFL/ESL contexts is concentrated within a relatively small group of well-established applied linguistics and language education journals. The prominence of System, Assessing Writing, and the Journal of Second Language Writing further highlights the close relationship between lexical complexity research, second language writing, and language assessment.

Rank	Journal	Articles	Citations
1	System	11	240
2	Assessing Writing	10	145

3	SAGE Open	6	51
4	Language Teaching Research	6	87
5	Journal of Second Language Writing	4	217
6	Journal of Language Teaching and Research	4	14
7	Arab World English Journal	3	6
8	TESL-EJ	3	16
9	Indonesian Journal of Applied Linguistics	3	28
10	IRAL	3	21

Table 2. Top 10 Journals by Publication Count

4. Contributing Countries and Institutions (RQ4)

Country-level co-authorship analysis identified China as the leading contributor to lexical complexity research in EFL/ESL contexts, with 38 documents, followed by the United States with 25 documents and Iran with 17 documents. Other notable contributors include Malaysia (11

documents), Australia (9 documents), and South Korea (8 documents). The country collaboration network consists of 18 countries organized into six clusters, indicating a moderate level of international collaboration within the field. The prominence of China, the United States, and Iran suggests that lexical complexity research is concentrated in a relatively small number of countries with active research communities in applied linguistics and second language acquisition. Although several Southeast Asian countries are represented in the dataset, their contribution remains comparatively limited, indicating opportunities for broader regional participation in future research.

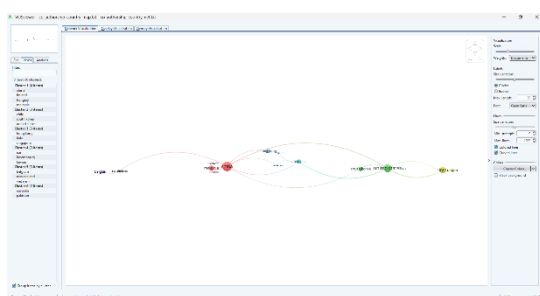


Figure 2. Co-authorship Network by Country (2015-2025)

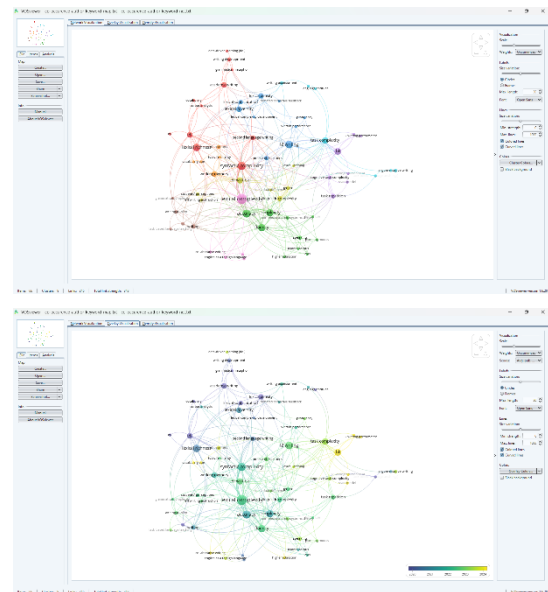
5. Keyword Co-occurrence and Thematic Clusters (RQ5)

For keyword co-occurrence analysis, a minimum occurrence threshold of

two was applied in VOSviewer. This procedure initially yielded 81 keywords that met the threshold criteria. To improve thematic coherence and avoid distortions caused by overly generic, redundant, or contextually irrelevant terms, a manual relevance screening was subsequently conducted. After this screening process, 66 keywords were retained for analysis and organized into nine thematic clusters using VOSviewer's default clustering algorithm. The analysis reflects the thematic diversity of lexical complexity research in EFL/ESL contexts. Despite the presence of nine clusters, three broad thematic areas were particularly prominent. The first thematic area centers on the Complexity–Accuracy–Fluency (CAF) framework, with lexical complexity, syntactic complexity, accuracy, fluency, and lexical richness emerging as highly connected keywords. This cluster reflects the field's foundational investment in measuring language development through the interrelated dimensions of CAF as theorized by Skehan (1998) and later refined by numerous scholars.

A second thematic area focuses on Task-Based Language Teaching

(TBLT), including keywords such as task complexity, task repetition, pre-task planning, and TBLT. The prominence of these terms indicates sustained interest in examining how task conditions influence lexical production and language performance. The third thematic area relates to L2 writing and assessment, represented by keywords such as L2 writing, writing assessment, writing quality, writing development, and written performance. This cluster reflects the close relationship between lexical complexity research and the assessment of learner writing. The overlay visualization further suggests a recent shift toward topics such as task complexity, collaborative writing, and L2 writing performance, indicating emerging directions for future research in the field.



**Figure 3. Keyword Co-occurrence
Network and Overlay Visualization (2015-
2025)**

6. Most Cited Documents (RQ6)

Table 3 presents the ten most cited documents in the dataset. Yoon and Polio (2017) leads with 233 citations, a study examining the linguistic development of ESL students across two written genres published in TESOL Quarterly. This document's influence reflects its methodological contribution to tracking longitudinal development through lexical and syntactic measures. The second most cited work is Shang (2022), which explores online peer feedback and automated corrective feedback in EFL writing contexts, illustrating the field's engagement with technology-enhanced language learning. Other

highly cited works by Knoch et al. (2015), Bestgen (2017), and Paquot (2018) further confirm the centrality of L2 writing assessment and phraseological competence as thematic pillars of the field.

Examining the top ten documents as a collective reveals several patterns of note. First, the majority of highly cited works are published between 2015 and 2022, with no post-2023 document appearing in the top ten, which is consistent with the citation accumulation bias acknowledged in the methodology section, newer publications have had insufficient time to gather comparable citation counts. Second, eight of the ten most cited documents are primarily concerned with L2 writing contexts, reinforcing the finding from the keyword analysis that writing is the dominant skill domain within which lexical complexity is investigated. Third, the presence of technology-related studies among the top cited works, including Shang (2022) on automated corrective feedback and Dizon and Gayed (2021) on Grammarly, signals the field's growing engagement with digital and automated tools for writing instruction and assessment. These patterns suggest that influential

scholarship in this field is strongly associated with lexical complexity, L2 writing, and language assessment, while recent highly cited studies also demonstrate growing interest in technology-enhanced learning.

Ra nk	Author(s)	Title	Year	Citati ons
1	Yoon & Polio	The Linguistic Development of Students of ESL in Two Written Genres	2017	233
2	Shang	Exploring online peer feedback and automated corrective feedback on EFL writing	2022	93
3	Dizon & Gayed	Examining the Impact of Grammarly on the Quality of Mobile L2 Writing	2021	88
4	Knoch et al.	What happens to	2015	84

5	Paquot	ESL students' writing after three years at an English medium university? Phraseological Competence: A Missing Component in University Entrance Language Tests?	2018	79
6	Bestgen	Beyond single-word measures: L2 writing assessment, lexical richness and formulaic competence	2017	76
7	Shi et al.	Effect of prompt type on test-takers' writing performance and writing	2020	63

8	Dizon	strategy use A comparative study of Facebook vs. paper-and-pencil writing to improve L2 writing	2016	60
9	Kang & Lee	Are two heads always better than one? Effects of collaborative planning on L2 writing	2019	55
10	Nasseri & Thompson	Lexical density and diversity in dissertation abstracts: L1 vs. L2 text differences	2021	52

Table 3. Top 10 Most Cited Documents

7. Dominant Themes and Research Gaps (RQ7)

The bibliometric findings collectively point to a field that is theoretically consolidated around a small number

of dominant frameworks, most notably the CAF triad and TBLT, while remaining methodologically dynamic, increasingly incorporating automated measurement tools and corpus-based approaches. Four overarching research gaps can be identified from the present analysis.

First, the consistent association between lexical complexity and productive skills, particularly writing, stands in contrast to the relative scarcity of studies examining lexical complexity in receptive skills such as reading and listening comprehension. Given the relevance of lexical complexity to text readability and comprehension difficulty in EFL contexts, this represents a significant gap that future research should address.

Second, the geographic concentration of research output in China, the United States, and Iran, while reflecting genuine research infrastructure and funding, results in an underrepresentation of EFL learner populations from Southeast Asia, Africa, and Latin America. Lexical complexity findings derived primarily from Chinese or Iranian EFL learners may not be readily generalizable to

learners in different instructional contexts and linguistic backgrounds. Research addressing the lexical complexity of learners from underrepresented regions would significantly enrich the field's empirical base.

Third, the dataset reveals a growing but still nascent body of work on automated writing evaluation and AI-assisted feedback in relation to lexical complexity. As large language models and automated assessment tools become increasingly integrated into language education, research examining how these technologies interact with learners' lexical development will become an important frontier for the field. A fourth gap concerns the predominance of cross-sectional research designs in the dataset. The dataset appears to contain relatively fewer studies employing longitudinal designs compared to cross-sectional investigations. Future research employing longitudinal designs would provide more ecologically valid insights into how lexical complexity evolves across proficiency levels and instructional contexts.

D. Conclusion

This bibliometric analysis of 141 Scopus-indexed articles on lexical complexity in EFL/ESL contexts published between 2015 and 2025 provides a comprehensive and data-driven portrait of the field's intellectual trajectory. The findings demonstrate a clear and accelerating growth in research output, particularly from 2020 onward, with China, the United States, and Iran emerging as the dominant contributing countries. System and Assessing Writing are identified as the most productive journals, while Yoon and Polio (2017) stand as the most influential document in the dataset.

Keyword co-occurrence analysis identified nine keyword clusters that can be broadly grouped into three dominant thematic areas: the CAF triad, Task-Based Language Teaching, and L2 writing assessment. These clusters reflect both the theoretical maturity of lexical complexity research and its strong orientation toward productive language use and performance-based assessment. At the same time, the analysis identifies meaningful research gaps, including the underexploration of lexical complexity in receptive skills, the geographic

concentration of research output, and the emerging but still underdeveloped engagement with AI-driven language assessment.

The implications of these findings are threefold. For researchers, this study offers a roadmap of the field's intellectual structure and highlights productive directions for future inquiry. For curriculum designers, the prominence of TBLT and writing assessment in the literature suggests the value of integrating task-based approaches that explicitly attend to lexical quality. For language educators, the findings underscore the importance of developing learners' lexical repertoire as a multidimensional competency, not reducible to vocabulary size alone. Future bibliometric studies may extend this analysis through citation network mapping or systematic comparison across different language learning contexts.

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