

The Integration of ChatGPT in Language Education: Exploring Contexts, Assessing Impacts, and Unpacking Implications

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ABSTRACT

The integration of artificial intelligence (AI) in language education, exemplified by tools like ChatGPT, has sparked significant discourse. Since its introduction, ChatGPT has established itself as an indispensable educational tool and its relentless advancement remains undeniable. Therefore, comprehending the impact and educational potential of AI becomes paramount. This chapter explores the research contexts that provide insights into the background relevant to the integration of ChatGPT in language education. It also delves into the benefits and the current research issues in AI-enhanced language education. In essence, this chapter aims to shed light on the current landscape of AI in language education and its potential implications for teaching and learning. As the realm of language education experiences evolving innovation, this chapter emerges as a guiding beacon and illuminates pathways to harness the potential of AI in language education while upholding ethical standards and ensuring meaningful pedagogical transformations.

Language education fosters meaningful communication and interaction. At its core, it equips learners with indispensable skills to bridge linguistic divides and facilitates connections and collaborations across geographical borders. As teaching and learning innovations continue to be tested and researched, new insights are gained that influence teaching practices globally (Moeller & Catalano, 2015). Online platforms, interactive apps and immersive language experiences have opened doors to enhance education. In this digital age, technology is reshaping global communication, and digital literacy has become increasingly significant in foreign language use. This shift necessitates acquiring additional skills and a nuanced ability to navigate multimodal practices. Such practices include utilising diverse multimedia channels and creatively exploring newly enhanced technological options to align

with the evolving landscape of language education (Auer et al., 2022; Golonka et al., 2014; Shadiev & Yang, 2020; Ziegler & González-Lloret, 2022).

The rapid advancement of technology brings about a transformative era in language education, with a profound impact stemming from the integration of artificial intelligence (AI). A new wave of AI tools is emerging. They can be used to create new content, including text, images and computer programmes (Kukulska-Hulme et al., 2023). One such platform is ChatGPT, a cutting-edge AI language model, developed by OpenAI. The remarkable ability of ChatGPT to handle complex tasks has garnered significant attention in research articles within the domain of language education. While existing research has examined various aspects of ChatGPT in the context of language education, a noticeable gap persists in comprehensively understanding its empirical integration. This chapter aims to bridge this gap by analysing a collection of journal articles. It explores the specific research contexts in which ChatGPT has been integrated. It also discusses the benefits and challenges of an AI-enhanced learning environment. Furthermore, the chapter delves into the potential implications of such technologies on teaching and learning practices. As the field of language education evolves, the chapter emphasises the importance of adhering to ethical standards and highlights the significant improvements that AI can bring to pedagogical practices.

LITERATURE REVIEW

The role of AI in language education continually evolves and reshapes teaching and learning methods with the goal to enrich the language learning experience. The integration of AI has ignited substantial interest and debate among educators and researchers (Crompton & Burke, 2023; Huang et al., 2023; Rebolledo Font De La Vall & González Araya, 2023). The introduction of ChatGPT into language education has been hailed as a significant breakthrough in the field of AI (Roumeliotis & Tselikas, 2023). It is designed to engage in conversations with its users, respond to commands and produce text that appears to have been created by a human (Kukulska-Hulme et al., 2023). As a prominent AI language model, ChatGPT has attracted considerable attention in the field of language education and has become an increasingly prevalent and powerful tool for language learning and teaching.

Numerous researchers (Baidoo-Anu & Ansah, 2023; Baskara & Mukarto, 2023; Cai, 2023; Hong, 2023; Kasneci et al., 2023; Kohnke et al., 2023) have collectively underscored ChatGPT's significant pedagogical impact, highlighting its wide range of educational affordances. ChatGPT enriches language learning by providing a dynamic and interactive experience that cultivates authentic conversations with the chatbot. It serves as both a tutor and teacher for language learners, with a primary focus on enhancing personalised learning experiences. ChatGPT is capable of offering language instruction, creating materials and developing activities tailored to individual learners' needs,

interests, pace and language proficiency level. Another notable affordance of ChatGPT lies in its ability to provide immediate feedback. Its conversational capabilities enable learners to receive real-time feedback, helping them to refine their language proficiency and conversational fluency. This feature is invaluable for promptly identifying and rectifying language errors. Furthermore, ChatGPT supports self-evaluation, allowing learners to generate quizzes for self-assessment. This self-monitoring feature helps learners to track their progress and make informed decisions about their language learning journey. In addition, since the interactions occur with a machine, the secure and comfortable nature of the practice alleviates learners' concerns about making mistakes in front of others. This sense of security plays a crucial role in building confidence and encouraging active participation. Moreover, researchers argue that ChatGPT fosters a motivating learning environment. It gives learners control and keeps them engaged, further enhancing the effectiveness of language learning.

ChatGPT is a versatile and competent assistant that plays a notable role in supporting language educators. It offers a rich repository of content and examples to enhance teaching materials and curriculum development. Researchers have explored its potential as a teaching tool and its capacity to alleviate teachers' workload and provide substantial opportunities for teachers and educational institutions to enhance foreign language teaching and assessments. They have also shed light on how educators harness this platform to enhance language education (Hong, 2023). Simultaneously, it frees educators to focus on delivering personalised instruction and addressing the unique learning needs of individual students. As a result, ChatGPT serves as a facilitator in the educational process by delivering essential facts and fundamental knowledge when empowering educators to concentrate on the more nuanced aspects of teaching (Cai, 2023).

While the potential of ChatGPT in language education is evident, it is essential to acknowledge the challenges that come with its integration. Kohnke et al. (2023) distil these challenges into three core debates. The first debate delves into the ethical aspects of the use of ChatGPT in education in relation to concerns about potential cheating and its impact on assessment methodologies. Their second debate scrutinises the accuracy of chatbot responses, while their third discussion brings to light the cultural bias inherent in the source database and algorithms. The limitations of ChatGPT, such as its social bias and tendency to produce factually incorrect or irrelevant outputs, have been acknowledged by researchers (Cai, 2023; Kukulska-Hulme et al., 2023). Furthermore, Cai (2023) argues that ChatGPT lacks the adaptability of an experienced human teacher who can tailor their approach to specific situations and consider multifaceted factors and instincts, including dealing with handwritten tests that necessitate conversion into a digital format. Employing ChatGPT in language learning may also raise concerns about the potential replacement of human language teachers and the ethical

implications surrounding the use of a machine learning system for generating texts (Baskara & Mukarto, 2023).

Some researchers have explored the practical application of ChatGPT in language education. They have studied its role as a tool for English language instruction (Kostka & Toncelli, 2023), its usability in formal English language learning (Shaikh et al., 2023) and its potential to generate chatbot dialogues for enhancing the process of learning English as a foreign language (EFL) (Young & Shishido, 2023). Another central theme revolves around comparing EFL learners' satisfaction when presented with teacher-mediated writing opportunities versus ChatGPT-assisted ones (Ahmed, 2023). Additional studies have aimed to uncover students' experiences with ChatGPT and their perspectives on its role in language learning (Xiao & Zhi, 2023) and EFL learners' perception and utilisation of ChatGPT beyond the classroom (Liu & Ma, 2023). Researchers have also examined the impact of ChatGPT on students participating in a second language writing practicum (Yan, 2023) and within the context of language learning videos on YouTube (Li et al., 2023). Furthermore, research has delved into the perceptions of faculty members (Mohamed, 2023), EFL lecturers (Alexander et al., 2023; Guo & Wang, 2023) and researchers on ResearchGate (Bin-Hady et al., 2023). However, there has been a noticeable absence of a comprehensive examination of these studies. This review examines these articles, addressing the following research questions (RQs):

RQ1: What are the research contexts in which the identified studies were conducted?

RQ2: What are the benefits of using ChatGPT to enhance language learning?

RQ3: What are the challenges with using ChatGPT in language education?

RQ4: What are the implications of integrating ChatGPT in language education in diverse educational settings?

METHODOLOGY

Building upon the research questions raised in the introduction section, this section details the methodology, including the search terms and databases used, the selection criteria for literature and the process of identifying relevant studies. Furthermore, this section elaborates on the data coding and analysis process employed to derive meaningful conclusions from the selected studies.

Keywords and Inclusion Criteria

To identify relevant English-language empirical journal articles for this project, a keyword search was conducted. Specific keywords, such as "ChatGPT language education", "ChatGPT language learning" and "ChatGPT language teaching" were chosen because of their direct relevance to language education. Given its widespread usage, the English language was chosen to ensure broader

accessibility of findings within the global academic community. Additionally, this strategy was designed to circumvent potential challenges linked to translating and comprehending non-English publications.

The selection process involved the use of the Scopus and Web of Science databases. Complementing each other, these databases were utilised to identify a comprehensive range of articles on ChatGPT in language education. In addition, a forward citation search was conducted to further enrich the article selection process, given the relatively recent emergence of the use of ChatGPT in the field. In summary, the following inclusion criteria were applied to screen the articles identified through the search:

- Journal articles
- Investigations of the integration of ChatGPT in language education
- Reports of empirical data
- Publications in English

Identification of Journal Articles

The specified search timeframe extended from the initial integration of ChatGPT as a tool for language education to September 2023. The process of selecting relevant journal articles consisted of three stages. In Stage 1 (S1), Scopus was used to identify high-quality peer-reviewed journal articles. In the first phase of Stage 1, the keywords “ChatGPT language education”, “ChatGPT language learning” and “ChatGPT language teaching” yielded 107, 132 and 37 journal articles, respectively. In the second phase, unrelated articles were removed from the three lists. The elimination process entailed a comprehensive examination of the topics and abstracts of each article to ascertain their alignment with ChatGPT’s specific focus on language education, learning and teaching. The articles under consideration were empirical studies. Any articles that did not directly pertain to these themes were subsequently excluded. As a result, this phase retained 6, 8 and 3 articles on the three lists, respectively. The third phase involved cross-checking for any duplicates between the articles on the three lists. In the end, nine articles remained. Table 1 indicates the three search phases and results during the process of identifying and selecting relevant articles.

Table 1. Journal Article Selection Process in Stage 1 (S1) via Scopus

Phases	Activities	Keywords used	Number of journal articles found
Phase 1 (S1)	Search	ChatGPT language education	107
		ChatGPT language learning	132
		ChatGPT language teaching	37
Phase 2 (S1)		ChatGPT language education	6

	Topic and abstract evaluation	ChatGPT language learning	8
		ChatGPT language teaching	3
Phase 3 (S1)	Cross-checking	N/A	9
Total			9

Note. N/A = not applicable

In Stage 2 (S2) of the process of identifying journal articles, the Web of Science database was used. "Article" was set as the document type. The same set of keywords were employed as in Stage 1. This selection process consisted again of three phases. In the first phase, the keywords produced 117, 113 and 26 journal articles, respectively. The second phase removed unrelated articles, resulting in the identification of 4, 5 and 2 journal articles, respectively. The third phase of this stage involved cross-checking for any duplicates between the three lists. In the end, five articles were retained. Table 2 outlines the journal article selection process in Stage 2.

Table 2. Journal article selection process in Stage 2 (S2) via Web of Science

Phases	Activities	Keywords used	Number of journal articles found
Phase 1 (S2)	Search	ChatGPT language education	117
		ChatGPT language learning	113
		ChatGPT language teaching	26
Phase 2 (S2)	Identification	ChatGPT language education	4
		ChatGPT language learning	5
		ChatGPT language teaching	2
Phase 3 (S2)	Cross-checking	N/A	5
Total			5

Note. N/A = not applicable

As illustrated in Table 3, the first phase in Stage 3 of the process of identifying journal articles involved a cross-check for duplicates between the journal articles generated during Stage 1 and Stage 2. It was discovered that the 9 journal articles identified during Stage 1 included the 5 journal articles that were identified during Stage 2. A forward citation search was carried out using both Scopus and Web of Science to explore how the 9 journal articles were referenced in subsequent works. Three additional journal articles that cited some of the initial 9 journal articles met the inclusion criteria. As

a result, a total of 12 journal articles progressed into the final investigatory phase. The details of these 12 selected articles are summarised in Table 4 in the Appendix.

Table 3. *Journal article selection process in Stage 3 (S3)*

Phases	Activities	Database	Number of journal articles found
Phase 1 (S3)	Cross-checking for duplicates	Scopus and Web of Science	9
Phase 2 (S3)	Forward citation search	Scopus and Web of Science	3
Total			12

Data Coding and Analysis

The research data management and analysis for this study were primarily conducted using Microsoft Excel 2016 as the data storage and generation tool. To organise and structure the information in the articles, the process commenced by coding the selected articles and then categorised the findings under relevant themes. The themes served as a framework for interpreting the data and understanding the broader patterns and insights present in the research. The categorisation process yielded four main themes: research contexts, benefits, challenges and implications. Each of these main categories was further divided into several sub-categories. These sub-categories provided a detailed insight into the collected data and the iterative nature of this process allowed for a deeper and more nuanced understanding of the subject matter. Through coding, categorisation and analysis, the aim was to identify patterns, relationships and variations within the data.

RESULTS AND DISCUSSION

This section explores the research contexts of the identified studies, examines the benefits and challenges of integrating ChatGPT into language education and discusses its implications.

Research Contexts

The research contexts encompassed various aspects, including research sites, participants, research methods and data collection tools. Each of these elements played a crucial role in building a comprehensive understanding of the research environments and the processes involved in academic investigation.

Research Sites

The selected studies, comprising a diverse range of research sites, reflected a global interest in this field. In Europe, studies were carried out in Norway (Shaikh et al., 2023) and Cyprus (Alexander et al., 2023). The project in the United States (Kostka & Toncelli, 2023) contributed to North American insights. In the Middle East, studies in Saudi Arabia (Ahmed, 2023; Mohamed, 2023) explored the impact of the tool. Studies in China (Guo & Wang, 2023; Xiao & Zhi, 2023; Yan, 2023) and Japan (Young & Shishido, 2023) represented East Asian perspectives. Research on ResearchGate (Bin-Hady et al., 2023) represented an international academic community and research context. Research on YouTube (Li et al., 2023) underscored the utility of the platform in various language learning contexts. The study spanning multiple countries (Liu & Ma, 2023), including China, the United States and other Anglophone countries reflected the global applicability of ChatGPT in language learning.

Participants

The studies under investigation examined the use of ChatGPT in language education from various angles and engaged with diverse groups of participants. Some studies focused on educators and researchers, such as Alexander et al. (2023) who worked with a smaller group of six university English as a second language (ESL) lecturers teaching C1 level English academic writing courses. Guo and Wang (2023) engaged with five Chinese EFL teachers, with a focus on the importance of evaluating and implementing ChatGPT. Mohamed (2023) involved 10 EFL faculty members researching educators' perceptions. Bin-Hady et al. (2023) interacted with 20 researchers on ResearchGate from various universities around the world who had different linguistic backgrounds. They all were interested in technology-based language learning and teaching.

Other studies examined the perspectives of language learners. Liu and Ma (2023) investigated the use of ChatGPT in informal digital learning settings among 405 EFL learners. Meanwhile, Ahmed (2023) included 64 first-Year university EFL students to investigate the interest in ChatGPT among language learners. Kostka and Toncelli (2023) targeted international students in a pathways programme from both an undergraduate public speaking course and a graduate academic listening and speaking course. They shed light on the use of the tool in an academic context. Shaikh et al. (2023) engaged with 10 students from various departments and offered diverse participant profiles. Xiao and Zhi (2023) included five undergraduate students from an English-medium international university to provide insights into the student experience. Yan (2023) investigated the behaviours and reflections of eight undergraduate students majoring in EFL in response to their exposure to ChatGPT in writing classrooms. Young and Shishido (2023) analysed 450 dialogue samples in their research to demonstrate ChatGPT's potential in generating language learning content. The final study in this

context by Li et al. (2023) analysed 45 YouTube videos. It signified the influence of AI-driven content in language learning.

Research Methods

The research methods used in these studies demonstrated a blend of qualitative and quantitative approaches, reflecting the multidimensional nature of this field. On the qualitative front, Ahmed (2023) employed a qualitative design focusing on EFL learners' satisfaction with teacher-mediated versus ChatGPT-assisted writing opportunities. Bin-Hady et al. (2023) employed a qualitative study based on grounded theory to explore the dimensions of ChatGPT in language learning. Using qualitative content analysis, Mohamed (2023) delved into faculty members' perceptions and suggested a focus on detailed examination. Alexander et al. (2023) conducted a qualitative study to evaluate academic essays for AI-generated content. They pointed out its exploratory nature. Similarly, Xiao and Zhi (2023) and Yan (2023) adopted qualitative exploratory approaches to assess the impact of ChatGPT on learners in a second language writing practicum.

Li et al. (2023) adopted the inductive content analysis method, while Kostka and Toncelli (2023) included qualitative student quotations about the use of ChatGPT. Conversely, the studies by Guo and Wang (2023), Shaikh et al. (2023) and Young and Shishido (2023) applied quantitative approaches. Their studies reflected an interest in gathering numerical data to assess the potential of ChatGPT in supporting teacher feedback in EFL writing and generating dialogue materials for EFL learners, respectively. Similarly, Liu and Ma (2023) utilised a quantitative cross-sectional survey design to examine users' perceptions and acceptance of ChatGPT in informal English language learning. The versatility in research methods in this domain accommodated both the intricate exploration of participants' experiences and the quantitative measurement of the impact of ChatGPT in language education.

Data Collection Tools

The research data collection tools used in these journal articles reflected the diversity of approaches and underscored the adaptability of methodologies to explore the multifaceted role of ChatGPT in language education. Liu and Ma (2023) employed online surveys, in line with the digital nature of the use of ChatGPT. Mohamed (2023) conducted in-depth interviews with EFL faculty members. Although conducted via email, the interviews allowed for extensive exploration of their perceptions. Xiao and Zhi (2023) employed semi-structured interviews to investigate students' experiences with ChatGPT and its role in language learning. Ahmed (2023) relied on interviews to gather qualitative data when engaging directly with university freshman EFL students, while Yan (2023) utilised observation and in-depth interviews to assess the impact of ChatGPT in a second language writing practicum, with a focus

on experiential data. Similarly, Kostka and Toncelli (2023) utilised student quotations and incorporated them in their study, emphasising participant engagement and perspectives in pathways programmes.

In contrast, Alexander et al. (2023) combined various methods such as essay sample preparation, AI detectors and the analysis of texts by ESL lecturers to examine AI-generated content in academic essays. Guo and Wang (2023) used a combination of ChatGPT, EFL teachers' feedback on students' writing and questionnaires answered by EFL teachers to evaluate the potential of ChatGPT in supporting teacher feedback. Shaikh et al. (2023) also adopted questionnaires to collect data, while data for Bin-Hady et al. (2023) was collected through discussions. Li et al. (2023) uniquely collected primary data from videos on YouTube and supplemented their findings with secondary data from the associated comments on the videos. Young and Shishido (2023) adopted established readability assessment tools such as Flesch Reading Ease, McAlpine EFLAW and Dale-Chall to evaluate the effectiveness of ChatGPT in generating dialogue materials for EFL students.

Impacts of the Integration of ChatGPT in Language Education

The selected journal articles reflected a keen interest in integrating ChatGPT into language education. They underscored ChatGPT's applications and potential in teaching and learning languages. The exploration of both learners' and academics' experiences with ChatGPT addressed its benefits and challenges, highlighting its role in the ongoing evolution of language education.

Benefits of Using ChatGPT

Several major themes emerged regarding the benefits of using ChatGPT. The first theme highlighted ChatGPT's effectiveness in enhancing learning. The use of ChatGPT was also linked to learners' attitudes towards ChatGPT and their engagement levels. In addition, ChatGPT served a dual role as both a source of valuable feedback and a personal tutor, assisting with various language-related tasks. Furthermore, ChatGPT was recognised as a valuable tool in supporting teachers' efforts in education.

Language Learning

The contributions of various authors underscored the substantial role of ChatGPT in facilitating language learning across various dimensions. Shaikh et al. (2023) emphasised how ChatGPT expanded vocabulary, improved grammatical and syntactical structures, and enhanced written and conversational skills. Similarly, Bin-Hady et al. (2023) discovered that ChatGPT offered five subcategories of language skill development, including enhancing EFL conversation practice, reading and writing skills, grammar mastery, vocabulary and pronunciation. Yan (2023) underscored the significance of ChatGPT in assisting L2 writing when students interacted with the system.

Also with a focus on writing, Xiao and Zhi (2023) reported on improved textual quality and language competence with the assistance of ChatGPT. Moreover, they asserted that ChatGPT aided language proficiency when students employed critical thinking skills to modify prompts, trained the model and selectively accepted outputs. Young and Shishido (2023) suggested that the dialogues created by ChatGPT were well-suited for students at level A2 (elementary level) of the Common European Framework of Reference (CEFR) for Languages and B1 (intermediate level) for learning new words. They provided comprehensible content and stimulated vocabulary acquisition. Mohamed (2023) highlighted the advantages of ChatGPT in EFL learning, such as real-time feedback, personalised instruction, a vast knowledge base, natural language processing, human-like responses and cost-effectiveness.

Student Attitude

The integration of ChatGPT in language learning and its impact on student attitude was a key focus in the examined studies. Two studies highlighted the significance of student attitude in influencing the adoption and acceptance of ChatGPT for language learning. Liu and Ma (2023) found that learners with a positive view of ChatGPT's usefulness were more likely to intend to use it, a tendency that was strongly linked to their actual English learning outside the classroom. In addition, their research indicated that even EFL learners who initially found ChatGPT challenging could gradually develop a positive attitude and interest in the technology as they recognised its benefits.

In a similar vein, Xiao and Zhi (2023) reported that students in their study displayed a positive attitude towards using ChatGPT, overwhelmingly supporting its adoption in universities instead of its prohibition. Students' acknowledgement of ChatGPT's significant benefits seemed to mitigate concerns about its potential drawbacks, reflecting a favourable view of its integration. Shaikh et al. (2023) further emphasised the effortless and friendly interface of the tool, which greatly enhanced user experience. The high satisfaction ratings and positive student feedback regarding the acceptance of ChatGPT underscored its promising and practical value for language learners.

Engagement

The findings of multiple authors demonstrated the positive impact of ChatGPT on student academic engagement. Kostka and Toncelli (2023) observed an increase in student engagement with both course materials and their interactions with peers after integrating ChatGPT into classes. This heightened engagement led to a more enthusiastic approach to learning content and a deeper interest in critically analysing the output generated by ChatGPT. Similarly, Liu and Ma (2023) found a general consensus among participants regarding the usefulness of ChatGPT in various English learning activities.

Particularly noteworthy was ChatGPT's role as a creative tool that effectively enhanced engagement in independent learning activities outside the classroom.

The positive engagement fostered by ChatGPT effectively impacted learning, enhancing student autonomy, boosting independent learning and encouraging critical evaluation of AI-generated information. Xiao and Zhi (2023) highlighted that an engaging learning process not only enhanced language skills but also promoted student autonomy. Learners actively engaged in self-revision, based on the suggestions provided by the system. In this sense, their findings echoed those of Liu and Ma (2023), who also noted the promotion of more active and independent language learning experiences through independent learning activities. Also according to Xiao and Zhi (2023), the involvement of students in modifying prompts, training the system and critically evaluating the output showed a remarkable capacity for critical thinking. Students developed a critical stance towards the role of ChatGPT in English language learning, consistently critiquing its limitations in various learning aspects. They emphasised the importance of evaluating the usability of the information generated.

Feedback

Recognised as a tool for scaffolding learning, ChatGPT emphasised its capabilities in offering students feedback, as highlighted by Bin-Hady et al. (2023). In line with this, Shaikh et al. (2023) argued that ChatGPT acted as a support tool for practising a foreign language. Furthermore, ChatGPT served as a personalised learning partner or personal tutor, delivering easily accessible and adaptive feedback (Xiao & Zhi, 2023). It had the capacity to review writing and speaking assignments, offer corrections for grammar, vocabulary and pronunciation errors and suggest improvements, including alternative word choices, sentence structures and pronunciation techniques (Ahmed, 2023).

However, some distinctions between ChatGPT and teacher feedback in their approach to evaluating student writing were noted. ChatGPT typically provided feedback more quickly and in larger quantities, whereas teachers needed more time to evaluate student essays and provide feedback. In addition, the nature of the feedback differed. ChatGPT offered more directive feedback, whereas teachers typically employed informative and query-based feedback, especially when assessing content and language aspects of student essays. Moreover, ChatGPT tended to provide more praise when evaluating the content of student essays and offered more summaries regarding the organisational aspect. This demonstrated unique characteristics compared to traditional teacher feedback (Guo & Wang, 2023).

Personal Tutor

ChatGPT effectively fulfilled the role of a personal tutor. This innovative tool provided learners with a dynamic platform for engaging in various linguistic exercises, including asking questions, discussing

diverse topics, and simulating real-life dialogues. Such interactive features proved instrumental in enhancing motivation among learners, particularly in the context of foreign language learning, as noted by Shaikh et al. (2023). Further emphasising ChatGPT's role as a personal tutor, Xiao and Zhi (2023) conducted research demonstrating how participants extensively used ChatGPT for various educational tasks. One significant use case was text revision, in which learners sought ChatGPT's assistance for structural and content suggestions in their essays. In addition, ChatGPT proved helpful in providing examples and ideas to strengthen the arguments in written work. This capability became especially beneficial in larger classroom settings, where the number of students might limit individual attention from teachers. As noted by Xiao and Zhi (2023), the assistance offered by ChatGPT extended beyond mere language practice; it encompassed a more comprehensive approach to language skill development. By offering personalised feedback and suggestions, ChatGPT enhanced learners' understanding of language nuances and improved their ability to construct coherent and sophisticated texts. This personalisation was particularly crucial in language learning, where the needs and learning paces of students could vary significantly.

Teachers' Aid

The question of whether ChatGPT could entirely replace human language teachers led to a consensus that it cannot fully serve as a substitute. This consensus primarily arose from the understanding that certain aspects of human interaction, such as humour, wit and empathy, could not be replicated or programmed into AI technology (Li et al., 2023). However, ChatGPT exhibited characteristics of a knowledgeable native speaker and proved useful in extended conversations, avoiding language fatigue (Li et al., 2023). It demonstrated the ability to understand essay content, offer relevant revision suggestions, use praise for student achievements and employ flexible language in feedback (Guo & Wang, 2023). Academics viewed ChatGPT as a collaborator and a valuable source of learning, leading them to use it for generating feedback on student writing. As a result, there was a prevailing view that a combination of AI and human interaction represented a promising approach for enhancing language learning experiences (Li et al., 2023).

ChatGPT demonstrated the capacity to effectively assist educators in automating mechanical tasks, such as assigning grades and evaluating assignments based on criteria like grammar accuracy, vocabulary usage and syntax correctness, thereby saving time and effort (Ahmed, 2023). Furthermore, ChatGPT played an integrative role alongside teachers in contributing to language learning (Bin-Hady et al., 2023). Research highlighted the potential of ChatGPT to enhance the efficiency of EFL teachers by complementing traditional teaching methods, thereby improving student language proficiency and success (Mohamed, 2023). In addition, Xiao and Zhi (2023) emphasised the importance of teachers

embracing this AI tool and providing appropriate guidance to students. They underlined the need for educators to adapt and effectively integrate ChatGPT in the teaching process.

Challenges Related to the Use of ChatGPT

Despite the multifaceted benefits of ChatGPT in language education, several challenges were presented. These included inaccessibility, inaccuracy of information, inappropriate feedback and responses, and inappropriate language levels produced by ChatGPT. Learners' ethical and privacy concerns and the potential replacement of humans also posed significant challenges.

In their study, Guo and Wang (2023) emphasised the negative impact of inaccessibility, highlighting how it prevented teachers in certain countries or regions from using ChatGPT as an educational tool. This gap in accessibility limited the widespread availability of this powerful resource to educators and deprived students of its potential benefits. Furthermore, Mohamed (2023) pointed out that AI-powered language learning tools might not suit those without access to necessary technology. Despite its advanced capabilities, ChatGPT was still susceptible to errors or deviations from correct language use. In their research, Li et al. (2023) observed that these inaccuracies posed challenges in crafting accurate and effective prompts. Similarly, Mohamed (2023) expressed concerns about ChatGPT's precision, particularly with idiomatic expressions, cultural references and other nuanced aspects of human language.

The tendency of ChatGPT to produce inappropriate feedback was a concern for educators. For instance, Guo and Wang (2023) observed that ChatGPT occasionally deviated from the expected feedback focus, providing off-task feedback. In contrast, EFL teachers in the same study consistently provided on-task feedback, highlighting a significant discrepancy between ChatGPT and human instructors. Furthermore, teachers expressed concerns about aligning ChatGPT's evaluation criteria with their own. The lack of in-depth knowledge about the class and individual students further compounded this issue. Echoing this concern, Mohamed (2023) emphasised the limitations of ChatGPT, including generating inappropriate responses and facing challenges in adequately addressing critical language components.

The suitability of the materials generated by ChatGPT for language learners at all levels was a complex issue. Li et al. (2023) pointed to a contradiction in this regard. They implied that ChatGPT may not cater to the diverse proficiency levels of language learners. As Young and Shishido (2023) suggested, the dialogues produced were well-suited for students with CEFR A2 proficiency, enabling them to comprehend most of the words used. However, creating content for students at higher CEFR levels had its limitations. While dialogues intended for CEFR B1 students benefited those at the A2 level by exposing them to new vocabulary, the need for more advanced content, tailored specifically for higher-level learners, remained. Consequently, ChatGPT's potential to provide valuable resources

and its alignment with the varied needs and abilities of learners across different proficiency levels may not be consistently effective.

The adoption of ChatGPT raised several ethical and privacy concerns. Mohamed (2023) emphasised the urgency to address these issues. The primary ethical concerns centred around the risk of perpetuating language biases and stereotypes. In addition, there were substantial privacy and data protection concerns, especially in safeguarding student data during interactions with the technology. The research also highlighted apprehensions about ChatGPT potentially replacing human roles. According to Kostka and Toncelli (2023), some students recognised the need for human intervention when using ChatGPT, acknowledging that, while beneficial, technology cannot fully replace human guidance and expertise. Yan (2023) further revealed the concerns about the unrestricted use of ChatGPT in L2 writing. Participants in the study demonstrated more concern than satisfaction when it came to the fully automated workflow of ChatGPT. Undergraduate EFL learners, particularly those with limited exposure to the latest technologies, were uneasy about the potential displacement of human educators in L2 writing pedagogy.

Bridging Findings and Literature

The findings have effectively demonstrated the connection between empirical evidence on ChatGPT's role in language education and existing academic discourse. This connection is particularly evident in the authentic learning contexts enabled by integrating ChatGPT, a conclusion supported by literature from Baskara and Mukarto (2023), Cai (2023), Hong (2023) and Kohnke et al. (2023). This integration is evident in the learning content created by ChatGPT and its dual roles as both a feedback provider and a personal tutor. A profound impact of ChatGPT on language learning is its ability to enhance various aspects of the learning process, such as improving conversational skills, reading, writing, grammar and pronunciation. Designed for diverse groups of participants, ChatGPT offers personalised instruction, thereby enriching the learning experience, although its effectiveness may currently vary across different proficiency levels. Its capability to provide language learning content tailored to different learners and skills mirrors real-world scenarios. This particular aspect is emphasised in the research by Baskara and Mukarto (2023) and Cai (2023). Moreover, in line with the findings of Baskara and Mukarto (2023), Cai (2023) and Hong (2023), ChatGPT's provision of personalised and adaptive feedback is highlighted as a unique characteristic that sets it apart from traditional teacher feedback in language education. As a personal tutor, ChatGPT facilitates language learning by engaging in questions, discussions and simulated dialogues that resemble human-like responses. This approach aligns with the assertions of Kohnke et al. (2023), Baskara and Mukarto (2023) and Hong (2023), who praise ChatGPT's interactive and personalised teaching capabilities, as well as those of Cai (2023), who emphasises its adaptability to each learner's unique requirements.

Another significant aspect of the findings is ChatGPT's role in empowering students to actively engage in their learning process. Several impactful areas have been identified. The findings indicate that ChatGPT, serving as a personal tutor, plays a crucial role in enhancing learner motivation, making learning materials more appealing and interactive. Its personalised interactions with learners ensure that they remain engaged and motivated, as emphasised by Cai (2023). ChatGPT's ability to function as a personalised tool also allows learners to engage with the AI's output and explore topics more independently. Students with favourable perceptions of ChatGPT's effectiveness are more inclined to use it, leading to a significant increase in their independent learning outside the classroom environment. This level of engagement is crucial for developing self-directed learners who can navigate and assimilate information without direct supervision from teachers. This resonates with the literature's focus on learner-driven control and engagement (Cai, 2023). These findings not only validate the existing literature but also add depth by detailing specific instances of increased student enthusiasm and active participation in learning activities.

The integration of ChatGPT in language education requires careful consideration of educators' input, a factor that is prominently emphasised in the findings. On one hand, the findings indicate that, while ChatGPT cannot replace human language teachers, its role as a knowledgeable assistant is significantly valuable. Academics regard ChatGPT as a collaborator that, when combined with educators' involvement, enhances the teaching and learning process. Serving as an effective support tool, it aids in extended conversations and tasks such as grading and assignment evaluation. This synergy points to a promising future for AI-augmented language education. The roles of ChatGPT, in line with its characterisation as teachers' aid (Cai, 2023; Hong, 2023), contribute to reducing their workloads. On the other hand, there are notable concerns, such as the potential of ChatGPT replacing human roles in teaching. These apprehensions, as echoed by Baskara and Mukarto (2023), reflect broader scepticism about the role of AI in education. Therefore, it is crucial to strike a balance between technological advancements and the essential role of human oversight and interaction within the educational process.

Echoing the study of Kohnke et al. (2023), the findings emphasise the challenge of ensuring accurate responses and alignment with educational standards. They also highlight the challenges educators face, such as ChatGPT's occasional delivery of inappropriate feedback and its difficulty in understanding students' specific needs. These issues correspond to identified limitations of ChatGPT, such as its tendency to produce factually incorrect or irrelevant outputs, as noted by Cai (2023) and Kukulska-Hulme et al. (2023). Furthermore, the integration raises ethical considerations, particularly concerning adaptability and data privacy. This reflects concerns about cultural and social biases in the

source database and algorithms, as discussed by Cai (2023), Kohnke et al. (2023) and Kukulska-Hulme et al. (2023).

Notable differences between the two sources include the emphasis in the literature on ChatGPT's role in creating a comfortable and safe learning environment. This aspect, highlighted by Cai (2023), enhances learner confidence and encourages participation, yet it is not specifically addressed in the findings of this research. While this study aligns with the existing body of knowledge, it also expands upon it. It offers new insights, such as the challenges in accessing AI tools like ChatGPT in less advantaged regions and the generally positive attitude of students towards ChatGPT in facilitating the learning process. Students appreciate ChatGPT's ease of use and effectiveness in language learning, leading to increased acceptance and high satisfaction scores. They also favour integrating ChatGPT into educational settings, recognising its significant benefits. In addition, the findings reveal that students generally view ChatGPT positively in the context of language learning, appreciating its practicality and accessibility, and recognising its potential to facilitate more effective and engaging learning processes. Moreover, the findings suggest that ChatGPT encourages critical thinking in students, prompting them to modify prompts, train the system, and selectively accept information. This helps students to evaluate the usability of generated information and develop a critical stance towards the role of AI in language learning, an aspect not exclusively highlighted in the existing literature.

IMPLICATIONS

The significant outcomes of this project also lie in the implications that it carries. These implications are not just about technological advancements but also include pedagogical and ethical considerations that can shape a more effective and responsible approach to language teaching and learning.

Technological Implications

As the landscape of language education progresses, the necessity for AI technologies like ChatGPT to undergo regular updates and monitoring becomes increasingly apparent. More than just enhancing the learning experience, these efforts are crucial for aligning educational journeys with the rapid pace of technological advancements. A key aspect of this evolution involves integrating AI tools like ChatGPT into educational platforms. This necessitates a design that is not only compatible with existing digital tools and learning management systems but also user-friendly and intuitive. This ensures their relevance and effectiveness in an evolving educational environment. Central to this process is the continuous professional development and support extended to educators. It is essential that educators are trained not only in the technical aspects of AI tools but also in effectively integrating these tools

into their teaching practices. An example of this is the revision of assessment policies and the development of suitable rubrics and criteria, as suggested by Alexander et al. (2023).

Moreover, educators should explore strategies that facilitate the integration of AI tools into language education, adopting effective pedagogical frameworks. In this context, Xiao and Zhi (2023) highlight the benefits of integrating tools like ChatGPT in language classrooms. They propose strategies that enable students to use these tools legitimately and productively. Complementing this, Tseng and Warschauer (2023) present a comprehensive five-part pedagogical framework (understand, access, prompt, corroborate and incorporate), specifically designed to support second language learners. Such frameworks are instrumental in helping both educators and students to understand how to effectively collaborate with AI technologies. This prepares them for a future increasingly intertwined with technological advancements, both within the educational sphere and beyond.

Pedagogical Implications

As AI technologies continue to advance, their impact on language education is set to grow, transforming the ways in which languages are taught and learnt. Among the pedagogical implications, a significant aspect is the role of ChatGPT as teachers' aid. This involves the substantial role of AI in augmenting educators' capabilities, as demonstrated by this project. By handling routine tasks, AI technologies enable educators to focus on more personalised, adaptive and authentic aspects of teaching. This includes monitoring AI's interactions with students and the feedback it provides. Ensuring that AI serves as a reliable and effective tool is essential for students engaging with it in language learning, and it also enriches the overall teaching experience. Educators are thus encouraged to deliberately integrate AI-driven tools into their teaching practices.

Moreover, AI technologies like ChatGPT act as personalised tutors, offering valuable feedback to students. This capability plays a crucial role in student learning, particularly in fostering independent learning opportunities outside of the classroom where teachers are not present. This underscores the need to adapt language education methods to integrate such pedagogical advancements. On another level, this development calls for educators to re-evaluate the significance of students' contributions to their learning processes. Leveraging the supportive role of AI technologies, educators should encourage students to engage in collaborative and reflective interactions with AI. This approach may involve incorporating students' input into the learning process. In addition, educational institutions should initiate open dialogues with students, educating them about the responsible use of AI tools and informing them about their limitations, biases, inaccuracies, and the ethical considerations involved. As Mills et al. (2023) suggest, engaging students in such a collaborative manner fosters emergent,

student-centred and student-guided methods of exploring AI, contributing to broader societal discussions about its future role.

Ethical Implications

One crucial ethical implication is addressing bias in AI algorithms. Therefore, educators are responsible for preventing the reinforcement of prejudices through these AI models. This ensures that the language and content generated by AI tools, particularly for teaching purposes, are as unbiased as possible, reflecting the utmost efforts of educators. Equally important is safeguarding students' privacy. Considering the need for ethical use of student data, it is imperative that educators establish and strictly adhere to rigorous protocols and policies. This step is crucial in ensuring the protection of student privacy and in guaranteeing responsible and ethical handling of their data.

In addition, educators must ensure the appropriate and judicious use of AI to avoid the risk of becoming overly reliant on it for educational purposes and potentially diminishing the value of human input and interaction in the learning process. Therefore, it is essential for educators to strike a balance between leveraging AI for its advantages and preserving the irreplaceable human elements of teaching languages. Moreover, AI has the potential to bridge accessibility gaps in language education. Educators need to ensure that all students, particularly those in resource-limited areas, have equitable access to the necessary technology for using AI tools. Implementing such practices not only enriches learning environments but also helps to create a more diverse and technologically inclusive educational landscape.

CONCLUSION

This chapter has comprehensively reviewed research from various geographies and online platforms, uncovering a significant global interest in integrating ChatGPT in language education. The inclusion of diverse participant groups, such as educators, researchers, and learners, has offered deep insights into the complex implications of ChatGPT in this field. The use of both qualitative and quantitative research methods has highlighted the multifaceted nature of this dynamic educational technology. In addition, the chapter has emphasised the considerable benefits, challenges and broader implications of ChatGPT within the educational context.

However, this chapter is not without its limitations. The relatively small sample size of 12 selected articles may limit the generalisability of the findings. In addition, the inclusion criteria, which required articles to be in English, could have introduced language bias and possibly excluded valuable non-English language research. Moreover, relying primarily on the Scopus and Web of Science databases for article identification might have overlooked relevant articles from other databases,

potentially leading to selection bias. Although forward citation search was conducted to identify additional articles, the chosen timeframe for article inclusion, ending in September 2023, may have excluded newer research pertinent to the topic.

Despite these limitations, the chapter provides valuable insights into AI-driven projects in various educational settings, as exemplified by ChatGPT. It highlights the technology's impact from the perspectives of both students and educators. The chapter's significance lies in its thorough exploration of AI's role in language education, demonstrating its potential to shape the future of this field. This analysis equips educators, researchers and policymakers with insights to guide their strategies for effectively integrating AI in language education. It advocates for leveraging the benefits of AI tools like ChatGPT while thoughtfully addressing the challenges and ethical considerations inherent in their use. As language education continues to evolve, understanding and adapting to AI technologies will be crucial in enhancing learning experiences and outcomes.

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KEY TERMS AND DEFINITIONS

AI: Or Artificial Intelligence, is a system that simulates human intelligence and can perform tasks traditionally carried out by humans.

AI technologies: Refer to systems that utilise principles and techniques of AI to carry out various tasks.

ChatGPT: Is a prominent AI language model developed by OpenAI. The remarkable ability of ChatGPT to handle complex tasks has received significant attention in the field of language education.

Language education: Aims to foster effective communication and meaningful interaction in different linguistic and cultural contexts. It provides learners with skills to overcome linguistic barriers and collaborate across diverse geographical boundaries.

Language learning: Is a process through which learners immerse themselves in a new language, developing proficiency in its linguistic components, language learning skills and cultural awareness.

This comprehensive development contributes to their ability to effectively use the language for communication and understanding in real-world contexts.

Learner attitude: Refers to the emotions, thoughts and actions of learners towards their learning process.

Learner engagement: Is characterised by the extent of involvement and enthusiasm displayed by learners as they participate in their learning process, impacting their learning outcomes.

Language teaching: Is a process through which teachers aim to enhance learners' linguistic proficiency, develop their language learning skills, foster their cultural awareness and enable learners to use the language effectively for communication and understanding in real-world contexts.

APPENDIX

Table 4. Summary of the Selected Journal Articles

	Authors	Publication Year	Title of Publication	Number of Participants	Participants	Research Site	Research Design	Data Collection Tools
1	Ahmed	2023	ChatGPT and the EFL classroom: Supplement or substitute in Saudi Arabia's eastern region	64	First-year university EFL students	Saudi Arabia	Qualitative design	Interviews
2	Alexander et al.	2023	Who wrote this essay? Detecting AI-generated writing in second language education in higher education	6	ESL lecturers (C1 level English academic writing)	Cyprus	Exploratory qualitative study	Essay sample preparation; AI detector analysis of essays; ESL lecturer text analysis
3	Bin-Hady et al.	2023	Exploring the dimensions of ChatGPT in English language learning: A global perspective	20	ResearchGate researchers in technology-based language learning and teaching	ResearchGate	Grounded theory-based qualitative study	Discussion data collection
4	Guo and Wang	2023	To resist it or to embrace it? Examining ChatGPT's potential to support teacher feedback in EFL writing	5	Chinese EFL teachers	China	Exploratory study	ChatGPT feedback; EFL teacher feedback; EFL teacher questionnaires
5	Kostka and Toncelli	2023	Exploring applications of ChatGPT to English language teaching: Opportunities, challenges, and recommendations	n/a	International students in a pathways programme	USA	Qualitative student quotations	Student quotations
6	Li et al.	2023	Exploring the multilingual applications of ChatGPT: Uncovering language learning affordances in YouTuber videos	45	YouTube video content	YouTube	Inductive content analysis	YouTube videos (primary data) and comments (secondary data)
7	Liu and Ma	2023	Measuring EFL learners' use of ChatGPT in informal digital learning of English based on the technology acceptance model	405	EFL learners	China, the United States, Other Anglophone countries	Quantitative cross-sectional survey	Online survey

8	Mohamed	2023	Exploring the potential of an AI-based Chatbot (ChatGPT) in enhancing English as a foreign language (EFL) teaching: Perceptions of EFL faculty members	10	EFL faculty members	Saudi Arabia	Qualitative content analysis	Email interviews
9	Shaikh et al.	2023	Assessing the usability of ChatGPT for formal English language learning	10	Students from various departments of a university	Norway	Quantitative exploratory study	Questionnaires
10	Xiao and Zhi	2023	An exploratory study of EFL learners' use of ChatGPT for language learning tasks: Experience and perceptions	5	Undergraduate students (English-medium international university)	China	Qualitative exploratory study	Semi-structured interviews
11	Yan	2023	Impact of ChatGPT on learners in a L2 writing practicum: An exploratory investigation	8	Undergraduate EFL majors	China	Qualitative exploratory approach	Observations; In-depth interviews
12	Young and Shishido	2023	Investigating OpenAI's ChatGPT potentials in generating Chatbot's dialogue for English as a foreign language learning	450	ChatGPT-generated dialogues	Japan	Quantitative study	Flesch reading ease analysis; McAlpine EFLAW analysis; Dale-Chall analysis