Learning with Generative AI (GenAI): A Bibliometric and Synthesis of Equity Issue in English as a Foreign Language (EFL) Learning

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Article Info	Abstract

Effective implementation of Generative AI (GenAI) in education requires deeper insights into its implications for equity. This bibliometric and synthesis study investigates studies on GenAI in English as a Foreign Language (EFL) learning through quantitative bibliometric analysis, topic modelling, and mixed method genre analysis. The study maps the publication panorama, identifies research hotspots, and examines how equity issues are addressed in extant studies. Results find a rapidly increasing publication trend since 2022, with key journals, authors, and highly cited works highlighted. Seven dominant research topics are identified through topic modelling and Equity and Access ranks the fifth, suggesting a lack of sufficient attention on the issue. A further analysis of 20 closely equity-related studies revealed that equity-expressions indicating challenges to equity appear more in Literature review and Findings, whereas contributions mostly appear in Introductions. Only one study focuses on equity issue in Methodology section, suggesting that equity is not a central research concern in the literature analyzed. Overall, GenAI in EFL is framed as both opportunities and challenges to equity, but they are only mentioned rather than enquired. The study calls for more explicit attention to equity to ensure a more inclusive integration of GenAI into EFL learning and teaching.

Introduction

Since the emergence of ChatGPT, various Generative Artificial Intelligence (GenAI) tools have transformed education not only in the modes of learning and teaching (Kundu & Bej, 2025) but also In access to excellent resources. As a scarce capital (Li, 2020), English learning materials can be exclusive to those unprivileged, personalized learning resources and instant feedback by GenAI, however, can provide lower-class students with tailored resources and guidance, thus enhancing educational equity by improving their English as a Foreign Language (EFL) learning motivation, confidence, and engagement.

Research and publications also boosted with an intention to investigate the integration of GenAI tools into EFL teaching and learning, based on which reviews of the studies are conducted to deepen our understanding of the research landscape and emerging research trends and topics. Previous systematic reviews on AI in EFL learning probed into the benefits and challenges brought by GenAI both for teachers and learners in fields like English writing and English language as a whole (Asad et al., 2024; Kundu & Bej, 2025; Lee et al., 2025; Li et al., 2025; Wang et al., 2025; Wang et al., 2023; Weng & Fu, 2025).

However, these reviews mainly focused on the technical and pedagogical implications brought by GenAI, and issues concerning educational equity were barely explored. Only one review (Weng & Fu, 2025) touched on equity issues and interpreted that enhanced educational equity is one of the benefits brought by GenAI because it can provide instant feedback and generate personalized and engaging learning materials, which are supposed to enhance learners' engagement and confidence. Lack of consideration of the disparities among learners from different socio-cultural backgrounds may further widen the educational gap, which calls for more attention in research and practice of GenAI in EFL learning.

A timely bibliometric analysis of the literature on GenAI in EFL learning can provide an overview of the research panorama, especially to identify the most dominant topics and overall landscape of the field. And information from topic modelling can provide researchers and other stakeholders with information about how the equity issue is positioned in the dominant topics. Critical genre analysis of equity expressions in the articles will reveal how equity issues are expressed. These results will provide basis for future studies and countermeasures to enhance educational equity.

The following research questions will be asked in the present study to deal with the existing problems:

1. What are the characteristics of the research publication landscape on integration of GenAI in EFL learning?
2. What are the dominant research topics in GenAI in EFL learning, and how are equity-related issues represented and positioned among them?
3. How do studies describe or engage with equity issues in GenAI in EFL learning?

By addressing these questions, the present study intends to provide researchers and practitioners an overview of the research foci concerning the integration of GenAI in EFL learning, with special attention paid to educational equity issues in the digital era. The combination of bibliometric, topic modelling and genre analysis will not only

provide researchers and practitioners with the current research situation, but also the research trends and focus topics. In addition, genre analysis of the equity expressions in the articles will provide how the issue is treated in the research field, which is supposed to attract more attention to educational equity in the digital era, thus, improving the learning situation of the disadvantaged.

Purpose of the Study

With the goal of better understanding GenAI in English learning and the role it plays in narrowing or deepening the existing disparity in EFL learning between different classes, the present study describes 1) the publication panorama of GenAI in EFL learning, 2) the dominant topics of GenAI in EFL learning, with particular attention to equity issues, and 3) how equity issued are discussed in extant studies.

In addition to traditional bibliometric analysis of the publications, the present study also employs topic modelling (Latent Dirichlet Allocation) to reveal the dominant topics in the field. In addition, the present review also uses genre analysis to analyze how the equity issues are expressed in different parts of the strategically selected subset of the articles addressing digital equity. The results are supposed to provide a comprehensive panorama of GenAI in EFL learning, and how equity is studied in the field.

Problem Statement

GenAI is the evolution of Artificial Intelligence (AI), which has long been studied in the field of education and refers to "machine learning solutions trained on massive amounts of data in order to produce output based on user prompts" (Sætra, 2023, p. 1). Despite that it can offer tailored and adaptive instructions to meet different needs (Huang et al., 2023), language check and instant feedback (Bateson, 2021), interactive learning models that can enhance learner engagement (Zawacki-Richter et al., 2019), disparity and divide between the dominant and the marginalized and underserved still remain unfixed (Bender et al., 2021) in spite of the SDG (sustainable development goal) by various organizations (Nordrum, 2023) because of data bias and individual prior background, just as stated by Ragnedda (2017) and van Dijk (2020) in the three levels of digital divide.

The development and popularization of GenAI has brought great opportunities for all people thanks to its flexibility and tailored learning materials (Saleem et al., 2024). However, studies show reinforcement of the existing disparity may also arise because of biases in algorithms, AI-driven systems, and AI-powered sentiment analysis (Lachheb et al., 2025). These deficiencies of GenAI tools may keep some social groups from benefiting from the frontiers of technology. What's more, issues like inclusivity of users, governance, and security are less touched (Lachheb et al., 2025) in studies of AI integration in higher education.

A great number lot of studies have been conducted on the integration of GenAI into EFL learning after the issuance of ChatGPT, and therefore it is necessary to have a bibliometric description of the research trend and dominant topics in the field. Given that GenAI is vital in ensuring inclusive and fair opportunities in EFL learning (Chun et al., 2016; Song, 2018), thus digital (in)equity in the study of GenAI in EFL deserves more attention from scholars,

practitioners and other stakeholders.

To address the problem, the present study plans to reveal the publication landscape, the dominant topics and how equity is expressed I the studies, so as to provide empirical evidence as to where we are and where should we go when faced with equity challenges in integration of GenAI into EFL learning.

Method

As "a set of quantitative methods used to measure, track, and analyze print-based scholarly literature", the four-level information (the works, venues, authors and institutions) of bibliometric analysis (Roemer, 2015) answers the first research question: the publishing landscape of GenAI in EFL learning. For this study, a corpus of research publications on GenAI in EFL learning concerning equity is collected from the Scopus database by searching the keywords "GenAI", "English learning", and "equity" and their synonyms in the Title, Abstract and Keywords fields and applying inclusion and exclusion criteria (see Table 1). Then classic bibliometric analysis is conducted using biblioMagika@ (Ahmi, 2024).

Table 1. Literature Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Peer-reviewed articles	Not peer-reviewed
Written in English	In other languages rather than English
In the format of article, conference paper, or review paper	In other formats like book chapters, conference review, book, note, survey, editorial or retracted studies
Keywords "GenAI", "English learning" and "Equity" (or synonyms of them) must be included in the title and/or abstract and/or keywords	Not including any of the keywords or their synonyms in the title or abstract or keywords

To answer the second research question, this study employs Latent Dirichlet Allocation (LDA) topic modelling analysis instead of keyword co-occurrence to investigate the dominant topics. LDA is a common topic modelling method, and it is based on the idea that documents consist of a mixture of underlying topics, and these topics are represented as recurring patterns of words. The distribution of topics within documents, as well as the distribution of words within topics, are both assumed to follow general probabilistic rules shaped by a common prior (Blei et al., 2003).

To investigate how equity issues are expressed in the literature, 20 articles mostly related to equity issues are selected for genre analysis. Two-cycle coding approach (Saldana, 2021) is conducted based on the topic categories from topic modelling, from which a code book is built to unify the definition of topics across articles selected and among the researchers. The expressions in the articles are firstly coded following adapted code book by Boling et al. (2023) where both explicit or implicit mention of digital equity or access will be marked for detailed analysis. The genre analysis of the distribution of these expressions is discussed to answer the third research questions.

Results

Bibliometric Analysis and Publication Landscape

Firstly, 339 items are extracted by searching Scopus using string of combination of synonyms of the three keywords: GenAI, English learning, and equity. After removing book chapters (47), conference review (19), book (9), note (2), short survey (1), editorial (1), and retracted study (1), 259 studies are left, of which 254 English studies are included in the database for the present study. Then the data is analyzed using biblioMagika@, and for data processes like cleansing, refinement, missing data identification and analysis, please refer to Ahmi (2024).

The yearly distribution of the publications is shown in Figure 1. There emerged a steady increase of research on GenAI in EFL learning related to educational equity since 2022. This novel topic begins in 1982, and from 2018 it gained momentum and surged in 2023 perhaps due to the issuance of ChatGPT at the end of 2022. The 1348 citations in 2023 fully demonstrate the vitality of research of GenAI in EFL learning. However, citations declined to 558 in 2024 and 93 in 2025, partly because of the recency of newer publications, partly because the data is extracted in July 2025, excluding potential figure from later publications. However, the publication on the topic is still on a steady rise in 2024, 2025, and perhaps the years to come.
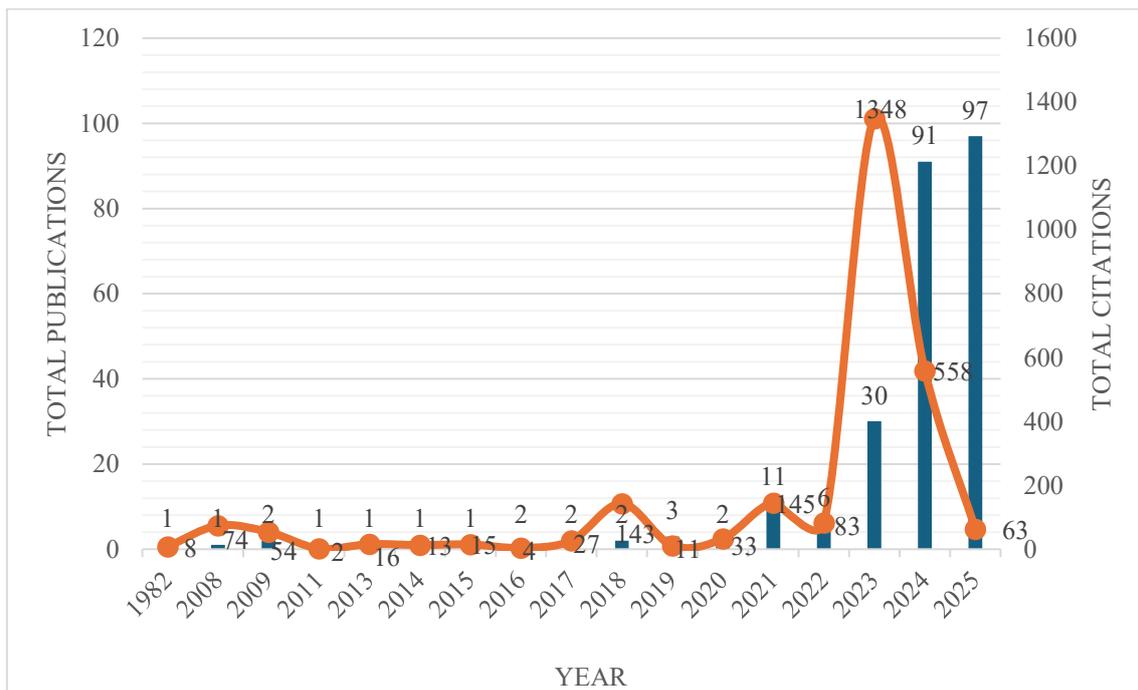

Figure 1. Total Publications and Total Citations by Year

The most productive authors in the field of GenAI in English learning are presented in the most prolific 20 source titles in the field are shown in Figure 2. Among them, Lecture Notes in Computer Science stands out as the most prolific, contributing 8 publications, followed by Cogent Education with 6 publications, and Education and Information Technologies and System, each contributing 5 publications. Several journals have published four works on the topic, including the International Journal of TESOL Studies, Forum for Linguistic Studies, and Computers and Education: Artificial Intelligence. Other sources such as Frontiers in Education, Edelweiss

Applied Science and Technology, Procedia Computer Science, Studies in English Language and Education, and CEUR Workshop Proceedings have each contributed 3 publications. The remaining sources each published 2 articles relevant to the field.

Table 2 is evaluated through key bibliometric indicators. The most prolific contributors include Gu Michelle Mingyue from The Education University of Hong Kong, Marcel Pikhart from the University of Hradec Kralove, Czech Republic, Nazim, Mohd and Alzubi, Ali Abbas Falah from Najran University, Saudi Arabia, and Lai, Chun from The University of Hong Kong, each with 3 publications. The next 5 authors each contributed 2 publications in the field. It should be noted that Yan Da also from Xinyang Agriculture and Forestry University of China contributed 2 publications, but he stands out with the highest total citations (TC = 379) and the highest average citations per publication (C/P = 189.5), suggesting a strong impact in the field.

This analysis underscores the growing body of scholarship on GenAI in English learning and highlights the researchers who are actively shaping the field. These bibliometric insights contribute to identifying influential figures and tracking emerging leadership within this rapidly evolving domain.

Table 2. Top 10 Most Productive Authors

Full Name	Current Affiliation	TP	NCP	TC	C/P	C/CP	h	g	m
Gu, Michelle Mingyue	The Education University of Hong Kong	3	2	22	7.3	11	2	3	1
Pikhart, Marcel	University of Hradec Kralove	3	3	29	9.7	9.7	2	3	0
Nazim, Mohd	Najran University	3	1	4	1.3	4	1	2	1
Lai, Chun	The University of Hong Kong	3	1	13	4.3	13	1	3	1
Alzubi, Ali Abbas Falah	Najran University	3	1	4	1.3	4	1	2	1
Pegrum, Mark	The University of Western Australia	2	0	0	0	0	0	0	0
Rajakumari, R.	Saveetha University	2	1	2	1	2	1	1	1
Yan, Da	Xinyang Agriculture and Forestry University	2	2	379	190	189.5	2	2	1
Sukmono, Indriyo K.	Yale University	2	1	2	1	2	1	1	1
Khan, Soada Idris	Najran University	2	1	4	2	4	1	2	1

Note: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; g=g-index, m=m-index.

The distribution reflects a multidisciplinary interest across domains such as computer science, educational technology, applied linguistics, and English language teaching, indicating the interdisciplinary nature of research

on generative AI in English learning. Notably, several technology-oriented outlets (e.g., Lecture Notes in Computer Science, Computers and Education: Artificial Intelligence) appear alongside language and education journals, highlighting the convergence of fields in this emerging area of study.
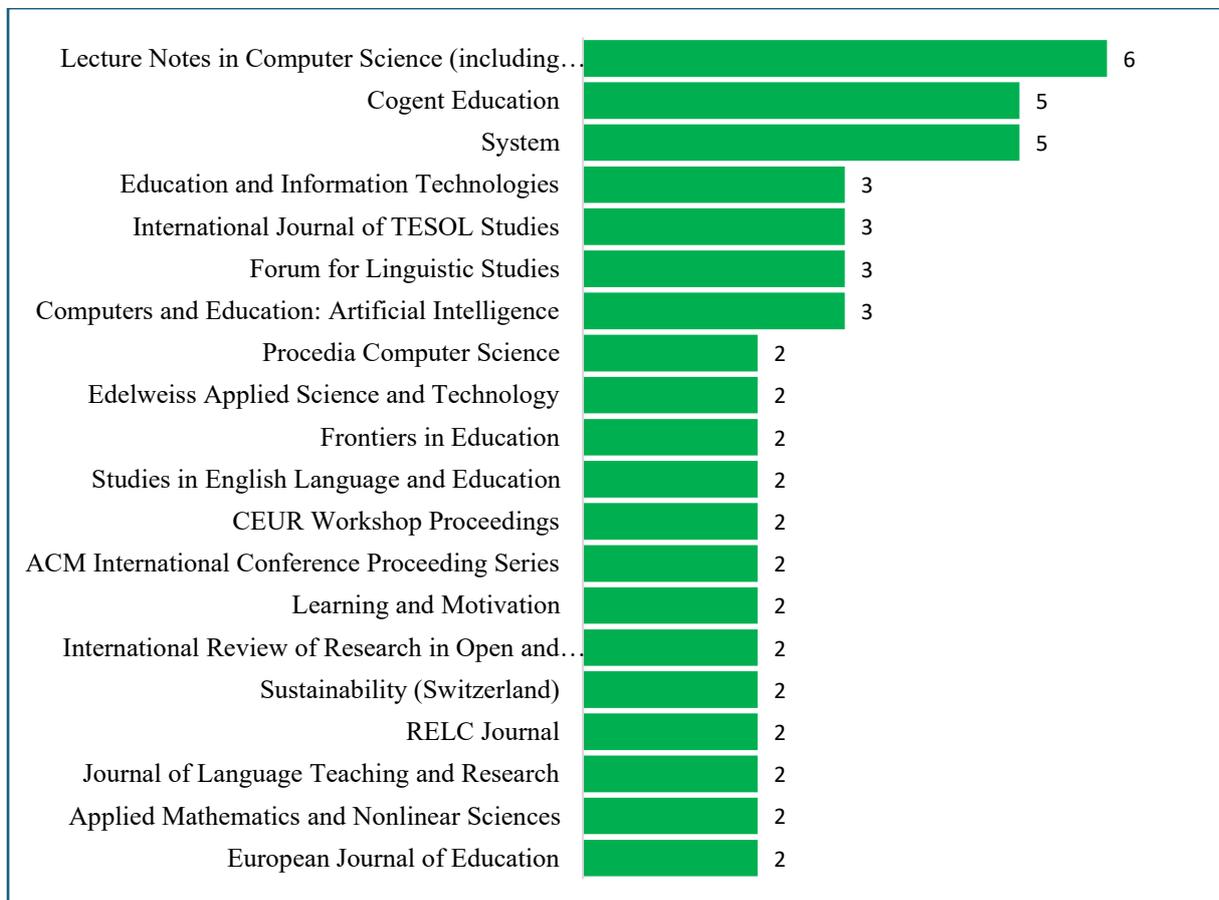

Figure 2. The Most Prolific 20 Source Titles in the Field

The most highly cited 10 works are listed in Table 3. The article by Perkins (2023) (430 citations) foregrounds academic integrity concerns with large language models, while Yan (2023) (375 citations) provides empirical insights into ChatGPT's role in second language writing. Widiati et al. (2023) (229 citations) examine teachers' perspectives on AI writing tools, and Hockly (2023) (92 citations) conceptualizes the benefits and risks of AI in English language teaching. Additionally, Kannan and Munday (2018) (90 citations) explore broader ICT and AI trends in second language learning. Collectively, these works demonstrate how the most influential studies in the field address ethical integrity, pedagogy, and the evolving role of AI in language education.

Table 3. The Top 10 Most Highly Cited Works

No.	Author(s)	Title	Source Title	TC	C/Y
1	Perkins M. (2023)	Academic Integrity considerations of AI Large Language Models in the post-pandemic era: ChatGPT and beyond	Journal of University Teaching and Learning Practice	430	143.33
2	Yan D. (2023)	Impact of ChatGPT on learners in a L2 writing practicum: An exploratory	Education and Information	375	125

No.	Author(s)	Title	Source Title	TC	C/Y
		investigation	Technologies		
3	Marzuki, Widiati U.; Rusdin D.; Darwin; Indrawati I. (2023)	The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective	Cogent Education	229	76.33
4	Hockly N. (2023)	Artificial Intelligence in English Language Teaching: The Good, the Bad and the Ugly	RELC Journal	92	30.67
5	Kannan J.; Munday P. (2018)	New trends in second language learning and teaching through the lens of ICT, networked learning, and artificial intelligence	Circulo de Linguistica Aplicada a la Comunicacion	90	11.25
6	Wu H.; Wang Y.; Wang Y. (2024)	"To Use or Not to Use?" A Mixed-Methods Study on the Determinants of EFL College Learners' Behavioral Intention to Use AI in the Distributed Learning Context	International Review of Research in Open and Distributed Learning	74	37
7	Kim S.; Yoon J.; Yang J. (2008)	Kernel approaches for genic interaction extraction	Bioinformatics	74	4.11
8	Wang X.; Wang S. (2024)	Exploring Chinese EFL learners' engagement with large language models: A self-determination theory perspective	Learning and Motivation	72	36
9	Alexander K.; Savvidou C.; Alexander C. (2023)	Who wrote this essay? Detecting ai-generated writing in second language education in higher education	Teaching English with Technology	61	20.33
10	Casañpitarch R. (2018)	An approach to digital game-based learning: Video-games principles and applications in foreign language learning	Journal of Language Teaching and Research	56	7

The bibliometric analysis provides a comprehensive landscape of the publication in the field, and a comprehensive description of the research situation is presented. However, traditional bibliometric analysis like keywords co-occurrence is relatively weak in detecting latent topics compared with topic modelling methods like LDA and others. And therefore, the present study adopts LDA in identifying the latent semantic analysis of the research topics.

Topic Modelling and the Dominant Topics in the Field

Topic modelling is a way to analyze text in order to identify clusters of co-occurring words or latent topics that may represent certain categories of interest. It can either match words to a prescriptive topics or extracting data to form a number of topics from a corpus using optimization (Jackson et al., 2021). A common way to do topic modelling is LDA. LDA acknowledges that that topics are governed by distribution of words in a random mixture over latent topics, and the purpose of LDA is to identify these topics within and across each document based on semantic probability distribution (Jelodar et al., 2019).

To uncover the underlying thematic structure of the dataset, topic modelling via LDA is employed and the topic model package in *R* is adopted for analysis. Prior to modelling, abstracts were pre-processed through tokenization, stop-word removal, and term frequency-inverse document frequency (TF-IDF) filtering were adopted to enhance semantic focus. To determine the optimal number of latent topics, the *ldatuning* package was applied, which evaluates candidate models using four established metrics: *Arun2010*, *CaoJuan2009*, *Griffiths2004*, and *Deveaud2014*. Based on the coherence results and the elbow point observed across the metrics, the model with seven topics (k = 7) was selected for further analysis. The evaluating result is shown in Figure 3.
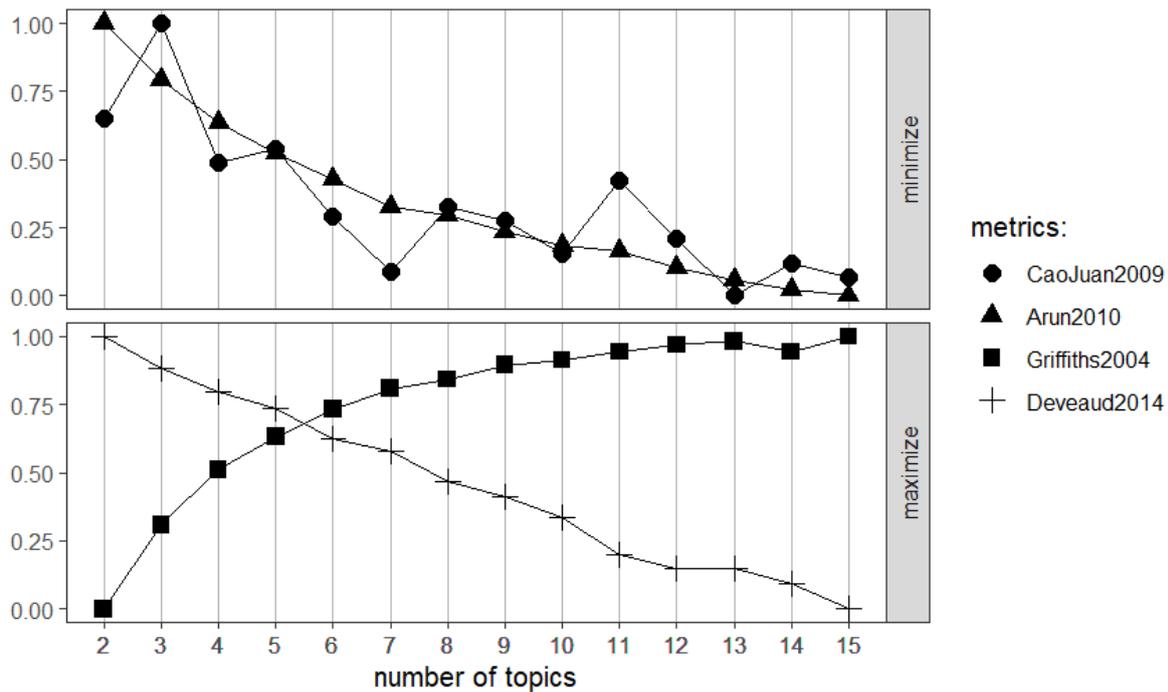

Figure 3. Topic Number Determination

The LDA model was then trained using Gibbs sampling, and each document was assigned a γ (gamma) value for each topic, indicating the probability distribution of topics across documents. The top terms for each topic were extracted and interpreted based on semantic coherence, after which each topic was provisionally labelled with descriptive titles to aid the interpretation. This process allowed for a clearer understanding of thematic groupings within the corpus, such as AI-assisted learning practices, ethical concerns, language pedagogy, and technological adoption. The seven topics identified are shown in Table 4.

It can be seen from Table 4 that the auto-titled topic names precisely expressed the research trends expressed by the top ten keywords identified. The most prominent topic is the integration of *AI in Language Pedagogy*, which focuses on the method, approach and skills in the learning practice. The second topic is *ChatGPT and Writing Assistance*, with support from ChatGPT as the support for students in their writing feedback and evaluation as the focus. Topic three, *Assessment and Academic Integrity*, addresses ethics and integrity in AI using and detection and supervision of the use. The fourth topic emphasizes *Acceptance and Use of AI*, with attention paid to students' perception and attitudes toward the technology and their intentions to use it by survey studies.

Table 4. Topic Identified and Related Keywords

Topic	Keywords
Topic 1: AI in Language Pedagogy	language, learning, English, teaching, students, skills, approach, practice, method, education
Topic 2: ChatGPT and Writing Assistance	ChatGPT, writing, generation, feedback, task, tool, student, performance, support, evaluation
Topic 3: Assessment and Academic Integrity	assessment, plagiarism, integrity, ethics, policy, detection, submission, exam, score, supervision
Topic 4: Technology Acceptance and Use	technology, acceptance, attitudes, perceptions, behavior, survey, use, model, intentions, students
Topic 5: Equity and Access to AI Tools	access, equity, disparity, gap, tools, infrastructure, support, policy, inequality, barriers
Topic 6: Professional Development and Teacher Readiness	teachers, training, development, readiness, integration, curriculum, knowledge, experience, skills, adoption
Topic 7: Engagement and Motivation	engagement, motivation, interaction, learners, interest, participation, environment, design, experience, gamification

Equity and Access to AI Tools, the main obligation of the present study, concentrates on the inequity and gap or equity and support of policy and infrastructure in accessing AI tools from different populations because of various barriers. Topic six centers on teachers and examines *Professional Development and Teacher Readiness* for the integration of AI in their work. Topic seven aims to deal with learners' *Engagement and Motivation* by gamification learning activities or through other designs to arouse learners' interest in their language learning. Overall, the distribution of the topics suggests a balanced but slightly skewed focus toward GenAI application in language learning and assessment (especially in writing), with ethical, teachers' perception and adoption, and equity-related discussions forming a strong secondary layer of scholarly inquiry.

GenAI in EFL Learning in relation to Equity

The topic modelling analysis provides a comprehensive picture of the research landscape in studies on equity issues in the integration of GenAI in EFL learning. However, it tells us little about how closely these studies are related to equity issues and how the topic is conceptualized in the studies. To get a deeper understanding of equity issues in the application of GenAI in EFL learning, the present study further analyzed the studies closely. A focused textual screening is adopted to identify topic-related articles. A set of expanded "equity" related keywords was developed through synonym expansion and semantic consideration. Using regular expression matching with case-sensitive parameters, 94 documents containing these keywords in their abstracts are identified. Each of these abstracts was then scored based on the frequency of matched terms, providing an index of relevance to equity-oriented issues.

The results were sorted in descending order of equity-relevance score to highlight the most equity-focused publications. The relevance score is computed by counting the frequency of equity/inequality-related keywords

appearing in each article's abstract, thereby estimating the degree of thematic relevance. This represents a frequency-based approach to quantifying topic relevance.

Among the 27 documents which have a relevance score of 1 and above (see Appendix A), 4 review articles are excluded, 1 article is not accessed, 1 is identified as not about educational equity issue and 1 not related to GenAI. And therefore, 20 studies are included for critical qualitative analysis. They are coded based on a code book (see Appendix B). Both explicit or implicit expressions on digital equity or access are identified.

Expression of Equity Issue of GenAI in English Learning

The result of the deductive coding of the articles selected is shown in Table 5. Altogether 65 positive expressions are identified in the literature stating that application of GenAI in EFL learning can improve social or educational equity, but 83 negative statements are identified claiming that integration of GenAI may widen the social gap or reinforce educational inequity. The more negative expressions identified means that researchers are more concerned with the potential menaces than the opportunities to educational equity issues brought by GenAI in EFL learning.

Table 5. Equity Expressions Categories in Literature

Name	Source	References	Total	
Explicit positive	14	36	46	65
Implicit positive	9	10	19	
Explicit negative	14	36	50	83
Implicit negative	12	21	33	

For instance, in the study by Hınız (2024) explicitly stated that the application of GenAI can help students with dyslexia or other challenges improve the clarity of their English. He also mentioned the benefits of GenAI to those students who suffer from hearing impairment or limited resources.

> *Example:* Similarly, the participant students reported several advantages of using chatbots to support inclusive education. Student 1 suggested that they could benefit learners with dyslexia by generating or converting texts that address their specific needs. For instance, generative AI tools can assist students with dyslexia or other learning challenges in organizing lengthy writing assignments or essays. Furthermore, these tools can provide immediate spelling and grammar corrections, helping students with dyslexia to address common writing errors and improve the clarity of their work (Hınız, 2024, p. 21).

Some of the positive contributions of GenAI in EFL learning to equity is implicitly expressed by stating the "personalized" learning materials and "inclusive" learning environment provided by GenAI learning platforms as ways to educational equity. From instance, Liu (2024) analyzed the potential contribution brought by GenAI and big data through data analysis-based teaching strategies built by teachers.

> *Example:* By harnessing these technological advancements, educators can gain valuable insights into students' learning behaviors and adapt their teaching strategies accordingly. By integrating the practice

education concept and interdisciplinary teaching, a more personalized and inclusive learning environment can be established, ultimately leading to enhanced language proficiency and improved English language skills among students (Liu, 2024, p. 229).

However, as shown in Table 5, more expressions carrying negative influence of GenAI in EFL learning on educational equity are identified, which reveals researchers' severe concern about the potential disparity or inequity caused or reinforced by the introduction of GenAI in EFL learning. Some of the concerns are expressed explicitly with specific details. For instance, lack of payment may prevent students with a lower socio-economic background from enjoying extra functions of the tools for premium users (Bender, 2024).

> *Example:* It is also crucial to acknowledge and address the equity and access issues that may arise given that some platforms require payment for premium services which limits access for students (and schools) from disadvantaged socioeconomic backgrounds (Bender, 2024, p. 166).

At other times, the threats are expressed implicitly without directly mentioning that adoption of GenAI in EFL learning would widen or narrow the disparity between different social groups. Instead, possible disadvantages presented imply that there are potential negative influence of GenAI on educational equity though it is discussed as ethnical consideration in some article (Elmahdi et al., 2025).

> *Example:* Limited female representation in senior roles (46+) may result in AI tools inadequately addressing gender-specific learning needs, such as culturally appropriate conversational AI for female students. Though younger female educators hold advanced credentials, cultural barriers could delay their advancement to decision-making roles, influencing AI implementation (Elmahdi et al., 2025, p. 14).

The presentation of explicit/implicit equity-expressions reveals a preliminary understanding of how equity issues are dealt with in existing literature. However, an exclusive focus on whether they are explicitly or implicitly expressed yields limited understanding of the weight they carry in terms of their distribution within the article and the rhetorical purposes they fulfil. To get a more detailed understanding of how researchers look at equity issues in their studies, a genre analysis of the expressions may provide further details to the rhetorical purposes of these expressions.

Distribution of Expressions of Equity Issue of GenAI in English Learning

The above statistics and illustrations provide an overall gist of the expressions concerning equity issues, but how these expressions are employed to realize the research objectives remains unknown. To get a deeper understanding of how the equity issues are handled by researchers, the distribution of these expressions in the articles is identified based on IMRD (Introduction-Method-Results-Discussion) framework of genre analysis by Swales (1990) and other studies following and enriching the pattern like those by Basturkmen (2009); Yang and Allison (2003).

Considering different article structures in the selected studies, the present study categorizes different parts into the classic five: *Introduction*, *Literature Review*, *Research Design*, *Findings* and *Discussions* based on the IMRD pattern (Swales, 1990). *Literature* part is added because there is a large proportion of the articles reviewed include

this in their articles, and for conceptual or speculative articles, the main part of the article will be categorized into literature review since the points are evidenced by results in previous studies. Research *findings* and *Discussions* are discussed respectively because *Findings* serves to present the objective results of the study, while *Discussions* tends to include a comparison of the results with previous studies and may involve implications or suggestions for future studies (Berkenkotter & Huckin, 1995, p. 41). Table 6 presents the distribution of the equity-expressions in various parts of the studies.

Equity issues are mentioned 18 times in the *Introduction*, with most of them (72%) are positively expressed. This means that most of the studies admit that there exist positive influences on equity brought by integration of GenAI in EFL learning. However, there are concerns about the potential negative influence (28%) since the *Introduction* part is mainly about to establish and occupy the niche (Swales, 1990, p. 141).

Table 6. Distribution of Equity-Expression in Articles

	Explicit positive	Implicit positive	Explicit negative	Implicit negative	Total
Introduction	11	2	2	3	18
Literature review	9	2	14	8	33
Methodology	0	1	0	2	3
Findings	3	1	12	4	20
Discussion	9	2	7	4	22

The *Literature review* part, some integrated into *Introduction*, some standing on their own, expressed more threats (67%) of GenAI on equity, and most of them are explicitly expressed (64%). This part usually serves as "an evaluative judgement" made within the field (Bruce, 2014) of equity issue of GenAI in EFL learning. Based on the distribution of equity-expressions in *Introduction* and *Literature Review*, it can be inferred that previous studies admit the possible benefits to equity brought by GenAI in EFL learning, but they are more concerned with the potential threats it may pose.

The statistics for *Methodology* are the most conspicuous one in the table, where equity-issue is only mentioned three times in the literature, and further enquiry in NVivo will find that only 2 studies included the issue in the section. The first included bias mitigation in the iterative creation of a predictive model to identify students' learning difficulties (Ravichandran et al., 2023), This is to justify the procedures of the study (Lim, 2006) that equity-issue was handled to provide validity for the model to be built, not for equity-issue resolution.

The second study by Hınız (2024) is the one really concerns equity issue. The author noticed the disparities between AI-novice and AI-experienced instructors and students, and therefore both groups are included in the study. The study also discussed in the *Findings* the ability to promote "inclusiveness and equity in language education through AI" by quoting participants that integration of GenAI can "support learners with disabilities and those in disadvantaged circumstances" as well as providing personalized learning support (pp. 21-23).

The inference that studies are more concerned with threats than benefits made from data in *Introduction* and

Literature Review can be supported by the distribution of the expressions in *Findings*, where 16 out of 20 (80%) are negatively expressed in the literature, and most of them (75%) are explicitly stated. This means that most of the studies found threats or revealed a trend (Yang & Allison, 2003) that equity can be reinforced by GenAI in EFL learning.

The *Discussion* is usually more evaluative and subjective, with interpretations based on the results in *Findings* (Swales, 1990, pp. 172-173), and therefore are richer than *Findings* in content. The similar number of the codes between positive and negative expressions suggests that researchers are both concerned with the threats and blessings to equity issues of GenAI in EFL learning. They admit the possible threats to equity by GenAI in EFL learning on the one side, but they also believe in the possible improvements that can or will be made by GenAI to equity in EFL learning on the other.

Conclusion and Limitations

This bibliometric and synthesis study aims to provide a comprehensive picture on the topic of equity issues in integration of GenAI in EFL learning. The traditional bibliometric analysis finds that the topic surged in the year 2023, which corresponds to the issuance of ChatGPT by OpenAI. The top 20 most prolific journals are identified, and top 10 authors are also presented. Scholars from Kingdom of Saudi Arabia, Hong Kong Special Administrative Region of China and Czech Republic accounts for the top five experts in the areas. However, the most influential work comes from Perkins (2023), who focused on academic integrity in using GenAI in educational practices, followed by Yan (2023), with a focus on the impact of ChatGPT on L2 writing practice. Another highly cited study by Widiati et al. (2023) addressed EFL teacher's perception of AI tools. Other studies talked about different dimensions of GenAI in EFL learning.

The most dominant topics in the literature identified through topic modelling include AI in Language Pedagogy, ChatGPT and Writing Assistance, Assessment and Academic Integrity, Technology Acceptance and Use, Equity and Access to AI Tools, Professional Development and Teacher Readiness, and Engagement and Motivation. Equity issues ranked five among the dominant topics, showing that scholars have explored the issue, but more studies are necessary to contribute to and improve GenAI in EFL learning.

A further genre analysis of 20 equity-related studies most closely concerned with equity issues revealed that most studies admit the opportunities to improve inclusivity of GenAI in EFL learning, but they are more concerned with the potential threats these tools may pose. And equity issues are not the main objective of most studies reviewed. This calls for more targeted studies of equity issues concerning the employment of GenAI in EFL learning, so as to provide more opportunities to those in disadvantage, thus improving educational equity.

By presenting the panorama of the publications, the study depicts a clear landscape for future research of the research status, trends, pivotal scholars, journals and significant studies in the field. The topic modelling through LAD, this study unveils the dominant topics having been studied in the field, which can easily provide a detailed skeleton for novice scholars in the field. Most importantly, the study explores how equity issues are expressed in

the articles selected by examining their rhetorical purposes according to their distribution in the articles with genre analysis. The results pointed out that few studies have included equity issues as one of their research objectives, which calls for more attention in the field so as to contribute to and enhance educational equity.

However, limitations are inevitable firstly because review analysis always comes late as every field of research is progressing. New studies keep emerging after data for the analysis is collected, and therefore review analysis always lags behind the research frontier. Secondly, the data for present study only includes those in Scopus, which is not inclusive enough to present a comprehensive landscape of the field despite its detailed analysis of the data collected.

Furthermore, topic modelling and equity-relevance score calculation is completely based on automatic methods and may not be completely reliable. Finally, the genre analysis of the equity expression only focuses on equity expressions in the articles, which is not elaborate enough to reveal the how the expression moves in the part. Based on the findings, future studies are called for to reveal the potential contributions and threats brought by GenAI in EFL learning, especially for those who are in disadvantaged positions because of various reasons like physical disabilities, socioeconomic constraints, which will bring a more inclusive and promising future for all.

Statements and Declarations

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Appendix A. Relevance Score of the Selected Works

Case	Equity-related	Relevance score	Note
Ariel & Hayak (2024)	TRUE	3	
Lachheb et al. (2024)	TRUE	2	Bibliometric
Liu (2023)	TRUE	2	
Alhajji et al. (2023)	TRUE	2	
Liu & Zhao (2025)	TRUE	1	
Hınız, G (2025)	TRUE	1	
Elmahdi et al. (2023)	TRUE	1	
Wen et al. (2022)	TRUE	1	
Bender (2025)	TRUE	1	
Assali (2023)	TRUE	1	
Dhivvya & Karnati (2025)	TRUE	1	
A. J. J and R. Rajakumari (2025)	TRUE	1	
Guan et al. (2025)	TRUE	1	
Elmahdi et al. (2025)	TRUE	1	
Edmett (2025)	TRUE	1	
Dezfooli (2025)	TRUE	1	SLR
Cheon et al. (2025)	TRUE	1	
Chanpradit (2025)	TRUE	1	SLR
Szabó F & Szoke (2025)	TRUE	1	
Yan (2025)	TRUE	1	
Abosi et al. (2025)	TRUE	1	
Muñoz-Basols et al. (2025)	TRUE	1	
Ravichandran et al. (2025)	TRUE	1	
Yaqin et al. (2025)	TRUE	1	Bibliometric
Kumar (2025)	TRUE	1	Not accessed
Akinsemolu & Onyeaka (2019)	TRUE	1	
Elsborg & Salvatore (2025)	TRUE	1	Not educational equity

Appendix B. Coding Book (A Snippet)

Codes/Questions	Operational Definitions	Examples
Is there a statement that explicitly or implicitly talked about the use of AI in relation to digital equity AND/OR access (YES/NO and where?)	Explicit expression refers to those in which there are words like (in)equity, (dis)parity, (un)accessed or synonyms of these words; and implicit expression refers to those there is no obvious appearance of these words, but the meaning of (in)equity, (dis)parity, (un)accessed are expressed thought other words or structures.	*Explicit positive* (Elmahdi, Balla, et al., 2025): These technologies help democratize access to high-quality language education, particularly in resource limited regions where teacher shortages persist. For developers, this study highlights the importance of inclusive design, emphasizing the need for NLP models trained on linguistically diverse datasets to promote equitable global access.
Does the statement carry a positive or negative meaning of equity AND/OR access?	Positive expression refers to those carrying the meaning that the gap can be narrowed; and negative statement refers to those meaning that the disparity will be reinforced.	*Implicit negative* (Guan et al., 2024): However, studies have also found that only some students can benefit from using GenAI technology in learning (e.g. Niloy, Akter, Sultana, Sultana & Rahman, 2024; Ou, Stöhr & Malmström, 2024). From the language and technology perspectives, moderators such as students' English proficiency (Liu & Chen, 2023) and digital literacy (Goldenthal, Park, Liu, Mieczkowski & Hancock, 2021) significantly influence the experimental results.