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## Revisiting the studies on ChatGPT in higher institution language learning and future directions: A systematic literature review<sup>6</sup>

### Summary

The utilization of ChatGPT in language education has recently emerged as a prominent topic due to its ability to revolutionize conventional teaching and learning approaches. This study followed PRISMA guidelines to investigate recent trends, outcomes, limitations, and recommendations

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regarding the application of ChatGPT in higher institution language learning based on studies published between 2023 and 2024 in the Web of Science database. After a stringent screening process adhering to established inclusion and exclusion criteria, 32 empirical studies were identified as eligible for analysis. With 81.3% of the studies carried out in 2024, the results demonstrate a rapid rise in research examining the use of ChatGPT in language learning in higher education institutions. 50% of the studies employed qualitative methodologies. Findings show that theoretical frameworks, including SDT, the UTAUT, and TPACK, were employed to contextualize ChatGPT's function in promoting learner autonomy and the adoption of ChatGPT. Geographically, Asia, especially China, dominates ChatGPT research output, particularly in the context of English language acquisition. Findings further revealed its significant advantages in higher institution language learning and acquisition, including enhanced writing and communication skills, personalized education, autonomy, motivation and engagement, and its function as a peer tutor. Nonetheless, obstacles such as inaccuracies, technical constraints, cultural biases, excessive dependence on AI, and ethical issues, including the risk of plagiarism, limit its widespread adoption.

**Keywords:** ChatGPT, language learning, language education, higher institution, AI, systematic literature review

## Introduction

Artificial intelligence (AI) integration in higher institutions has gained momentum recently, offering transformative possibilities in various educational domains. Among these, language education has particularly benefited from AI-driven tools that enhance personalized learning, provide real-time feedback, and promote self-regulated learning (Dhawan & Batra, 2020; Williamson & Eynon, 2020). One such tool, ChatGPT, has emerged as a prominent AI-powered chatbot, revolutionizing the way language education is delivered. ChatGPT has emerged as a leading AI-powered chatbot, transforming the delivery of language education. ChatGPT employs natural language processing (NLP) to produce human-like text from input, rendering it an optimal resource for enhancing language acquisition (Deng & Lin, 2022). With the growing adoption of digital transformation in higher education institutions, there is an increased interest in the potential of tools like ChatGPT to enhance teaching and learning, particularly in language acquisition (Li et al., 2024). The increasing interest has resulted in numerous global studies that emphasize ChatGPT's strengths, weaknesses, opportunities, and threats in language learning within higher institutions (Avsheniuk et al., 2024; Gao et al., 2024; Karatas et al., 2024; Mohamed, 2024; Schenck, 2024). Several nations, including Russia, China, North Korea, Cuba, Iran, Syria, Italy, and so on, have prohibited or restricted the use of ChatGPT due to ethical apprehensions and adverse societal consequences, such as privacy infringements, bias, data breaches, misinformation, and insufficient age

limitations (Kromme, 2024). In certain countries, it is available under a stringent AI usage policy, wherein authors are accountable for the content generated by ChatGPT and must transparently disclose its utilization in a manuscript (COPE, 2023).

Notwithstanding the increasing interest in employing and incorporating ChatGPT in higher institution language acquisition, a deficiency persists in the systematic literature review regarding the capabilities and outcome of ChatGPT in higher institutions in language learning. Currently, one systematic review conducted by Li et al. (2024), titled “A systematic review of the first year of publications on ChatGPT and language education: Examining research on ChatGPT’s use in language learning and teaching” has been published, encompassing the role of ChatGPT in both teaching and learning, spanning across all levels of education with studies from 2022–2023. This systematic review, however, aims to investigate the application of ChatGPT into language education in higher institutions by examining empirical studies conducted between 2023 and 2024. Using the Li et al. (2024) approach, this review sought to answer the subsequent research questions:

1. What information do recent studies offer about ChatGPT’s application in language learning at higher education institutions?
2. What challenges/limitations are encountered using ChatGPT in language learning?
3. What are the suggestions for future use?

## Literature Review

### Overview of AI development and ChatGPT in higher education institutions

The concept of AI in higher education institutions has evolved significantly, transforming how educational institutions operate and deliver content (Dhawan & Batra, 2020; Ma & Siau, 2018; Williamson & Eynon, 2020). AI integration encompasses personalized learning, administrative efficiency, and enhanced student engagement (Chen et al., 2020; Han et al., 2025; Jia & Tu, 2024; Kuleto et al., 2021). Automated systems, including chatbots, streamline operations by delivering instructional materials and providing student support services, thus reducing the administrative burden on faculty (Aldhaen, 2022; Doe et al., 2020; Ndukwe et al., 2019). Historically, the artificial intelligence in education begins in the 1960s and 1970s, when scholars looked into how computers might improve learning (Woolf, 2010). Early AI systems focused on programmed instruction and intelligent tutoring systems (ITS) aimed at replicating one-on-one tutor-student interactions (Guo et al., 2021; Kurni et al., 2023). Prominent instances encompass the Intelligent Tutoring System (ITS) created by Sleeman and Brown in the 1980s, which customized edu-

cational experiences according to learners' requirements (Doroudi, 2023; Sleeman & Brown, 1982). The late 20th and early 21st centuries witnessed the incorporation of machine learning (ML) and NLP in higher education, primarily via adaptive learning platforms (Laupichler, 2022). Machine learning algorithms facilitated advanced data analysis and predictive modeling to discern patterns in student behavior and performance (Zawacki-Richter et al., 2019).

The COVID-19 further sped up the integration of AI as institutions sought innovative solutions for remote education. AI-driven platforms enabled online education via interactive content and immediate feedback, maintaining continuity during extraordinary circumstances (Pantelimon et al., 2021). However, AI-driven chat-bots such as ChatGPT offer 24/7 support for academic inquiries (Okonkwo, 2021), enhancing language learning by providing grammatical guidance and promoting communication (Bailey et al., 2021; Sumakul et al., 2022). Language acquisition abilities are crucial for students in educational environments, and Generative AI tools demonstrate potential in improving language instruction and learning (Han, 2021; Huang et al., 2022; Pokrivcakova, 2022). According to Gao et al. (2024), ChatGPT and other large language models (LLMs) are still relatively new developments in the field of language instruction. Developed by OpenAI in November 2022 (Rospigliosi, 2023), ChatGPT is a promising resource for language acquisition (Li et al., 2024), capable of producing human-like text and participating in diverse conversational scenarios (Li et al., 2024; Lund & Wang, 2023). ChatGPT, comprising 175 billion parameters, ranks among the largest language models accessible, delivering customized responses to user inquiries (Cotton et al., 2023). The advent of ChatGPT has revolutionized conventional methods of language instruction. It provides a stimulating and modern approach to language education (Nugroho et al., 2023).

Unlike earlier chatbots that utilized fixed responses, LLMs such as ChatGPT offer dynamic and engaging learning experiences (Gao et al., 2024) that enhance students' information accessibility, improve writing proficiency, and foster personalized learning experiences (Farrokhnia et al., 2023; Perkins, 2023). Similar to other generative AIs, there have been numerous demands for its prohibition and regulation (Bengio et al., 2024); nonetheless, empirical evidence indicates that the utilization of ChatGPT is rising even in nations where it is banned (Bao et al., 2024). Theories concerning AI in higher education include diverse models that elucidate technology adoption by students and educators. The Unified Theory of Acceptance and Use of Technology (UTAUT), introduced by Venkatesh et al. (2003), is extensively utilized to examine determinants affecting the adoption of e-learning systems. It is frequently integrated with the Technology Acceptance Model (TAM) to examine technology usage behavior (Xu & Thien, 2024). The Expectancy-Value

Theory (EVT) elucidates teachers' acceptance of innovations such as LLMs, suggesting that individuals are more predisposed to accept new technologies when they perceive significant benefits linked to their use (Eccles et al., 1983; Hulleman et al., 2008). Additional models encompass the Theory of Planned Behavior (TPB) (Ajzen, 1985), Innovation Diffusion Theory (IDT) (Rogers, 1983), Technological Pedagogical Content Knowledge (TPACK) (O'Dea & O'Dea, 2023), and Status Quo Bias (Samuelson & Zeckhauser, 1988). Some other theories that help us understand how AI can be used in education are Activity Theory (Airaj, 2024), Cognitive Theory of Multimedia Learning (CTML) (Mayer, 2005), Self-Determination Theory (SDT) (Ryan & Deci, 2020), and Cognitive Load Theory (CLT) (Sweller et al., 1998).

## Research Methodology

This systematic review study aims to synthesize the role of ChatGPT in higher institution language learning, explore the challenges and limitations, and propose future directions, addressing gaps in the existing literature. The paper uses the PRISMA guidelines to guarantee a thorough and open review process. Ensuring comprehensiveness, accuracy, and reliability, PRISMA has evolved into a generally recognized benchmark for systematic and meta-analysis reviews (Page et al., 2021). Three main phases comprised the process: article selection, screening and inclusion, data extraction, and analysis.

## Search Strategy

The Web of Science (WoS) research database used a thorough search strategy to find suitable empirical studies. Search queries were explicitly formulated to identify research studies published between 2023 and 2024, concentrating on integrating ChatGPT in language learning within higher institution settings. Search terms employed encompassed combinations of "ChatGPT," "higher education," "university," and "language learning." A wildcard search term "university" was also employed to capture variations in the term, including "university" and "universities." These queries aimed to filter only relevant studies, excluding those focusing on non-higher education settings, theoretical analyses, or non-language-based educational applications of ChatGPT. The specific query used in WoS is shown in Table 1, and the search generated 101 articles.

Table 1. Search queries

| Database | Search queries                                                                                                                                                                                                                                                                     | No. of papers |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| WoS      | Refine results for ChatGPT (Topic) AND language learning (Topic) AND higher education (Topic) AND universit* (Topic) and Review Article or Editorial Material (Exclude – Document Types) and Article (Document Types) and 2024 or 2023 (Publication Years) and English (Languages) | 101           |

### Inclusion and Exclusion Criteria

Following PRISMA guidelines, well-defined criteria for both inclusion and exclusion were established to improve the selection procedure, as shown in Table 2. Articles must be published in peer-reviewed journals, concentrate solely on ChatGPT use in higher institution language learning, provide empirical data, and be published in English between 2023 and 2024. Conversely, studies not published in peer-reviewed journals, those that collected data unrelated to ChatGPT, entirely theoretical or conceptual papers lacking empirical data, systematic reviews, meta-analyses, or other literature review forms were excluded.

Table 2. Inclusion and exclusion criteria

| Inclusion                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------|
| Published in a peer-reviewed journal                                                                                           |
| Data focuses only on ChatGPT in Higher institution language learning.                                                          |
| Includes empirical data                                                                                                        |
| Published from 2023–2024                                                                                                       |
| Published in English                                                                                                           |
| Exclusion                                                                                                                      |
| Published outside a peer-reviewed journal (including conference proceedings, dissertations, technical reports, and editorials) |
| Collected data outside the use of ChatGPT                                                                                      |
| Entirely theoretical or conceptual papers (no empirical data)                                                                  |
| Systematic review, Meta-analysis, and other forms of literature review papers                                                  |
| Not focused on language learning                                                                                               |

### Screening and Selection Process

The preliminary database search yielded 101 records, which were screened for duplicates and assessed for relevance based on their titles and abstracts. After conducting an initial assessment of titles and abstracts, 59 articles were removed for failing to meet the inclusion criteria, and 3 duplicates were identified and removed, leaving 39 articles qualified for comprehensive review. Five articles were further excluded due to their irrelevance to the scope of the review (e.g., focusing on AI in general or non-language-related education). One study was excluded due to the unavailability of the complete text, while another was eliminated because it was not composed in English. Following this stringent screening procedure, 32 studies were found eligible for this systematic review.

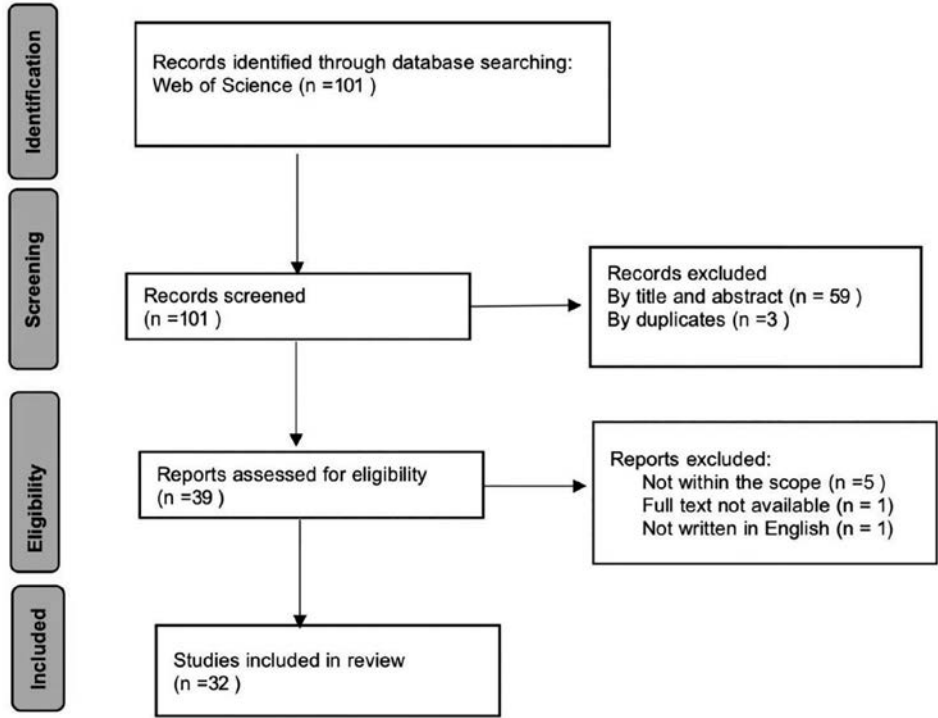


Figure 1. A PRISMA flow chart illustrating the screening process.

Out of 101 records identified from the WoS database, 59 were excluded by title and abstract. After further assessment, 7 reports were excluded, resulting in 32 studies in the final review.

Table 3. Findings of the systematic review of selected documents

| No. | Authors          | Year | Country/<br>Region | Discipline                           | Methodology            | Theory                                  |
|-----|------------------|------|--------------------|--------------------------------------|------------------------|-----------------------------------------|
| 1.  | Nugroho et al.   | 2023 | Indonesia          | EFL                                  | Qualitative            | N/A                                     |
| 2.  | Barrett & Pack   | 2023 | USA                | ESL                                  | Quantitative           | N/A                                     |
| 3.  | Cai et al.       | 2023 | China              | Interdisciplinary                    | Mixed method           | Three-tier technology use model         |
| 4.  | Escalante et al. | 2023 | Asia-Pacific       | ENL                                  | Quasi-experimental     | N/A                                     |
| 5.  | Xiao & Zhi       | 2023 | China              | Marketing, Translation, Data Science | Qualitative            | N/A                                     |
| 6.  | Karatas et al.   | 2024 | Turkey             | Foreign Languages                    | Qualitative case study | N/A                                     |
| 7.  | Mohamed          | 2024 | Saudi Arabia       | EFL                                  | Qualitative            | N/A                                     |
| 8.  | Avsheniuk et al. | 2024 | Ukraine            | English Departments                  | Mixed method           | N/A                                     |
| 9.  | Klimova et al.   | 2024 | Czech Republic     | Tourism, Economics                   | Qualitative            | N/A                                     |
| 10. | Lee & Davis      | 2024 | Korea              | English                              | Quantitative           | N/A                                     |
| 11. | Qu & Wu          | 2024 | Britain            | ESL                                  | Quantitative           | Hedonic system acceptance model (HMSAM) |



| Outcome                                                                                                               | Limitations                                                                            | Recommendations                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Personalized learning, authentic interactions, student productivity                                                   | Ethical use, inaccuracy, cultural bias, misinformation                                 | Improve digital competence and technological awareness                                                 |
| Acceptable for idea generation, not for completing writing tasks                                                      | Unethical to use for full task completion                                              | Clear guidelines and teacher training for GenAI                                                        |
| Information system quality, hedonic motivation, and behavioral intention impact on ChatGPT-assisted language learning | Has potential threats and risks related to learners' misuse                            | Explore hedonic motivation and learner attitudes                                                       |
| AI-generated feedback can be integrated into ENL essay evaluation without affecting outcomes                          | GPT-4 lacks optimization for AWE tasks, making text annotation and feedback cumbersome | A blended approach utilizing both AI and human feedback                                                |
| Peer tutor, new ideas generation                                                                                      | Constant prompt modification, inaccuracy, plagiarism                                   | Pedagogical guidance for the proper use and treating ChatGPT as a learning tool, not a substitute      |
| Positive impact on writing                                                                                            | Limited effect on speaking, grammar, over-reliance on AI                               | Ensure AI complements rather than replaces teachers                                                    |
| Personalized, interactive language practice, revolutionized assessment                                                | Issues with idiomatic expressions and cultural references                              | EFL teachers should mitigate negative impacts, foster critical thinking, and safeguard student privacy |
| Instant assistance, autonomy, problem-based learning                                                                  | Accuracy of AI responses, ethical implications                                         | Guide students on responsible AI use and address limitations                                           |
| Multilingual proficiency, improved writing skills, content creation                                                   | False referencing, lack of visual elements                                             | Establish guidelines for responsible use, plagiarism prevention, and data privacy                      |
| Increased self-regulation (goal-setting, time management)                                                             | N/A                                                                                    | Design curriculum focused on self-regulated learning using AI                                          |
| Increased intrinsic motivation                                                                                        | Influence of boredom and control                                                       | Support and training for teachers and learners to utilize AI effectively                               |

Table 3. Cont.

| No. | Authors                   | Year | Country/<br>Region                               | Discipline                     | Methodology                              | Theory                                    |
|-----|---------------------------|------|--------------------------------------------------|--------------------------------|------------------------------------------|-------------------------------------------|
| 12. | Du & Alm                  | 2024 | New Zealand                                      | EAP                            | Qualitative                              | SDT                                       |
| 13. | Darmawansah<br>et al.     | 2024 | Indonesia                                        | ICT, Learning<br>Media         | Quantitative<br>(quasi-<br>experimental) | N/A                                       |
| 14. | Qamar et al.              | 2024 | India                                            | N/A                            | Qualitative                              | N/A                                       |
| 15. | Kucuk                     | 2024 | Iraq                                             | EFL                            | Mixed method                             | N/A                                       |
| 16. | Çelik et al.              | 2024 | Turkey                                           | EFL                            | Quantitative                             | N/A                                       |
| 17. | Pikhart et al.            | 2024 | Czech<br>Republic,<br>Taiwan, Iraq               | ICT, English<br>Studies        | Qualitative                              | N/A                                       |
| 18. | Pavlenko &<br>Syzenko     | 2024 | Ukraine                                          | Business,<br>Engineering, I.T. | Quantitative                             | N/A                                       |
| 19. | Xu & Thien                | 2024 | China                                            | EFL                            | Quantitative                             | UTAUT<br>Theory                           |
| 20. | Schenc                    | 2024 | USA, UK,<br>Canada,<br>Australia,<br>New Zealand | EFL                            | Qualitative                              | N/A                                       |
| 21. | Gao et al.                | 2024 | China                                            | EFL                            | Mixed method                             | EVT                                       |
| 22. | Muniandy &<br>Selvanathan | 2024 | Malaysia                                         | EFL                            | Mixed method                             | Constructivist<br>Learning<br>Theory, TAM |

| Outcome                                                                                                                   | Limitations                                                                        | Recommendations                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Supports autonomy and competence, personalized feedback                                                                   | Challenges in social connections, over-reliance on AI                              | Balance AI and human interaction, develop AI literacy and critical thinking                       |
| Engaged argumentation based on proficiency level                                                                          | Processing lengthy text may result in information loss                             | Train students to use prompts effectively for accurate output                                     |
| ChatGPT handles lexical and syntactic ambiguity better than semantic ambiguity                                            | Fails to understand linguistically complex sentences                               | Develop advanced algorithms for understanding code-mixed text and improve linguistic datasets     |
| Assists grammar acquisition, always available                                                                             | Fosters dependency, impairs critical thinking, impacts handwriting                 | Provide adequate training when incorporating ChatGPT in classrooms                                |
| Positive contribution to L2 reading                                                                                       | Minimal effect on reducing anxiety in single-shot interventions                    | Invest in cutting-edge technologies to innovate teaching methodologies                            |
| Enhanced engagement and motivation through interactive, personalized learning                                             | Connectivity issues, limited content diversity, slow internet speed                | Continuous development and innovation in digital tools                                            |
| Relied on for text editing and improvements                                                                               | Performance issues, error density, inadequate citing                               | Develop critical thinking and functional skills for effective AI tool usage                       |
| Effort expectancy, performance expectancy, and social influence positively affects learners' intention to utilize ChatGPT | N/A                                                                                | N/A                                                                                               |
| ChatGPT mimics elements of power distance (P.D.) but lacks cultural awareness in essay construction                       | Lacks cultural awareness, affects P.D. interpretation                              | Supplemental materials or explicit instruction to overcome AI shortcomings                        |
| Provides enhanced flexibility in language education                                                                       | Limited understanding of AI, reliance on traditional resources                     | Teachers should embrace technology and adapt it positively in the classroom                       |
| Improves learner confidence and speaking skills                                                                           | Technical issues, limited server capacity, concerns about validity and reliability | Provide training and resolve technical issues to maximize ChatGPT's effectiveness in ESL learning |

Table 3. Cont.

| No. | Authors            | Year | Country/<br>Region | Discipline        | Methodology  | Theory |
|-----|--------------------|------|--------------------|-------------------|--------------|--------|
| 23. | Allen & Mizumoto   | 2024 | Japan              | EFL               | Quantitative | N/A    |
| 24. | Niloy et al.       | 2024 | Bangladesh         | Creative Writing  | Experimental | N/A    |
| 25. | Moorhouse & Kohnke | 2024 | Hong Kong          | ILTE Programs     | Qualitative  | N/A    |
| 26. | Liu et al.         | 2024 | Hong Kong          | Interdisciplinary | Mixed method | N/A    |
| 27. | Yan et al.         | 2024 | China              | EFL               | Quantitative | N/A    |
| 28. | Li & Kim           | 2024 | Australia          | ESL               | Qualitative  | SRL    |
| 29. | Tseng & Lin        | 2024 | Taiwan             | EFL               | Qualitative  | TPACK  |
| 30. | Dong               | 2024 | China              | EFL               | Qualitative  | N/A    |
| 31. | Cheng              | 2024 | Hong Kong          | EFL               | Qualitative  | N/A    |
| 32. | Alharbi            | 2024 | Saudi Arabia       | ESP               | Mixed method | N/A    |

### Data Extraction

The final set of 32 studies underwent a detailed data extraction process following the screening process. A table was created to gather pertinent data from

| Outcome                                                                                                     | Limitations                                                               | Recommendations                                                                                      |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Students prefer AI for editing and proofreading                                                             | N/A                                                                       | Ethical implementation should be emphasized                                                          |
| Negatively impacts students' creative writing, particularly in originality and content presentation         | Negative impacts                                                          | ChatGPT usage should be limited to self-learning                                                     |
| Profound changes to curricula, instruction, and assessment are expected                                     | Lack of confidence and competence to address the implications             | Further research and training are needed                                                             |
| Helpful in learning academic communication skills, especially in writing, grammar, and reading              | Concerns about reliability, ethics, and impact on academic integrity      | Capitalize on AI affordances to better support students' critical academic literacy development      |
| It is a helpful tool but also a potential threat to critical thinking                                       | Over-reliance on AI leads to potential skill loss                         | Teachers must account for diverse learner attitudes when integrating AI into language education      |
| Positive perceptions of AFS use, helping learners track progress and gain confidence                        | Low digital literacy, poor internet access, and struggles with paid tools | Course structure should include a combination of human and automated feedback                        |
| Students improved their writing quality with ChatGPT's integration under the TPACK and ADDIE models         | Limitation for diverse writing types                                      | Balanced approach where AI complements rather than substitutes human ability                         |
| Facilitates English writing instruction by highlighting areas for improvement                               | Limited prompt usage to correcting grammatical errors                     | More research is needed                                                                              |
| AI tools are convenient for learning writing skills                                                         | Generalized, ambiguous feedback                                           | Caution and awareness of the ethical use of AI                                                       |
| Significant disparity between teacher awareness and student utilization of AI, affecting academic integrity | Discrepancies in assessing student knowledge and authenticity             | Professional development for teachers, ethical best practices, and open dialogue within institutions |

each article. The gathered data encompassed essential components including the author(s), publication year, and methodology. Furthermore, the geographical and academic context was recorded, specifying the countries and language programs

where ChatGPT was implemented. The outcomes of each study were also extracted, including ChatGPT's educational impact on language learning and pedagogical implications, to show how ChatGPT affected teaching strategies, student engagement, and language acquisition.

### **Data Analysis and Findings**

After the data extraction, the collected data were systematically categorized to facilitate analysis. This process allowed for identifying key trends and themes across the studies. Six themes were identified from the findings in Table 3, which include personalized learning, peer tutoring, pedagogical guidance, ethical use, impact on creativity, challenges, and improvements.

However, Table 3 provides a detailed synthesis of 32 studies examining the role of ChatGPT in language learning. Each entry includes the authors, publication year, region, discipline, methodology, theoretical framework, key findings, observed limitations, and proposed recommendations. The table highlights how ChatGPT supports language learning, the challenges it presents, and strategic suggestions for its responsible and effective integration into higher education contexts, which create the following questions.

### **What information do recent studies offer about ChatGPT in language learning at higher education institutions?**

#### **Year and geographical location**

Recent studies on ChatGPT in language learning (81.3%) were conducted in 2024, while only 18.7% were conducted in 2023. For instance, authors such as Nugroho et al. (2023) from Indonesia and Xiao and Zhi (2023) from China contributed to early discussions around ChatGPT's use in language learning. By 2024, research expanded globally with notable studies from Turkey (Karatas et al., 2024), Saudi Arabia (Mohamed, 2024), and the USA (Schenck, 2024), indicating broadening interest in AI-driven language education (Gao et al., 2024; Xu & Thien, 2024) and taking those articles from Asian countries, particularly in China (Dong, 2024; Gao et al., 2024; Xu & Thien, 2024), with studies extending across Europe (Klimova et al., 2024), North America (Barrett & Pack, 2023), and Oceania (Du & Alm, 2024). In Asia, countries like China, Indonesia, and Saudi Arabia, including regions like Hong-kong and Taiwan, are leading in exploring ChatGPT's role in EFL contexts, while in Europe, studies from Turkey and Ukraine emphasize interdisciplinary approaches. Research from the USA and Canada mainly investigates pedagogical implications

and ethical considerations in North America. Figure 2 shows that China leads with 14.3% of the total research output, and Hong Kong (China region) contributes 8.6%. Indonesia, Turkey, Ukraine, Czech Republic, USA, Saudi Arabia, and Taiwan (China region) account for 5.7% of the research. Countries such as Korea, Britain, New Zealand, India, Iraq, Malaysia, Japan, Asia-Pacific, Bangladesh, and Australia each contribute 2.9% to the total research output. Additionally, the category “Other (Multiple countries),” which includes collaborations across various nations, also accounts for 8.6% of the total research.

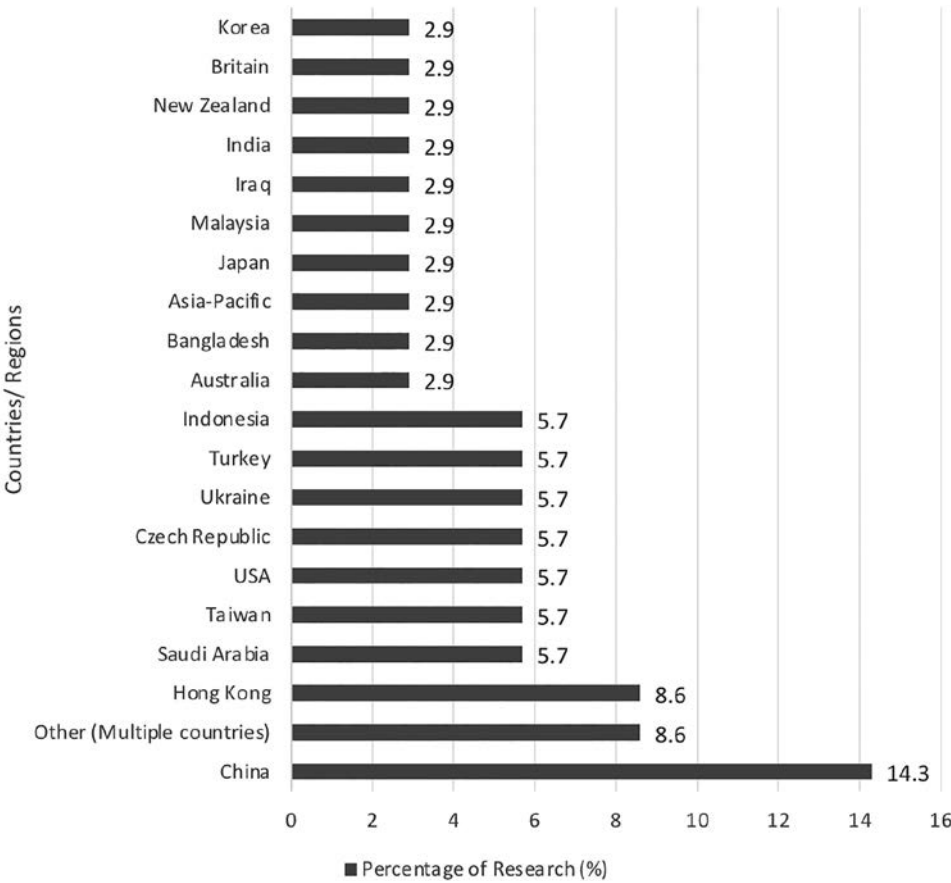


Figure 2. Distribution by research. Countries/regions.

Figure 2 is a bar chart showing the distribution of research by various countries or regions, with percentages ranging from 2.9% to 14.3%. China has the highest percentage, followed by Hong Kong (China region) and multi-country categories.

### Research Methodology

In terms of methodology, the reviewed studies essentially employ qualitative methods (e.g., Mohamed, 2024; Nugroho et al., 2023; Tseng & Lin, 2024; Xiao & Zhi, 2023), with mixed-method (e.g., Alharbi, 2024; Muniandy & Selvanathan, 2024) and quantitative methods (e.g., Lee & Davis, 2024; Qu & Wu, 2024) are also prevalent. Qualitative methods are often used to explore AI's impact on personalized learning and cultural biases, as seen in studies by Nugroho et al. (2023) and Mohamed (2024). Quantitative methods assess specific outcomes, as shown in Lee and Davis (2024), who evaluated self-regulation with ChatGPT. Mixed-method studies, such as Avsheniuk et al. (2024), provide comprehensive insights into benefits and challenges by combining qualitative and quantitative data. Statistically, Figure 3 reveals qualitative research as the most frequent (50%), followed by quantitative (21.9%), mixed-method (18.8%), and experimental or quasi-experimental approaches (9.4%). As seen in Figure 5, China uses all three methodologies, while countries like Turkey and Indonesia show a mix of qualitative and quantitative methods. Other countries, such as Iraq and the USA, display diversity in methodology. By 2024, qualitative studies will remain dominant, yet quantitative and mixed-method research will show increased representation (Figure 4).

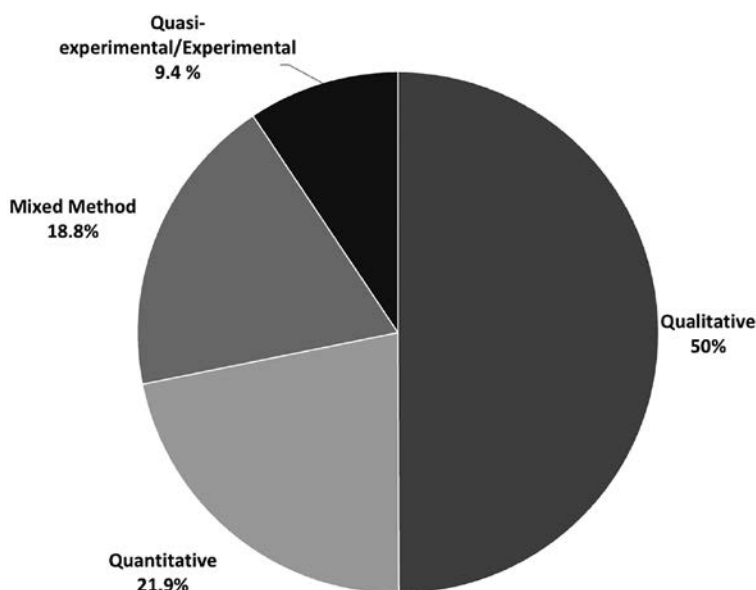


Figure 3. Distribution by research methodology.



The pie chart in Figure 3 depicting the breakdown of research methodologies indicates that most qualitative studies are followed by quantitative, mixed methods, and quasi-experimental/experimental approaches.

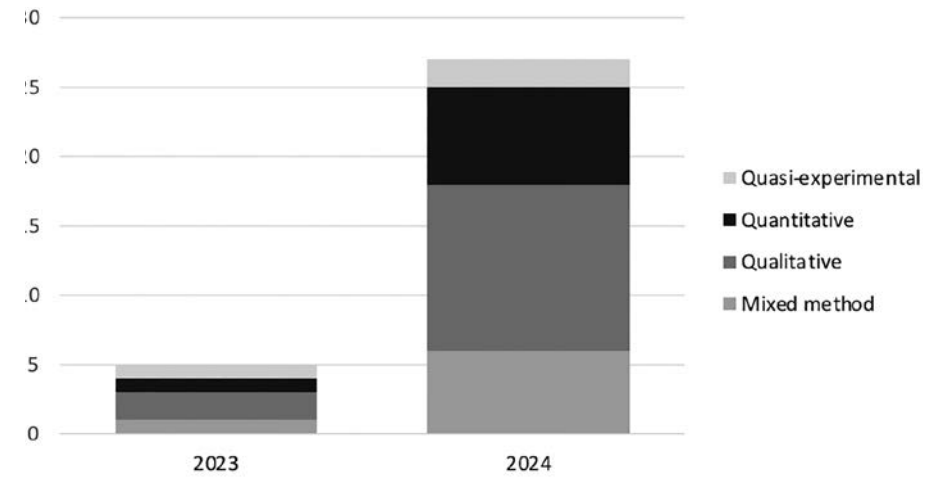


Figure 4. Year-wise methodology breakdown.

The stacked bar chart in Figure 4 displays the breakdown of research methodologies (qualitative, quantitative, mixed methods, quasi-experimental) by year, with qualitative research dominating both years, particularly in 2024.

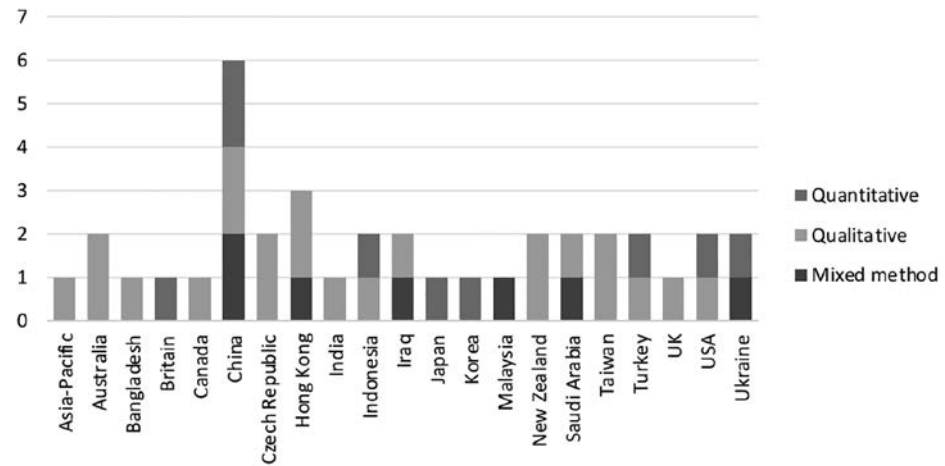


Figure 5. Country-wise methodology breakdown.

Figure 5 is a stacked bar chart displaying the distribution of research methodologies by country, with most countries showing a prevalence of qualitative and quantitative methodologies.

### Discipline

The studies span a variety of disciplines, with a significant focus on EFL and ESL education (e.g., Çelik et al., 2024; Karatas et al., 2024; Pavlenko & Syzenko, 2024). Additional applications encompass the utilization of ChatGPT in language courses by students from disciplines such as marketing, translation, data science (Xiao & Zhi, 2023), ICT (Darmawansah et al., 2025; Pikhart et al., 2024), and interdisciplinary studies (Liu, Park, & McMinn, 2024). As shown in Figure 6, EFL dominates with 34.4% of research, showing its prominence within language education. Other English-related disciplines (including ESL, EAP, ESP, and ENL) comprise another significant portion of the research, comprising 31.3% in other disciplines, such as creative writing, translation, ICT, marketing, business, and account for 28.1%.

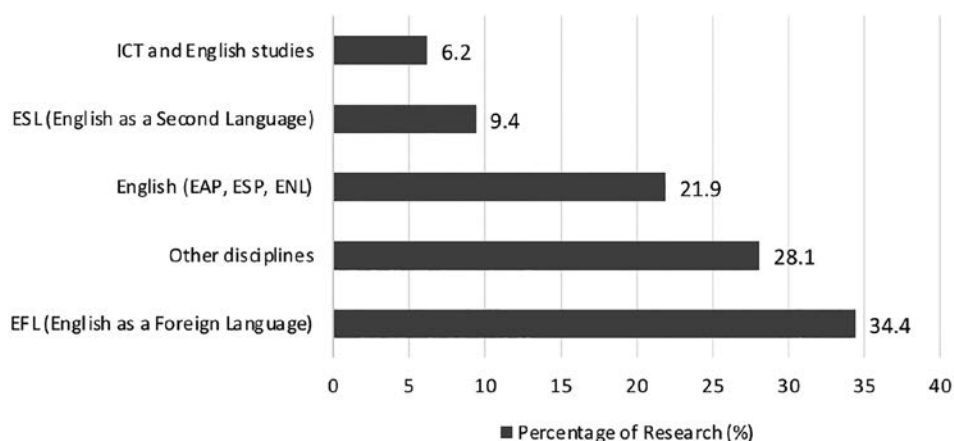


Figure 6. Distribution of research by disciplines.

Figure 6 is a bar chart depicting research distribution on using ChatGPT across language disciplines where English as a Foreign Language leads.

### Theoretical Frameworks

Several studies have shown a lack of a clearly defined theoretical framework focusing on practical applications and outcomes. However, some studies employ

established theories. For example, Du and Alm (2024) use SDT to explore how ChatGPT supports autonomy and competence in learners. Using the UTAUT framework, Xu and Thien (2024) investigate how effort expectancy and social influence impact learners' intentions to use ChatGPT. Theories like Constructivist Learning Theory (Muniandy & Selvanathan, 2024), EVT (Gao et al., 2024), and TPACK (Tseng & Lin, 2024) suggest that ChatGPT's role in language learning is increasingly framed within notable educational technology frameworks. Additional theoretical frameworks encompass the HSAM, representing an evolution of the TAM (Qu & Wu, 2024), three-tier technology use model (Cai et al., 2023). These theoretical perspectives provide a robust foundation for understanding how ChatGPT enhances learning processes and fosters learner independence.

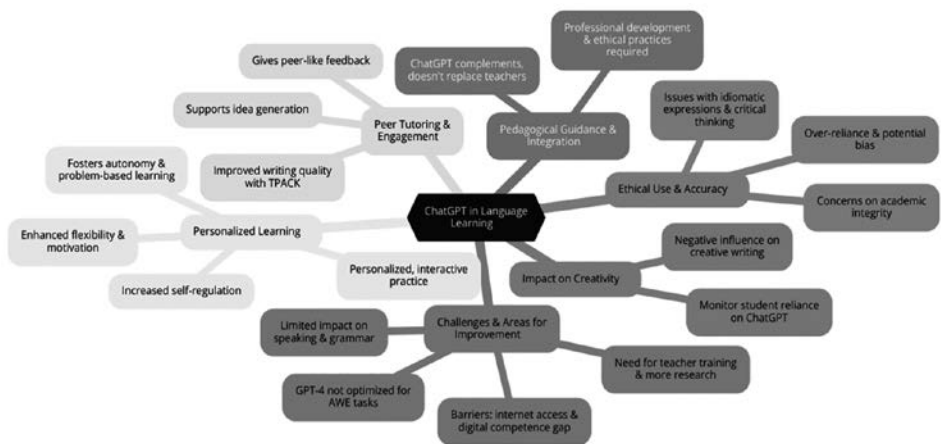


Figure 7. The mindmap of ChatGPT in higher institution language learning.

The mind map titled “ChatGPT in language learning” explores various aspects of ChatGPT’s usage including its strength, and challenges in language education.

However, reviewed studies offer critical insights into how ChatGPT facilitates language acquisition. ChatGPT consistently enhances personalized learning experiences by tailoring responses to individual requirements, promoting engagement and productivity (Mohamed, 2024; Nugroho et al., 2023). Additionally, it promotes interactive, personalized language practice that boosts intrinsic motivation (Qu & Wu, 2024). Another insight is ChatGPT’s role as a peer tutor. ChatGPT facilitates brainstorming and feedback, improving writing and text editing skills (Kucuk, 2024; Pavlenko & Syzenko, 2024; Xiao & Zhi, 2023). This grammar and formative assessment support aligns with increased learner autonomy, as students are encouraged

to self-regulate through goal-setting and time management (Avsheniuk et al., 2024; Du & Alm, 2024; Lee & Davis, 2024).

### **Challenges or limitations encountered in utilization of ChatGPT in language learning**

Notwithstanding many advantages of ChatGPT, numerous limiting factors have been recognized. Limitations encompass its capacity to undermine creativity, especially in generating original content (Niloy et al., 2024). Challenges also emerge concerning its accuracy and reliability, particularly in translation and text editing, where precision is paramount (Avsheniuk et al., 2024; Nugroho et al., 2023; Pavlenko & Syzenko, 2024; Xiao & Zhi, 2023). Research indicates that ChatGPT may generate erroneous or deceptive information (Darmawansah et al., 2025; Kucuk, 2024). Furthermore, cultural biases in ChatGPT's essay generation may result in misunderstandings or misrepresentations, especially in cross-cultural contexts (Schenck et al., 2024). Ethical concerns emerge, as too much reliance on ChatGPT may impede critical and creative thinking, possibly resulting in plagiarism and casting doubt on the originality of student work (Alharbi, 2024; Karatas et al., 2024; Niloy et al., 2024; Nugroho et al., 2023; Yan et al., 2024). Technical constraints impact usability, encompassing difficulties with intricate sentence processing (Qamar et al., 2024) and internet connectivity challenges in specific areas (Muniandy & Selvanathan, 2024). Moreover, Darmawansah et al. (2025) discovered that ChatGPT encounters difficulties processing extensive texts, potentially leading to information loss. On the other hand, Gao et al. (2024) emphasize that numerous EFL educators possess a constrained comprehension of AI tools instead of depending on conventional teaching materials.

### **Suggestions for the future application of ChatGPT in language acquisition**

A prevalent recommendation is to enhance digital proficiency among students and teachers. Nugroho et al. (2023) promote the advancement of technological awareness regarding the ethical application of AI. This entails instructing educators on incorporating ChatGPT into their pedagogy while preserving the cultivation of critical thinking abilities and complying with ethical standards (Barrett & Pack, 2023; Xiao & Zhi, 2023). Research suggests considering ChatGPT as an auxiliary tool instead of a substitute for educators to harmonize the advantages of AI with necessary human engagement (Karatas et al., 2024; Tseng & Lin, 2024). There is a demand for ongoing advancement and innovation of AI tools to enhance linguistic management and code-mixed text processing, thereby sustaining student engage-

ment (Pikhart et al., 2024; Qamar et al., 2024). Ultimately, ethical implementation is a consistent recommendation. Numerous authors, such as Mohamed (2024) or Liu, Park and McMinn (2024), underscore addressing ethical issues about user privacy, data security, and academic integrity using AI tools like ChatGPT.

## Discussion

This systematic review shows that studies on using ChatGPT in higher institution language learning have significantly increased, with 81.3% of studies conducted in 2024 compared to 18.7% in 2023. This surge reflects a growing global interest in integrating AI technologies into educational contexts, particularly in language acquisition. Notable contributions have emerged from researchers across various countries, including China, Indonesia, Turkey, Saudi Arabia, the USA, and the rest. Surprisingly, the geographical distribution of this research indicates a strong emphasis on Asia, particularly China, which leads to 14.3% of the total research output. Other countries such as Hong Kong, Indonesia, and Turkey also play significant roles in exploring ChatGPT's applications in EFL contexts. Methodologically, qualitative approaches dominate the research landscape at approximately 50%, while mixed-method and quantitative approaches account for 18.8% and 21.9%, respectively. Qualitative studies often focus on personalized learning experiences and cultural biases associated with AI integration. For instance, Nugroho et al. (2023) emphasize how ChatGPT enhances student productivity through personalized interactions. In contrast, quantitative studies like those by Lee and Davis (2024) assess specific outcomes, such as self-regulation among students using ChatGPT.

Interestingly, findings further indicate that ChatGPT significantly enhances language learning by assisting learners with tasks such as paraphrasing, translation, generating ideas for writing, vocabulary acquisition, grammar and syntax, and developing assessments and quizzes. This is converged with Huang et al. (2022), who noted that ChatGPT is a highly advanced AI chatbot that enhances language learning by providing input, instant feedback, and formative assessments. It offers real-time feedback that fosters learning autonomy and mimics human conversation by recognizing word meanings in context and correcting language errors (Kohnke et al., 2023). Despite its benefits in promoting personalized learning and improving language proficiency through immediate interaction, there are concerns regarding ethical implications, including academic integrity, plagiarism, deterioration of critical thinking abilities, and potential for dependency if not utilized judiciously. Furthermore, depending on ChatGPT's statistical patterns instead of logical reasoning may result in inaccuracies, inconsistencies, or offensive responses. Going

forward, suggestions for maximizing ChatGPT's use in language instruction include raising students' and teachers' digital proficiency to ensure effective AI integration. Looking ahead, recommendations for optimizing ChatGPT in language education involve improving digital proficiency among educators and learners to facilitate effective AI integration. It is important to position ChatGPT as an ancillary tool and not a replacement for traditional teaching methods, thereby mitigating reliance on AI and promoting critical thinking skills among students.

## Conclusion

From this review, there is a growing focus on the application of AI in language education within higher institutions, with investigations spanning various disciplines and methodologies across multiple geographical areas. 2024 has a significantly larger volume of research activity than 2023. Within this dataset, China and EFL studies dominate both in terms of the sheer number of studies and the diversity of methodologies employed. The qualitative methodology is the most frequently utilized approach, indicating a strong preference for in-depth exploration of ChatGPT in language learning. Additionally, quantitative and mixed methods have a substantial presence, with quasi-experimental and experimental approaches being relatively low. Furthermore, the findings indicate that although ChatGPT utilization in language learning provides substantial advantages, including improved writing and communication skills, personalized learning, autonomy, and improved motivation and engagement, it also presents challenges such as accuracy, ethical concerns, technical limitations, cultural biases, and over-reliance on AI. Future research and development should focus on enhancing digital competence, providing pedagogical guidance, addressing ethical issues, and developing more sophisticated AI tools that regulate ChatGPT to guarantee its practical and responsible application in language learning contexts.

## Limitations

This systematic review acknowledges potential limitations that may affect the findings. This study only focused on papers available in the WoS database. Although systematic searches were conducted to ensure thorough coverage of pertinent literature across WoS, some studies may have been overlooked. Therefore, future studies should expand the systematic review to include other databases.

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