23 - Generative Artificial Intelligence in English as a Foreign Language Education: A Scoping Review of Tools, Trends, and Pedagogical Effectiveness

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Abstract
Over the past few years, generative artificial intelligence or GenAI has fascinated worldwide publications, showing that the more artificial intelligence (AI) is ubiquitous, the more it becomes a debatable topic for massive publications, considering its benefits to human beings, particularly in enhancing English as foreign language (EFL) teaching and learning experiences. Following this rationale, this study presents, intending to mapping the current research trend or state in the application of GenAI in EFL education. Specifically, this study contributes to delving into GenAI applications in EFL education, specifically mapping the tools together with their effectiveness. Following the aim, a scoping review methodology was carried out, deriving from the scopus database. From 15 publications, this study highlights a couple of prominent GenAI incorporated in English foreign language education: ChatGPT targets productive language skills, consisting of speaking and writing competence, while Andy Chatbot optimizes speaking skills. Further, those previous studies note that GenAI is effective in EFL education. Hence, for future suggestions, GenAI should be incorporated in language education following its benefits to the educator as potential tools to enhance their pedagogical skills. At the same time, for the students, it is beneficial to enhance their language skills, particularly in English. Moreover, for future implications, a map detailing the GenAI tool with its specialty is presented, aiming at increasing GenAI awareness towards its adoption in EFL education.

Keywords: ChatGpt, English language education, EFL, Generative artificial intelligence, GenAI, scoping review

1. Introduction

Over the past few years, generative artificial intelligence, or GenAI, has fascinated worldwide publications, showing that it has advanced several paradigms to illuminate its concept. Yusuf et al. (2024) set the initial explanation by clarifying its function: mimic human intelligence in its conversation. Further, Tlili et al. (2023), Pesovski et al. (2023) and Michel-Villarreal et al. (2023) expand its functions within their study, that is to create valuable and interactive content, elicited from human inquiries. Supporting this perspective, Pesovski et al. (2023) and (Su and Weipeng, 2023) detail its characteristics that are customizable and personalized. Thus, the users are enabled to create content based on their needs. Hence, Michel-Villarreal et al. (2023) predict that if this sort of AI rapidly evolves in a continuum, it will generate innovation and improvements in many fields. All the more, GenAI has become a ubiquitous technology nowadays, reckoning its impacts on human life.

The more artificial intelligence (AI) is ubiquitous, the more it becomes a debatable topic for massive publications, considering its benefits to human beings, particularly in enhancing the learning environment (Kohnke et al., 2023). Taking evidence from one of the AI types, generative AI or GenAI, Kohnke et al. (2023) assert that GenAI revolutionizes the educational industry, aiding students to participate in adaptive and interactive learning experiences. Following this rationale, Law (2024) opines that GenAI is conceptually designed by applying large language models (LLMs) to generate textual and multimodal content as well as art and video-based models. In a similar view, Law (2024) also assumes that this sort of AI caters to the student's needs, supplying vast amounts of information about language sources and learning platforms. Reckoning the function of GenAI, it can be inferred that GenAI is the perfect AI tool for students to engage in language learning activities, recognizing

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the opportunities to elicit valuable language learning resources. From this point of view, it results that many publications sought to endorse this AI as the research intention, particularly in the language education landscape.

Speaking about language education, GenAI is perceived to have a special place in English as a foreign language education after Yuen and Schlote (2024) rationalize that GenAI aids both the educator and learners in enhancing additional language learning experiences. Following the lingua franca concept, English still becomes an additional language to learn in multivarious countries such as Indonesia (Darwin et al., 2023), Iran (Fathi et al., 2024; Hassani et al., 2020), China (Su and Weipeng, 2023), South Korea (Lee et al., 2023), Saudi Arabia (Alzubi, 2024), Algeria (Boudouaia et al., 2024), Vietnam and Thailand (Duong and Suksan, 2024) also many more countries to count. Frankly, those from these countries crave to master the languages following the more opportunities to come. Consequently, GenAI presents to assist them in enhancing the productive skills along with the receptive skills of English speakers, resulting in several publications soliciting evidence to investigate its effectiveness in English foreign language education.

However, a great number of scholars highlight the need for careful consideration of GenAI implementation in EFL education, reflecting on these negative influences. These negative perspective comes from its misuse. Therefore, a great number of publication mention that its use leads to overreliance behavior (Ahmad et al., 2023; Gawlik-Kobylińska, 2024; Jafry & Vorstermans, 2024; Zhang et al., 2024), resulting in diminishing students' cognitive abilities (Yan et al., 2024; Wardat & Alneyadi,. 2024). From this perspective, it can not be denied that the more they use it either for specific purposes or not, it leads to loss of cognitive development due to their dependency. Moreover Cotton et al. (2023) and Nikolic et al. (2024) point out that this action leads to cheating and plagiarism behaviour in continuum. From these points of view, the users is allowed to utilize GenAI in EFL context on condition that it is applied for the specific purposes.

Despite the positive outcomes of artificial intelligence in language education, publications focused on GenAI still need to be made available. Supporting this statement, Law (2024) is in line with the perspective of the study in investigating the application of GenAI in English language education receiving paucity of evidence, culminating in Law (2024) sought to conduct a scoping study contributed to provide a comprehensive insight into the implementation of GenAI in English language education, albeit Law (2024) realize that this study is far from perfect, resulting in noting several gaps to come such as the need to expand its findings on the specific language skills targeted by GenAI, and to explore its effectiveness. In a similar scope, Khan et al. (2024) also set a systematic review in discovering this issue, turning out this study failed to explore this issue in a more extended period, for instance, this study merely focuses on the literature published in 2022 - 2024. Evidently, these studies unveil possible gaps to fill for future studies.

To shrink the gaps, this study offers valuable insights to delve deeper into the application of generative artificial intelligence in English foreign language education, focusing on its effectiveness. From those previous research, it can be viewed that the publications neither mention GenAI effectiveness nor mapping GenAI app together with its effectiveness. For this reason, this study therefore organized a scoping review as the primary method of the study due to its clarity in investigating the GenAI in EFL education remains unclear, showing that most research solely focus on mapping the trend. Furthermore, this study presented a novelty in delivering insights regarding the following gaps. Consequently, this study complemented the gap with the aim of mapping the current research trend or state in the application of GenAI in English foreign language education, focusing on its effectiveness and language-targeted skills.

2. Literature Review

2.1 Artificial Intelligence

Leveraging the application of artificial intelligence in the educational landscape, the literature tends to perceive its meaning in a diverse light. As an initial instance, Shah (2023) claims AI is human intelligence simulated by machines. Hassani et al. (2020) therefore denote its rationale because AI has a computer's ability to solve individuals' challenges, based on the provided data. This view is in

line with the publication written by Zou et al. in 2023. Zou et al. (2023) assume AI is a human virtual assistant due to its characteristics that become general problem solvers (Chowdary, 2020; Fui-Hoon Nah et al., 2023). Summing up, AI is a promising technology to utilize since the benefits look captivating

Regarding the trajectory of artificial intelligence, the typology varies. Following the study's main objective about generative AI or GenAI, this section performs particular points of view regarding its meaning. Most publications are consistent in defining GenAI as artificial intelligence (AI) systems that formulate novel and creative content, such as text, audio, or video (Kalota, 2024; Kohnke et al., 2023; Mannuru et al., 2023; Law, 2024; Lv, 2022; Shah, 2023). Such actions emerge from its characteristics that adapt large language models from AI systems (Law, 2024). Apart from that, Shah (2023) categorizes its variations into several apps or tools as follows: Google's Bard and OpenAI's ChatGPT. To conclude, Hassani et al., 2020 and Shah (2023) expose that GenAI is an AI machine that performs human intelligence in a particular task.

2.2 Generative Artificial Intelligence In English Foreign Language Education

After recognizing the characteristics of generative artificial intelligence, GenAI's roles in English foreign language education receive particular variations. Interestingly, GenAI in language pedagogy offers functional features that assist the pedagogical subjects in completing the workload (educator) and course load (students) (Shah, 2023). On the other hand, GenAI also fine-tunes their language skills, implicating productive and receptive skills (Alzubi, 2024; Fathi et al., 2024; Jackaria et al., 2024). More and more, Essel et al. (2024) note that GenAI potentially benefits the advancement of the users' cognitive skills. These skills are imperative in language teaching and learning, and if one fails to elaborate these skills in language pedagogy activities, the outcome decreases (Essel et al., 2024). Critically, GenAI plays a crucial role in innovating pedagogical activities, particularly English foreign language education.

3. **Methods**

Drawing attention to cross-cultural research trends, this study performs a scoping review as the research design, benefitting the researcher to look broadly at the issue of generative artificial intelligence in English foreign language education (Peters et al., 2021). To apply the scoping review methodology, this study manages various stages simplified by Jaleniauskiene & Kasperiuniene. Jaleniauskiene & Kasperiuniene (2023) organize those steps in five phases including defining the research questions, determining the criteria such as exclusion and inclusion criteria of the relevant studies, mapping the data, and reporting the findings. Generally, the framework of this current scoping review literature relies on these phases.

Having conceived the study's objective, the research questions were placed in particular problem statements. First and foremost, this study specified the current research trends in applying GenAI in English foreign language education. Following this statement, it involves specific objects to explore, such as the study's characteristics, year of publication, design, location of study, and participants. The scoping review methodology follows the five-phase framework by Jaleniauskiene & Kasperiuniene (2023), which includes defining research questions, establishing inclusion and exclusion criteria, mapping the data, and reporting findings. This structured approach ensures a comprehensive exploration of current GenAI applications in EFL contexts.

3.1 Phase 1: Defining Research Questions

The research questions focus on identifying current trends in GenAI applications for EFL education, examining study characteristics, publication details, research designs, target audiences, and educational contexts. Specifically, this study investigates the types of GenAI tools used, their targeted language skills, and their effectiveness in enhancing EFL teaching and learning.

3.2 Phase 2: Determining Relevant Studies

The Scopus database was selected as the primary source due to its reliability in providing high-quality academic publications (Harnegie, 2013; Zhu & Liu, 2020). Articles published between 2014 and 2024 in English were included, with a focus on primary research aligned with the study objectives. Keywords such as "generative artificial intelligence," "GenAI," "English foreign language," "EFL," "English language teaching," and "English language learning" were used in a Boolean search strategy. The initial screening yielded 185 publications, which were narrowed to 15 after filtering out gray literature and studies unrelated to the objectives.

3.3 Phase 3: Mapping the Data

Thematic analysis, as outlined by Braun & Clarke (2022), was used to analyze the data. Following title and abstract screening, 44 articles were shortlisted, and further review excluded 29 due to non-alignment with the study criteria. The final dataset of 15 articles was categorized to explore recurring patterns and unique insights, focusing on study characteristics, GenAI tools, their applications in EFL education, and potential gaps in the literature.

3.4 Phase 4: Reporting the Results

The findings were presented through thematic analysis, which grouped data into distinct themes, including study characteristics, types of GenAI tools, their applications in EFL contexts, and gaps for future research. A table summarized the core findings, supported by five figures that detailed the identified themes.

4. Result

This chapter reports the findings of the study collected from Scopus database publications, resulting in fifteen literature that met the criteria to delve into. Moving on to the transcription process, a table was presented to unpack the primary data, and five figures were generated to map the findings based on particular themes, including study characteristics, generative artificial intelligence tools, generative artificial intelligence in English foreign language education, and potential gap to offer within the literature. For the last paragraph, it details the provided GenAI effectiveness.

Table 1. Studies included in this review

Title	Author	Yr	Study Design	Location	Participants	Educational Level	GenAI types	Effectiveness	Language Skills	Educational Focus
The effects of generative AI on initial language teacher education: The perceptions of teacher educators	Benjamin Luke Moorhouse, Lukas Kohnke	2024	Qualitative with exploratory study	Hong Kong	24 teacher educators	Higher Education	ChatGPT-4 (provided though Poe.com)	Yes	Writing and speaking	Teaching
Exploring generative artificial intelligence preparedness among university language instructors: A case study	Lukas Kohnke, Benjamin Luke Moorhouse, Di Zou	2023	Qualitative with case study	Hong Kong	12 instructor	Higher Education	ChatGPT-4	Yes	N/A	Teaching

Title	Author	Yr	Study Design	Location	Participants	Educational Level	GenAI types	Effectiveness	Language Skills	Educational Focus
ChatGPT effects on cognitive skills of undergraduate students: Receiving instant responses from AI-based conversational large language models (LLMs)	Harry Barton Essel, Dimitrios Vlachopoulos, Albert Benjamin Essuman, John Opuni Amankwa	2024	Mixed-method	Ghana	125 undergraduate students	Higher Education	ChatGPT	Yes	Cognitive skills (critical, creative, and reflective thinking skills)	Learning
Bridging technology and pedagogy from a global lens: Teachers' perspectives on integrating ChatGPT in English language teaching	Mohammad H. Al-khresheh	2024	Qualitative	Saudi Arabia	46 English language teachers from multiple countries	N/A	ChatGPT	Yes	N/A	Teaching
A Comparative Analysis of the Rating of College Students' Essays by ChatGPT versus Human Raters	Potchong M. Jackaria, Bonjovi H. Hajan, and Al-Rashiff H. Mastul	2024	Quantitative with comparative-descriptive study	Philippines	20 students	Higher Education	ChatGPT-3.5	Yes	Writing	Learning
Utilizing large language models for EFL essay grading: An examination of reliability and validity in rubric-based assessments	Fatih Yavuz, Özgür Çelik, Gamze Yavaş Çelik	2024	Quantitative	Turkey	15 experienced EFL instructors	Higher Education	ChatGPT-4 and Google's Bard (2023.07.13 version)	Yes	Writing	Teaching (focusing on grading students' essay)
ChatGPT in English Language Learning: Exploring Perceptions and Promoting Autonomy in a University EFL Context	Kyle R. Van Horn	2024	Qualitative with exploratory study	South Korea	120 students	Higher Education	ChatGPT	Yes	Writing and speaking	Learning
Exploring AI-mediated informal digital learning of English (AI-IDLE): a	Guangxiang Leon Liu, Ron Darvin & Chaojun Ma	2024	Mixed-method	China	867 EFL students	N/A	ChatGPT, GPT-4, New Bing, Ernie Bot, and Third party application	Yes	Writing and speaking	Learning

Title	Author	Yr	Study Design	Location	Participants	Educational Level	GenAI types	Effectiveness	Language Skills	Educational Focus
mixed-method investigation of Chinese EFL learners' AI adoption and experiences										
Generative AI for Customizable Learning Experiences	Ivica Pesovski, Ricardo Santos, Roberto Henriques, and Vladimir Trajkovik	2024	Mixed-method with exploratory study	Macedonia	20 students	Higher Education	OpenAI's API	Yes	N/A	Learning
Generative Artificial Intelligence and ChatGPT in Language Learning: EFL Students' Perceptions of Technology Acceptance	Anh Vo and Huong Nguyen	2024	Quantitative	Vietnam	369 English-majored students	Higher Education	ChatGPT	Yes	Writing	Learning
Generative Artificial Intelligence in the EFL Writing Context: Students' Literacy in Perspective	Ali Abbas Falah Alzubi	2024	Quantitative	Saudi Arabia	278 EFL students	Higher Education	N/A	Yes	Writing	Learning
Integrating ChatGPT in Grade 12 Quantum Theory Education: An Exploratory Study at Emirate School (UAE)	Saif Alneyadi and Yousef Wardat	2024	Mixed-method	Saudi Arabia	55 students	Higher Education	ChatGPT	Yes	N/A	Learning
The Effects of Generative AI Platforms on Undergraduates' Narrative Intelligence and Writing Self-Efficacy	Nikolaos Pellas	2023	Quantitative with descriptive study	Greece	64 students	Higher Education	Sudowrite, Jasper, and Shortly AI	Yes	Writing	Learning
University students' perceptions of artificial intelligence-based tools for English writing courses	Yong-Jik Lee, Robert O. Davis, and Sun Ok Lee	2024	Mixed method	South Korea	80 students	Higher Education	Grammarly	Yes	Writing	Learning

Title	Author	Yr	Study Design	Location	Participants	Educational Level	GenAI types	Effectiveness	Language Skills	Educational Focus
Improving EFL learners' speaking skills and willingness to communicate via artificial intelligence-mediated interactions	Fathi, Jalil, Rahimi, Masoudb, Derakhshan, Ali	2024	Mixed method	Iran	65 EFL learners	Higher Education	Andy Chatbot	Yes	Speaking	Learning

4.1 Study Characteristics

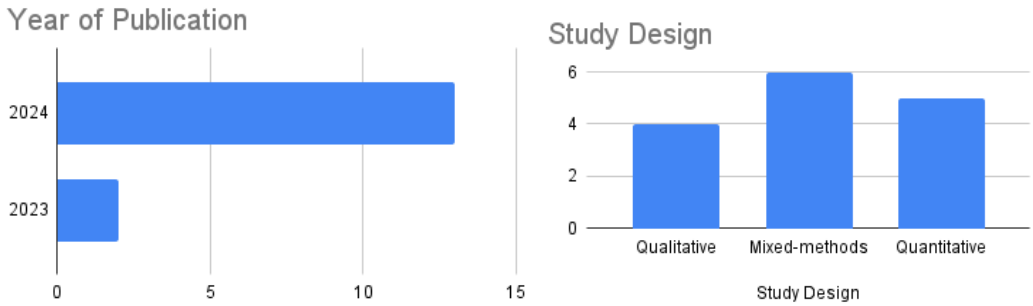

Figure 1. Study Characteristics

Having conceived the table and Figure 1, there are a couple of findings presented here, involving the publication methodological design, paralleled with the year of publication. These findings report that most publications published in the year 2024, approximately thirteen papers in a year being published under the issue of GenAI in English foreign language education. In sharp contrast to this statement, a couple of pieces of literature were published during the year 2023. Following this argument, it can be inferred that the year 2024 offers a greater influence on GenAI development since this period rationalizes that researchers sought to explore the application of GenAI, particularly in language education domains in general, English foreign language education in specific.

During the years 2024 and 2023, those publications approached the data with various methodological designs, pointing out that mixed-methods design took the top place on the chart. As seen in Figure 1, the score of its design peaked at 6, indicating that most publications utilized its methods to conduct the inquiries. Apart from that, quantitative methodologies also increase gradually, amounting to five publications appearing during those couple of years. Last but not least, qualitative research almost has the same level as quantitative design, indicating that its score remained adjacent to the score of quantitative research, albeit it was far lower than mixed-methods study. To unveil the score, Figure 1 recorded that its method obtained approximately four points, showing that four pieces of literature designed their study under a qualitative paradigm. Evidently, mixed-methods design has become a prominent method for designing research, contributing to the application of GenAI in the educational sphere.

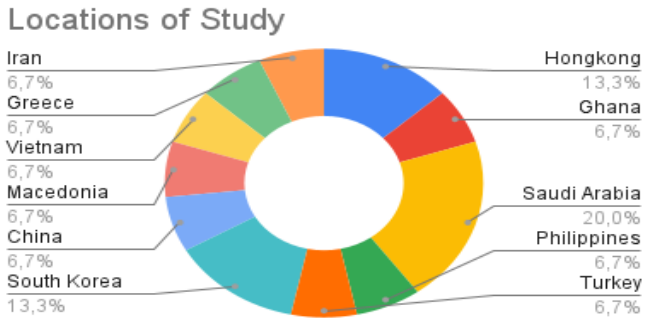

Figure 2. EFL Countries within the studies

Furthermore, research is not about its methodological process, the location of the study is required to be undertaken since the research takes English language learning issues into evaluation. As a consequence, this study has already mapped the demography of EFL countries that establish GenAI publications, pertaining to its English language education sphere. Visualization of Figure 2 highlights that the GenAI application in English language education captivates publications coming from three diverse countries as follows, Saudi Arabia, South Korea, and Hong Kong. To be specific, Saudi Arabia is the country that published GenAI articles on its implementation in the language educational landscape in the continuum, amounting to 20 % of the collected publications produced during the years 2023-2024. Nonetheless, South Korea and Hong Kong peaked at second place, probing its prevalence that remained similar in vein, yielded 13,3 % GenAI publications within a year. Correspondingly, other countries' ratio in GenAI publication halved by approximately 6,7 % within a year of publication. To classify the countries, figure 2 divides it into eight countries in a row as follows: Iran, Greece, Vietnam, Macedonia, China, Ghana, Philippines, and Turkey. Summing up, multivarious countries have already leveraged the GenAI implementation in the educational sector, implicating the English language's pedagogical aspects.

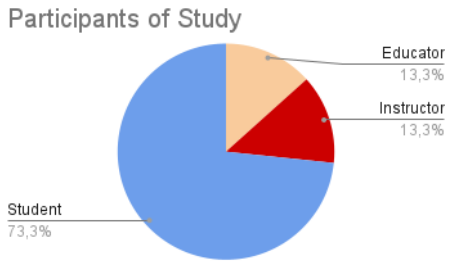

Figure 3. Participants of the study

Taking study characteristics into account, participants always have a special place within the publication. Hence, figure 3 depicts the participant composition of a study divided into three categories, including students, educators, and instructors. The data shows that students gain the largest portion, accounting for 73.3%. Moreover, educators and instructors make up a smaller and equal portion, yielding 13.3% each. Overall, the pie chart demonstrates that those studies primarily focus on students, with a smaller representation from educators and instructors, implying that GenAI implication contributes to English language pedagogy in EFL students or learners.

Apart from participant characteristics, the background of the participant, implicating educational level also plays an important role when bringing educational issues into inquiry. For this reason, Table 1 sought to record the educational level that was hoved into view among the studies. Evidently, Table 1 denotes that most of the educational levels of those participants are coming from higher education levels, auditing from fourteen publications. To be more specific, the level involves the pedagogical subjects who learn or ever learned EFL, and who major in EFL as their coursework. Considering those arguments, it can be assumed that GenAI is yet to spread all over the educational level, grasping the trend is merely placed in the tertiary level.

4.2 Generative Artificial Intelligence

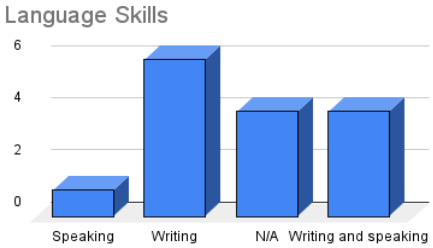

Figure 4. Language skills

Among the selected papers, Table 1 shows that GenAI intervention targets particular language skills, including productive and receptive skills. To visualize the data, figure 4 illustrates the distribution of the language skills targeted by GenAI during language pedagogical activities, resulting in GenAI mainly pointing to productive skills, such as writing, indicated by the height of the bar which peaked at the six points. Further, Figure 4 with the help of Table 1 depicts that those sorts of GenAI effectively aid the users in enhancing the writing skill along with speaking skills, albeit the evidence detailing the improvement of the speaking skills remains scant. Corroborating this perspective, all studies are in line with this argument, even suggesting to integrate GenAI in EFL education, following GenAI's effectiveness in enhancing language skills.

Regarding the utilization of generative artificial intelligence in enhancing language skills, fifteen papers have already categorized various potential GenAI tools to apply in language education activities. In the context of writing, eleven pieces of literature agree that ChatGPT contributes to the advancement of the users' writing skills. Following this statement, the literature also highlights the ChatGPT typologies that are often paralleled with writing competence, such as ChatGPT 3.5 and ChatGPT 4. Apart from the use of ChatGPT for L2 writing, several works of literature also bring the current GenAI tools into light such as Erni Bot, Grammarly, New Bing AI, Jasper AI, Sudowrite, Shortly AI, and Google Bard AI as the alternative GenAI intervention in developing the students and teachers writing competence. Critically, those publications opine that the selection of GenAI efficiently assists both EFL teachers and students in generating written materials.

As mentioned before GenAI also targets spoken skills, a few papers have discussed the prominent GenAI tools to leverage in the context of speaking competence. Taking the initial instance, a publication written by Fathi et al. (2024) mentions the integration of Andy Chatbot in improving Iranian students' skills in English, asserting that GenAI offers a beneficial impact on their language skills used to communicate. By the same token in ChatGPT integration, this GenAI remains famous in all language skill domains, resulting in several articles expressing the satisfaction of implementing ChatGPT in their pedagogical activities, showing that this GenAI is adequate to utilize in the context of language teaching and learning. In conjunction with ChatGPT, Erni Bot also plays a crucial role in developing Chinese students' language proficiency, particularly in speaking skills. To some degree, GenAI is a beneficial tool in mitigating the impediment of EFL learners' and educators' opportunities for sufficient practice during communicative language activities.

4.3 Generative Artificial Intelligence In English Foreign Language Education

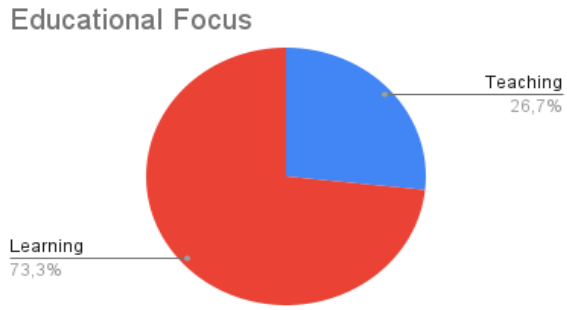

Figure 5. Educational Focus

Within the integration of generative artificial language in language pedagogy, there are a couple of major educational areas documented in the fifteen published works. Thus, this pie chart illustrates the educational focus divided into two categories: Learning and Teaching. The largest segment, labeled "Learning", comprises 73.3% of the focus. The remaining segment, labeled "Teaching", accounts for 26.7%. Corresponding to this argument, the Learning area has garnered substantial attention, with twelve studies dedicated to the topic of GenAI. Conversely, the Teaching domain also gained notable scientific interest, although the published works were established in short supply, auditing from three articles in Table 1. All in all, GenAI has received significant interest in both educational and pedagogical areas in English foreign language, despite the published works remaining in contrast.

4.4 Potential Gaps

Having conceived all arguments elicited from fifteen chosen articles, future research implicates various factors. Concerning Table 1 and all figures, fifteen publications pinpoint that the integration of GenAI targeting speaking skills remained pauce, culminating in future research ought to consider this issue as their article interest. Next, it notes that the topic of GenAI is rarely discussed from the educational team's perspective, resulting in lacking scientific papers that delve into the application of GenAI in their teaching activities. Importantly, those papers highlight that GenAI solely offers contributions at the higher education level, thus the measure could not be applied to see its effectiveness since it only focuses on one type of educational level. Reckoning this situation, those papers offer future researchers to complement the gaps to generalize better outcomes of scientific study.

5. Discussion

From 85 entries in the Scopus database, 15 matched the inclusion criteria and were evaluated in this scoping review to address the objective of the study, which intended to explore the current research trend or state in the application of GenAI in English foreign language education. To achieve the goal, four review questions were formulated and satisfactorily addressed.

Mapping the research trend of generative artificial intelligence in the educational landscape, 2024 is perceived as a productive year in producing papers relating to GenAI in EFL education, auditing from fifteen papers published under different research methodologies. Nevertheless, half of the published literature performs a mixed-method design in approaching the data. Timans et al. (2019) and Zhou & Min (2020) rationalize this statement, mentioning that mixed-methods research gradually increases in social sciences and humanities domains since it investigates sociological issues. Furthermore, Zhou et al. (2023) corroborate this statement by demonstrating the function of its design in educational research, noting that mixed-method design is conceptually designed to elicit reliable data through different method strategies, qualitative used to understand the participant perspective and quantitative used to measure the evidence-based teaching intervention in specific. To infer, the current research trend in GenAI was published in 2024, undertaken from a mixed-methods paradigm for the purpose of creating nuanced understandings toward GenAI phenomena in EFL education.

By the same token, fifteen papers expose diverse countries that productively raise the application of GenAI in English foreign language education into evaluation. First and foremost, South Korea takes the lead because this country is perceived as one of the world's most innovative nations, since enacting outstanding performance in research and development intensity (David, 2020). In addition, David (2020) highlights that the researchers primarily delve into the technology aspect, due to the fact that technology plays a crucial role in this country. Next, this study finds out Saudi Arabia also offers an investment in evaluating the use of GenAI in their English language education. By investing in education technology, this country benefits in promoting innovation, improving learning outcomes, and equipping individuals with the skills needed for the future (Alshareef, 2024). Critically, technological intervention, artificial intelligence in particular could be the potential tools to revamp the educational ecosystem, thus both countries sought to put their educational sector in technological investment.

Recognizing the worldwide research trends of generative artificial intelligence, fifteen literature records a prominent educational level addressed by the issue of GenAI in English foreign language education, that is tertiary level or higher education. Detailing this argument, this finding is in line with the idea of GenAI targeting the higher education level due to its dynamic educational environment, marked by an intricate interaction between the educator and students, wherein the educators do not simply transmit the knowledge but also facilitate the students to engage in the learning environment that promotes critical thinking, problem-solving, and the development of competencies relevant to the current and future professional field (Kurtz et al., 2024). In the same vein, O'Dea (2024) exposes the possibility of implementing GenAI in the higher education sector, aiming to provide a valuable

asset for improving critical thinking along with academic writing skills. Overall, higher education still endorses the integration of GenAI in EFL education since it brings more valuable opportunities to advance pedagogical practices and experiences.

To specify the current GenAI tools, these findings bring particular GenAI tools to unpack along with the targeted language skills. Interestingly, fourteen publications treasure ChatGPT for the improvement of productive skills in general, and writing skills in certain areas, turning out the notion to apply ChatGPT in writing projects is really beneficial for both the students and the educator because ChatGPT is naturally designed to assist them in various aspects of L2 writing, including brainstorming the idea, and revising as well as giving direct feedback (Ghafouri et al., 2024). In conjunction with this statement, several pieces of literature have taken alternative GenAI apps apart from ChatGPT, including Ernie Bot, Shortly AI, New Bing, Sudowrite, Jasper AI, Grammarly, lastly Google Bard or Gemini AI in more popular names. These GenAI cultivate the pedagogical subjects' L2 writing because its characteristics are conceptually made to nurture them in advancing their writing performance. For instance, Grammarly is specifically designed to check and correct grammatical errors (Barot, 2022). Next, Sudowrite offers creative writing assistance (Fang et al., 2024) whilst Jasper AI and Shortly AI contribute to copywriting materials (Pellas, 2023). In the same scope as ChatGPT, Ernie Bot, Google Bard, and New Bing are conceptually designed to have similar characteristics to ChatGPT, albeit Fathi et al. (2024) and Liu et al. (2024) opine that those tools are factually made to innovate the technology sector in several countries, turning out it is influential to enhance the writing competence. Summing up, the notion of leveraging the technology in writing performance is adequate on condition that the measurement objectives prove the effectiveness hence, it could be great potential if future studies consider the integration of GenAI in writing activities.

In fact, ChatGPT seems promising to utilize in enhancing the language's productive skills, particularly in speaking skills. This study figures out that GhatGPT is effective in speaking activities, as asserted in a paper written by Liu et al. in 2024. This finding aligns with a paper written by Muniandy et al. Muniandy et al. (2024) approve the idea of investing ChatGPT in communicative language activities, due to the chance of becoming a partner in turn-taking. Moving away from the ChatGPT, this finding reports another emerging GenAI tool from those publications as an alternative tool for advancing speaking proficiency, Andy Chatbot in detail. Evidently, Fathi et al. (2024) suggest the emergence of Andy Chatbot in communicative language activities since it creates a comfortable and enjoyable learning environment in order to facilitate the learner with immersive conversation. To conclude, this finding is persistent to other publications that believe the incorporation of technology in language pedagogy would enhance productive language skills (Annamalai et al., 2022; Huang et al., 2021; Koong Lin et al., 2024; Muniandy et al., 2024; Vladova et al., 2021), culminating in endorsing the incorporation of GenAI in EFL education since the literature remains at surface level.

Despite its effectiveness in the learning area, another pedagogical aspect should be undertaken, teaching activities in particular. The finding of this study pinpoints that most literature delves into the issue of learning rather than teaching, implying that it crosses the border of other studies that assert that GenAI is a handy tool in pedagogy activities because the literature remains scarce. Besides, if the researchers overlook this area in detail, they would treasure a set of opportunities to innovate the teaching activities, such as mapping the course outline, generating course objectives together with designing the learning materials, including the learning activities and assessments (Choi et al., 2024). All in all, the integration of GenAI in EFL teaching could become a notable idea to enquire because it increases the possibility of reforming the pedagogical activities in technologically driven.

Surprisingly, this finding solicits a great deal of refusal. Most literature presented here is in line with the idea of implementing GenAI in EFL education. Conversely, Yusuf et al. (2024), Kasneci et al. (2023), and Sullivan et al. (2023) do not reinstate this notion because this study finds out that GenAI could be a threat to academic integrity. Sullivan et al. (2023), therefore, voice the rationale behind the refusal of GenAI in the educational sectors. Sullivan et al. (2023) assume it is due to most GenAI being accessible and convenient to use even, the generative content by the AI is not easily recognized by the AI checker as well as plagiarism checker, resulting in the users being able to leverage this sort of AI as much as possible as their virtual assistant to aid them within their educational course load. From these arguments, it can be concluded that GenAI has become a notable investment in the

pedagogy sector, yet ethical consideration is required to optimize its benefits together with ameliorating the misuse or overuse of its applications (Chen & Jasmine, 2023; Jackaria et al., 2024; Van horn, 2024).

6. Conclusion

Generally speaking, generative artificial intelligence or GenAI captivates worldwide publications jointly with its integration into the educational industry and English foreign language education in detail. Henceforth, GenAI integration in language education is a promising area of research with the potential to revamp language education. This scoping literature review has seized its objective by answering the provided review questions relating to the current state of research in GenAI in EFL education across cultures concerning the literature. This study highlights that GenAI has the potential and beneficial impact to incorporate in future research since it innovates the educational sector to engage in technological-driven areas. Moreover, this study proposes a prominent topic to come into light in the GenAI publication, including its integration into teaching activities that focus more on speaking performance rather than writing competence. Besides, future research should consider the use of GenAI targeting at any kind of educational level.

Unsurprisingly, this study is far from perfect, culminating in providing promising references to reconstruct this study. Firstly, this study is limited to exploring more databases, as mentioned in the methodological section, this study merely employs the Scopus database to elicit the data, thus future studies ought to reckon this situation to shrink the gap of this study. Moving on to the second gap, this study highlights that most collected publications, focusing on primary articles emerge in the year 2023-2024, despite the criteria having already set the year of publication in 2014 to 2024, hence future research should carefully consider this experience together with the keywords that applied to discover the articles. More and more, this study is limited to evaluating the extent to which GenAI is implemented in the world of English education, as well as the attitudes of AI users. Following these gaps, this study expects more comprehensive findings reconstructed from other literature to emerge in generalizing better outcomes

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