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The Impact of AI-powered Chatbot on EFL Speaking: A Systematic Review of Chatbot-supported Language Learning

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Abstract

Since the release of ChatGPT (Generative Pre-trained Transformer) by OpenAI in 2022, generative artificial intelligence has garnered considerable attention within AI-assisted language learning research. Researchers are increasingly investigating the transformative potential and limitations of AI-powered Chatbot on English as a foreign language (EFL), especially in the domain of speaking, However, there has been a lack of a systematic review summarizing its pedagogical benefits and challenged. This paper concludes that AI Chatbots are endowed with many promising affordances (e.g. enhanced speaking skills, less threatening environments and enhanced willingness to communicate, personalised learning experiences etc.) and some potential drawbacks (e.g. short-term appeal, technical limitations, students' over-reliance and difficulties in writing prompts etc.). In the end, based on the research gap, this paper suggests that some influencing factors like gender and age should be taken into account when examining the impact of AI Chatbots on EFL speaking. What' s more, study evaluating the use of AI Chatbots compared with other equivalent tools is highly advocated. In addition, a longitudinal study and research focusing on teachers' perception towards AI Chatbots should be considered.

Keywords

AI Chatbot, EFL Learning, L2 Speaking

1. Introduction

1.1 Research Background

Speaking, as a crucial component in influencing students' overall language development, has received an outpouring of attention on the grounds that it is a significant skill for second language learners to exchange information with native or non-native speakers in real-life situations. And learners, endowed with extraordinary speaking skills will have more self-efficacy to interact with others. Therefore, the provision of sufficient opportunities for second language learners to engage in interactive activities to

enhance their speaking skills in an authentic context is high on the agenda. Nevertheless, in English as a foreign language (EFL) context, the cultivation of students' speaking skills is subject to many constraints, including limited practice time and chance, the lack of personalized feedback, students' reluctance to hone their speaking skills and the like, impeding students' sufficient oral outputs. It is in this sense that the AI-based Chatbot, an innovative tool, comes to rescue. In the contemporary era, it is widely acknowledged that Chatbot exhibits profound potential in revolutionizing the current approaches to teach foreign language and address various learning needs. Hence, recent years have witnessed a growing number of Chatbots targeted at enhancing students' speaking skills. In the meanwhile, in attempts to explore the effectiveness of Chatbot on EFL speaking, a horde of scholars have conducted investigations to examine how Chatbot impacts learners' speaking skills.

1.2 Research Purpose and Significance

Therefore, this paper aims to review Chatbot's benefits and challenges in the EFL speaking instruction, hoping to provide readers an overview. In the end, the implications for teachers and teacher educators will also be demonstrated.

All in all, this paper is endowed with theoretical and practical significance.

In terms of the theoretical significance, firstly, it can broaden and enrich the theory concerning second language acquisition. For example, it challenges the interaction hypothesis. The traditional interaction hypothesis emphasizes pivotal role of human-human interactions in shaping students' language acquisition. In contrast, Chatbot, as an AI-driven conversational agent, can reshape the pathways for achieving the comprehensible input through AI-driven meaning negotiation, thereby redefining the concept of "interaction". Besides, it also reshapes the input hypothesis. The traditional input hypothesis also underscores the importance of comprehensible input provided by human beings. But the effectiveness of the use of Chatbot in EFL speaking instruction can confirm the role of technology-mediated comprehensible input, thereby enriching the connotation of comprehensible input. Secondly, the theoretical significance of this paper also lies in synthesizing the previous findings and drawing future blueprints for the future study. The suggestions for the future study are also demonstrated in this paper. Therefore, this paper also serves as an incubator for emerging paradigms, especially in rapidly evolving fields like Chatbot-supported language learning.

As regards the practical significance, firstly, it is endowed with the potential in driving the innovation and proliferation of educational technology. For example, this paper finds that one of the limitations of Chatbot is the lack of socio-cognitive and psychological support, thereby driving scholars to improve the affective computing technology (affective computing technology refers to the use of computer system to perceive, identify and understand human beings' emotions, thus providing adaptive feedback). For example, scholars can strive to explore how can AI-based Chatbot provide more emotional feedback by tracking learner' speed of speech, facial expressions, etc. Secondly, this paper alerts the potential risks, thereby catalyzing the evolution of Chatbot-supported language learning. For example, by virtue of literature review, this paper concludes that in the experimental groups, there are students maintaining that

they still miss the instruction and feedback from teachers, which serves as a catalyst for a Chatbot-assisted teacher-led hybrid teaching model.

2. Literature Review

2.1 Chatbot and Its Technological Proliferation

In bids to help readers have a better glimpse into the effectiveness of AI-powered Chatbot on EFL speaking, the definition of Chatbot and the proliferation of Chatbot technology will be unveiled.

With the advancement of technology, different forms of artificial intelligence have sprung up. One such AI innovation that has recently attracted language teachers and teacher educators is Chatbot (Jeon, 2021). Chatbot is a programmed computer system that can simulate human dialogue by processing and interpreting incoming information through natural language to generate texts or speech. Powered by natural language processing and machine learning, Chatbot is endowed with the great capability to provide infinite authentic and natural conversations to nurture language learning, which is beneficial to develop students' speaking and communicative skills.

As regards the proliferation of Chatbot, it is subject to an impressive change.

At first, the Chatbots are rule-based. The representative Chatbot at this stage is ELIZA (Weizenbaum, 1966). ELIZA is limited to simple text-based interactions. It can recognize key words and phrases in users' inputs and provide pre-programmed and thus limited responses corresponding to those key expressions (Yang et al., 2022; Wang et al., 2024). Later, ALICE was developed by Richard Wallace in the 1960s. By using Artificial Intelligence Markup Language (AIML), ALICE can detect the subject matter of users' input, choose certain categories, and provide suitable replies based on the pre-programmed data, enabling more intricate multi-round dialogues (Wang & Petrina, 2013; Yang et al., 2022). Subsequently, with the advancement of natural language processing (NLP), machine learning, speech recognition and synthesis technologies, AI-powered Chatbots begin to support more complex voice interactions by simulating human behaviors and thoughts (Hew et al., 2023; Wang et al., 2024). For instance, Siri, Cortana, Google Assistant as well as conversational AI Chatbots like Cleverbot are representative tools. Then, powered by the large language model (LLM), the recent Generative Artificial Intelligence Chatbots are endowed with enhanced comprehensive capabilities. They can better understand the pragmatics, cultural contexts and personalise human-AI interactions by integrating external databases and systems (Alawida et al., 2023; Chapelle et al, 2024). This also enables AI-powered Chatbots to produce multimodel content, encompassing text, images and even videos. Moreover, with the aid of lip-syncing technology, facial recognition and generative adversarial networks, AI-powered Chatbots featuring avatars can simulate human-like conversation using a specific human-like image, incorporating gestures and facial expression (D-ID, 2024; Wang et al., 2024). These avatars are trained with different accents appearances or even personalities (Wan & Moorhouse, 2024; Wang et al, 2024). Call Annie, Hi-Echo and D-ID Agent are representative AI-supported Chatbots.

2.2 Theoretical Basis of the Integration of Chatbot into EFL Speaking

Nowadays, the integration of AI Chatbot into EFL speaking is increasingly prevalent. And the interaction hypothesis, input hypothesis, zone of proximal development can lay solid foundations for the implementation of Chatbot in EFL speaking instruction.

2.2.1 Interaction Hypothesis

Language learning, as the interaction hypothesis suggests, occurs through meaningful communications with others-including meaningful negotiations, feedback, and collaborative dialogue. The negotiation of meaning means that in the interactions, when obstacles occur, speakers will achieve the communicative purpose by expansion, repetition, clarification, etc. Meanwhile, it holds that comprehensible input is high on the agenda in the acquisition of foreign language skills. This theory is consistent with the use of Chatbot in EFL speaking. For example, Chatbot can provide students with real-time human-like conversation and instant feedback. Besides, it can adjust its language complexity and lexical richness by identifying students' language proficiency level.

2.2.2 Zone of Proximal Development

The zone of proximal development is first put forward by Vygotsky (1978). It refers to the disparity between learners' current level of problem-solving ability and their potential for improvement when engaged in problem-solving activities with the assistance of more competent peers or instructors. In the context of Chatbot-based EFL speaking instruction, Chatbots serve as effective learning partner, present extreme potential in provide students with enough scaffolding. In the previous studies with quasi-experimental study, both the experimental and control groups adhere to ZPD theory. The students in the experimental group access their ZPD with the intelligent scaffolding provided by Chatbot, while the students achieve their ZPD with the assistance of their peers.

2.2.3 Input Hypothesis

The input hypothesis, put forward by Krashen (1985), argues that learners can advance their language learning by receiving the comprehensible input which is slightly above their current language level. Actually, the Chatbot-supported EFL speaking instruction aligns with this theory. For example, the AI-supported Chatbot can automatically adjust the language complexity by analyzing the previous conversation data (e.g., learners' vocabulary, the frequency of grammatical mistakes, the speed of responses, etc.), thereby providing students with dynamic comprehensible input. After identifying students' language proficiency level, Chatbot can gradually improve the language complexity at different levels. Take the lexical level as an example, Chatbot will use the words that are familiar to students (e.g., buy). Then, it will introduce some words that are new to students (e.g., purchase).

3. The Pedagogical Benefits of the Integration of AI-driven Chatbot into EFL Speaking

Through literature review, this paper finds that the use of AI-based Chatbot exhibits multiple benefits.

Firstly, AI-supported speaking instruction presents promise in improving students' speaking skills (Diveker et al., 2021; Maknun, 2020; Rustamova & Rakhmatullaeva, 2023; Vladova et al., 2021). For

example, in a study conducted by Fathi et al. (2024), students using Andy English Chatbot, an AI-mediated Chatbot experienced enhanced speaking fluency, coherence, lexicon, grammatical range, accuracy and pronunciation under the IELTS speaking band descriptions. Besides, Vázquez-Cano et al. (2021) conducted an investigation focusing on the impact of Chatbot on students' pronunciation skills. The results indicated that learners using the AI-driven Chatbot significantly enhanced their pronunciation correctness, particularly in using commas, colons and periods. In the similar vein, in a study conducted by Zhang et al. (2024), the interviewed students also commented Chatbot's provision of pronunciation demo. By virtue of iFLYTEK Spark, a Chatbot based on large language model developed by iFLYTEK, students' voice inputs could be transcribed into homophones or words with similar sounds, enabling them to pay attention to the distinctions between these phonetically similar words. And when they were practising their oral presentation, they would use the transcribed speech to refine their pronunciation, especially their tones and intonations, which enhanced their pronunciation correctness significantly.

Secondly, Chatbot can provide students with personalized learning experience and targeted feedback tailored to their proficiency level. As regards the personalized learning experience, apart from recommending students tailored and personalized learning materials (Huang et al., 2021), one of the most powerful potentials of AI-driven Chatbot is that it can recognize students' language proficiency levels. For instance, once MentorChat, a dialogue-based Chatbot, identifies less-able students who give no response to a given question, the system would direct the question again by helping students recall key concepts learned in previous sessions (Tegos et al.; 2014). likewise, An et al., (2023) also conducted an experiment and found that learners piled on accolades on the personalization provided by AI-driven tools since they can enjoy instant feedback tailored to their language proficiency. Besides, the 24/7 available nature of Chatbot also makes it more accessible for learners with different self-learning pace, which can also go beyond the conventional classroom restrictions (Huang, et al, 2021). In terms of the feedback, the individualized feedback can be especially beneficial for students who may be hesitant to communicate in a classroom setting as it helps them identify area for improvement and build their self-efficacy (Fathi et al., 2024). However, in the traditional classroom setting, the class size and limited time are always challenges for teachers to give every student individualized feedback for oral tasks or presentations. Additionally, speech is fleeting. It is difficult for teachers to grasp all the details of students' oral outputs, hindering teachers to give students diagnostic and detailed feedback. However, a lack of feedback may contribute to students' low confidence and unwillingness to speak, impeding the cultivation of speaking skills. Luckily, AI-powered Chatbot can tackle this crunch. For instance, iFLYTEK Spark, a Chatbot based on large language model developed by iFLYTEK, is endowed with the capability to provide language resources to different topics selected by learners, correct grammar errors and gives specific feedback for students' role plays and presentations (Zhang et al., 2024). In addition, it is worthwhile to mention that in that investigation conducted by Zhang et al. (2024), the interviewed students unanimously acknowledged that they benefited from the feedback provided by AI Chatbot. A student in this investigation maintained that AI Chatbot helped her understand that in terms of speaking, she was skilled

in fluency but relatively deficient in lexical diversity and complexity.

Additionally, AI-driven Chatbot provides a less threatening environment, contributing to an enhanced willingness to communicate (WTC) (Divekear et al., 2021; Fathi et al., 2024; Jeon, 2021). Language output is not just produced by linguistic competence, some learners with less linguistic competence but increased WTC are also more likely to produce language (Maclntyre et al., 1998). WTC is defined as the readiness of learners to engage in communicative activities in a foreign language (Dewaele & Pavelescu, 2021). As Maclntyre (1994) elucidates, learners with higher WTC are more likely to use the target language and achieve improvements in their speaking abilities. However, the speaking practice is always challenged by students' unwillingness to engage in interactive speaking activities or silence on the grounds that they are shy to communicate with human partners or they are fearful for being given negative feedback from peers and instructors (An et al., 2023). It is in this sense that Chatbot comes to rescue. Many researchers like Tai & Chen (2023) have proved that AI-mediated communication showed promises for enhancing willingness to communicate. Many reasons can account for it. Firstly, trained on an exceptionally extensive dataset encompassing online content, such as web pages, research articles, books and social media posts, Chatbot exhibits extraordinary performance when engaging in human-like conversations. Hence, Chatbot's ability to engage in conversations on a diverse range of topic (e.g. K-pop groups and Harry Potter) will enhance the users' comfort and promoted WTC (Huang et al., 2021), increasing their motivation to open a conversation over the topics they are interested in. Secondly, Chatbot is a machine, and in most cases, students will use the AI-driven Chatbot outside the classroom, which can greatly mitigate students' nervousness and anxiety when communicating, thereby potentially contribute to the speaking fluency, emotional safety and enhanced confidence. For instance, Veivo and Mutta (2022) found that students were more likely to interacting with AI robots rather than their teachers, since they regard robots as their partners who will never give negative feedback on their speaking performance. Similarly, Divekar et al. (2022) argued that students were enjoyed better psychological well-being under AI speaking system. Rahman & Tomy (2023) also reported that AI Chatbots were welcomed by their anonymity and security. Hence, under this circumstance, AI Chatbot allows students to assess and improve their speaking skills without fear of being judged, making mistakes or losing confidence in front of the teachers and their classmate. For example, in an investigation conducted by Zhang et al. (2024), a student with social anxiety reported that the stress-free environment fostered by AI Chatbot enabled her to communicate without fear. Another student also declared that using AI Chatbot was a relaxing experience. They could interact with the Chatbot without fretting about their accents or making mistakes. Thirdly, Chatbot is a patient, friendly and non-judgmental partner, contributing to more self-disclosure and increased WTC (Fathi et al., 2024). Chatbot's use of warm greetings and expressions of agreement with students' ideas renders students feel more relaxed, increasing their involvement. For instance, in an investigation conducted by Goda et al. (2014), embraced with friendliness, students demonstrated self-disclosure when they discussed the essential factors of an ideal family with a Chatbot partner. Students expressed their personal opinions about their own family, such as "my family member

are not friendly," and they also asked Chatbot questions, such as "do you have family?" Additionally, it is widely acknowledged that the use of relaxing background music also plays a role in mitigating students' nervousness, thereby contributing to an improved WTC. For example, in the study conducted by Zhang et al. (2024), an interviewed student reported that the background music accompanying iFLYTEK Spark (the tested Chatbot)'s responses created an authentic and calming atmosphere, contributing to a sense of comfort and an increases willingness to communicate with this tool. Besides, He (2018) observed that the background music offered by the AI Chatbot alleviated Chinese EFL learners' learning anxiety. Van Horn (2020) also asserted that music in the background led to a non-threatening atmosphere that contributed to enhanced mood, higher motivation and improved learning outcomes. Likewise, according to Fathi et al., (2024) also observed that students were motivated by the relaxing experience provided by AI Chatbot, and they were willing to express themselves regardless of their language proficiency level.

Besides, Chatbot-supported activities provide authentic scenarios for foreign language learners to practise speaking skills, facilitating the language learning outcomes. One of the functions of speaking skills is that it can assist learners in grappling with problems in real life through communicating with others. However, one of the biggest problems of conventional speaking practice is that the practice is de-contextualized, which is not conducive for students to transfer the language knowledge and skills learned in the classroom into real life. Nevertheless, it is a blessing that the promising potential of simulating conversation scenarios and assuming roles defined by users can significantly enhance authenticity (Zhang et al., 2024), making the speaking practice more immersive. When using AI Chatbot to simulate a virtual target language speaking environment, two types of speaking activities are often adopted: role-play activity and learning scenario representation (Huang et al.; 2021). In terms of role-play activity, in a study conducted by Ayedoun et al. (2015), for example, a web-based Chatbot simulated a restaurant setting. The Chatbot itself acted as a native English-speaking waiter while five university students acting as customers. After interacting with the Chatbot individually, it was witnessed that students' rising self-confidence and growing desire to communicate in English are enhanced. The example of a learning scenario representation is demonstrated in a study conducted by Wang et al. (2017). Within the virtual simulation, Chatbot was built into different scenarios (e.g., a hospital, a hotel, a supermarket). The vivid and immersive scenario invited students to wrestle with problems similar to those that they may meet in real life. Students who experienced this kind of immersive scenario reported that they felt a sense of being physically present in the language learning environment.

In addition, the accessibility of Chatbot deserves an outpouring of accolades. It is widely acknowledged that classroom teaching is almost the sole channel for learners to hone their speaking skills. Nevertheless, it is a pity that there is not enough time for students do perform speaking tasks, which has a detrimental impact on their speaking improvement. What makes thing worse is that in some exam-crazed areas, speaking is largely ignored. Fortunately, Chatbot makes language learning more accessible to a wider audience by offering flexible learning schedules, 24/7 availability and the ability to learn anywhere and anytime (Huang et al., 2021). For instance, for those students preparing ILETS speaking but lacking

enough resources and time to practice in school, AI chatbot can be a promising assistant and a substitute for a human partner. The easy accessibility empowers students to strike up a conversation with Chatbot without the restriction of time and place.

4. Challenges in the Implementation of AI-driven Chatbot in EFL speaking

However, in spite of its prominent potential in engaging students in language learning (Ruan et al., 2019), enhancing students' WTC (Divekear et al., 2021; Jathi et al., 2024; Jeon, 2021) and speaking accuracy, fluency and complexity, Chatbot also has its demerits.

Firstly, for students, Chatbot is deemed as a short-term appeal rather a lasting conversation partner to some certain extent. It is true that learners are intrigued by Chatbot for its novelty. But it is the novelty effect of Chatbot that has been mentioned as a possible reason why learners' motivation, engagement and performance improvement are not long-term (Fryer at al., 2019; Ayedoun at al., 2019). "The novelty effect" refers to the newness of a technology to students, which has the potential in increasing students' interest and motivation to participate in AI-supported interactive speaking activities (Chen et al., 2016). However, the novelty will gradually diminish or even disappear when students are increasingly familiar with the technology. For instance, in Fryer et al.'s (2017) 16-week experimental study, students' interest in speaking tasks experienced a gradual decline after the first communication task with the Chatbot.

Another worry about the use of Chatbot is their limited capabilities (Huang et al., 2021; Fathi et al., 2024), despite its exponential increase of the implementation in educational contexts (Smutny & Schreiberova, 2020). Firstly, the most frequently reported technological challenge is the perceived unnaturalness of the computer-generated voice, which contrasted with human voices (Goda et al., 2014; Tego et al., 2014; Zhang et al.; 2024). Secondly, Although the past few decades witnessed the significant advancement of artificial technology, developing a Chatbot that is intelligent enough is still challenging. Hence, Haristiani (2019) found that if students misspelled their input, entered incomplete sentences or produced false pronunciation, they may receive responses with nonsense outputs or irrelevance from the Chatbot since the Chatbot can hardly manage the process of understanding and recognize students' intentions (Fryer & Carpenter, 2006). In addition, Jalil et al. (2024) also maintained that the AI-mediated Chatbot made mistakes and was not as effective as human interaction in terms of accuracy and the relevance of responses. Thirdly, there are concerns over AI Chatbot's insufficient comprehension ability. For example, Zhang et al. (2024) observed that AI-driven Chatbot tended to only accurately recognize simple questions formulated with direct and simple prescriptive sentences and phrases. When confronted with more complex inquiries or prompts, particularly those containing pronouns, Chatbot seemed to become confused, which discouraging students to continue to engage in conversations with the tool. Forth, the limited memory of AI chatbot also provokes disappointment. For example, Zhang et al. (2024) found that AI Chatbot frequently forgot previous discussions and their own responses, impeding learners to acquire valuable and coherent answers. Apart from the above limitations, what deserves mentioning is that Chatbots, with limited intelligence, may fail in understanding or decipher students' inputs that are out of

range (Huang et al., 2021). For example, the Chatbot system may fail to recognize students' ideas or new topics headed in unpredictable directions as the conversations developed (Yang & Zapata-Rivera, 2010). Additionally, Chatbot fails to outperform human beings in socio-cognitive and psychological support. For instance, in Fathi et al.'s (2024) study, students using the AI-supported Chatbot to boost their speaking skills declared that compared with AI-powered Chatbot, they missed human instruction since it was more engaging and teachers always gave them more detailed feedback and encouragements. They also reported that human instructors could provide a more realistic speaking environment, cultural information and context to the language they were learning. What's more, the dearth of emotion and visible cues from Chatbot during interactions diminish students' positive affective states (e.g. interest) in relation to language learning, discouraging students from actively engaging in the AI-mediated interactive speaking activities.

What's more, another downside lies in learners' over reliance on AI Chatbot, which may potentially result in stagnant reflective and critical thinking. It is true that AI-driven Chatbot, empowered by the extensive database, can assisting students in providing some insights and enlightening students' thinking. However, as students increasingly depend on AI Chatbot for decision-making and problem-solving, there is a genuine risk of diminished critical thinking skills, creativity and human ingenuity. For instance, in the study conducted by Zhang et al. (2024), an interviewed teacher fretted that students may passively accept Chatbot's responses without a reflective and critical thinking.

Meanwhile, what also stirs our worry is that students' difficulties in writing effective prompts. For instance, according to Fathi et al. (2024), students reported that they fretted about posing questions to AI Chatbots effectively while some students with limited language proficiency also complained that they struggled to articulate their needs and it was challenging for them to respond promptly during the conversations, potentially leading to an abrupt end to the interaction.

5. The Suggestions for the Future Study

By virtue of the systematic review of the previous studies examining the effectiveness of Chatbot-supported on EFL speaking, the following suggestions for the further study can be proposed.

Firstly, when examining the effectiveness of AI-supported Chatbot on students' speaking skills, some influential factors such as students' different proficiency level, age groups or gender should be taken into account since the previous studies exhibit divergent results. Take students' different proficiency level as an example, Kang (2022) held that learners with a low proficiency level benefited more from the interaction with AI Chatbot in comparison with learner with a higher proficiency level. However, Stockwell (2004) asserted that students with a higher-level outperformed students who were less-able in the AI-mediated interactive speaking activities.

Secondly, the duration of the AI-based instruction and the length of exposure to the intervention should be increased. It is paramount to acknowledge that AI-supported Chatbot's effects on EFL speaking can vary depending on the intervention's duration. However, through literature review, this paper finds that

the intervention time of the previous studies lasts from several minutes to one semester. Few studies are undertaken longitudinally. Therefore, in order to get a glimpse of the long-term effects of Chatbot on EFL speaking, a longitudinal study that lasts two more semesters is suggested.

Furthermore, study evaluating the use of Chatbots compared with other equivalent tools is highly advocated. Through literature review, this paper finds that a multitude of studies have delved into the impact of Chatbot on speaking skills among English language learners (Junaidi, 2020; Divekar at al., 2021; Kang, 2022; Rustamova & Rakhmatullaeva, 2023). And an army of scholars conduct a quasi-experimental research design. The students in the experimental group will engage in the AI-mediated interactive speaking activities while the learners in the control group will engage in the traditional human-human interactions. Few studies have evaluated the use of chatbots compared with other equivalent tools (e.g., students in a control group searching for information online; Goda et al., 2014; Fathi et al., 2024). Additionally, it is worthwhile to note that the use of AI-based chatbots is closely tied to online learning and computer-assisted learning, and these learning conditions entail the presence of other techniques (e.g., VR, 3D; Wang et al., 2017). Therefore, meticulously examining whether the augmented EFL speaking is attributed to Chatbot only or the combination of tools is more than imperative.

In addition, studies reporting teachers' perception towards AI-powered Chatbot and exploring teachers' role in Chatbot-supported language learning should be embraced. A horde of scholars have delved into students' perceptions towards Chatbot and they find that students have a positive attitude towards it in general. However, few studies focus on teachers' perceptions towards AI-based Chatbot. It is significant to acknowledge that teachers also play pivotal roles in regulating the AI-mediated interactive speaking activities. And teachers' perceptions towards Chatbot presents influential impact on the design and implementation of Chatbot-supported language learning activities. Therefore, future studies can explore teachers' perception towards AI-powered Chatbot implementation in language learning and their roles in it.

6. Conclusion

The past few decades witnessed the transformative potential of AI Chatbot in revolutionizing the language learning, especially in the realm of speaking. Yet, to date, the effects of Chatbot on EFL speaking are still generally concluded. Therefore, this paper conducts a systematic review of the effectiveness of AI-based Chatbot on the enhancement of EFP speaking skills. In terms of the pedagogical benefits offered by Chatbot-supported interactive speaking activities, this paper finds that Chatbot exhibits promise in fostering learners' speaking skills, creating stress-free environment and enhancing WTC, providing individualized learning experience and feedback, creating authentic learning scenarios and providing availability for learners. In the meanwhile, the challenges brought by Chatbot are also uncovered in this paper, including the technological limitations, the novelty effect, the lack of socio-cognitive and psychological support, the over-reliance on Chatbot, and the difficulties in writing effective prompts. Besides, the suggestions for the future study are also proposed.

In a nutshell, despite the limitations of integrating AI-based Chatbot into EFL speaking instruction, the Chatbot-supported EFL speaking learning still presents promising merits. Therefore, harnessing the advantages while mitigating the downsides accompanying the implementation of Chatbot in language learning is increasingly paramount for teachers and teacher educators.

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