AI-driven Technology and Chatbots as Tools for Enhancing English Language Learning in the Context of Second Language Acquisition: A Review Study

Alia Sa'ad Eldin AbuSahyon[1], Abdelhadi Alzyoud[2], Omar Alshorman[3*], Basim Al-Absi[4]

[1]*Lecturer, English Language Department, Preparatory Year Deanship, Najran University, Saudi Arabia, E-mail: asabusahyon@nu.edu.sa*

[2] *English Language teacher, Ministry of Education, Almafraq, Jordan, E-mail: alzyoud_abd@yahoo.com*

[3]*Faculty of Engineering and AlShrouk Trading Company, Najran University, Najran, Saudi Arabia, E-mail: omar2007_ahu@yahoo.com*

[4]*Computer Science Department, Applied College, Najran University, Najran, Saudi Arabia, E-mail: baalabsi@nu.edu.sa*

Abstracts: the proposed review study aims to explore the role of AI-driven technology and chatbots in enhancing English language learning within the context of second language acquisition. With the increasing integration of technology into language education, AI-driven tools and chatbots have raised as innovative approaches to provide personalized and interactive learning experiences. This review study aims to examine the effectiveness of these tools in improving language proficiency, learner engagement, and learner autonomy. The review involves a comprehensive analysis of relevant literature, including empirical studies, theoretical frameworks, and best practices in the field. The findings reveal that AI-driven technology and chatbots offer numerous benefits, such as individualized feedback, adaptive learning pathways, and authentic language interactions. Moreover, they promote learner's motivation, active participation, and self-directed learning. However, challenges regarding the design, implementation, and assessment of these tools also emerge. This review study provides insights into the potential and limitations of AI-driven technology and chatbots in English language learning and suggests future directions for research and pedagogical applications in second language acquisition.

Keywords: AI, Education, English Language, Chatbots, Learning, Technology.

1. INTRODUCTION

1.1 The Acquisition of English as a Second Language

The acquisition of English as a foreign or second language has assumed a crucial role in contemporary global society. [1]. The English language has attained a prominent position in diverse fields, encompassing trade, technology, and academics. [2]. The extensive utilization of this technology affords individuals a wide range of opportunities. In addition, the English language has played a crucial role in establishing connections across various civilizations, thereby facilitating efficient communication and promoting mutual comprehension among individuals of diverse cultural origins. [3]. Furthermore, the acquisition of English as a second language facilitates individual development and enhances self-assurance [4]. As individuals attain fluency in the English language, they are capable of cultivating their self-promotion abilities and proficiently articulating their views and ideas. Participating in effective communication not only enhances individuals' ability to articulate their thoughts, but also strengthens their capability to actively participate in discussions and debates, thereby expanding their intellectual perspectives [5]. In addition, the process of acquiring English as a second language enhances intercultural awareness, enabling individuals to develop an appreciation for and demonstrate respect towards diverse perspectives, cultures, and beliefs [6]. Moreover, the acquisition of English as a second language presents individuals with prospects in the domain of education and the field of employment [7]. Undoubtedly, English serves as the global language for technology, science, and business, also possessing a high level of fluency in this language can significantly enrich one's professional opportunities. Furthermore, attaining proficiency in this language enables users to gain access to a plenty of information and resources accessible on the internet, thereby enhancing their knowledge and comprehension of the world. In general, the acquisition of English as a second language has numerous advantages that extend beyond mere language proficiency, rendering it a valued talent in the contemporary globalized society

[8] . Moreover, English is widely recognized as the primary medium of communication in the field of business, rendering it indispensable for persons seeking prospects in multinational corporations. English is the predominant language used at international conferences and forums. Proficiency in this language can significantly enhance opportunities for networking and collaboration with professionals from diverse global backgrounds. Moreover, businesses place significant value on proficiency in the English language as it signifies the capacity to adapt, possess cultural sensitivity, and collaborate well among various teams [9]. Hence, the acquisition of English language skills might result in enhanced professional achievements and personal development [10].

1.2 English Language, Chatbots and Artificial Intelligence

Recently, the interest in using chatbots and artificial intelligence (AI) as tools to enhance English language learning has been grown rabidly [11]. These technologies provide valuable opportunities for educators to practice the language skills in an artificial context that is supportive and interactive [12]. Chatbots, in particular, are used to simulate human conversation and give real-time feedback, allowing learners to participate in authentic context. Additionally, AI-powered language learning platforms can be personalized and adapted to individual learners' needs, making the process of learning more efficient and effective [13]. Furthermore, online language learning platforms designed with AI can support learners with a wide range of resources, such as vocabulary exercises, grammar explanations, and interactive lessons [14]. This enables learners to be self-taught and focusing on their needs and goals of acquiring English. Moreover, AI can monitor learners' development and shed light on the areas of weakness, providing necessary feedback and providing relevant practice materials [15]. Overall, these technological tools have revolutionized language learning, making it more accessible, engaging, and tailored to individual learners' needs [16]. Additionally, AI technology has also introduced developed language learning tools such as speech recognition and natural language processing [17]. These tools provide learners the skills of speaking and writing in real-time, receiving instant feedback and corrections [18]. This interactive approach enhances the learning experience and helps learners develop their language skills more effectively. With the integration of AI, language learning has become a personalized and interactive process that designs to the needs and learning styles of each individual. By using AI-powered language learning platforms, learners can receive intelligent lessons and exercises that suited to their specific areas of improvement [19]. The AI algorithms analyze the learner's strengths and weaknesses points and provide targeted recommendations and exercises to foster their language learning progress [20]. Additionally, the interactivity of AI language learning tools enriches engagement and motivation, making the learning procedures more enjoyable and effective. Overall, AI has improved language learning by providing personalized and interactive experiences that suited to the individual needs of each learner. For example, a language learning platform that utilizes AI algorithms could record a learner's progress in vocabulary and monitor that they have difficulties with retrieving new words [21]. Based on this analysis, this platform could provide targeted methods such as flashcards or mnemonic techniques to assist the learner progress in vocabulary retention. The interactive nature of the platform could also provide interactive quizzes or teaching games that make learning enjoyable and engaging, motivating the learner to practice and progress in their language skills [22]. Lately, AI-driven technologies have revolutionized the field of language acquisition, offering learners a wide range of intelligent tools and immersive experiences [23]. Speech recognition systems, chatbots, virtual tutors, and language learning applications have emerged as powerful resources that harness the capabilities of AI to enhance language learning outcomes [24]. These technologies empower advanced algorithms and natural language processing to provide personalized feedback, interactive exercises, and real-time language practice [25]. Speech recognition systems are at the forefront of AI-driven language learning tools [26]. They enable learners to engage in spoken language practice by accurately transcribing and analyzing their speech, providing instant feedback on pronunciation, intonation, and fluency [27]. Learners can receive targeted guidance and suggestions for improvement, allowing them to refine their speaking skills in a more autonomous and effective manner. Chatbots have also gained popularity as interactive language learning companions [28]. These AI-driven conversational agents simulate real-life conversations and provide learners with opportunities to practice their language skills in a natural and communicative manner [29]. Chatbots can engage in text or voice-based conversations, respond to learner queries, and provide instant feedback, thus creating a fertile and interactive learning environment [30]. Virtual tutors, another AI-driven tool, offer personalized instruction and adaptive learning experiences [31]. These intelligent systems analyze learner performance, identify strengths and weaknesses, and deliver targeted lessons and exercises to

address individual needs [32]. By adapting to learners' progress and preferences, virtual tutors optimize the learning process and provide continuous support, fostering motivation and engagement. Language learning applications powered by AI provide learners with access to a plenty of resources, including interactive lessons, vocabulary drills, grammar explanations, and cultural insights [33]. These applications often empower machine learning algorithms to track learner progress, recommend relevant learning materials, and deliver personalized study plans [34]. Learners can engage with the application at their own pace, review content as needed, and receive instant feedback on their performance. Overall, AI-driven technologies have significantly transformed language acquisition by offering learners engaging and immersive experiences [35]. These innovative tools provide personalized instruction, interactive practice, and real-time feedback, empowering learners to develop their language skills with greater autonomy and efficiency [36]. As AI continues to advance, the potential for further enhancements in language learning through intelligent technologies is vast, promising an exciting future for language learners worldwide [37].

2. PURPOSE OF THE REVIEW STUDY

The objective of this proposed review is to investigate the efficacy of AI-driven technology and chatbots in the context of English language learning. Additionally, it seeks to analyze the diverse approaches employed in language learning platforms for the implementation of these tools. By examining recent discoveries and studies in this topic, we want to present a complete overview of the benefits and limitations of AI in English language learning and suggest areas for further improvement and development. Furthermore, this review study aims to explore the potential future directions and advancements in the integration of AI within the context of English language learning. The ultimate goal is to provide a valuable contribution to the progress of language education and pedagogy. In addition, an examination is conducted on the diverse methods through which AI might enhance the process of acquiring proficiency in the English language. This will encompass an exploration of tailored learning encounters, immediate feedback mechanisms, and adaptive evaluation techniques. This assessment will also address the obstacles and constraints associated with the utilization of AI, encompassing concerns of privacy and the necessity of human interaction for language development. The primary objective of this review is to offer insightful guidance and suggestions to professionals in the domains of education, research, and technology development pertaining to language learning. The integration of AI into the realm of English language learning has the potential to facilitate self-learning experiences. AI algorithms possess the capability to assess the aptitudes and deficiencies of learners, thereby customizing the substance and tempo of education to align with their unique requirements. Another advantage of AI-powered systems is the provision of immediate feedback, which facilitates prompt corrections and suggestions, thereby assisting learners in enhancing their language proficiency in real-time. However, it is imperative to address the obstacles and limitations associated with AI in the context of English language learning. Privacy concerns pose a significant challenge when it comes to accessing and storing personal data, necessitating the implementation of rules and regulations to safeguard the confidentiality of learners. Furthermore, although AI has the potential to augment the process of acquiring English language skills, it is imperative to acknowledge that human interaction continues to play a crucial role in fostering social and cultural dimensions of language acquisition. In order to continually enhance AI technologies, it is imperative to foster collaboration among learners, researchers, and developers, thereby optimizing the advantages and effectively tackling associated obstacles. This partnership has the potential to assist developers in effectively manipulating algorithms that uphold privacy standards and safeguard learner data. In addition, it can also guarantee that AI systems are developed with the intention of assisting human teachers rather than substituting them. This approach promotes a well-rounded method to language acquisition that acknowledges and values both cognitive and socio-emotional dimensions of the learning process. Through collaborative efforts, those with an interest in this technology can collectively shape a future in which AI effectively aids language learners, while simultaneously upholding the utmost significance of ethical issues.

3. METHODOLOGY

A literature review was performed to identify relevant papers for inclusion in this review study. In addition, AI-driven technology and chatbots were utilized to assist in the writing and organization of the paper. These advanced tools helped streamline the process by automating certain tasks, such as generating summaries, extracting key

information from selected papers, and facilitating the overall organization of the review. By leveraging AI-driven technology and chatbots, the efficiency and accuracy of the paper writing and organization process were significantly enhanced. However, various academic databases, including Google Scholar, IEEE Xplore, ACM Digital Library, and educational journals, were searched using appropriate keywords and search terms. The search was conducted using combinations of keywords such as "AI-driven technology," "chatbots," "English language learning," "second language acquisition," and related terms. The overall criteria for selecting papers were as follows: (a) the study focused on AI-driven technology and chatbots as tools for English language learning, (b) the study was conducted in the context of second language acquisition, (c) the paper was published in a peer-reviewed journal or conference proceedings between 2018 and 2023, (d) the paper should be written in English language.

4. CHATBOTS AND AI

4.1 What are chatbots and AI?

Chatbots are computer programs that use AI to simulate human conversation [38]. They are designed with a technology that provides interaction with users in a conversational manner, giving information, answering questions, and performing tasks [39]. AI also means the ability of machines to carry out tasks requiring human intelligence. It includes various technologies, natural language processing (NLP), such as machine learning, and deep learning, which support computers to interpret, understand, and generate human language [40]. Both of them, chatbots and AI, have the ability to revolutionize language learning by providing personalized and interactive experiences for learners [41]. Through chatbots, learners can engage in conversations and receive right feedback, simulating real-life language exercises [42]. AI technologies enable chatbots to be designed to the learners' strengths, needs and weaknesses, allowing for making lesson plans and adaptive learning methods. This approach not only enhances learners' motivation and engagement but it also fasten their progress by providing targeted and relevant language contexts and tasks [43]. With the non-stop advancements in AI and chatbots technologies, the future of language learning seems promising, with more efficient and effective methods of learning and mastering new languages [44]. In addition, chatbots can also provide sufficient feedback and corrections, facilitate learners' improvement of their language skills in real-time. This instant feedback allows learners to rapidly identify and correct their mistakes, leading to improve language acquisition [45]. Furthermore, chatbots can also give immersive and interactive language learning experiences, simulating real-life conversations tasks and context [46]. This realistic approach to language learning serves learners to improve their speaking and listening skills, ultimately guide to fluency and confidence in the target language [47]. Overall, the integration of chatbots in language learning leads to a revolution in the way we acquire and master new languages. Due to the advancement of AI, chatbots becomes sophisticated in their ability to read and respond to natural language [48]. This makes them a sufficient tool for language learners in order to practice their skills in an instant, supportive and interactive environment. Additionally, chatbots can provide individualized feedback and corrections, allowing learners to acknowledge specific areas of improvement. Due to the rapid development of technology, chatbots have the primary to become essential in language learning companions, available anytime and anywhere, offering a real immersive and convenient language learning experience [49].

4.2 History of Chatbots

The majority of earlier technologies appeared to be limited while usage for the broader public, mostly existing as research prototypes. In contrast, chatbots were developed by individuals with a necessity for computing with the intention of ensuring their widespread availability. Text-based chatbots commonly employ basic pattern-matching techniques in an attempt to generate replies to user messages, which are completely unpredictable in nature [50] . During the mid-2000s, specific chatbots were created with the ambition of facilitating language acquisition, such as the initial version of Dave designed for English as a Second Language (ESL) learners. Additionally, language tutors employed pre-existing chatbots for educational purposes, as documented by Fryer et al. (2020) [51]. The primary drawback associated with conventional chatbots is their open-ended and reactive nature, which frequently leads to useless and incomprehensible interactions, ultimately resulting in a rapid decline in initial curiosity. Certain language learning applications have made efforts to develop chatbots that provide more pedagogically and interactionally

effective dialogues [52]. Although these attempts were introduced in 2016, it seems that they were temporarily suspended. Intelligent Personal Assistants (IPAs) are software applications that utilize AI technologies to provide users with a number of services and do some tasks on other hand. These IPAs are designed to understand. The recent appearance of Intelligent Personal Assistants, such as Siri and Alexa, has given a number of new opportunities that are available and accessible to numerous learners. Although IPAs were not originally intended for L2 learning purposes, learners and researchers have developed strategies to effectively apply them in interactions with learners. The primary focus of smartphone IPAs is to provide learners with instructions on how to utilize the International Phonetic Alphabet (IPA) in order to successfully complete a certain job or achieve an intended outcome in a discussion. According to Dizon (2020) [53], instructional developers have the ability to construct sets of commands and interactions using systems like Alexa, which allows for a flexible and customizable approach to achieving specific exchanges [54].

4.3 Chatbots and AI in Various Fields

Chatbots and AI have been employed in diverse fields to enhance and optimize operational processes [55]. Chatbots are frequently utilized in customer service settings to deliver prompt and effective solutions to consumer inquiries, hence enhancing customer satisfaction [56]. In healthcare, chatbots can help with initial triage process, giving patients with immediate information and guidance before selecting professional medical assist [57]. Additionally, chatbots have been applied in the banking industry to accelerate transactions and provide sufficient financial advice. These examples show the creativity and effectiveness of chatbots and AI in various fields. They not only simplify processes and save time in businesses, but also develop the customers' experience by giving guidance and accurate assistance. The ability of chatbots to perform repetitive tasks and reach vast amounts of data makes them valuable tools for improving efficiency and productivity. Due to the rapid development of technology, chatbots are expected to become even more complex, enabling them to perform complex queries and provide more personalized interactions [58].

4.4 Chatbots and AI Role English Language Learning

With the importance of English language proficiency in the field of academic and professional settings, chatbots have a remarkable rule of revolutionizing the way English language learners practice and improve language skills [59]. By applying the power of AI, chatbots can outfit learners with interactive and engaging language practice setting, enable them to receive immediate feedback and suitable language instruction [60]. This personalized approach not only develop the learning experience but also enhance learners' motivation and confidence. Moreover, chatbots can provide a vast range of English language learning resources, including grammar clarifications, vocabulary exercises, and conversational tasks [61]. With the ability to simulate real-life conversations, chatbots can assist learners improving their speaking and listening skills in a safe and non-nervous environment. Additionally, chatbots can monitor learners' progress and provide data-driven insights to highlight areas for improvement [62]. This enables learners to go with a more efficient and effective English language learning journey, as they can interest in specific areas that need improvement. Overall, chatbots have made a revolution in language learning by giving learners personalized, interactive, and comprehensive language tasks and practice opportunities [63]. Chatbots provide learners with the opportunity to engage in authentic and dynamic conversations, thereby imitating real-life scenarios and enhancing their linguistic proficiency. These valuable aides are also capable of offering prompt feedback and corrections, so allowing learners to gain insights from their errors in real-time. Additionally, chatbots have the potential to be reconfigured in order to cater to individual learning methods and preferences, so enhancing the language learning process by making it more tailored and immersive. [64]. As a result, learners obtain the motivation to continue practicing and are more willing to achieve their goals. In addition, chatbots can facilitate learners' access to a numerous amount of resources and materials including grammar explanations, vocabulary lists, and interactive tasks. This not only improves their language skills but also encourages them to look for different topics and widen their knowledge. In addition, chatbots are available 24/7, enabling learners to practice at their own exercises and tasks [65]. This flexibility overcomes the obstacles of traditional language learning styles and armed learners to control their own learning journey. Clearly, chatbots have the potential to revolutionize the methods of learning languages and make it more accessible and enjoyable [66].

5. APPLICATIONS OF CHATBOTS AND AI IN ENGLISH LANGUAGE LEARNING

5.1 Current Applications in English Language Learning

Many studies reveal that chatbots are being applied in various ways to enhance English language learning [67]. Some chatbots are applied as virtual conversation partners, in which learners practice their speaking and listening skills in non-nervous and safe environment [68]. Others provide grammar and vocabulary exercises with immediate feedback and correction [69]. Additionally, chatbots can stimulate real-life settings, for example: ordering a meal or booking flight, giving learners a chance to practice their language skills in a semi-real context. These applications confirm the potentiality of chatbots and AI to revolutionize the methods of learning English. Because of advancement in technology, English language learning has become more accessible and engaging. Chatbots can provide self-learning experiences, suitable to the learners' needs and preferences [70]. They can also notice progress and provide constant support, making English language learning more efficient and interesting process. As chatbots in rapid advancement, they have the potential to design a real immersive and interactive English language learning experience for deferent learners' levels. According to the advancements in AI, chatbots are becoming intelligent to understand and respond to natural language. Which means that English language learners can involve in realistic conversations manipulated by chatbots that is enhancing their speaking and listening skills [71]. Additionally, chatbots can involve game to game methods, such as quizzes and challenges, to make learning English more joyful and interactive. Due to the collected data, chatbots can also provide personalized recommendations for additional materials and methods to further accelerate English language learning progress [72].

5.2 Evaluation of the Applications

Evaluation of the effectiveness of chatbots and AI tools in enhancing English language skills can be done through number of methods. One method is to make surveys and interviews with learners who have applied chatbots for English language learning purposes [73]. This can provide valuable recommendations about their experiences and the impact of chatbots on language skills being taught. Another way is to monitor the performance of learners before and after using chatbots, in comparison to their progress and proficiency levels. This can help to determine the extent to which chatbots contributions in the process of English language learning. Additionally, researchers can see and analyze the interactions between learners and chatbots, searching patterns and determining areas of improvement. Overall, evaluating the effectiveness of chatbots in English language learning demands a multi approach that contributes quantitative and qualitative data analysis [74]. By collecting data on a number of English language learners who successfully achieve their goals with the support of chatbots, researchers can analyze the overall impact of these virtual assistants. Moreover, conducting surveys and interviews with English language learners can give valuable facts into their subjective experiences and perceptions of applying chatbots [75]. By including both objective and subjective criteria, scholars can acquire a full comprehension of the efficacy of chatbots in augmenting the process of English language acquisition. This understanding has the potential to enhance the design and efficacy of chatbots utilized in applications focused on English language acquisition. Furthermore, scholars have the ability to assess the enduring effects of chatbots on the development and maintenance of English language skills. The application of this approach involves the systematic monitoring and assessment of learners' development over an extended duration. By examining various study approaches, one can gain a comprehensive understanding of the potential impact of chatbots on the transformation of English language learning, making it more accessible and entertaining for learners. [76]. In addition, English language learning systems have the potential to utilize chatbots as a means to deliver tailored and engaging educational experiences. Chatbots have the potential to enhance learners' competency and cater to their unique needs by offering tailored activities and providing feedback. The implementation of a customized strategy has the potential to significantly enhance the efficacy of English language acquisition, fostering increased engagement and motivation among learners along their language-learning trajectory. The integration of chatbots holds promise for the future of English language learning, since breakthroughs in technology and the enhancement of chatbot capabilities are being realized. [77].

6. LIMITATIONS AND CHALLENGES

Shedding lights on the limitations and challenges encounter chatbots and AI in English language learning is necessary to analyze their effectiveness. One challenge is the ability of chatbots to respond and understand natural language accurately. Despite of advancement in natural language processing, it still needs improvement in the ability of chatbots to comprehend and generate accurate responses. Additionally, chatbots have difficulties in understanding context, which are crucial factors in English language learning [78]. Another constraint that arises is the lack of personalization and adaptability in existing chatbot systems. The process of learning English as a second language is highly personalized, with learners exhibiting diverse needs, preferences, and learning styles. This implies that a singular technique employed by chatbots may not adequately cater to the needs of all individuals. Furthermore, it should be noted that chatbots lack the same degree of supervision and assistance that can be provided by a human instructor. Unlike human teachers, chatbots are unable to adapt their training and methods to cater to the individual needs and requirements of each learner. Notwithstanding these constraints, the continual progress in natural language processing and machine learning evinces a sanguine trajectory for the further evolution of chatbot technologies, which hold great potential in providing substantial support to those learning the English language. Consequently, the utilization of a distinctive methodology employed by chatbots may not adequately fulfill the objectives and prerequisites of individuals seeking to enhance their proficiency in the English language. In addition, chatbots frequently rely on pre-determined responses, which may prove inadequate when confronted with unanticipated or intricate inquiries. The potential consequence of this situation is the manifestation of feelings of irritation and boredom among learners who seek individualized and customized language training. [79]. Furthermore, the limited adaptability of chatbot technologies pertains to their difficulty in keeping pace with the ever-evolving nature of language and their inability to effectively furnish learners with current and precise information. The clear potential benefits associated with the integration of AI into language acquisition necessitate a comprehensive recognition and resolution of the ethical problems that arise from its application. An essential area that necessitates consideration is the safeguarding of privacy inside language learning platforms powered by AI. The protection of student data and the secure management of personal information are of utmost significance. In order to accomplish this objective, it is imperative to establish precise legislation pertaining to data privacy and to implement robust systems for granting permissions. [80].

7. IMPACT OF CHATBOTS AND AI ON ENGLISH LANGUAGE LEARNING

7.1 Student Engagement and Motivation in Language Learning

A significant impact of chatbots and AI on English language learning is their effects on students' motivation and engagement. The instance feedback and interactive activities often lack the personalized and tailored instruction offered by human teacher [81]. That may decrease motivation and engagement preferred by learners who are willing to apply individualized approach. Additionally, the shortage of adaptability in chatbots technologies leads to a struggle to keep up with the ever-evolving nature of language and inability to provide learners with the most recent and accurate information. Furthermore, chatbots have no ability to effectively modify the specific learning needs and challenges of each learner. While human teachers, on the other side, applicably identify and address individual weaknesses and provide individualized guidance and support. During classroom learning, teachers can provide a collaborative and interactive learning environment where students practice language skills with their classmates [82]. Chatbots lack this social aspect of English language learning, which can limit the effectiveness of language learning [83]. Furthermore, chatbots technologies have difficulties to appropriately understand and respond to learners' individual needs and challenges. In contrast, human teachers know how to adapt their instructions according to individual learners' strengths, weaknesses, and learning styles. Human teachers give personalized feedback, offer additional exercises or examples, and provide specific questions or concerns that learners need [84]. The personalization and tailored instruction presented by human teachers are essential for learners to understand and effectively have the ability to apply the new learnt language concepts. When learners are given personalized instructions, they surely feel more supported and motivated to continue learning. Human teachers can also show emotional support and encouragement that can affect a learner's confidence and engagement. Additionally, personalization armed teachers with the ability to identify and address any misunderstanding or gaps,

ensuring that learners are on the right way of development [85]. Overall, human teachers' ability to adapt the required instructions to meet individual learners' needs is changeable and has a vital role in language learning process.

7.2 Language Proficiency and Fluency

The Evaluation of the applicability of chatbots and AI in developing language proficiency and fluency in English language is continuous [86]. English language learning is not only grammar and vocabulary; cultural awareness, idioms, and adaptability have crucial role in English language learning [87]. Human teachers uses daily life examples, exercises, scenarios, and cultural issues that enrich the language fluency. Additionally, they can add the emotional aspects of their students and present support and encouragement when required. They can also modify their teaching methods according to the students learning styles, ensuring a more sufficient and effective learning experience. While chatbots and AI can be useful tools in language learning, the human touch and expertise of a teacher cannot be replaced by technology [88]. Human teachers have the ability to apply his own vast knowledge and experience, enabling them to answer inquiries, demonstrate concerns, and explain grammar topics understandably. In addition, the implementation of learning communities and interactive discussions among students can significantly enhance the language learning process. In addition, human instructors has the ability to offer immediate feedback and corrections, thereby assisting learners in enhancing their pronunciation and fluency, a capability that is absent in chatbots and artificial intelligence systems. In language acquisition, human teachers has the ability to incorporate personal and dynamic features that are inherently lacking in chatbots and AI systems. [89]. This factor is crucial in bridging a supportive learning environment where learners feel comfortable asking questions and seeking clarification. Human teachers can also suit their teaching methods according to individual students' needs and learning preferences, ensuring a more personalized and effective learning experience [90]. Additionally, teachers can share their cultural background and experiences, presenting a deeper understanding and fluency to the students while they are using the language. To conclude, chatbots and AI have a lot of benefits and facilities, they cannot replace human teachers who create a more engaging and comprehensive language learning experience [91].

7.3 Accessibility and Affordability

While there is no denying the value of having a human teacher, there is increasing curiosity about how chatbots and AI can improve language learning's accessibility and affordability. [92]. Chatbots allow students of a foreign language to get immediate, individualized support, expanding students' opportunities to practice their language skills whenever and wherever they like. Chatbots and AI-powered language-learning platforms can also provide adaptive and individualized education, tailoring course materials and instructional clarity to each student's unique needs. This can be especially helpful for students who either do not have access to conventional language-learning resources or prefer to learn at their own pace and in their own way. In addition, chatbots and AI language learning systems can use machine learning algorithms to track students' development and offer constructive criticism, pointing out where students are struggling and recommending materials and activities to help them strengthen those areas. [93]. Moreover, these platforms can contain interactive and engaging features such as speech recognition technology and virtual reality simulations, transferring the learning process to be more immersive and enjoyable. Undoubtedly, chatbots and AI language learning platforms have a crucial role in revolutionize language English learning by making it more accessible, personalized, and effective for learners from various backgrounds and learning styles [94]. For example, individuals who have difficulties in pronunciation can learn from speech recognition technology that gives instant feedback and guidance on correct pronunciation. Additionally, language learners who cannot accurately memorize vocabulary can apply flashcards and interactive quizzes provided by chatbots and AI English language learning platforms to memorize their knowledge. Furthermore, virtual reality simulations can offer beneficial language practice scenarios, giving learners the chance to practice real-life conversations and cultural interactions. By presenting these shortages and giving personalized learning experiences, chatbots and AI language learning platforms have a significant role in improving English language learning outcomes. Additionally, chatbots and AI language learning platforms can observe learners' progress and provide suitable feedback and recommendations to support learners to focus on their specific areas of

improvement. This approach can overcome individual language learning obstacles that learners may encounter and accelerate their progress [95]. In addition, chatbots and AI language learning platforms have the capability to offer personalized and interactive lessons that are tailored to the unique requirements and preferred learning approaches of individual learners. Chatbots and AI language learning platforms have the capacity to offer immediate feedback and assistance, so enabling learners to take charge of their English language learning journey and continuously enhance their skills. In conclusion, chatbots and AI language learning platforms has the capacity to significantly transform the landscape of language acquisition, rendering it more accessible, interesting, and efficacious for individuals at various proficiency levels [96].

7.4 Ethical Implications: Privacy Concerns and Biases

Discussing the ethical implications of applying chatbots and AI in English language learning, such as privacy concerns and biases should be taken in considerations [97]. While chatbots and AI language learning platforms gather and analyze large amounts of users' data, the question is how this data is stored, used, and protected. Privacy concerns regarding learners' personal information and conversations stored with chatbots need to clear to make learners feel comfortable and safe in their language learning process [98]. Additionally, biases in AI algorithms can unintentionally keep stereotypes or favorite accents or dialects over others, which could prevent achieving the goal of creating an inclusive and suitable language-learning environment. These ethical implications need to be taken in consideration and ensure the need of ongoing evaluation of the application of AI in English language learning. It is necessary to regularly assess and update AI algorithms to reduce biases and ensure the applying of all accents and dialects [99]. Moreover, user feedback is potential in the development of the algorithms to address any concerns or unpleasant experience faced by learners. By prioritizing ethical considerations, chatbots and AI language learning platforms can present a safe and individualized space for learners from different backgrounds to success and grow. Additionally, chatbots and AI language learning platforms can greatly improve English language learning by giving personalized and adaptive learning experiences for learners [100]. Through AI-powered algorithms, learners can take suitable content, exercises, and assessments that meet their specific needs and learning styles. This will enhance learners' motivation and engagement and promote effective learning, which resulting in better language proficiency. By responsibly and ethically modifying chatbots and AI language learning platforms, they can honestly revolutionize the process of learning English language as a second language [101].

8. FUTURE DEVELOPMENTS AND ADVANCEMENTS

The integration of chatbots and AI in English language learning can develop learners' accuracy and affectivity of the language; chatbots and AI allow learners to use personalized, adaptive and individualized learning experiences. Additionally, the application of chatbots technology can give learners ongoing feedback and support, that make learning environment more interactive and immersive [102]. The advancements in chatbots and AI technology have the primary role to move English language learning from traditional classrooms to a more flexible and accessible online experience. With the accessibility to learn anytime and anywhere, learners can learn English language based on their needs and requirements, undoubtedly, resulting in better outcomes and increasing language proficiency. Furthermore, chatbots and AI technology can give personalized learning exercises based on individual strengths and weaknesses, giving learners a chance to focus on areas needing improvement [103]. The incorporation of virtual and augmented reality in language learning programs can also enrich the immersive experience by presenting real-life scenarios and conversations [104]. In addition to that these advancements make English language learning more engaging it also reinforce cultural understanding and global connectivity [105]. Overall, chatbots AI has the potential to revolutionize English language learning by moving the process to be more effective, convenient, and enjoyable for learners with various ages and backgrounds. By using chatbots and AI-powered language learning platforms and according to learners' weakness and strength points, they can get personalized feedback and recommendations. This advance approach in language learning allows them to improve according to their own ability by focusing on areas that require more attention. Additionally, chatbots and AI can manipulate with large amounts of data to determine patterns and create customized learning styles, ensuring that learners receive required language skills [106]. With the integration of chatbots and AI, English language learning is no longer caged in traditional classroom, as learners can access English language lessons and practice materials anytime and

anywhere by accessing online platforms and mobile applications [107].

9. LIMITATIONS OF THE STUDY AND FUTURE RESEARCH DIRECTIONS

Although chatbots and AI in English language learning have numerous benefits, there are still some limitations that need to be addressed [108] . One of the limitations is the absence of human interaction and individual feedback that traditional classroom offer [109]. While chatbots and AI can give automated feedback, it is not capable of fully replicate the nuanced and tailored feedback that a human teacher can support. Another limitation is the bias and cultural insensitivity that chatbots and AI systems may contain, as they are restricted to, data cannot be representative of all cultures and languages. Additionally, there is a need for future research on the effectiveness of chatbots and AI in language learning, in addition to the long-term impact it may have on students' language proficiency and complete learning experience. It is important to take in consideration the potential ethical implications of completely depending on chatbots and AI in the classroom, which could lead to a devaluation of learners' interaction and personalized instruction. Furthermore, the use of chatbots and AI in language learning may also raise concerns about privacy and data security, because learners' personal information and language performance could be stored and analyzed by these systems [110]. Therefore, while they have the potential to enhance language learning, it is necessary to create a balance between the benefits and the preservation of human involvement in the learning process. While chatbots and AI can give valuable materials and instant feedback to language learners, it cannot completely replace the role of a human teacher [111]. The human interaction and personalized instruction used by teachers are essential for bridging rapport, individual needs, and adapting instruction to learning styles. Moreover, human teachers have the potential creating critical thinking skills, cultural understanding, and emotional support, which chatbots and AI systems lack. Thus, it is crucial to integrate the technologies into language learning in a method to enhance rather than replaces human involvement in the learning process. By integrating these technologies into language learning, learners can represent its capabilities to improve the learning process. For example, chatbots and AI can provide ongoing feedback and personalized recommendations to support learners' improvement in language skills [112]. However, chatbots and AI are supplementary tools rather than replacement for human teachers. The human's role is irreplaceable in elaborating a supportive and engaging learning setting where learners can develop essential language skills.

CONCLUSION

In summary, it is evident that chatbots and AI possess the capacity to enhance the process of English language acquisition. However, it is imperative to utilize them as supplementary resources rather than substitutes for human instructors. The integration of chatbots, AI technology, and human instruction has the potential to deliver a robust and efficient learning experience that caters to the unique requirements of learners. By incorporating the functionalities of chatbots and AI alongside human interaction, learners can create a language-learning environment that is both supportive and interesting, ultimately fostering learner success. This methodical and equitable approach recognizes the notable advantages of chatbots and AI, including their capacity to provide immediate feedback, tailor learning routes to individual needs, and offer abundant language resources. Nevertheless, it is crucial to acknowledge the indispensability of human educators in providing emotional assistance, cultural background, and sophisticated language guidance. Undoubtedly, the collaboration between chatbots, AI, and human teachers has the potential to effectively attain language-learning objectives, empowering learners to proficiently acquire language abilities and flourish in a global context. Through the integration of chatbots, AI, and human instructors, the process of English language acquisition can be enhanced to encompass a more comprehensive and well-rounded approach. Chatbots and AI have the capacity to provide prompt feedback and deliver tailored learning approaches, enabling students to advance based on their own proficiency levels. Furthermore, chatbots and AI provide learners with enhanced access to language resources, hence facilitating the learning process. Nevertheless, it is imperative to acknowledge that human educators play an indispensable role in language education, as they offer invaluable contributions such as emotional guidance, cultural insights, contextual understanding, and the capacity to tailor instructions to cater to the specific requirements of learners. The integration of chatbots, AI, and human instructors has the potential to propel English language learning to a higher level of achievement within a contemporary society characterized by social media and interconnectedness.

Acknowledgment

The authors are thankful to the Deanship of Scientific Research at Najran University for funding this work under the General Research Funding program grant code (NU/NRP/SEHRC/12/9).

REFERENCES

[1] M. Ramzan, R. Bibi, and N. Khunsa, "Unravelling the Link between Social Media Usage and Academic Achievement among ESL Learners: A Quantitative Analysis," *Global Educational Studies Review, VIII,* vol. 8, pp. 407-421, 2023.

[2] N. Stojković, *Positioning English for specific purposes in an English language teaching context*: Vernon Press, 2018.

[3] M. S. Farooq, M. Uzair-Ul-Hassan, and S. Wahid, "Opinion of second language learners about writing difficulties in English language," *South Asian Studies,* vol. 27, 2020.

[4] B. Vadivel, N. R. Khalil, S. A. Tilwani, and G. Mandal, "The educational and psychological need for learning the English language and understanding the different anxieties," *Education Research International,* vol. 2022, 2022.

[5] T. L. H. Nghia, L. T. Tran, and M. T. Ngo, *English Language Education for Graduate Employability in Vietnam*: Springer Nature, 2023.

[6] N. Davitishvili, "Cross-cultural awareness and teaching English as a second language in the context of globalization," *Sino-US English Teaching,* vol. 14, pp. 549-558, 2017.

[7] S. Loewen, *Introduction to instructed second language acquisition*: Routledge, 2020.

[8] A. M. Albantani and A. Madkur, "Think globally, act locally: the strategy of incorporating local wisdom in foreign language teaching in indonesia," *International Journal of Applied Linguistics and English Literature,* vol. 7, pp. 1-8, 2018.

[9] G. Liu and C. Ma, "Measuring EFL learners' use of ChatGPT in informal digital learning of English based on the technology acceptance model," *Innovation in Language Learning and Teaching,* pp. 1-14, 2023.

[10] H. Rose, S. Curle, I. Aizawa, and G. Thompson, "What drives success in English medium taught courses? The interplay between language proficiency, academic skills, and motivation," *Studies in Higher Education,* vol. 45, pp. 2149-2161, 2020.

[11] N.-Y. Kim, Y. Cha, and H.-S. Kim, "Future english learning: Chatbots and artificial intelligence," *Multimedia-Assisted Language Learning,* vol. 22, 2019.

[12] D. Baidoo-Anu and L. O. Ansah, "Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning," *Journal of AI,* vol. 7, pp. 52-62, 2023.

[13] G. Caldarini, S. Jaf, and K. McGarry, "A literature survey of recent advances in chatbots," *Information,* vol. 13, p. 41, 2022.

[14] X. Huang, D. Zou, G. Cheng, X. Chen, and H. Xie, "Trends, research issues and applications of artificial intelligence in language education," *Educational Technology & Society,* vol. 26, pp. 112-131, 2023.

[15] A. Jaiswal and C. J. Arun, "Potential of Artificial Intelligence for Transformation of the Education System in India," *International Journal of Education and Development using Information and Communication Technology,* vol. 17, pp. 142-158, 2021.

[16] G. Kessler, "Technology and the future of language teaching," *Foreign language annals,* vol. 51, pp. 205-218, 2018.

[17] S. Pokrivcakova, "Preparing teachers for the application of AI-powered technologies in foreign language education," *Journal of Language and Cultural Education,* vol. 7, pp. 135-153, 2019.

[18] N. Tipayavaravan, Y. Sirichokcharoenkun, and L. Cao, "ChatGPT: A New Tool for English Language Teaching and Learning at Vietnamese High Schools," 2023.

[19] E. Supriyadi and K. Kuncoro, "Exploring the future of mathematics teaching: Insight with ChatGPT," *Union: Jurnal Ilmiah Pendidikan Matematika,* vol. 11, pp. 305-316, 2023.

[20] Y. E. Yesilyurt, "AI-Enabled Assessment and Feedback Mechanisms for Language Learning: Transforming Pedagogy and Learner Experience," in *Transforming the Language Teaching Experience in the Age of AI*, ed: IGI Global, 2023, pp. 25-43.

[21] S. Mitra, D. Lakshmi, and V. Govindaraj, "Data Analysis and Machine Learning in AI-Assisted Special Education for Students With Exceptional Needs," in *AI-Assisted Special Education for Students With Exceptional Needs*, ed: IGI Global, 2023, pp. 67-109.

[22] A. Majeed, A. Asim, and P. Bocij, "Reframing The Impact Of Innovative Learning Technologies On University Students And Lecturers To Save Time And Improve Learning Challenges & Opportunities," *EDULEARN23 Proceedings,* pp. 7546-7553, 2023.

[23] A.-M. CHISEGA-NEGRILĂ, "The New Revolution in Language Learning: The Power of Artificial Intelligence and Education 4.0," *BULLETIN OF" CAROL I" NATIONAL DEFENCE UNIVERSITY,* vol. 12, pp. 16-27, 2023.

[24] J. Jeon, S. Lee, and H. Choe, "Beyond ChatGPT: A conceptual framework and systematic review of speech-recognition chatbots for language learning," *Computers & Education,* p. 104898, 2023.

[25] J. Jeon, S. Lee, and S. Choi, "A systematic review of research on speech-recognition chatbots for language learning: Implications for future directions in the era of large language models," *Interactive Learning Environments,* pp. 1-19, 2023.

[26] N. Mitra and A. Banerjee, "A Study on Using AI in Promoting English Language Learning," in *Emerging Technologies in Data Mining and Information Security: Proceedings of IEMIS 2022, Volume 2*, ed: Springer, 2022, pp. 287-297.

[27] P. Mehta, G. R. Chillarge, S. D. Sapkal, G. R. Shinde, and P. S. Kshirsagar, "Inclusion of Children With Special Needs in the Educational System, Artificial Intelligence (AI)," in *AI-Assisted Special Education for Students With Exceptional Needs*, ed: IGI Global, 2023, pp. 156-185.

[28] C.-C. Lin, A. Y. Huang, and S. J. Yang, "A review of ai-driven conversational chatbots implementation methodologies and challenges (1999–2022)," *Sustainability,* vol. 15, p. 4012, 2023.

[29] Y. K. Dwivedi, N. Kshetri, L. Hughes, E. L. Slade, A. Jeyaraj, A. K. Kar*, et al.*, ""So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy," *International Journal of Information Management,* vol. 71, p. 102642, 2023.

[30] K. K. Nirala, N. K. Singh, and V. S. Purani, "A survey on providing customer and public administration based services using AI: chatbot," *Multimedia Tools and Applications,* vol. 81, pp. 22215-22246, 2022.

[31] B. U. Zaman, "Transforming Education Through AI, Benefits, Risks, and Ethical Considerations," 2023.

[32] M. Chhatwal, V. Garg, and N. Rajput, "Role of AI in the Education Sector," *Lloyd Business Review,* pp. 1-7, 2023.

[33] T. A. Kiet, "Several Applications Aimed at Enhancing the Effectiveness of Self-Learning and Research for Students," *Onomázein,* pp. 164-177, 2023.

[34] H. Mohapatra and S. R. Mishra, "Exploring the Sector-Specific Influence and Response of AI Tools: A Critical Review," *arXiv preprint arXiv:2307.05909,* 2023.

[35] S. Athanassopoulos, P. Manoli, M. Gouvi, K. Lavidas, and V. Komis, "The use of ChatGPT as a learning tool to improve foreign language writing in a multilingual and multicultural classroom," *Advances in Mobile Learning Educational Research,* vol. 3, pp. 818-824, 2023.

[36] W. Cardoso, "Technology for speaking development," in *The Routledge Handbook of Second Language Acquisition and Speaking*, ed: Routledge, 2022, pp. 299-313.

[37] E. Kasneci, K. Seßler, S. Küchemann, M. Bannert, D. Dementieva, F. Fischer*, et al.*, "ChatGPT for good? On opportunities and challenges of large language models for education," *Learning and individual differences,* vol. 103, p. 102274, 2023.

[38] N. Haristiani, "Artificial Intelligence (AI) chatbot as language learning medium: An inquiry," in *Journal of Physics: Conference Series*, 2019, p. 012020.

[39] J. Skrebeca, P. Kalniete, J. Goldbergs, L. Pitkevica, D. Tihomirova, and A. Romanovs, "Modern development trends of chatbots using artificial intelligence (ai)," in *2021 62nd International Scientific Conference on Information Technology and Management Science of Riga Technical University (ITMS)*, 2021, pp. 1-6.

[40] P. Johri, S. K. Khatri, A. T. Al-Taani, M. Sabharwal, S. Suvanov, and A. Kumar, "Natural language processing: History, evolution, application, and future work," in *Proceedings of 3rd International Conference on Computing Informatics and Networks: ICCIN 2020*, 2021, pp. 365-375.

[41] F. Kamalov, D. Santandreu Calonge, and I. Gurrib, "New Era of Artificial Intelligence in Education: Towards a Sustainable Multifaceted Revolution," *Sustainability,* vol. 15, p. 12451, 2023.

[42] L. Kohnke, "Microlearning with Chatbots," in *Using Technology to Design ESL/EFL Microlearning Activities*, ed: Springer, 2023, pp. 71-79.

[43] D. H. Chang, M. P.-C. Lin, S. Hajian, and Q. Q. Wang, "Educational Design Principles of Using AI Chatbot That Supports Self-Regulated Learning in Education: Goal Setting, Feedback, and Personalization," *Sustainability,* vol. 15, p. 12921, 2023.

[44] H. Kim, H. Yang, D. Shin, and J. H. Lee, "Design principles and architecture of a second language learning chatbot," 2022.

[45] A. Almusaed, A. Almssad, I. Yitmen, and R. Z. Homod, "Enhancing Student Engagement: Harnessing "AIED"'s Power in Hybrid Education—A Review Analysis," *Education Sciences,* vol. 13, p. 632, 2023.

[46] E. Prokop'eva and N. Fersman, "THE ROLE OF ARTIFICIAL INTELLIGENCE IN IMPROVING SECOND LANGUAGE ACQUISITION: CURRENT TRENDS," *Л59" ЛИНГВИСТИКА И ПРОФЕССИОНАЛЬНАЯ КОММУНИКАЦИЯ,* p. 128, 2023.

[47] H. Ji, I. Han, and Y. Ko, "A systematic review of conversational AI in language education: Focusing on the collaboration with human teachers," *Journal of Research on Technology in Education,* vol. 55, pp. 48-63, 2023.

[48] F. Qasem, M. Ghaleb, H. S. Mahdi, A. Al Khateeb, and H. Al Fadda, "Dialog chatbot as an interactive online tool in enhancing ESP vocabulary learning," *Saudi Journal of Language Studies,* vol. 3, pp. 76-86, 2023.

[49] K.-H. Liang, S. Davidson, X. Yuan, S. Panditharatne, C. Y. Chen, R. Shea*, et al.*, "ChatBack: Investigating Methods of Providing Grammatical Error Feedback in a GUI-based Language Learning Chatbot," in *Proceedings of the 18th Workshop on Innovative Use of NLP for Building Educational Applications (BEA 2023)*, 2023, pp. 83-99.

[50] D. Duncker, "Chatting with chatbots: Sign making in text-based human-computer interaction," *Σημειωτκή-Sign Systems Studies,* vol. 48, pp. 79-100, 2020.

[51] L. Fryer, D. Coniam, R. Carpenter, and D. Lăpușneanu, "Bots for language learning now: Current and future directions," 2020.

[52] A. M. Moybeka, N. Syariatin, D. P. Tatipang, D. A. Mushthoza, N. P. J. L. Dewi, and S. Tineh, "Artificial Intelligence and English Classroom: The Implications of AI Toward EFL Students' Motivation," *Edumaspul: Jurnal Pendidikan,* vol. 7, pp. 2444-2454, 2023.

[53] G. Dizon, "Evaluating intelligent personal assistants for L2 listening and speaking development," 2020.

[54] S. Bibauw, T. François, and P. Desmet, "Dialogue systems for language learning: Chatbots and beyond," *The Routledge handbook of second language acquisition and technology,* pp. 121-134, 2022.

[55] S. Sinha, S. Basak, Y. Dey, and A. Mondal, "An educational chatbot for answering queries," in *Emerging Technology in Modelling and Graphics: Proceedings of IEM Graph 2018*, 2020, pp. 55-60.

[56] M. Adam, M. Wessel, and A. Benlian, "AI-based chatbots in customer service and their effects on user compliance," *Electronic Markets,* vol. 31, pp. 427-445, 2021.

[57] M. Herriman, E. Meer, R. Rosin, V. Lee, V. Washington, and K. G. Volpp, "Asked and answered: Building a chatbot to address covid-19-related concerns," *NEJM Catalyst Innovations in Care Delivery,* vol. 1, 2020.

[58] M. M Alshater, "Exploring the role of artificial intelligence in enhancing academic performance: A case study of ChatGPT," *Available at SSRN,* 2022.

[59] J. Jeon, "Exploring AI chatbot affordances in the EFL classroom: Young learners' experiences and perspectives," *Computer Assisted Language Learning,* pp. 1-26, 2021.

[60] I. P. Hapsari and T.-T. Wu, "AI Chatbots learning model in English speaking skill: Alleviating speaking anxiety, boosting enjoyment, and fostering critical thinking," in *International Conference on Innovative Technologies and Learning*, 2022, pp. 444-453.

[61] K. Mageira, D. Pittou, A. Papasalouros, K. Kotis, P. Zangogianni, and A. Daradoumis, "Educational AI chatbots for content and language integrated learning," *Applied Sciences,* vol. 12, p. 3239, 2022.

[62] J. Yang, "Perceptions of preservice teachers on AI chatbots in English education," *International Journal of Internet, Broadcasting and Communication,* vol. 14, pp. 44-52, 2022.

[63] H.-S. Kim, Y. Cha, and N. Y. Kim, "Effects of AI chatbots on EFL students' communication skills," *영어학,* vol. 21, pp. 712-734, 2021.

[64] C. Kooli, "Chatbots in education and research: A critical examination of ethical implications and solutions," *Sustainability,* vol. 15, p. 5614, 2023.

[65] K. F. Hew, W. Huang, J. Du, and C. Jia, "Using chatbots to support student goal setting and social presence in fully online activities: learner engagement and perceptions," *Journal of Computing in Higher Education,* vol. 35, pp. 40-68, 2023.

[66] Y. Wu, "Integrating Generative AI in Education: How ChatGPT Brings Challenges for Future Learning and Teaching," *Journal of Advanced Research in Education,* vol. 2, pp. 6-10, 2023.

[67] P. Smutny and P. Schreiberova, "Chatbots for learning: A review of educational chatbots for the Facebook Messenger," *Computers & Education,* vol. 151, p. 103862, 2020.

[68] H. Yang, H. Kim, J. H. Lee, and D. Shin, "Implementation of an AI chatbot as an English conversation partner in EFL speaking classes," *ReCALL,* vol. 34, pp. 327-343, 2022.

[69] N. Haristiani, V. L. Dewanty, and M. M. Rifai, "Autonomous Learning Through Chatbot-based Application Utilization to Enhance Basic Japanese Competence of Vocational High School Students," *Journal of Technical Education and Training,* vol. 14, pp. 143-155, 2022.

[70] A. Alshahrani, "The impact of ChatGPT on blended learning: Current trends and future research directions," *International Journal of Data and Network Science,* vol. 7, pp. 2029-2040, 2023.

[71] R. Roy and V. Naidoo, "Enhancing chatbot effectiveness: The role of anthropomorphic conversational styles and time orientation," *Journal of Business Research,* vol. 126, pp. 23-34, 2021.

[72] M. Chamboko-Mpotaringa and B. Manditereza, "Innovative Language Learning Approaches: Immersive Technologies and Gamification," in *Transforming the Language Teaching Experience in the Age of AI*, ed: IGI Global, 2023, pp. 189-214.

[73] J.-Y. Lee and Y. Hwang, "A meta-analysis of the effects of using AI chatbot in Korean EFL education," *Stud. Engl. Lang. Lit,* vol. 48, pp. 213-243, 2022.

[74] S. Hobert, "How are you, chatbot? evaluating chatbots in educational settings–results of a literature review," 2019.

[75] S. Gupta and Y. Chen, "Supporting inclusive learning using chatbots? A chatbot-led interview study," *Journal of Information Systems Education,* vol. 33, pp. 98-108, 2022.

[76] M. Özdere, "The Integration of Artificial Intelligence in English Education: Opportunities and Challenges," *Language Education and Technology,* vol. 3, 2023.

[77] L. Kohnke, "L2 learners' perceptions of a chatbot as a potential independent language learning tool," *International Journal of Mobile Learning and Organisation,* vol. 17, pp. 214-226, 2023.

[78] R. Zhang, D. Zou, and G. Cheng, "A review of chatbot-assisted learning: pedagogical approaches, implementations, factors leading to effectiveness, theories, and future directions," *Interactive Learning Environments,* pp. 1-29, 2023.

[79] B. Jacquet and J. Baratgin, "Mind-reading chatbots: We are not there yet," in *Human Interaction, Emerging Technologies and Future Applications III: Proceedings of the 3rd International Conference on Human Interaction and Emerging Technologies: Future Applications (IHIET 2020), August 27-29, 2020, Paris, France*, 2021, pp. 266-271.

[80] R. Rusmiyanto, N. Huriati, N. Fitriani, N. K. Tyas, A. Rofi'i, and M. N. Sari, "The Role of Artificial Intelligence (AI) In Developing English Language Learner's Communication Skills," *Journal on Education,* vol. 6, pp. 750-757, 2023.

[81] N.-Y. Kim, "A Study on the Use of Artificial Intelligence Chatbots for Improving English Grammar Skills," *Journal of Digital Convergence,* vol. 17, 2019.

[82] J. Belda-Medina and J. R. Calvo-Ferrer, "Using chatbots as AI conversational partners in language learning," *Applied Sciences,* vol. 12, p. 8427, 2022.

[83] N. Annamalai, M. E. Eltahir, S. H. Zyoud, D. Soundrarajan, B. Zakarneh, and N. R. Al Salhi, "Exploring English language learning via Chabot: A case study from a self determination theory perspective," *Computers and Education: Artificial Intelligence,* p. 100148, 2023.

[84] W. Huang, K. F. Hew, and L. K. Fryer, "Chatbots for language learning—Are they really useful? A systematic review of chatbot-supported language learning," *Journal of Computer Assisted Learning,* vol. 38, pp. 237-257, 2022.

[85] N. Annamalai, R. Ab Rashid, U. M. Hashmi, M. Mohamed, M. H. Alqaryouti, and A. E. Sadeq, "Using chatbots for English language learning in higher education," *Computers and Education: Artificial Intelligence,* vol. 5, p. 100153, 2023.

[86] X. Chen, G. Cheng, D. Zou, B. Zhong, and H. Xie, "Artificial Intelligent Robots for Precision Education," *Educational Technology & Society,* vol. 26, pp. 171-186, 2023.

[87] T. Schmidt and T. Strasser, "Artificial intelligence in foreign language learning and teaching: a CALL for intelligent practice," *Anglistik: International Journal of English Studies,* vol. 33, pp. 165-184, 2022.

[88] Y. Y. DEMİR, "HUMAN TOUCH TO ARTIFICIAL INTELLIGENCE EFL/ELT LESSON PLANS," *EDUCATION & SCIENCE 2023-I,* p. 51, 2023.

[89] J. Jeon, "Chatbot-assisted dynamic assessment (CA-DA) for L2 vocabulary learning and diagnosis," *Computer Assisted Language Learning,* pp. 1-27, 2021.

[90] E. Latif, G. Mai, M. Nyaaba, X. Wu, N. Liu, G. Lu*, et al.*, "Artificial general intelligence (AGI) for education," *arXiv preprint arXiv:2304.12479,* 2023.

[91] J. Mariappan and C. Krishnan, "Artificial Intelligence: Future of Advance Learning," *Digital Transformation in Education: Emerging Markets and Opportunities,* p. 118, 2023.

[92] B. George and O. Wooden, "Managing the strategic transformation of higher education through artificial intelligence," *Administrative Sciences,* vol. 13, p. 196, 2023.

[93] O. Tapalova and N. Zhiyenbayeva, "Artificial Intelligence in Education: AIEd for Personalised Learning Pathways," *Electronic Journal of e-Learning,* vol. 20, pp. 639-653, 2022.

[94] Y. J. Alawneh, T. Al-Momani, F. N. Salman, S. D. Al-Ahmad, and T. A. Kaddumi, "A Detailed Study Analysis of Artificial Intelligence Implementation in Social Media Applications," in *2023 3rd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)*, 2023, pp. 1191-1194.

[95] M. Á. Escotet, "The optimistic future of Artificial Intelligence in higher education," *Prospects,* pp. 1-10, 2023.

[96] A. Abd-Alrazaq, R. AlSaad, D. Alhuwail, A. Ahmed, P. M. Healy, S. Latifi*, et al.*, "Large Language Models in Medical Education: Opportunities, Challenges, and Future Directions," *JMIR Medical Education,* vol. 9, p. e48291, 2023.

[97] T. Dave, S. A. Athaluri, and S. Singh, "ChatGPT in medicine: an overview of its applications, advantages, limitations, future prospects, and ethical considerations," *Frontiers in Artificial Intelligence,* vol. 6, p. 1169595, 2023.

[98] S. Uma, "Conversational AI Chatbots in Digital Engagement: Privacy and Security Concerns," in *Trends, Applications, and Challenges of Chatbot Technology*, ed: IGI Global, 2023, pp. 274-317.

[99] W. Ye and Q. Li, "Chatbot security and privacy in the age of personal assistants," in *2020 IEEE/ACM Symposium on Edge Computing (SEC)*, 2020, pp. 388-393.

[100] R. Sajja, Y. Sermet, M. Cikmaz, D. Cwiertny, and I. Demir, "Artificial Intelligence-Enabled Intelligent Assistant for Personalized and Adaptive Learning in Higher Education," *arXiv preprint arXiv:2309.10892,* 2023.

[101] D. L. Taylor, M. Yeung, and A. Bashet, "Personalized and adaptive learning," *Innovative Learning Environments in STEM Higher Education: Opportunities, Challenges, and Looking Forward,* pp. 17-34, 2021.

[102] M. Firat, "What ChatGPT means for universities: Perceptions of scholars and students," *Journal of Applied Learning and Teaching,* vol. 6, 2023.

[103] A. Bhutoria, "Personalized education and artificial intelligence in the United States, China, and India: A systematic review using a human-in-the-loop model," *Computers and Education: Artificial Intelligence,* vol. 3, p. 100068, 2022.

[104] D. Xu, "Research on the development and application of english teaching resources based on augmented reality," *Open Journal of Social Sciences,* vol. 11, pp. 21-31, 2023.

[105] J. Lee, "Problem-based gaming via an augmented reality mobile game and a printed game in foreign language education," *Education and Information Technologies,* vol. 27, pp. 743-771, 2022.

[106] G. Pizzi, D. Scarpi, and E. Pantano, "Artificial intelligence and the new forms of interaction: Who has the control when interacting with a chatbot?," *Journal of Business Research,* vol. 129, pp. 878-890, 2021.

[107] S. Paliwal, V. Bharti, and A. K. Mishra, "Ai chatbots: Transforming the digital world," *Recent trends and advances in artificial intelligence and internet of things,* pp. 455-482, 2020.

[108] K. Guo, J. Wang, and S. K. W. Chu, "Using chatbots to scaffold EFL students' argumentative writing," *Assessing Writing,* vol. 54, p. 100666, 2022.

[109] B. Luo, R. Y. Lau, C. Li, and Y. W. Si, "A critical review of state-of-the-art chatbot designs and applications," *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery,* vol. 12, p. e1434, 2022.

[110] M. Hasal, J. Nowaková, K. Ahmed Saghair, H. Abdulla, V. Snášel, and L. Ogiela, "Chatbots: Security, privacy, data protection, and social aspects," *Concurrency and Computation: Practice and Experience,* vol. 33, p. e6426, 2021.

[111] J. Jeon and S. Lee, "Large language models in education: A focus on the complementary relationship between human teachers and ChatGPT," *Education and Information Technologies,* pp. 1-20, 2023.

[112] H. Yu and S. Nazir, "Role of 5G and artificial intelligence for research and transformation of english situational teaching in higher studies," *Mobile Information Systems,* vol. 2021, pp. 1-16, 2021.

DOI: https://doi.org/10.15379/ijmst.v10i1.2829