6th CELTI
Conference in English Language Teaching
AN INTERNATIONAL VIRTUAL CONFERENCE
Decolonize English at the Age of
Artificial Intelligence: Rethinking
Language, Literature, and Pedagogy

Emerging Trends and Impact of AI Integration in English Language Teaching: A Comprehensive Bibliometric Analysis

Author:
Ana Zulianingrum

Affiliation:
Universitas Nahdlatul Ulama Indonesia, Jakarta

Corresponding email:
anazulianingrum@unusia.ac.id

DOI:

Pages:
247-269

Abstract: This study aims to analyze the development and structure of Artificial Intelligence (AI) research in English Language Teaching (ELT) through a bibliometric approach. The research focuses on identifying publication trends, thematic patterns, and collaboration structures within the field. The data were analyzed using descriptive statistics, keyword co-occurrence, and network analysis with tools such as VOS viewer to map research trends and thematic clusters. The findings show a significant increase in publication output, particularly after 2023, with 2025 recording the highest number of publications. Key research themes include chatbot technologies, AI-assisted writing, student learning, and digital learning environments. Among these, chatbot-related studies demonstrate the highest average citation impact. The results also indicate that a small group of authors contributes substantially to the field, while technology-oriented journals exhibit higher citation influence compared to ELT-focused journals. In conclusion, AI in ELT is a rapidly expanding research field with increasing scholarly attention and evolving thematic focus. This study contributes by providing a structured overview of research trends and identifying key areas for future investigation.

Keywords: artificial intelligence; English language teaching; bibliometric analysis; chatbot; digital learning.

Introduction

The fast development of artificial intelligence (AI) has significantly transformed the landscape of English Language Teaching (ELT), evolving from a marginal innovation into a pivotal element of modern language education research and practice. Over recent years, bibliometric evidence reveals a substantial increase toward AI-driven ELT, demonstrating a distinct project from fragmented early studies to a cohesive, multidisciplinary domain characterized by well-defined thematic clusters, expanding international collaboration, and diversified methodological approaches (Almegren et al., 2025; Crompton et al., 2024; Kartal & Yeşilyurt, 2024; Q. Luo & Chen, 2025). This growth is closely linked to the emerge of key technological innovations, including natural language processing (NLP), robot-assisted learning intelligent tutoring systems (ITS), and generative AI such as Chatbots and large language models, which have significantly transformed pedagogical practices and research priorities in ELT. The increasing integration of AI tools into language learning contexts has been widely recognized for its capacity to personalize instruction, enhance learner engagement, and provide real-time feedback, thereby improving language proficiency across multiple skill domains including speaking, writing,

reading, and listening (Alhusaiyan, 2024; Jiang, 2022; Katsarou et al., 2023; Mun, 2024; N. Yang et al., 2025). At the same time, the literature highlights critical challenges related to ethical considerations, data privacy, academic integrity, and the evolving role of teachers, emphasizing that AI should function as a complement rather than a replacement for human instruction(Almegren et al., 2025; Crompton et al., 2024; Zhang & Liu, 2025). These developments highlight the need to systematically map the intellectual structure of AI in ELT, as insight into publication trends, thematic clusters, and collaborative networks are crucial for future research and policy.

Bibliometric analysis is significant to this field as it offers the ability to provide a comprehensive and data-driven overview of the research patterns, influential contributors, and raising trends that may not be immediately visible through traditional literature reviews. Bibliometric and scientometric approaches enable researchers to analyze publication outputs, citation networks, keyword co-occurrence, and thematic evolution, thereby uncovering the underlying knowledge structure of AI-driven language education (Alduais et al., 2022; Amriza et al., 2025; Guo et al., 2021; Rawat & Sood, 2021; Yan & Zhiping, 2023). Those such analysis specifically important in rapidly evolving domains where emerging technologies walks along with the pedagogical approaches which reshape the research directions and priorities. Previous studies have consistently identified core thematic clusters such as AI applications in language learning, NLP-based feedback systems, robot-assisted learning, and chatbot-mediated interaction, alongside cross-cutting themes including learner affect, teacher roles, and ethical considerations (Almegren et al., 2025; Crompton et al., 2024; Kartal & Yeşilyurt, 2024; Y. Luo, 2024). Furthermore, bibliometric research has revealed patterns of geographic and institutional dominance, with countries such as China, Taiwan, and Saudi Arabia playing prominent roles, while also highlighting the need for broader global representation and cross-cultural collaboration(Almegren et al., 2025; Y. Luo, 2024). These findings demonstrate that bibliometric analysis is not only useful for mapping existing knowledge but also for identifying research gaps, such as the limited focus on certain language skills, the need for longitudinal studies, and the underexploration of ethical and governance issues in AI-enabled learning environments(Bjelica et al., 2024; Mohsen et al., 2023; Shahzad et al., 2025; Yazdi et al., 2024).

Despite the expanding body of the literature, the evolution on how AI research has evolved over the past several years in ELT need to be examined in such integrated and systematic way, particularly in relation to emerging technologies such as generative AI and multimodal learning environments. Existing studies often focus on specific tools or contexts, leading to fragmented insights that may not fully capture the broader dynamics of the field. Moreover, while many studies highlight the effectiveness of AI tools in improving language learning outcomes, there is variability in findings depending on factors such as instructional design, learner characteristics, and technological implementation, indicating the need for a more holistic understanding of research trends and knowledge development (AlTwijri & Alghizzi, 2024; Katsarou et al., 2023; Liang et al., 2024; H. Yang & Kyun, 2022; Zhang & Liu, 2025). In this setting, a comprehensive bibliometric analysis can close the gaps by integrating the diverse lines of research and providing a better perspective of the development, structure, and future directions of IA in ELT. Moreover, such analysis can support teachers, researchers, and policymakers by identifying high-impact journals, prominent authors, and emerging research study. Thereby enabling more strategic and informed evidence-based decision making.

This study aims to conduct a bibliometric analysis of AI in English Language Teaching to systematically map publication trends, thematic evolution, and scholarly collaboration patterns within the field. Specifically, the objectives of this research are to (1) analyze the growth and distribution of publications related to AI in ELT over time, (2) identify key research themes and emerging topics through keyword and cluster analysis, and (3) examine collaboration networks among authors, institutions, and countries to understand the global structure of the research community. This study, by achieving these objectives, tries to find the contribution to the existing literature by offering a thorough and integrated overview of AI-driven ELT research, highlighting both established topics and new directions that deserve further investigations. By doing so, the study builds upon and extends prior bibliometric and systematic reviews, offering a more nuanced understanding of how AI technologies are shaping language education and how research in this domain is evolving in response to technological, pedagogical, and societal changes. Overall, this research is intended to deliver valuable insights for future studies, especially in filling research gaps such as the need for longitudinal research, cross-cultural comparisons, and ethical

frameworks for AI in language learning. To achieve this, this research is determined by using 3 main research questions, as follows:

1. What are the publication trends and growth patterns of research on artificial intelligence in English Language Teaching over time?
2. What are the main thematic clusters and emerging topics in AI-driven ELT research based on keyword and co-occurrence analysis?
3. How are collaboration patterns structured among authors, institutions, and countries in the field of AI in ELT?

Research Method

This research used a bibliometric approach to examine trends in how AI-related studies within English Language Teaching (ELT) are published, cited, and thematically organized. Data were collected from the Crossref database via the Publish or Perish software on April 2, 2026, covering publications from 2021 to 2025. The search used three keyword phrases related to AI in ELT and was restricted to article titles, as broader searches produced too many off-topic results. The dataset included journal articles, conference papers, and book chapters written in English. Crossref was chosen as the primary database due to its wide coverage of interdisciplinary and emerging research, including open-access and recently published works — making it well-suited for an exploratory study in a fast-growing field. While this approach may have missed some relevant studies, it was deliberately designed to favor accuracy over comprehensiveness.

Retrieved records were then manually reviewed by title and abstract to confirm their relevance to AI use in English language teaching and learning. The data were also cleaned to ensure consistency — removing duplicates, standardizing author names, and unifying keywords. Of the 3,214 records initially found, 2,976 were kept for analysis after screening. The analysis was carried out using Publish or Perish and VOSviewer (version 1.6.20). Publish or Perish handled data retrieval and export, while VOSviewer was used to produce visual outputs such as keyword co-occurrence networks, thematic clusters, publication trend charts, and co-authorship maps.

For the keyword analysis, only terms appearing at least five times were included, helping to filter out rare or isolated terms and make the network easier to interpret. Full counting was used to measure keyword frequency, and VOSviewer's association strength method was applied to normalize link weights and clarify relationships between keywords and themes. Thematic clusters were generated automatically through a modularity-based algorithm that groups closely related terms together. Both author-supplied and indexed keywords were incorporated into the analysis. For the co-authorship network, only authors with at least two publications were included, allowing the visualization to highlight active collaborators and emerging research communities in AI-focused ELT scholarship.

Findings and Discussions

1. Publication Trends and Growth Patterns

The bibliometric analysis reveals a substantial increase in research publications related to artificial intelligence (AI) in English Language Teaching (ELT) between 2021 and 2025. The annual publication output, citation trends, average citation rates, and growth percentages are summarized in ***Table 1***, while the overall publication trajectory is illustrated in Figure 1. The findings indicate that research productivity in AI-driven ELT expanded rapidly over the observed period, particularly after 2023, suggesting increasing scholarly interest in the integration of AI technologies into language education.

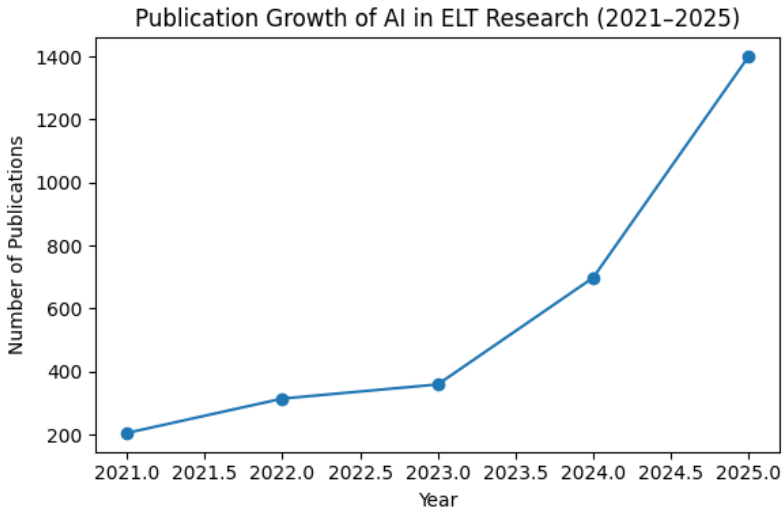
Table 1.
Publication Trends and Citation Metrics

Year	Publications	Total Citations	Average Citations	Growth Rate
2021	205	751	0.71	—
2022	314	1607	1.25	53%
2023	359	2473	2.27	14%
2024	698	2918	2.08	94%
2025	1400	917	0.65	100%

The data demonstrate that publication output increased from 205 documents in 2021 to 1,400 documents in 2025, reflecting a highly accelerated growth pattern. The annual growth rate reached 53% between 2021 and 2022, followed by 14% between 2022 and 2023, before increasing sharply to 94% in 2024 and 100% in 2025. This trend indicates that AI in ELT has evolved from an emerging research topic into a rapidly expanding field with substantial academic attention. The sharp increase observed after 2023 appears closely connected to the widespread emergence of generative AI technologies, particularly conversational AI systems and large language models, which have significantly influenced educational research and classroom practices.

Figure 1.

Publication Growth of AI in ELT Research (2021–2025)



In terms of citation performance, the findings show that total citations increased from 751 in 2021 to 2,918 in 2024 before declining to 917 in 2025. Similarly, the average citation rate rose from 0.71 in 2021 to its peak of 2.27 in 2023, followed by a slight decline in 2024 (2.08) and a more noticeable decrease in 2025 (0.65). Although publication output continued to grow substantially, the reduction in average citations in the most recent year is likely associated with the limited time available for newly published studies to accumulate citations. This pattern is commonly identified in bibliometric studies of rapidly developing research fields, where recently published articles have not yet reached their full citation impact.

The observed publication growth aligns with previous studies reporting the increasing integration of AI technologies in language education and applied linguistics. Recent bibliometric and systematic review studies have similarly identified significant expansion in AI-assisted language learning research, particularly in areas involving generative AI, chatbot technologies, intelligent tutoring systems, and automated writing support (Almegren et al., 2025; Crompton et al., 2024; Kartal & Yeşilyurt, 2024; Q. Luo & Chen, 2025). The findings also support earlier arguments that advances in

natural language processing (NLP) and generative AI have accelerated the adoption of AI tools in ELT contexts, resulting in increased interdisciplinary research activity across educational technology, applied linguistics, and computer-assisted language learning.

Furthermore, the rapid increase in publication volume demonstrates that AI in ELT is currently undergoing an expansion phase characterized by strong scholarly engagement and evolving research priorities. The dominance of recent publications, particularly during 2024–2025, indicates that the field continues to develop dynamically in response to technological innovation and growing institutional interest in AI-enhanced education. This finding reinforces the perspective that AI is becoming an increasingly influential component of language teaching and learning research, with emerging technologies continuing to reshape pedagogical approaches, research agendas, and digital learning environments.

2. Thematic Clusters and Citation Impact

The second research question examined the major thematic clusters and emerging topics in AI-driven English Language Teaching (ELT) research through keyword frequency and citation-based analysis. The findings reveal that AI in ELT research is concentrated around several dominant themes, including general AI applications in language teaching, student learning, teacher perception, chatbot technologies, AI-assisted writing, and digital learning environments. The distribution of publications and citation impact across thematic categories is presented in ***Table 2***, while the comparative citation performance of each cluster is illustrated in ***Figure 2***. The thematic categories were generated through keyword co-occurrence analysis. Because a single publication may contain multiple keywords and thematic associations, the total frequencies across themes exceed the total number of unique documents included in the dataset. The thematic categories were generated through keyword co-occurrence analysis. Because a single publication may contain multiple keywords and thematic associations, the total frequencies across themes exceed the total number of unique documents included in the dataset.

Table 2.

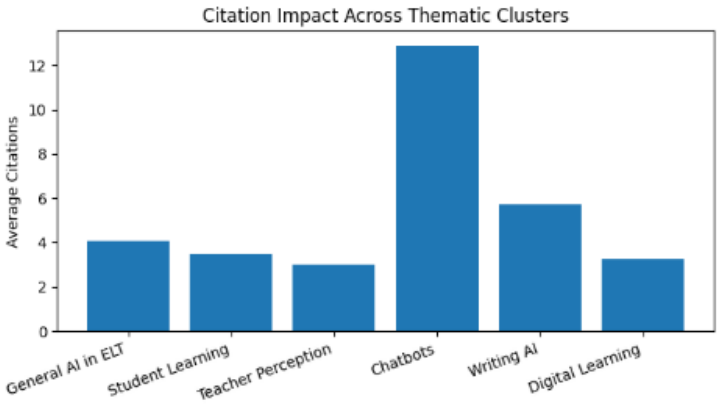
Thematic Clusters and Citation Impact

Theme	Theme Occurrences	Total Citations	Average Citations
General AI in ELT	1699	6903	4.06
Student Learning	1055	3672	3.48
Teacher Perception	413	1249	3.02
Chatbots	92	1187	12.9
Writing AI	205	1175	5.73
Digital Learning	153	498	3.25

The findings indicate that the “General AI in ELT” category represents the largest thematic area, consisting of 1,699 publications with 6,903 total citations and an average citation rate of 4.06 citations per paper. This result demonstrates that broad discussions regarding AI integration in language education remain the dominant focus of scholarly attention. Studies within this category commonly address the implementation of AI technologies in language classrooms, pedagogical transformation, personalized learning, and technology-assisted instruction.

Figure 2.

Citation Impact across Thematic Clusters



The "Student Learning" cluster emerged as the second-largest thematic category, with 1,055 publications and 3,672 citations, producing an average citation rate of 3.48 citations per paper. This finding suggests that researchers are increasingly concerned with examining the effects of AI technologies on learner engagement, language proficiency development, autonomous learning, and interactive learning experiences. The growing focus on student-centered learning reflects the broader educational shift toward personalized and adaptive learning environments supported by AI technologies.

The findings further show that chatbot-related research produced the highest average citation impact among all thematic categories, reaching 12.90 citations per paper despite involving only 92 publications. This indicates that chatbot technologies represent one of the most influential and rapidly developing research areas in AI-driven ELT. The strong citation performance of chatbot studies reflects increasing scholarly interest in conversational AI systems that facilitate interactive communication, immediate feedback, authentic language practice, and learner engagement. This finding aligns with recent studies emphasizing the transformative role of conversational AI and generative technologies in language learning environments (Crompton et al., 2024; Jiang, 2022; Mun, 2024).

Similarly, the "Writing AI" category demonstrated relatively high citation influence, with 205 publications generating 1,175 citations and an average of 5.73 citations per paper. The prominence of writing-focused AI research reflects the increasing adoption of AI-assisted feedback systems, automated writing evaluation tools, and generative AI applications that support writing development. Previous studies have consistently highlighted the effectiveness of AI-powered writing tools in providing immediate, individualized, and formative feedback to language learners (Alhusaiyan, 2024; N. Yang et al., 2025). The findings therefore suggest that writing instruction has become one of the most actively explored applications of AI in language education.

In contrast, thematic categories such as "Teacher Perception" and "Digital Learning" demonstrated relatively moderate citation performance, with average citation rates of 3.02 and 3.25 respectively. Although these themes remain important within the literature, the lower citation averages indicate that current scholarly attention is more strongly directed toward practical and interactive AI applications rather than attitudinal or general digital learning discussions. Nevertheless, teacher-related studies continue to play a significant role in examining educators' readiness, attitudes, ethical concerns, and pedagogical adaptation toward AI integration in language classrooms.

The keyword frequency analysis further reinforces these thematic findings. Frequently occurring terms such as "intelligence," "tools," "practices," "classrooms," "students," and "integration" indicate that AI in ELT research is strongly oriented toward classroom implementation and pedagogical application. The repeated appearance of keywords related to practical teaching contexts suggests that the field has gradually shifted from theoretical exploration toward applied educational practices. Additionally, the

emergence of terms such as “generative” reflects the growing influence of generative AI technologies within contemporary ELT research, particularly following the rapid expansion of tools such as ChatGPT and large language models.

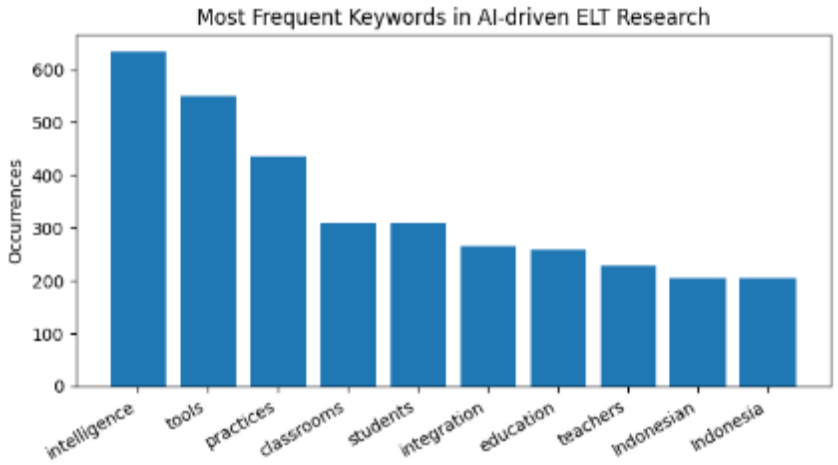
Table 3.

Most Frequent Keywords

Keyword	Occurrences
Intelligence	634
Tools	550
Practices	436
Classrooms	309
Students	309
Integration	266
Education	259
Teachers	229
Indonesian	206
Indonesia	205

Figure 3.

Most Frequent Keywords in AI-driven ELT Research



At the same time, several potentially important areas appear less frequently within the dataset, particularly speaking instruction, language assessment, and ethical considerations. This finding suggests that certain dimensions of AI integration in language education remain underexplored and require greater scholarly attention in future studies. Previous literature has similarly identified limited research coverage regarding speaking skill development, long-term learning outcomes, ethical governance, and AI-related assessment practices in ELT contexts(Bjelica et al., 2024; Mohsen et al., 2023; Yazdi et al., 2024). Therefore, the current findings indicate that although AI-driven ELT research has expanded considerably, important research gaps continue to exist in several pedagogical and ethical domains.

Overall, the thematic and citation analysis demonstrates that AI in ELT is evolving toward increasingly practical, interactive, and learner-centered applications. The strong citation influence of chatbot technologies and AI-assisted writing tools suggests that conversational and generative AI currently represent the most impactful research directions within the field. These findings confirm that

AI technologies are reshaping language teaching research priorities while simultaneously opening new opportunities for innovation in language learning environments.

Figure 4.
Keywords co-occurrence network

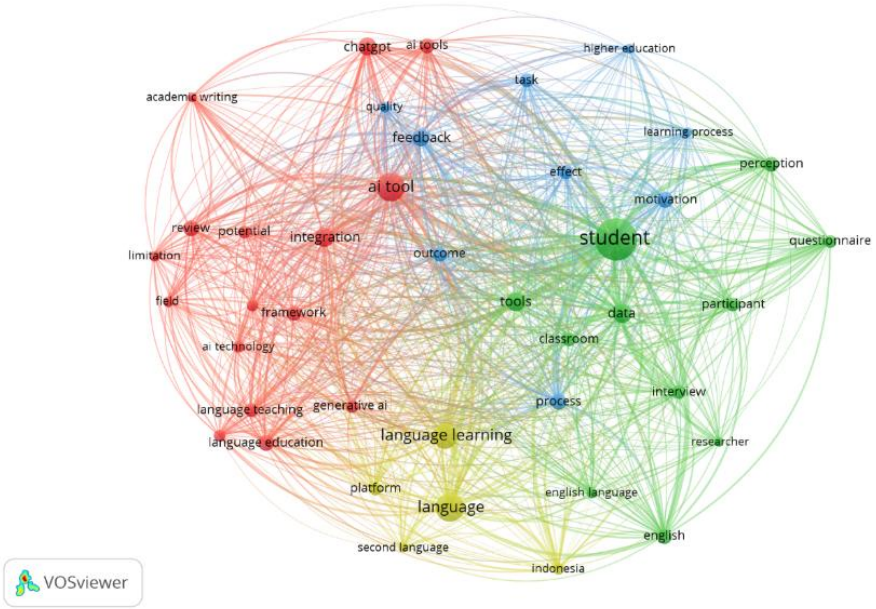


Figure 4 presents the keyword co-occurrence network in AI-driven ELT research. The visualization reveals several interconnected thematic clusters centered around AI tools, student learning, language instruction, and pedagogical feedback. The red cluster is primarily associated with generative AI technologies, including ChatGPT, AI tools, and classroom integration, indicating strong scholarly attention toward practical AI implementation in language education. The green cluster emphasizes learner-centered research themes such as students, participants, interviews, and classroom practices, reflecting the growing focus on student engagement and learning experiences. Meanwhile, the blue and yellow clusters highlight pedagogical quality, higher education contexts, language learning, and instructional processes. The dense interconnections among clusters suggest that AI-driven ELT research is increasingly interdisciplinary and application-oriented.

3. Author Productivity, Collaboration, and Source Analysis

The third research question examined the collaboration patterns and scholarly contribution structures within AI-driven English Language Teaching (ELT) research. The analysis focused on author productivity, publication sources, and broader patterns of scholarly contribution across the field. The findings indicate that AI in ELT research is characterized by the dominance of a relatively limited number of highly productive authors and the strong presence of interdisciplinary publication outlets combining educational technology, applied linguistics, and artificial intelligence research.

Table 4.
Top Productive Authors

Author	Publications
Gavin Yu	55
Adil Dalal	14
Elizabeth A. Cudney	14
Seng Chee Tan	13
Jack Pun	11

The author productivity analysis reveals that a small group of researchers contributed a substantial proportion of publications within the dataset. Gavin Yu emerged as the most productive contributor with 55 publications, followed by Adil Dalal and Elizabeth A. Cudney, each contributing 14 publications. Seng Chee Tan recorded 13 publications, while Jack Pun contributed 11 publications. Other notable contributors included Manuel Beck, Xuesong (Andy) Gao, Mustafa Kayyali, Anthony Pym, Yu Hao, and Robert Godwin-Jones. The distribution of publication productivity indicates a clear imbalance in research output, where a limited number of scholars account for a comparatively large share of publications in the field.

This finding reflects established bibliometric principles such as Lotka's Law, which proposes that scientific productivity is typically concentrated among a relatively small number of highly active researchers. Similar patterns have been identified in previous bibliometric studies of educational technology and AI-assisted language learning research, where dominant scholars and institutional research hubs contribute significantly to the expansion of emerging research fields (Bjelica, 2025; Rawat & Sood, 2021). The concentration of productivity among a small number of researchers also suggests that AI in ELT remains a developing field in which influential scholars continue to shape research directions, thematic priorities, and methodological approaches.

The findings further suggest that collaboration in AI-driven ELT research is becoming increasingly interdisciplinary. The integration of artificial intelligence into language education requires the convergence of expertise from applied linguistics, computer science, educational technology, and digital pedagogy. As a result, many studies within the dataset reflect cross-disciplinary perspectives combining technological innovation with language teaching practices. This interdisciplinary orientation is consistent with previous literature emphasizing that AI-enhanced language learning research has evolved through collaborations between language educators, technology specialists, and AI researchers(Crompton et al., 2024; Kartal & Yeşilyurt, 2024, 2024).

In addition to author productivity, the source analysis demonstrates that research on AI in ELT is distributed across a diverse range of publication outlets. The publication and citation performance of major journals and publication sources are summarized in ***Table 5.***

Table 5.

Top Publication Sources

Source	Publications	Total Citations	Avg Citations
Advances in Computational Intelligence and Robotics	97	—	—
English Language Teaching	90	174	—
Advances in Educational Technologies and Instructional Design	58	—	—
Computer Assisted Language Learning	28	782	—
Computers & Education: Artificial Intelligence	23	1328	57.7

The findings indicate that *Advances in Computational Intelligence and Robotics* was the most productive publication source with 97 publications, followed by *English Language Teaching* with 90 publications and *Advances in Educational Technologies and Instructional Design* with 58 publications. Other important outlets included *Technology-Mediated Language Teaching*, *Computer Assisted Language Learning*, and *ELT Journal*. This distribution highlights the interdisciplinary nature of AI in ELT research, as publications appear not only in language education journals but also in technology-oriented and computational research outlets.

In terms of citation influence, technology-focused journals demonstrated particularly strong citation performance. *Computers and Education: Artificial Intelligence* recorded the highest citation count with 1,328 citations, followed by *Computer Assisted Language Learning* with 782 citations. Several journals also demonstrated high average citation rates, including *International Journal of Educational Technology in Higher Education*, *Applied Sciences*, *Educational Research Review*, and *System*. These

findings suggest that studies published in technology-oriented and interdisciplinary journals tend to achieve greater scholarly visibility and citation impact compared to more general ELT-focused outlets.

The strong citation influence of educational technology journals reflects the growing convergence between AI research and language education. As AI technologies continue to transform digital learning environments, research published in interdisciplinary journals appears to attract broader academic attention from multiple disciplines, including educational technology, applied linguistics, computer science, and digital pedagogy. This pattern aligns with previous bibliometric studies emphasizing the increasing interdisciplinarity of AI-assisted language learning research and the expanding role of technology-focused publication outlets in shaping scholarly discourse(Almegren et al., 2025; Guo et al., 2021).

Figure 5.
Co-authorship collaboration network among researchers

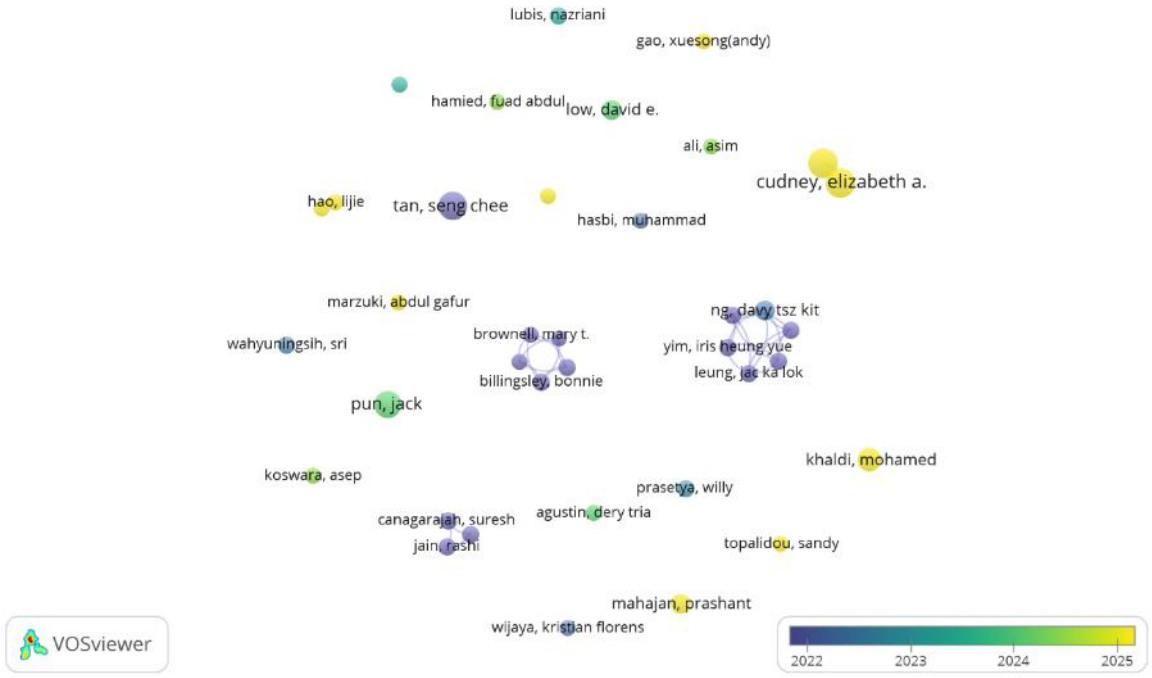


Figure 5 presents the co-authorship collaboration network among researchers in AI-driven ELT studies. The visualization identified several interconnected collaboration clusters, indicating the emergence of small but active research communities within the field. Larger nodes represent authors with higher publication productivity, while link strength indicates the intensity of collaborative relationships among researchers. Several closely connected collaboration groups were observed, particularly among authors such as Ng, Yim, and Leung, as well as Brownell and Billingsley, indicating active co-authorship relationships within specific research areas. In contrast, a number of isolated authors and smaller clusters were also identified, suggesting that scholarly collaboration in AI-driven ELT research remains partially fragmented and continues to evolve. The overlay visualization further indicates that more recent collaborations appeared predominantly in the 2024–2025 period, reflecting the rapid expansion of research interest in generative AI, chatbot-assisted learning, and AI-supported language instruction.

Conclusion

This study presents a broad bibliometric examination of artificial intelligence (AI) research in English Language Teaching (ELT), by identifying major trends, thematic progressions, and research

patterns within the discipline. The findings indicate that publications on AI in ELT have grown rapidly, especially since 2023, suggesting that the field is currently experiencing significant development and increasing scholarly attention. The analysis further shows that topics related to chatbot technologies and AI-supported writing have attracted greater citation influence than studies discussing AI in more general terms. In addition, the results reveal that research productivity is concentrated among a limited number of scholars, indicating the importance role of key contributors in shaping the direction of the field. The strong citation performance of technology-focused journals also highlights the close relationship between AI in ELT and developments in educational technology. Taken together, this study offers a systematic and evidence-based overview of AI research in ELT, helping researchers and educators better understand the field's current landscape and its potential future.

This study contributes to the field by organizing a large volume of research into a clear systematic framework that highlights both well-established topics and areas that still require further exploration. Through the analysis of publication patterns and thematic developments, the study strengthens existing literature that views artificial intelligence as an important transformative force in language education. The findings also provides meaningful guidance for researchers, educators, and policy makers by identifying influential topics and emerging research directions that continue to attract academic interest. In addition, the study points to several underexplored areas, including speaking instruction, assessment practices, and ethical issues related to the use of AI in ELT. These findings can serve as a basis for future research by encouraging more targeted and strategic investigations that address both theoretical concerns and practical classroom needs. Consequently, the study not only enrich the academic understanding of AI in ELT but also supports the more effective and responsible integration of AI technologies into language teaching and learning contexts.

For future researchers, several important recommendation can be generated from this study. First, there is a need to examine underexplored areas, especially speaking skills, evaluation methods, and ethical issues in the implication of AI in ELT. Secondly, future studies should take into account using various databases such as Scopus, Web of Science, to ensure wider data coverage and more in-depth analysis. Third, Researchers are advised to support bibliometric analysis with quantitative or mixed-method approaches to gain greater understanding how AI is blended into language learning. Fourth, longitudinal research are needed to have a better understanding on how long term impact of AI technologies works in ELT. Finally, future research should emphasize cross-disciplinary collaboration, combining perspectives from Applied Linguistics, Educational Technology, and Computer Science to promote progress in the field. These directions will help reinforce the significance, relevance, and impact of AI research in ELT moving forward.

References

Alduais, A., Al-Qaderi, I., Alfadda, N., & Alfadda, H. (2022). Pragmatics: Mapping Evidence on Enhancing Children's Use of Linguistic and Non-Linguistic Capacities for Interactive Communication. *Children*, *9*(9), 1318. https://doi.org/10.3390/children9091318

Alhusaiyan, E. A. (2024). A Systematic Review of Current Trends in Artificial Intelligence in Foreign Language Learning. *Saudi Journal of Language Studies*, *5*(1), 1–16. https://doi.org/10.1108/sjls-07-2024-0039

Almegren, A., Almegren, R., Hazaea, A. N., Mahdi, H. S., & Ali, J. K. M. (2025). AI Powered ELT: Instructors' Transformative Roles and Opportunities. *Plos One*, *20*(5), e0324910. https://doi.org/10.1371/journal.pone.0324910

AlTwijri, L., & Alghizzi, T. M. (2024). Investigating the Integration of Artificial Intelligence in English as Foreign Language Classes for Enhancing Learners' Affective Factors: A Systematic Review. *Heliyon*, *10*(10), e31053. https://doi.org/10.1016/j.heliyon.2024.e31053

Amriza, R. N. S., Chou, T., & Ratnasari, W. (2025). Understanding the Shifting Nature of Fake News Research: Consumption, Dissemination, and Detection. *Journal of the Association for Information Science and Technology*, *76*(6), 896–916. https://doi.org/10.1002/asi.24980

Bjelica, B. (2025). *Use of AI Technology Training on Motor Parameters : Systematic review*. *15*(1), 119–

127.

Bjelica, B., Quintero, A. M., Karimi, A., Skrypchenko, I., & Abdullah, N. M. (2024). Emerging Trends in Physical Education and Inclusive Education: A Scientometric Analysis. *Edu Sportivo Indonesian Journal of Physical Education*, *5*(1), 39–53. https://doi.org/10.25299/esijope.2024.vol5(1).16298

Crompton, H., Edmett, A., Ichaporia, N., & Burke, D. (2024). AI and English Language Teaching: Affordances and Challenges. *British Journal of Educational Technology*, *55*(6), 2503–2529. https://doi.org/10.1111/bjet.13460

Guo, L., Wang, D., Gu, F., Li, Y., Wang, Y., & Zhou, R. (2021). Evolution and Trends in Intelligent Tutoring Systems Research: A Multidisciplinary and Scientometric View. *Asia Pacific Education Review*, *22*(3), 441–461. https://doi.org/10.1007/s12564-021-09697-7

Jiang, R. (2022). How Does Artificial Intelligence Empower EFL Teaching and Learning Nowadays? A Review on Artificial Intelligence in the EFL Context. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.1049401

Kartal, G., & Yeşilyurt, Y. E. (2024). A Bibliometric Analysis of Artificial Intelligence in L2 Teaching and Applied Linguistics Between 1995 and 2022. *Recall*, *36*(3), 359–375. https://doi.org/10.1017/s0958344024000077

Katsarou, E., Wild, F., Sougari, A.-M., & Chatzipanagiotou, P. (2023). A Systematic Review of Voice-Based Intelligent Virtual Agents in EFL Education. *International Journal of Emerging Technologies in Learning (Ijet)*, *18*(10), 65–85. https://doi.org/10.3991/ijet.v18i10.37723

Liang, W., Izzo, Z., Zhang, Y., Lepp, H., Cao, H., Zhao, X., Chen, L., Ye, H., Liu, S., Huang, Z., McFarland, D. A., & Zou, J. Y. (2024). Monitoring AI-Modified Content at Scale: A Case Study on the Impact of ChatGPT on AI Conference Peer Reviews. *Proceedings of Machine Learning Research*, *235*, 29575–29620. https://arxiv.org/pdf/2403.07183

Luo, Q., & Chen, F. (2025). Scientific Mapping of GenAI in English as a Foreign Language (EFL) Context. *International Journal of Technology and Human Interaction*, *21*(1), 1–23. https://doi.org/10.4018/ijthi.384377

Luo, Y. (2024). Innovative Research on AI-assisted Teaching Models for College English Listening and Speaking Courses. *Applied and Computational Engineering*, *69*(1), 155–160. https://doi.org/10.54254/2755-2721/69/20241493

Mohsen, M. A., Althebi, S., Alsagour, R., Alsalem, A., Almudawi, A., & Alshahrani, A. (2023). Forty-Two Years of Computer-Assisted Language Learning Research: A Scientometric Study of Hotspot Research and Trending Issues. *Recall*, *36*(2), 230–249. https://doi.org/10.1017/s0958344023000253

Mun, C. (2024). EFL Learners' English Writing Feedback and Their Perception of Using ChatGPT. *Stem Journal*, *25*(2), 26–39. https://doi.org/10.16875/stem.2024.25.2.26

Rawat, K. S., & Sood, S. K. (2021). Knowledge Mapping of Computer Applications in Education Using CiteSpace. *Computer Applications in Engineering Education*, *29*(5), 1324–1339. https://doi.org/10.1002/cae.22388

Shahzad, M. F., Xu, S., An, X., & Asif, M. (2025). Are Generative AI Technologies Transforming Education for the 21st Century? Research Trends, Challenges, and Benefits. *Sage Open*, *15*(3). https://doi.org/10.1177/21582440251368594

Yan, L., & Zhiping, W. (2023). Mapping the Literature on Academic Publishing: A Bibliometric Analysis on WOS. *Sage Open*, *13*(1). https://doi.org/10.1177/21582440231158562

Yang, H., & Kyun, S. (2022). The Current Research Trend of Artificial Intelligence in Language Learning: A Systematic Empirical Literature Review From an Activity Theory Perspective. *Australasian Journal of Educational Technology*, 180–210. https://doi.org/10.14742/ajet.7492

Yang, N., Gao, N., & Zhang, T. (2025). Artificial Intelligence in EFL Writing Enhancement. *International Journal of Web-Based Learning and Teaching Technologies*, *20*(1), 1–40. https://doi.org/10.4018/ijwltt.390442

Yazdi, A., Karimi, A., & Mystakidis, S. (2024). Gamification in Online Education: A Visual Bibliometric Network Analysis. *Information*, *15*(2), 81. https://doi.org/10.3390/info15020081

Zhang, S., & Liu, X. (2025). Learner Emotions in AI-assisted English as a Second/Foreign Language Learning: A Systematic Review of Empirical Studies. *Frontiers in Psychology*, *16*. https://doi.org/10.3389/fpsyg.2025.1652806