



A 30-year bibliometric comparison of research on L1 and EFL English writing

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Li, Jing, Sunghwa Lee, Hyun-Jong Hahm, and Se-Eun Jhang. 2026. A 30-year bibliometric comparison of research on L1 and EFL English writing. *Linguistic Research* 43(Special Edition): 121-155. The present study offers a 30-year bibliometric comparison of research on first language (L1) and English as a foreign language (EFL) English writing published between 1996 and 2025. While individual bibliometric studies have delineated these domains separately, no research has systematically compared the long-term parallel development of these two related traditions. To investigate this evolutionary landscape, two major datasets retrieved from the Web of Science Core Collection—comprising 844 L1 writing and 1,064 EFL writing articles—were analyzed utilizing the Biblioshiny web interface. Research periods were segmented using three data-driven metrics: annual scientific production, average citations per year, and trend topics. The findings demonstrate that L1 writing research exhibits steady thematic consolidation, characterized by the persistent centrality of writing instruction, the writing process, and genre-based pedagogy. Conversely, EFL writing research combines a stable thematic core in collaborative writing with rapid structural diversification, particularly regarding written corrective feedback. Notably, the two fields exhibit significant thematic convergence in frontier areas, which is most powerfully evidenced by the simultaneous emergence of generative artificial intelligence in 2024, indicating that boundaries between the traditions are becoming increasingly permeable in the digital age, though causal claims about the nature and drivers of this convergence would require additional qualitative analysis of how AI-related topics are conceptualized across traditions. This quantitative expansion is coupled with a geographical shift from North America toward the Asia-Pacific region, establishing the latter as a new global core for English writing research. Ultimately, this study provides a critical empirical baseline for advancing cross-traditional dialogue and designing contemporary, technology-responsive writing pedagogy. (Korea Maritime & Ocean University · Chungnam National University ·

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1. Introduction

English writing has been a focal concern in education and academic research, making it one of the most extensively studied areas within applied linguistics and language education (Sasaki and Hirose 1996; Wallace et al. 1996). Over the past three decades, English writing research has been profoundly shaped by a succession of transformations covering the globalization of English-medium higher education (Wingate and Tribble 2012), the proliferation of digital writing technologies (Zhang 2020), and most recently, the emergence of generative artificial intelligence (AI) tools—large language models (LLMs) such as ChatGPT (Barrett and Pack 2023; Tossell et al. 2024). Among these shifts, two distinct but interrelated research traditions have been developed in parallel. Research on first language (L1) English writing has historically been concerned with understanding and improving writing instruction for native English speakers (Haswell 2000; MacArthur et al. 2015). Research on English as a foreign language (EFL) writing in non-Anglophone contexts predominantly addresses the unique challenges encountered by L2 learners. Particular attention has been dedicated to feedback practices and writing development within academic environments (Yang et al. 2006; Teng and Zhang 2016). Additionally, scholars have investigated the strategic role of the first language (L1) throughout the English writing process (Yu et al. 2023). Although both traditions ultimately address similar educational goals, they have evolved along divergent theoretical trajectories, assimilated findings from different scholarly communities, and constructed their theoretical systems around distinct key research themes (Silva 1993; Sasaki and Hirose 1996).

Bibliometric analysis has recently served as a powerful methodological tool for mapping the intellectual structures of research fields. It enables researchers to perform performance analysis, track publications and citations, identify influential authors and institutions, and conduct conceptual and thematic analysis to map research evolution (Aria and Cuccurullo 2017). Within the domains of language, literacy, and applied

linguistics, secondary scientometric reviews have successfully delineated specialized trends (Arik and Arik 2017; Crosthwaite et al. 2022; Lei 2022; Sun and Lan 2023; Zhai and Razali 2023).

However, despite the extensive development of both the L1 and EFL writing research traditions, the relationship between them has received little systematic attention. Specifically, the literature has not yet addressed the degree to which they share intellectual ground, the ways in which they diverge, and the extent to which they converge over time. Until now, there has been a research gap in conducting a systematic and comprehensive 30-year bibliometric comparison of the two traditions. This comparison would map their knowledge structures and thematic evolution in parallel. It is particularly significant in light of the simultaneous emergence of generative AI across both fields (Barrett and Pack 2023; Liu et al. 2023). This shift may point toward a broader reconfiguration of the field as a whole. The absence of systematic comparative evidence makes it difficult to assess the divergences and convergences in the two fields, or to understand the future trajectory of English writing research across global scholarly communities.

The present study fills this gap by conducting a comparable bibliometric analysis of L1 and EFL English writing research published from 1996 to 2025. The overarching purpose of the study is to provide the first systematic comparative mapping of the two traditions, examining how their knowledge structures have evolved, where they converge and diverge thematically, and what these patterns reveal about the broader intellectual landscape of English writing research. More specifically, the study aims to document the structural features of knowledge organization in each field with thematic maps exported from biblioshiny, including the identification of motor themes, niche themes, basic themes, and emerging or declining themes and to trace how these structures have transformed across three distinct periods. Beyond descriptive explanations of research trends, the study adopts quantitative-based analysis to examine technological, institutional and cognitive factors that shaped the evolution of L1 and EFL English writing research, building upon parallel science-mapping paradigms validated in recent bibliometric literature (Liu and Jhang 2024; Lee et al. 2025; Liu 2025). By situating this analysis within a 30-year framework, the study captures both the long-term developmental trajectories of the two fields and offers a historically grounded perspective on the transition in English writing research driven by the advent of automated writing evaluation tools and generative AI (Zhang 2020;

Yao et al. 2021).

To achieve these aims, the study drew on data retrieved from the Web of Science Core Collection, comprising 844 articles on L1 English writing and 1,064 articles on EFL English writing studies published between 1996 and 2025. Bibliometric analyses were performed by employing Biblioshiny, the web-based interface of the bibliometrix R package (v5.0; Aria and Cuccurullo 2017), implemented in R (v4.5.3) to analyze publication trends, citation patterns, author and institutional productivity, and thematic evolution across defined periods. By applying multi-method bibliometric approaches, the present study realizes a comprehensive and systematic comparison of the two fields to illustrate the structural dynamics of knowledge production, the relational patterns among research themes, and the trajectories of intellectual development.

To fulfill these objectives, this study is guided by two overarching research questions that examine the evolutionary trajectories, structural reconfigurations, and thematic relationships between the two traditions:

- **Research Question 1:** How have the knowledge structures and publication dynamics of L1 and EFL English writing research evolved over the past 30 years, and how do these diachronic shifts reflect a broader reconfiguration of the field?
- **Research Question 2:** Where do the L1 and EFL writing traditions converge and diverge thematically across defined historical periods, and what do these relational patterns reveal about their intellectual boundaries in the age of AI?

This study makes a significant contribution to English writing research. It provides the first systematic 30-year bibliometric comparison of L1 and EFL English writing research, establishing a comprehensive empirical baseline for understanding the relationships between the two traditions. Beyond quantitative trends, this study traces how the knowledge structures of both fields have evolved, consolidated, and diverged across three stages. While no prior research has undertaken a comparative thematic evolution analysis that explores period-specific thematic structures across L1 and EFL writing corpora, the study, by combining quantitative and qualitative methodologies, examines the developmental trajectories of L1 and EFL writing research in parallel,

offering insights into tradition-specific developments and shared thematic concerns. Moreover, this study sheds light on how the boundary between L1 and EFL writing research is being redrawn, providing bibliometric evidence that the boundaries between the two fields are becoming more flexible, especially as generative AI tools reconfigure both fields simultaneously (Barrett and Pack 2023; Tossell et al. 2024).

2. Literature review

2.1 Research on L1 and EFL English writing

Over the past three decades, scholars in the United States, the United Kingdom, Canada, and Australia have published articles extensively on L1 English writing on theoretical and pedagogical concerns. Wallace et al. (1996) designed an experiment to examine the relation between revision and task definition among college students in writing courses, finding that brief structured prompts significantly increased the frequency and quality of substantive revision. Haswell (2000), providing one of the few large-scale empirical accounts of writing growth across the college years, documented the developmental trajectory of college students' L1 English writing ability by using longitudinal data spanning multiple years of undergraduate study. Wingate and Tribble (2012) argued that EAP and academic literacy approaches, offered complementary resources for supporting student writers in higher education, and proposed an integrated pedagogical framework drawing on both traditions. MacArthur et al. (2015) investigated essay quality and writers' strategic knowledge through self-regulated strategy instruction adapted for college developmental writing contexts. Shifting toward broader developments, Riazi et al. (2018) analyzed twenty-five years of empirical research published in the *Journal of Second Language Writing*, documenting a historical transition toward diverse methodological approaches and an expanding range of topics. Kim and Belcher (2020) compared the linguistic performance and learner perceptions of students composing multimodally versus through traditional essays. Their findings revealed that multimodal composing produced distinct linguistic features and generated positive learner attitudes. More recently, Barrett and Pack (2023) conducted a large-scale survey of student and teacher perspectives on generative AI use in the writing process, documenting significant

divergence between institutional concerns about academic integrity and students' pragmatic orientations toward AI tools as writing aids. Similarly, Tossell et al. (2024) recorded student perceptions and ethical dilemmas arising from ChatGPT use in college essay assignments, revealing that students recognized both the efficiency gains and the academic integrity risks associated with AI-assisted writing.

Since 1996, scholars based in New Zealand, mainland China, Japan, South Korea and the United States have published continuously on EFL English writing. Sasaki and Hirose (1996) examined the variables that explain EFL students' expository writing quality, identifying L2 writing proficiency, L2 reading ability, and L1 writing ability as significant predictors of writing performance. Yang et al. (2006) compared the differential effects of peer feedback and teacher feedback in a Chinese EFL writing classroom. They found that while students valued teacher feedback more highly, peer feedback produced comparable revision outcomes when students were adequately prepared. Teng and Zhang (2016) validated a multidimensional model of self-regulated EFL writing strategy use across cognitive, metacognitive, and social dimensions, establishing a framework subsequently adopted in multiple research contexts. Technology-mediated interventions have further redefined this domain. Zhang (2020) examined EFL students' engagement with automated writing evaluation feedback and its relationship to writing revision, demonstrating that quality of engagement rather than mere exposure determines developmental outcomes. Yao et al. (2021) examined changes in EFL learners' language mindsets and writing motivation following the incorporation of automated writing evaluation tools into peer assessment, revealing complex interactions between technology-mediated feedback, motivational orientations, and writing development. Yu et al. (2023) compared the differential effects of various L2 writing instructional approaches on motivation and engagement. They found that approaches emphasizing student agency and meaningful communication produced stronger motivational outcomes. Finally, recent studies have addressed the intersection of AI and language learning. Liu et al. (2023) measured changes in student writing development after incorporating a reflective thinking mechanism into AI-assisted instruction, demonstrating that structured reflection enhances the learning benefits of AI tools. Barrot (2023) utilized a quasi-experimental design to investigate the pedagogical effects of automated written corrective feedback (AWCF) on EFL learners. This study specifically measured three distinct dimensions of second language writing development: accuracy, fluency, and complexity. The empirical findings

revealed significant improvements in learners' writing accuracy, whereas more modest gains were observed in fluency and complexity measures.

2.2 Bibliometric analysis in L1 and EFL English writing research

Quantitative mapping methods have become productive tools for describing the knowledge structures and developmental trajectories of applied linguistics sub-fields. The bibliometrix R package developed by Aria and Cuccurullo (2017) provides an integrated framework for performance analysis, co-word analysis, thematic mapping, and thematic evolution analysis, enabling researchers to move systematically from raw bibliographic data to visual representations of a field's intellectual structure.

Within EFL writing research, Arik and Arik (2017) conducted a foundational bibliometric mapping of second language writing publications indexed in the Web of Science, revealing a steady historical rise in publication volume since 1992, predominantly within the linguistics and educational research areas, while underscoring a low level of multi-authored collaboration among scholars. Following this network focus, Crosthwaite et al. (2022) systematically mapped three decades of EFL written corrective feedback research indexed in Scopus, tracking the subfield's evolution from the polarized Truscott-Ferris debate of the late 1990s into a more paradigmatically organized area of inquiry characterized by increasing attention to feedback types, learner engagement, and automated feedback tools. Lei (2022) analyzed publication patterns in the *Journal of Second Language Writing* across its first three decades, documenting the journal's thematic evolution, its shifting relationship with L1 composition studies, and the growing internationalization of its authorship and editorial scope. Zhai and Razali (2023) applied bibliometric, content, and scientometric methods in combination to examine the development of genre-based EFL writing instruction, tracing genre pedagogy's trajectory from its origins in the Sydney School and North American New Rhetoric traditions to its current status as a globally adopted instructional framework. Sun and Lan (2023) provided a comprehensive bibliometric analysis of EFL writing research across the first twenty years of the twenty-first century, identifying the field's most influential scholars and publications, documenting the dominance of feedback research in earlier periods, and tracking the more recent rise of EFL writing, collaborative writing, and peer feedback as prominent research themes.

In adjacent areas of applied linguistics, Liu and Jhang (2024) demonstrated the analytical value of comparative bibliometric analysis by mapping spoken and sign language acquisition research as parallel traditions across a thirty-year span, documenting macro-level output reconfigurations and distinct modality-specific thematic paths. Furthermore, Lee et al. (2025) extended this rigorous comparative approach to grammatical development across the same two traditions using period-specific thematic mapping, proving that evidence-based periodization can reveal shared developmental milestones and critical cross-modal lags that remain invisible in single-tradition analyses. To date, no study has applied these advanced comparative methods to L1 and EFL English writing research side by side, leaving their parallel knowledge structures, institutional frameworks, and technological convergence trends unsystematically described.

2.3 Research gap and rationale for the present study

While EFL writing traditions have accumulated a substantial body of analytical scholarship—encompassing publication trend analysis, citation network mapping, thematic evolution analysis, and sub-field-specific studies of written corrective feedback and genre pedagogy (Arik and Arik 2017; Crosthwaite et al. 2022; Lei 2022; Sun and Lan 2023; Zhai and Razali 2023)—L1 English writing research has received no comparable systematic treatment. The knowledge structure, influential scholars, productive institutions, prominent research topics, and thematic evolution of the L1 English writing tradition across thirty years remain unmapped. This asymmetry is consequential: without systematic data on both traditions, it is not possible to assess empirically whether the two traditions share intellectual ground, where they diverge thematically, or whether they are currently converging under shared pressures such as the global diffusion of AI writing tools.

More critically, no study has placed the scholarly articles published in L1 and EFL English writing side by side as parallel corpora for systematic comparative analysis. Existing studies have focused either within the EFL writing tradition or on specific sub-fields, and none has situated L1 and EFL English writing research within a single analytical framework for direct comparison. The present study addresses this gap by applying quantitative mapping methods—including publication output analysis,

co-word analysis, thematic mapping, and thematic evolution analysis, implemented through the bibliometrix package (Aria and Cuccurullo 2017)—to parallel datasets of L1 and EFL English writing articles retrieved from Web of Science (1996–2025). In doing so, it provides the first systematic comparative analysis of the published literature in the two traditions, contributing empirical descriptions of each tradition's knowledge structure and a comparative account of their points of convergence and divergence.

This study adopts applied-linguistics theories of paradigm shifts and disciplinary dynamics. According to Kuhn (1962), the rise, consolidation, and decline of research topics may signal shifts in a field's dominant paradigm. Within English-writing research, successive paradigm shifts from process-oriented pedagogy to genre-based teaching and, most recently, AI-mediated writing have been driven by technological advances and evolving educational priorities. This theoretical perspective allows bibliometric patterns to be read not only as frequency fluctuations but also as signs of profound structural reconfigurations in research communities' intellectual orientations (cf. Riazi et al. 2018; Lei 2022).

3. Data and methodology

The methodological design of the present study follows established empirical practices in linguistics bibliometric research. It specifically builds upon the framework of multi-criteria data-driven periodization and parallel corpus mapping demonstrated in recent cross-modal language studies (Liu and Jhang 2024; Lee et al. 2025; Liu 2025). Following the multi-dimensional analytical pipeline advanced by Liu (2025), which integrated top-down bibliometric science mapping with bottom-up corpus-driven linguistic extractions to validate time-period boundaries, our analytical pipeline proceeded through three sequential steps: data collection, data processing, and bibliometric analysis.

First, bibliographic records were retrieved from the Web of Science Core Collection (WoS) using distinct queries tailored to the two fields. Second, a Python-based preprocessing pipeline consisting of nine cleaning steps was conducted. This pipeline performed text normalization, character cleaning, acronym protection, synonym normalization (see Appendix), lemmatization using the NLTK WordNetLemmatizer,

stopword removal, deduplication, tokenization, and field-specific rules. Third, the cleaned datasets were imported into Biblioshiny to analyze publication trends, citations, authorship patterns, thematic maps, and thematic evolution across both traditions using the web interface of bibliometrix (Aria and Cuccurullo 2017).

3.1 Data collection

To apply a comparative bibliometric approach and map the intellectual structures of L1 and EFL English writing research, two parallel datasets were retrieved from academic journals indexed in the WoS Core Collection on March 30 and March 31, 2026. To maximize coverage while preserving conceptual specificity, Boolean operators, wildcard truncation, and field-tagged topic searches (TS=) were applied in both the Topic and Topic Plus fields.

For the L1 writing corpus, the search targeted writing-related studies within higher education contexts, deliberately excluding L2-oriented terms to ensure strict dataset independence. The specific topic string (TS) was formulated as follows:

TS=("L1 writing" OR "first language writing" OR "native speaker writing" OR "English composition" OR "composition studies" OR "writing instruction" OR "college writing" OR "writing pedagogy" OR "rhetoric and composition" OR "written composition" OR "writing process" OR "writing research") NOT TS=("second language writing" OR "L2 writing" OR "EFL writing" OR "ESL writing" OR "non-native" OR "EFL learner" OR "ESL learner") AND TS=(universit* OR college*)

For the EFL writing corpus, a parallel search query was constructed to capture relevant studies while strictly excluding L1-oriented domains to ensure dataset mutual exclusivity. The specific TS was formulated as follows:

TS=("EFL writing" OR "L2 writing" OR "second language writing" OR "EFL composition" OR "English writing") NOT TS=("L1 writing" OR "first language writing" OR "native speaker writing" OR "native writing") AND TS=(universit* OR college*)

For both corpora, the selection was limited to English-language articles and early access documents published between 1996 and 2025. Following a manual screening of the retrieved records, 194 articles were excluded due to misclassification (e.g., articles whose keywords contained only EFL terms with no L1-relevant content), yielding a final L1 dataset of 844 articles. Eighteen articles addressing both traditions within a comparative framework were intentionally retained in both corpora, leaving the final EFL dataset unchanged at 1,064 articles. The detailed step-by-step screening procedure and the distribution of records for both datasets are summarized in Table 1 below.

Table 1. Data screening procedure for L1 and EFL corpora

L1 English writing dataset	EFL English writing dataset
Initial records retrieved: 1,038	Initial records retrieved: 1,064
Manual screening (checking titles, abstracts, and keywords)	Manual screening (checking titles, abstracts, and keywords)
Excluded due to misclassification (EFL-only content): 194	Duplicate records intentionally retained (comparative studies): 18
Final L1 records: 844	Final EFL records: 1,064

3.2 Data processing

The two datasets exported from the Web of Science in plain-text format were converted to Excel to undergo a rigorous data preprocessing pipeline. Prior to running the bibliometric analysis in Biblioshiny, a custom Python 3.13-based automation pipeline was implemented to ensure lexical standardization, eliminate terminological fragmentation, and enhance the reproducibility of the author keyword dataset. The tokenization, lemmatization, and keyword unification procedures were carried out through an integrated sequence leveraging the NLTK (v3.8) and WordNetLemmatizer frameworks.

The text-cleaning pipeline comprised sequential phases of text normalization, character cleaning, acronym protection, synonym consolidation, and field-specific structural filtering. First, a rule-based lemmatizer was utilized to systematically reduce all inflected, derived, and variant keyword forms to their canonical base lemmas, which resolved grammatical variation by consolidating plural and singular shifts, part-of-speech derivations, and idiosyncratic spelling variants.

To prevent network distortion and severe fragmentation within the keyword

co-occurrence matrices, a meticulous synonym normalization routine was enforced by mapping terminological equivalents onto uniform, representative descriptors (see Appendix). For example, theoretical concepts were standardized by mapping *second language acquisition* onto *SLA*, *English for academic purposes* onto *EAP*, and unifying *peer assessment* and *self-assessment* into *peer feedback* and *self feedback* respectively. Methodological terms within task-based instruction were streamlined by mapping *task-based language teaching* onto *TBLT*, while *academic-literacy* was converted to its unhyphenated form, *academic literacy*. Variations in learner contexts were addressed by standardizing *English as a foreign language* to *EFL* and merging *learner-autonomy* into *learner autonomy*.

Furthermore, to maintain conceptual clarity across the parallel traditions, variations representing the core domains were strictly unified. Thus, plural strings such as *second language writing* and *second-language writing* were systematically collapsed into the uniform label *EFL writing*. Educational interventions were likewise normalized, with instances of writing pedagogy redirected to the canonical keyword writing instruction. In light of the recent influx of technological themes, special attention was dedicated to automating the resolution of computer-assisted and automated evaluation frameworks. Consequently, technological descriptors like *artificial intelligence*, *automated writing evaluation*, and *written corrective feedback* were compressed into their respective high-frequency acronyms—*AI*, *AWE*, and *WCF*. Through these comprehensive lexical mapping operations, numerous distinct variant categories were reduced to standardized representations, effectively minimizing lexical noise and ensuring the structural robustness of the subsequent co-word clustering and thematic mapping operations.

3.3 Biblioshiny analysis

This section details the analytical procedures implemented in Biblioshiny. Trend topics and thematic maps were constructed by applying Author's Keywords (DE) from the processed datasets to map the intellectual structures of each field. Author's Keywords (DE) were selected as the primary analytical field based on quantitative comparisons. To evaluate the robustness, the two keyword sets were compared in terms of coverage and lexical diversity. DE demonstrated substantially higher coverage (EFL: 90.6% vs.

84.8%; L1: 76.7% vs. 71.0%) and considerably greater lexical diversity (EFL: 2,537 vs. 805 unique terms; L1: 2,215 vs. 839 unique terms) than ID. The quadrant-level thematic organization remained broadly consistent across both fields, with ID-based maps showing reduced thematic diversity due to the smaller number of unique ID terms. Because of its higher coverage and greater conceptual specificity for capturing author-intended research foci, DE was chosen as the primary analytical field, consistent with recent bibliometric practices that prioritize DE over ID for conceptual structure analyses.

In the EFL corpus ($n=1,064$), Author's Keywords (DE) yielded 964 articles with valid keyword entries ($964 \div 1,064 = 90.6\%$), compared to 902 articles for Keywords Plus (ID) ($902 \div 1,064 = 84.8\%$), a difference of 5.8 percentage points. In the L1 corpus ($n=844$), Author's Keywords (DE) covered 647 articles ($647 \div 844 = 76.7\%$), compared to 599 articles for Keywords Plus (ID) ($599 \div 844 = 71.0\%$), a difference of 5.7 percentage points. In addition, Author's Keywords (DE) demonstrated considerably greater lexical diversity, with 2,537 unique terms in the EFL corpus and 2,215 in the L1 corpus, compared to only 805 and 839 unique terms respectively for Keywords Plus (ID). The average number of keywords per article further confirmed the advantage of Author's Keywords (DE) (EFL: 5.1; L1: 5.5) over ID (EFL: 4.6; L1: 4.2). Based on these quantitative comparisons, Author's Keywords were selected as the analytical field for all subsequent co-word and thematic analyses.

Thematic maps were generated in terms of the parameters set in biblioshiny, among which the minimum cluster frequency was set to 5 and the number of labels per cluster was limited to 5. Quadrant positioning was determined based on Callon's centrality (relevance degree) and density (development degree), in which centrality was measured as the weighted sum of co-occurrence links between a cluster and other clusters, and density measured as the internal cohesion of the cluster. A two-dimensional quadrant structure divided themes into motor, niche, basic, and emerging or declining categories. Detailed quadrant definitions are provided in section 4.2.

While bibliographic coupling, co-citation analysis, burst detection, and overlay visualization are not included in the current study in order to maintain analytical depth and comparability with the parallel mapping framework established in recent cross-modal language studies (Liu and Jhang 2024; Lee et al. 2025). Future studies are stimulated to apply these complementary methods to further validate and extend

the findings reported here.

3.4 Dataset overview

The cleaned dataset consisted of two corpora representing research on L1 and EFL English writing over three decades. The main descriptive information is summarized in Table 2.

Table 2. Main information of the L1 and EFL English writing datasets

Category / Metric	L1	EFL
Main Information		
Timespan	1996:2025	1996:2025
Number of Documents	844	1,064
Annual Growth Rate %	9.37%	15.74%
Document Average Age	7.60	5.74
Average Citations per Doc	17.85	23.55
Document Contents		
Keywords Plus (ID)	839	805
Author's Keywords (DE)	2,215	2,537
Author Statistics		
Authors	2,026	1,677
Authors of Single-Authored Docs	261	305
Author Collaboration		
Co-Authors per Doc	2.61	2.11
International Co-Authorships %	13.98	20.68

As presented in Table 2, the EFL corpus (n=1,064) showed a higher annual growth rate (15.74%) than the L1 corpus (n=844, 9.37%), and a lower average document age (5.74 vs. 7.60 years), indicating a more recent research concentration in the EFL field. The L1 dataset involved more authors (2,026 vs. 1,677) and higher co-authorship per document (2.61 vs. 2.11), while the EFL dataset showed greater international collaboration (20.68% vs. 13.98%). Per-article keyword density was higher in L1 (Keywords Plus (ID): 1.18 vs. 0.77; Author's Keywords (DE): 2.63 vs. 2.39), suggesting a broader thematic scope, whereas EFL had a larger overall output.

The two sets of figures represent different metrics: the figures in Section 3.3 (L1 DE: 5.5; EFL DE: 5.1; L1 ID: 4.2; EFL ID: 4.6) represent the average total occurrences

of keywords per article, whereas the figures in Section 3.4 (L1 DE: 2.63; EFL DE: 2.39; L1 ID: 1.18; EFL ID: 0.77) represent the average number of unique keyword terms per article. Both metrics are presented given their distinct analytical functions, in which total occurrences reflect keyword density at the document level and unique terms indicate the lexical diversity of each corpus.

4. Results and discussion

4.1 Data-driven periodization

To conduct a longitudinal thematic evolution analysis over three decades, the two datasets were classified into three periods based on key bibliometric indicators. These indicators included annual scientific production, average citations per year, and trend topics. Among these metrics, the growth rate of production and citation counts captured shifting scholarly impact from a macro-level view. Meanwhile, the analysis of trend topics served as the primary instrument for pinpointing critical thematic inflections. Specifically, the temporal emergence of transformative keywords—such as those related to the writing process or the recent surge in generative AI—played a pivotal role in establishing empirical period boundaries. Formal statistical boundary-detection methods such as change-point detection or piecewise regression were not adopted; instead, the period boundaries were determined based on researchers' interpretation. For instance, in the AI-driven expansion from 2020 to 2025, although generative AI tools such as ChatGPT were launched in late 2022 and AI-related keywords first appeared in the datasets in 2024, the sharp increase in publication output during 2020–2023 may also reflect other concurrent factors, including the acceleration of online writing research during the COVID-19 pandemic and the surge of digital writing technologies. While AI-centered convergence occurred starting in 2024, the prior interval reflects a general expansion of technology-mediated writing research. However, the output growth was far more pronounced between 2024 and 2025, driven by the greater influence of artificial intelligence. Detailed evidence for the periodization of the two fields is presented in subsections 4.1.1 and 4.1.2.

4.1.1 Period division of L1 English writing

As shown in Figure 1 below, L1 writing research experienced low and fluctuating output before 2012, averaging fewer than 10 articles annually. This phase was followed by steady growth from 2013 to 2019, and a sharp surge after 2020, ultimately reaching a peak of 121 articles in 2025. Mean citation counts were highest in the first period but declined in later periods due to the citation lag effect. Based on production output, citation patterns, and emerging topics, the 30-year span was divided into three distinct periods: foundation (1996–2012), consolidation (2013–2019), and AI-driven expansion (2020–2025).

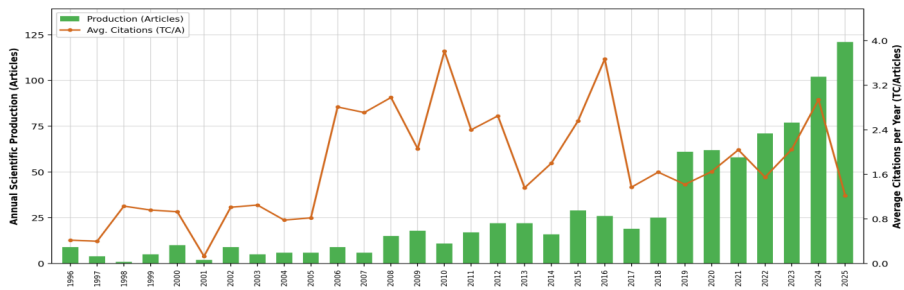


Figure 1. Annual scientific production and average citations per year for L1 English writing

While Figure 1 shows the quantitative growth in publications and citations, publication numbers alone are insufficient to establish meaningful period boundaries. Theoretically, data-driven periodization requires capturing the entry and concentration of new research topics across different timespans. Therefore, examining trend topics provides the necessary conceptual foundation by showing when critical thematic shifts occurred. As illustrated in Figure 2 below, the introduction of distinctive new trends over time offers robust thematic evidence supporting the three developmental stages identified above.

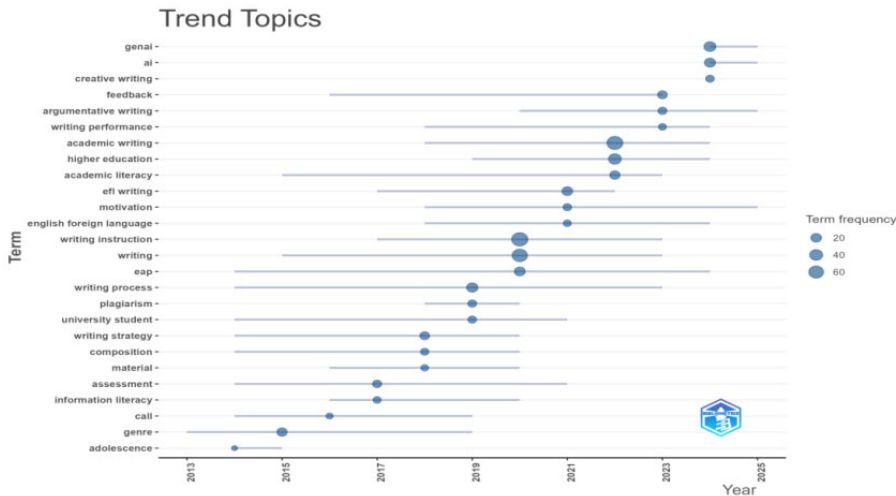


Figure 2. Trend topics in L1 English writing research

Trend topics analysis (see Figure 2) revealed distinct thematic shifts across these three periods. Period 1 was dominated by *genre* and *composition*, which were primarily grounded in process-oriented approaches and genre-based pedagogy. Period 2 saw *writing instruction* emerge as the central theme, alongside *academic writing*, *CALL*, *academic literacy*, and *EAP*. This shift reflects a clear reorientation toward academic writing competence and digital instructional practices in higher education. Finally, Period 3 was characterized by the dramatic emergence of *generative AI* and *AI* in 2024, alongside *argumentative writing*, *creative writing*, *motivation*, and a persistent concern over *plagiarism*.

4.1.2 Period division of EFL English writing research

In contrast to the L1 domain, the EFL research sector exhibited a “revolutionary” growth pattern. With a high annual growth rate of 15.74%, it evolved from a secondary sub-branch into a dominant global research enterprise, eventually surpassing L1 research in annual volume by the early 2020s. As shown in Figure 3, EFL English writing research experienced minimal growth between 1996 and 2012, with annual output rising gradually from 5 to 13 articles. Mean citation counts peaked in 2003, reflecting the lasting influence of foundational publications.

The subsequent phase from 2013 to 2019 displayed steady, incremental growth, with annual output rising from 18 articles in 2013 to 70 in 2019. Finally, the phase from 2020 to 2025 witnessed an unprecedented surge in publication output. Research production more than tripled, growing from 65 articles in 2020 to a historic peak of 208 in 2025. This rapid expansion strongly suggests the disruptive influence of generative AI tools. Concurrently, average citations per year declined consistently due to the inevitable citation lag effect.

Concerning the thematic dimension, trend topics analysis of EFL writing research (see Figure 4) revealed distinct shifts. During the foundational period (1996–2012), identifiable trend topics were limited. Early topics such as *composition* (2007), *error correction* (2010), *second language writing assessment* (2011), and *SLA* (2012) dominated the literature, establishing a narrow focus on formal accuracy and writing evaluation. From 2013 to 2019, the field witnessed substantial diversification. This period marked the first appearance of *academic literacy*, *CALL*, *feedback*, and *grammar*, alongside persistent themes like *EFL writing assessment*, *plagiarism*, and *revision*. High-frequency themes during this stage included *collaborative learning* and *learner identity*.

From 2020 to 2025, AI-related topics came to the fore. Both *Gen AI* and *AI* recorded their initial occurrence in 2024, alongside *WCF* and *writing performance*, reflecting a sustained interest in instructional interventions and learner output quality. Concurrently, the strong presence of *EFL learner*, *TBLT*, and *L2 writing development* suggested a growing emphasis on learner-centered perspectives.

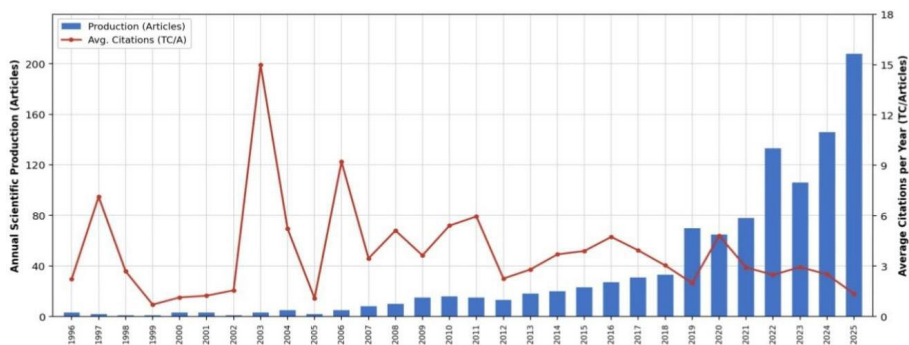


Figure 3. Annual scientific production and average citations per year for EFL English writing

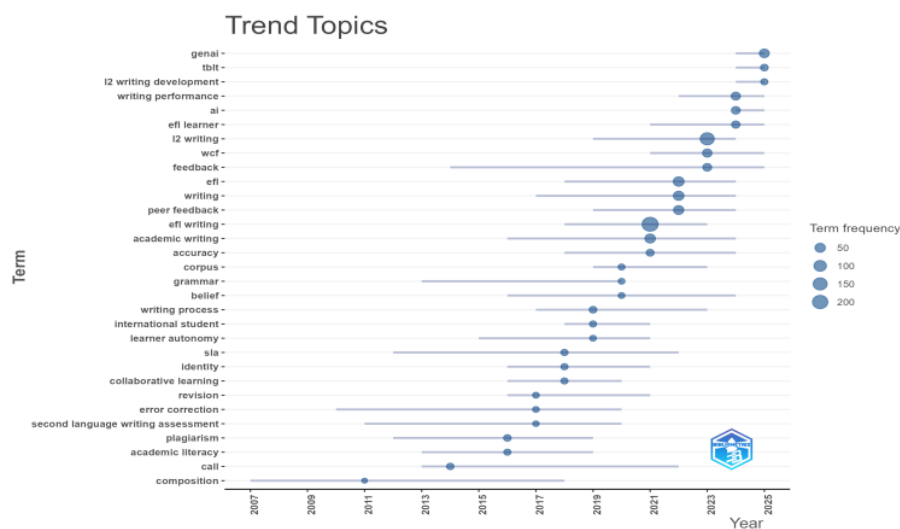


Figure 4. Trend topics in EFL English writing research

4.1.3 Comparative analysis of L1 and EFL developmental trajectories

The 30-year evolution of L1 and EFL English writing research exhibited a convergent but distinct three-phase trajectory. This progression reflects a macro-level transition from theoretical groundwork to empirical consolidation and structural expansion. Despite being distinct fields, they shared important thematic convergences. First, *academic writing* functioned as a persistent cross-period theme in both traditions. Second, *plagiarism* appeared as a shared trend topic during their respective second periods. Third, *CALL* emerged as a shared theme in the second period, reflecting a common disciplinary turn toward digital tools. Most strikingly, *generative AI* emerged simultaneously in 2024 across both datasets. This represents a powerful instance of technological convergence that is actively bridging the historical gap between L1 and EFL English writing research.

However, key divergent points remained evident. First, L1 writing research evolved gradually around *writing instruction* and *genre*, revolving steadily around the cognitive and rhetorical dimensions of composition. Conversely, EFL writing research underwent discontinuous restructuring centered on *EFL writing*, *learner identity*, and specialized *feedback mechanisms*, emphasizing the contextual specificity of foreign language

learning. Second, feedback-targeted research (*feedback*, *peer feedback*, *WCF*) maintained high-frequency, cross-period visibility in EFL but did not achieve similar dominance in L1. Third, during Period 3, the L1 tradition saw the unique emergence of *argumentative writing*, *creative writing*, and *motivation*. Meanwhile, the EFL domain prioritized *WCF*, *writing performance*, *TBLT*, *EFL learner*, and *L2 writing development*, reflecting distinct disciplinary priorities in the face of technological transformation. On the whole, L1 maintained cross-period stability through its enduring pedagogical core, whereas EFL underwent sequential, discontinuous shifts from *SLA* constructs to *feedback* paradigms, and finally to *generative AI*.

4.2 Thematic evolution of L1 and EFL English writing research

Thematic evolution analysis illustrates how specific research themes transformed conceptually over time. Thematic maps for each period reveal patterns of conceptual maturation, diversification, and cross-traditional convergence around generative AI as a shared frontier in the most recent period. There is an approximately 26% difference in dataset size between L1 (844 articles) and EFL (1,064 articles). This disparity may influence the absolute frequency of theme occurrences and the variety of identified clusters. While this study employs relative measures such as quadrant positioning based on centrality and density to partially mitigate this effect, the difference in size should not be ignored when interpreting theme frequency comparisons. Corpus size normalization procedures, such as random subsampling or frequency per thousand documents will be conducted in future studies to further validate the frequency comparisons reported here.

4.2.1 Thematic evolution in L1 English writing research

Period 1 (1996-2012)

In Period 1 (Figure 5), the Motor Themes quadrant was occupied by two primary blocks. One was anchored by *EAP*, *genre*, and *pedagogy*, representing the theoretical foundations of L1 writing research. The second was centered on *writing*, *writing process*, and *academic literacy*, sustaining the process-oriented and literacy-based traditions of the field. The Basic quadrant contained *writing instruction*, *argumentation*,

and *revision*, alongside a separate cluster linking *academic writing* with *plagiarism*. This structure established an early connection between writing competence and academic integrity. The Niche quadrant included EFL writing, high school, multiliteracies, undergraduate, online operation, writing group, and doctoral education. Within this configuration, EFL writing remained marginal to mainstream L1 research. Finally, the Emerging/Declining quadrant contained *collaboration*, *identity*, *written composition*, and *writing performance*, all displaying low centrality and density.

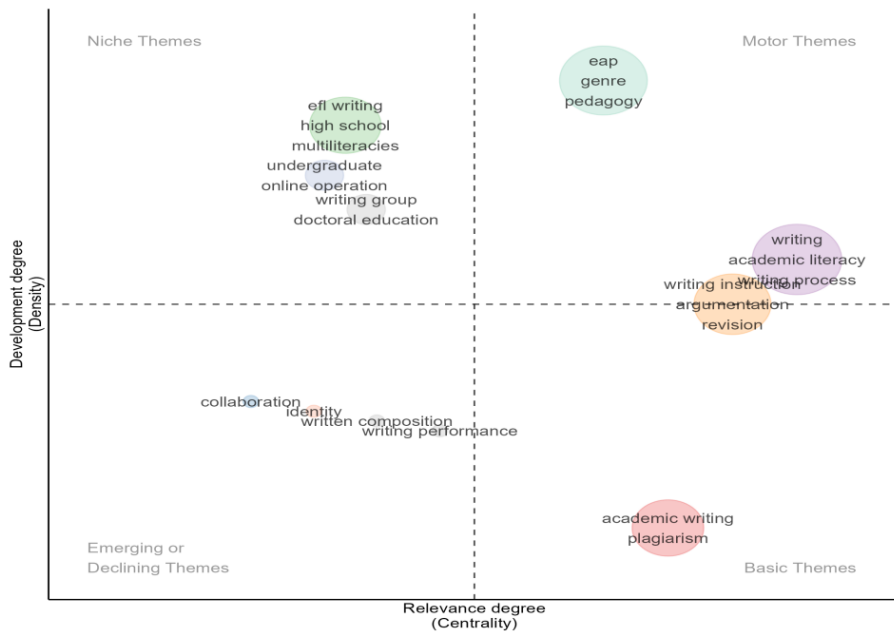


Figure 5. Thematic map of period 1 (1996-2012) for L1 English writing research

Period 2 (2013-2019)

In Period 2 (Figure 6), four Motor clusters emerged. One anchored by *genre*, *writing strategy*, and *theoretical perspective* confirmed the sustained centrality of genre orientations. Another comprising *writing process*, *assessment*, and *engagement* showed the growing integration of process-oriented pedagogy with learner evaluation practices. Concurrently, *corpus linguistics*, *grammatical complexity*, and *teacher professional development* occupied a transitional zone near the origin. Finally, a boundary cluster

of *writing*, *online writing instruction*, and *belief* indicated an early engagement with digitally mediated writing pedagogy. Its relatively high centrality confirmed that these digital concerns were already well-connected to the broader research network.

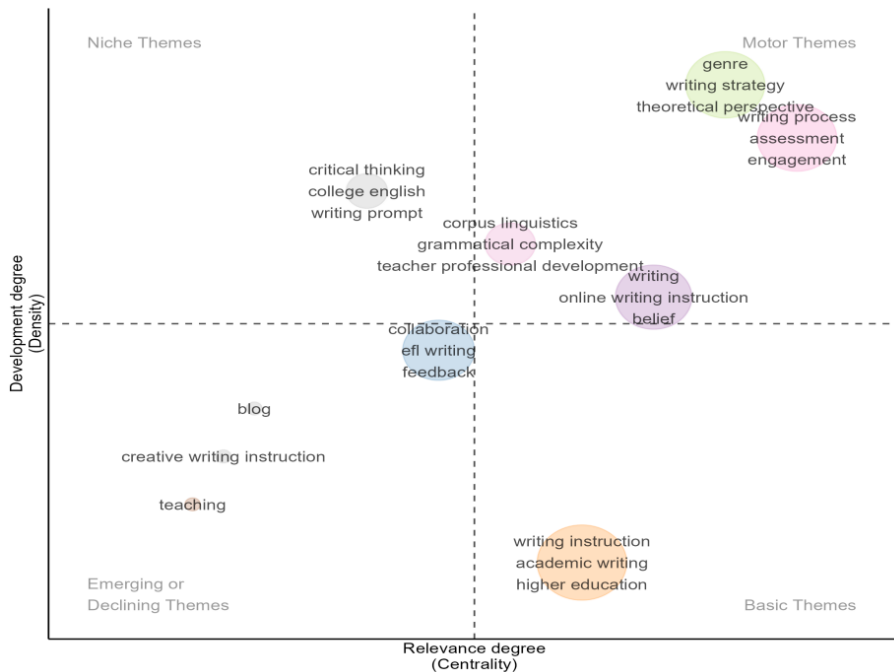


Figure 6. Thematic map of period 2 (2013-2019) for L1 English writing research

Period 3 (2020-2025)

In Period 3 (Figure 7), the Motor Themes quadrant featured a single cluster with *writing*, *writing strategy*, *engagement*, indicating thematic contraction and a shift toward a learner-centered orientation as theoretical pluralism gave way to a more focused framework. The Basic quadrant was structurally complex and contained three distinct thematic blocks: a cluster of *writing instruction*, *writing assessment*, and *argumentative writing*; a cluster of *academic writing*, *EAP*, and *academic literacy*; most notably, a cluster incorporating *AI*, *generative AI*, and *ChatGPT*. This underscores that *AI-mediated writing* has become mainstream within L1 English writing research, displaying high centrality but low density, which characterizes an exploratory phase. The Niche quadrant encompassed two main groupings, with one containing *writing*

process, keystroke logging, fluency, topic, and usage-based linguistics, and the other comprising university, student, dyslexia, collaboration, COVID-19, and STEM. Finally, the Emerging/Declining quadrant included EFL writing, college writing, natural language processing, and genre-based writing instruction, suggesting cross-linguistic writing concerns were losing traction within L1 scholarship.



Figure 7. Thematic map of period 3 (2020-2025) for L1 English writing research

Overall thematic evolution: L1 English writing research across three periods

Across three decades, *writing*, *academic writing*, and *writing instruction* served as continuous keywords. This continuity confirms the field's enduring commitment to writing as a social practice, an academic competency, and a core pedagogical subject. Structurally, the field transitioned from a theory-driven paradigm (*EAP*, *genre*, *writing*

process) in Period 1 to a learner-driven focus (*theoretical perspective, assessment, engagement*) in Period 2. It then shifted to a technology-responsive posture with the disruption of AI in Period 3.

4.2.2 Thematic evolution in EFL English writing research

EFL writing research followed a path of continuous expansion around a stable core identity centered on *EFL writing* and *collaborative writing*. Across the three periods, the field incrementally developed this core through the rapid institutionalization of feedback research in Period 2 and the sudden emergence of AI-related concerns in Period 3. This trajectory traces a clear path from foundational identity formation toward applied specialization and technological disruption.

Period 1 (1996-2012)

In Period 1 (Figure 8), the Motor Themes quadrant contained clusters of *EFL, composition, collaborative writing, EFL writing instruction, grammar, ESL writing, language testing, and peer feedback*. This concentration reflects a form-focused pedagogy deeply rooted in traditional composition methodologies. The Basic quadrant included *EFL writing, WCF, genre, academic writing, plagiarism, and integrated task*. The Niche quadrant retained *feedback, noticing, reformulation, SLA, punctuation, and self-efficacy*. Finally, the Emerging/Declining quadrant contained *writing instruction* and *exposition*, while *peer review* and *EAP* showed early emerging potential near the boundary line.

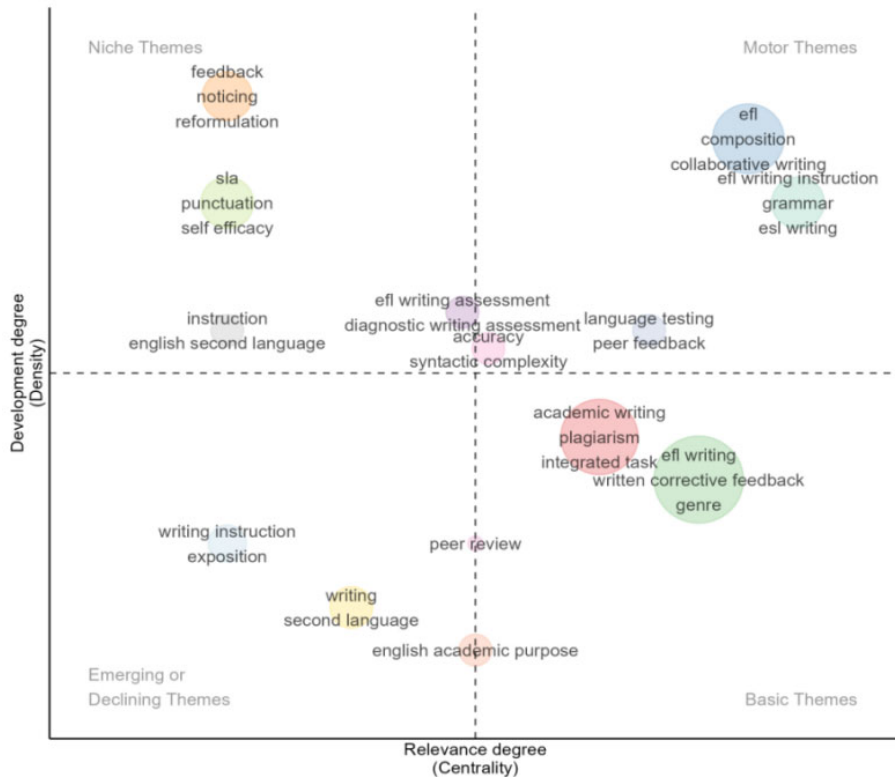


Figure 8. Thematic map of period 1 (1996–2012) for EFL English writing research

Period 2 (2013–2019)

In Period 2 (Figure 9), the Motor clusters comprised the following domains: *feedback*, *writing process*, *higher education*, *academic writing*, *accuracy*, *writing assessment*, *collaborative writing*, *computer-mediated communication*, and *interaction*. Within this setup, *feedback* evolved from a peripheral topic in Period 1 to a dominant position in Period 2, marking a decisive reorientation toward the feedback-process interface. The Basic quadrant was characterized by *EFL writing*, *peer feedback*, *academic literacy*, and *identity*, signaling a meaningful engagement with learner identity beyond a purely linguistic level. The Niche quadrant contained *pedagogy*, *writing across the curriculum*, *writing in the disciplines*, *plagiarism*, *EFL writing assessment*, and *Chinese university*, reflecting a clear geographical concentration of research within Chinese higher education contexts.

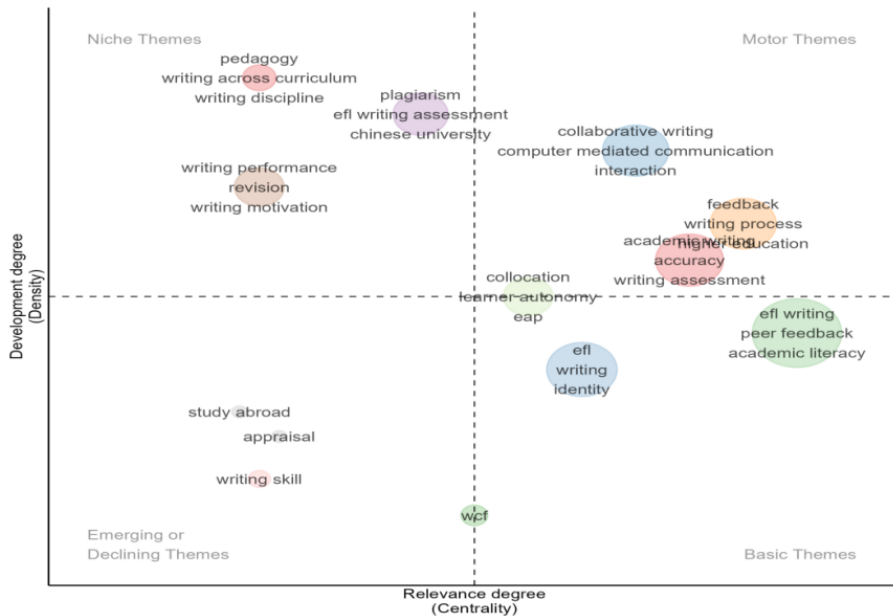


Figure 9. Thematic map of period 2 (2013–2019) for EFL English writing research

Period 3 (2020–2025)

In Period 3 (Figure 10), the Motor Themes quadrant featured *EFL writing* and *collaborative writing* as dominant elements, marking a structural shift for EFL writing from the Basic to the Motor Themes quadrant. Concurrently, *syntactic complexity*, *genre*, and *machine translation* occupied a transitional zone. The Basic quadrant contained *EFL writing*, *peer feedback*, and *WCF*, alongside the striking addition of *ChatGPT*, *AI*, and *generative AI*, which marks the entry of intelligent systems into mainstream scholarship. The Niche quadrant grouped *argumentative writing*, *lexical bundle*, *ideal EFL writing self*, *higher education*, *writing skill*, and *university student*. Finally, the Emerging/Declining quadrant included *academic writing*, *writing assessment*, *writing instruction*, *writing performance*, *EFL learner*, and *TBLT*, suggesting that these formerly prominent topics were losing their status as central research cores.

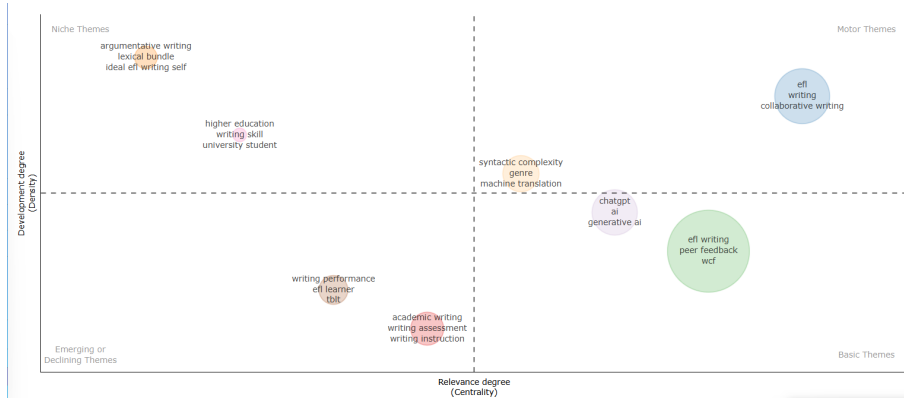


Figure 10. Thematic map of period 3 (2020–2025) for EFL English writing research

Overall thematic evolution: EFL English writing research across three periods

Across three decades, *collaborative writing* and *EFL writing* remained constant cores of the discipline. In contrast, feedback-related research underwent progressive differentiation. It moved from *peer feedback* and *WCF* in Period 1, to general *feedback* as a dominant Motor theme in Period 2, and returned to specialized *peer feedback* and *WCF* frameworks in Period 3. Concurrently, *academic writing* experienced a structural decline, receding from the Basic quadrant to Motor, and finally to Emerging/Declining. *Identity* appeared as a prominent theme exclusively in Period 2, while *ChatGPT* and *generative AI* emerged in Period 3 as entirely new, disruptive research concerns.

4.3 Comparison of thematic evolution between L1 and EFL writing

4.3.1 Structural dynamics of knowledge production: Diachronic evolution and thematic boundaries

The characterization of L1 writing research as exhibiting steady, cumulative growth and EFL writing research as undergoing fast paradigm shift is derived from their respective trend topic trajectories. In the L1 tradition, trend topics displayed steady evolution, in which *genre* and *composition* as the main topics in Period 1, followed by *writing instruction*, *academic writing*, and *CALL* in Period 2, and then by *generative AI* and *AI* in Period 3, with *writing instruction* and *academic writing* maintaining

persistent visibility across periods. This pattern of gradual thematic extension from a stable core is consistent with the characterization of L1 research as undergoing continuous organic evolution around core pedagogical themes. In contrast, more abrupt thematic shifts were exhibited in the EFL tradition in which early topics such as *composition* and *error correction* appeared in Period 1 and *academic literacy*, *feedback*, and *collaborative learning* in Period 2, and were then overtaken by *GenAI*, *AI*, *WCF*, and *TBLT* in Period 3, undergoing marked repositioning across three periods and undergoing rapid transformation across diverse teaching models. These labels are intended as descriptive summaries of the observed trend topic patterns. It would be worthwhile for future qualitative content analyses, drawing on representative articles from each period, to examine whether these bibliometric patterns correspond to substantive shifts in research paradigms, theoretical orientations, or pedagogical priorities.

4.3.2 Quantitative output, geographic shifts, and global reconfiguration (RQ1)

The diachronic science mapping conducted across the 30-year span reveals that while the L1 and EFL writing traditions have historically pursued distinct, independent evolutionary paths, they are increasingly characterized by profound structural and technological intersections. To fully capture the theoretical and pedagogical implications of these shifts, this section synthesizes the preceding empirical findings to systematically address the two overarching research questions guiding this inquiry.

In light of the quantitative evidence, English writing research indicates a clear global reconfiguration. First, the EFL annual growth rate (15.74%) was substantially higher than that of L1 (9.37%), and EFL documents maintained higher average citations (23.55 vs. 17.85), signaling a quantitative and qualitative power shift. Second, geographically, the USA dominated L1 research (42.5%) while China led the EFL domain (37.4%), showing a macro-level shift from North America to the Asia-Pacific region. Third, international co-authorship in EFL (20.68%) was significantly higher than in L1 (13.98%), emphasizing EFL's more internationally integrated network. Finally, the simultaneous appearance of AI-related topics in both fields in 2024–2025 is actively breaking down the traditional divide between L1 and EFL writing, helping to bring the two fields closer together as a unified global area of study.

The knowledge structures of the two traditions evolved independently but followed

structurally mirrored trajectories. The L1 knowledge structure developed through cumulative instructional building. In this field, *writing*, *academic writing*, and *writing instruction* formed a stable thematic core across all three periods, becoming progressively denser without undergoing fundamental reorganization. Conversely, the EFL knowledge structure maintained a stable core (*EFL writing*, *collaborative writing*) while experiencing active reorganizations of its surrounding research topics. Feedback-related themes strengthened considerably from Period 1 to Period 3, while AI topics entered the Basic quadrant in Period 3 as a shared frontier across both traditions.

4.3.3 Thematic convergence and divergence across research traditions (RQ2)

To address RQ2, cross-traditional thematic dynamics were examined by identifying shared nodes and tracing their quadrant trajectories across periods, as synthesized in Table 3. Overall, the comparative mapping reveals a dual pattern: while frontier areas (notably *GenAI*) and broader pedagogical orientations demonstrate structural convergence, persistent divergences remain rooted in each tradition's foundational epistemologies.

Specifically, while technological drivers like generative AI foster macro-level alignment across both traditions, distinct theoretical roots and pedagogical priorities continue to govern their trajectories. To systematically capture how these shared research nodes evolved across strategic quadrants over the 30-year span, Table 3 maps the diachronic trajectories of overlapping themes between the L1 and EFL corpora.

Table 3. Quadrant positions of shared themes across L1 and EFL thematic maps

Theme	L1 English Writing			EFL English Writing		
	P1	P2	P3	P1	P2	P3
academic writing	B	B	B	B	M	E
academic literacy	M	—	B	—	B	—
EAP	M	—	B	E	B	—
writing	M	M/B	M	E	—	—
writing process	M	M	N	—	M	—
writing performance	M/B	—	—	—	N	E
feedback	—	N/M	B	N	M	B

Theme	L1 English Writing			EFL English Writing		
	P1	P2	P3	P1	P2	P3
plagiarism	B	—	—	B	N	—
EFL writing	N	N/E	E	B	B	M
genre	M	M	E	B	—	M/B
writing instruction	B	B	B	E	—	E
higher education	—	B	M/B	—	M	N
writing assessment	—	M	B	—	M	E
argumentative writing	B	—	B	—	—	N
generative AI	—	—	B	—	—	B
ChatGPT	—	—	B	—	—	B
identity	E	N/E	—	—	B	—

Note: M = Motor Themes; N = Niche Themes; B = Basic Themes; E = Emerging or Declining Themes; — = not present.

As shown in Table 3, the 17 shared themes clearly reveal both similarities (convergences) and differences (divergences) between L1 and EFL writing research over the past 30 years. The two fields come together in two main ways. First, both traditions share a common view of writing as a learning and teaching process, as seen in the persistent presence of academic writing across periods in Table 3, along with the shared emergence of computer-assisted language learning (e.g., *CALL*) as a trend topic in both fields (see Figures 2 and 4). Second, *generative AI* and *ChatGPT* appeared at the same time in Period 3 as Basic Themes in both fields, showing a shared technological interest across both traditions.

Despite these shared points, four clear differences remain between the two fields. First, while *academic writing* remained a steady core topic in L1 research across all three periods, it gradually became a less central topic in EFL research by Period 3. Second, feedback (such as *peer feedback* and *written corrective feedback (WCF)*) served as the primary backbone of EFL research as a Motor Theme, whereas in L1 research it remained a secondary topic until moving into Basic Themes in Period 3. Third, the two fields focused on different aspects of technology: L1 research paid more attention to student engagement, writing strategies, and thinking processes, while EFL research emphasized writing scores/performance, group writing, and teaching results. Finally, they are based on different theoretical foundations—L1 writing is rooted in

rhetoric and the writing process, while EFL writing is grounded in second language acquisition (SLA) theories and practical classroom teaching.

5. Conclusion

Based on longitudinal trends, this study categorized the 30-year trajectory of English writing research into three distinct stages: foundation (1996–2012), consolidation/diversification (2013–2019), and AI-driven expansion (2020–2025). The structural data revealed a clear global power shift from North America to the Asia-Pacific region, with China emerging as the leading contributor to EFL scholarship. Mechanistically, the two fields have evolved from separate parallel traditions into a converging global field. L1 research demonstrates a continuous evolution anchored in core rhetorical and process-based teaching, while EFL research displays a dynamic, stage-by-stage progression driven by SLA theories, feedback models, and emerging AI tools. Generative AI appears to have functioned as the most powerful driving force for convergence, bringing L1 and EFL writing research onto shared ground and introducing common concerns regarding academic integrity, writing performance, and AI-assisted feedback. However, this interpretation is based on the co-occurrence of AI-related keywords in both datasets rather than on evidence of causal relationships. The degree to which researchers in each tradition are engaging with AI in conceptually similar ways remains an open question to be addressed in future qualitative inquiries.

However, persistent divergences remain. L1 research remains firmly anchored in the writing process and genre pedagogy, reflecting the North American composition tradition. Meanwhile, EFL scholarship prioritizes corrective feedback and SLA constructs centered within Asia-Pacific contexts. By incorporating an interpretive thematic analysis, this study offers a fresh perspective that reveals both shared intellectual foundations and differentiated developmental pathways. Operationally, EFL scholarship can benefit from L1's process-oriented and genre-based frameworks. Conversely, L1 composition studies can learn from EFL's rigorous feedback paradigms and learner-centered designs. Ultimately, the study advocates for a systematic, cross-traditional, and AI-informed approach, providing a solid empirical baseline for future convergence.

The findings of this study must be interpreted in light of certain limitations. The

data collection was limited to the Web of Science Core Collection and English-language publications, which may underestimate the contributions of non-English and regional databases. These limitations do not diminish the validity of the main findings, but they leave room for future research regarding topical coverage, geographical representation, and publication mediums. To enhance global representativeness, future studies should broaden their empirical scope to regional indexing systems such as KCI and CNKI, thereby examining whether the thematic configurations identified in English-medium scholarship are reproduced or challenged within non-English academic structures. Additionally, a full sensitivity analysis by applying Keywords Plus (ID) as the analytical field was not performed in the present study. Though existing comparisons concerning coverage rates, lexical diversity, and quadrant-level thematic alignment indicate that the key findings are reliable to the choice between DE and ID, future research is encouraged to replicate the thematic analyses by employing ID to further validate and expand upon the outcomes presented in this paper.

References

- Aria, Massimo and Corrado Cuccurullo. 2017. bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics* 11(4): 959–975.
- Arik, Beril T. and Engin Arik. 2017. “Second language writing” publications in Web of Science: A bibliometric analysis. *Publications* 5(1): 1–12.
- Barrett, Alex and Austin Pack. 2023. Not quite eye to A.I.: Student and teacher perspectives on the use of generative artificial intelligence in the writing process. *International Journal of Educational Technology in Higher Education* 20: 59.
- Barrot, Jessie S. 2023. Using automated written corrective feedback in the writing classrooms: Effects on L2 writing accuracy. *Computer Assisted Language Learning* 36(4): 584–607.
- Crosthwaite, Peter, Sulistya Ningrum, and Icy Lee. 2022. Research trends in L2 written corrective feedback: A bibliometric analysis of three decades of Scopus-indexed research on L2 WCF. *Journal of Second Language Writing* 58: 100934.
- Haswell, Richard H. 2000. Documenting improvement in college writing: A longitudinal approach. *Written Communication* 17(3): 307–352.
- Kim, YouJin and Diane Belcher. 2020. Multimodal composing and traditional essays: Linguistic performance and learner perceptions. *REL C Journal* 51(1): 86–100.
- Kuhn, Thomas S. 1962. *The structure of scientific revolutions*. Chicago, IL: University of Chicago Press.

- Lee, Sunghwa, Myoungho Ha, Byong-Rae Ryu, and Se-Eun Jhang. 2025. A bibliometric comparison of grammatical development in spoken and sign languages: Thematic evolution and persistent keywords. *Linguistic Research* 42(Special Edition): 109–147.
- Lei, Jiun-Iung. 2022. Bibliometric analysis of the L2 Writing Journal. *Beyond Words* 10(1): 15–35.
- Liu, Chenchen, Jierui Hou, Yun-Fang Tu, Youmei Wang, and Gwo-Jen Hwang. 2023. Incorporating a reflective thinking promoting mechanism into artificial intelligence-supported English writing environments. *Interactive Learning Environments* 31(9): 5614–5632.
- Liu, Cuilin. 2025. *Integrating bibliometric techniques with corpus-driven bigrams: A research trend analysis of cruise tourism*. PhD Dissertation. Korea Maritime and Ocean University.
- Liu, Cuilin and Se-Eun Jhang. 2024. A bibliometric analysis of language acquisition research: A comparative study of spoken and sign languages. Paper presented at *The 2nd Workshop on Interdisciplinary Research on Acquisition of the Korean Sign Language*, December 13, 2024. Chungnam National University.
- MacArthur, Charles A., Zoi A. Philippakos, and Melissa Ianetta. 2015. Self-regulated strategy instruction in college developmental writing. *Journal of Educational Psychology* 107(3): 855–867.
- Riazi, Mehdi, Ling Shi, and John Haggerty. 2018. Analysis of the empirical research in the *Journal of Second Language Writing* at its 25th year (1992–2016). *Journal of Second Language Writing* 41: 41–54.
- Sasaki, Miyuki and Keiko Hirose. 1996. Explanatory variables for EFL students' expository writing. *Language Learning* 46(1): 137–174.
- Silva, Tony. 1993. Toward an understanding of the distinct nature of L2 writing: The ESL research and its implications. *TESOL Quarterly* 27(4): 657–677.
- Sun, Yuan and Guanglan Lan. 2023. A bibliometric analysis on L2 writing in the first 20 years of the 21st century: Research impacts and research trends. *Journal of Second Language Writing* 59: 100963.
- Teng, Lin Sophie and Lawrence Jun Zhang. 2016. A questionnaire-based validation of multi-dimensional models of self-regulated learning strategies. *The Modern Language Journal* 100(3): 674–701.
- Tossell, Chad C., Nathan L. Tenhundfeld, Ali Momen, Katrina Cooley, and Ewart J. de Visser. 2024. Student perceptions of ChatGPT use in a college essay assignment: Implications for learning, grading, and trust in artificial intelligence. *IEEE Transactions on Learning Technologies* 17: 1069–1081.
- Wallace, David L., John R. Hayes, Jill A. Hatch, Walden Miller, Gary Moser, and Christine M. Silk. 1996. Better revision in eight minutes? Prompting first-year college writers to revise globally. *Journal of Educational Psychology* 88(4): 682–688.
- Wingate, Ursula and Chris Tribble. 2012. The best of both worlds? Towards an English for Academic Purposes/Academic Literacies writing pedagogy. *Studies in Higher Education*

37(4): 481–495.

- Yang, Miao, Richard Badger, and Zhen Yu. 2006. A comparative study of peer and teacher feedback in a Chinese EFL writing class. *Journal of Second Language Writing* 15(3): 179–200.
- Yao, Yuan, Weijun Wang, and Xiaopei Yang. 2021. Perceptions of the inclusion of automatic writing evaluation in peer assessment on EFL writers' language mindsets and motivation: A short-term longitudinal study. *Assessing Writing* 50: 100568.
- Yu, Shulin, Lianjiang Jiang, and Nan Zhou. 2023. The impact of L2 writing instructional approaches on student writing motivation and engagement. *Language Teaching Research* 27(4): 958–973.
- Zhai, Xiuwen and Abu Bakar Razali. 2023. Triple method approach to development of a genre-based approach to teaching ESL/EFL writing: A systematic literature review by bibliometric, content, and scientometric analyses. *SAGE Open* 13(1): 1–27.
- Zhang, Zhe (Victor). 2020. Engaging with automated writing evaluation (AWE) feedback on L2 writing: Student perceptions and revisions. *Assessing Writing* 43: 100439.

Appendix: Examples of lexical normalization rules applied in preprocessing

variant	canonical
second language writing	efl writing
english for academic purposes	eap
second-language writing	efl writing
writing pedagogy	writing instruction
artificial intelligence	ai
automated writing evaluation	awe
academic-literacy	academic literacy
second language acquisition	sla
english as a foreign language	efl
written corrective feedback	wcf
peer assessment	peer feedback
self-assessment	self feedback
task-based language teaching	tblt
learner-autonomy	learner autonomy

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