CHAPTER II
LITERATURE REVIEW

This chapter discusses the theoretical basis and previous research on Chatbots in English language learning. The theoretical foundations described include the importance of foreign language learning, media in language learning, ICT in language learning, and Chatbot use in an educational context, as well as explaining previous studies related to this research.

2.1 Importance of Foreign Language Learning

The value of multilingualism for personal and professional success in today's interconnected world cannot be emphasized (Conteh, 2007; Maharaja, 2018; Mitits, 2018). Language acquisition allows students to widen their viewpoints, acquire cross-cultural communication skills, and access new knowledge (Citron, 1995; Tafazoli et al., 2018; Truong & Tran, 2014).

Language courses and programs are available at higher education institutions to help students attain language proficiency (Erling & Hilgendorf, 2006; Dimova & Kling, 2020; Oralova, 2012). These programs commonly use communicative language teaching, task-based language learning, and computer-assisted language learning (CALL) methodologies and technologies (Chong & Reinders, 2020; Nguyen et al., 2015; Parmaxi & Demetriou, 2020). Personalized instruction, communicative language practice, and the development of accurate language content for learners to engage with are all possible benefits of using technology in language learning (Chen et al., 2021; Kirkwood & Price, 2014; Vieira et al., 2014).

With the rapid growth of natural language processing technology, there is increasing interest in the potential of big language models like ChatGPT to improve language learning and instruction in higher education (Oguzhan Topsakal, 2022). The following sections dive into the potential influence of ChatGPT on language acquisition in higher education and propose future research avenues in this topic.

2.2 Media in Language Learning

Learning a language now should be easier than before as many technologies are facilities and learning media available to help learning English. For example, interactive social media and virtual web-based communities are gaining popularity daily as the number of web-based courses, colleges, and schools continues to increase significantly (Allen et al. 2004 and 2008). Their popularity also increased because teaching and learning can occur independently of place and time. They have many advantages, allowing for a more interactive, personalized, and independent learning experience (Dabbagh & Banna, 2009).

Digital devices have also been used not only to complement established education aids but also to develop new ways of learning (Alfaki & Alharthy, 2014). Web-based learning environments have great potential to support student-centered learning as they are flexible, interactive, and resource-rich (Gillet et al.,1984). Unfortunately, although web-based learning environments have unlimited prospects for educational use, they have some drawbacks, namely the implementation problems and challenges that are confronted when meeting all students' instructional needs (Allen et al. l 2004 200,8). The sources of these problems may have been the low quality of online instruction, the nature of the attributes of the web-based learning environments and diverse learner profiles and characteristics.

The use of instructional media at the stage of learning orientation will assist the effectiveness of the learning process and the delivery of the message and the content of learning at the time. In addition, to the motivation and interests of students, learning media can also help students improve comprehension, present exciting and reliable data, facilitate the interpretation of data, and condense the information.

2.3 ICT in Language Learning

ICT as a medium for teaching is becoming more and more acknowledged. Technology can create a natural and enjoyable atmosphere for language learners and increase their language awareness when used correctly.

Technology also lets language learners gain language skills outside the classroom when interacting. ICTs can enhance the quality of education in several ways: increasing learner motivation and engagement, facilitating the acquisition of basic skills, and enhancing teacher training. When used appropriately, ICTs are also transformational tools that can promote the shift to a learner-centered environment.

The use of ICT increases the scope of teaching. It provides quality learning materials and creates autonomy in learning. Along with academic excellence, students must have English communication skills for a prosperous future. Technology can support early communication, language, and literacy by offering new opportunities, such as interactive and intuitive storytelling, e-books, apps, and other services, such as online video calling. The use of ICT increases the scope of the teaching-learning process. It provides new learning material. Thus, Information Communications Technology (ICT) in foreign language learning and teaching has been the researchers' focus of attention.

1. AI (Artificial Intelligence) Based Learning

The word AI consists of the words "artificial" and "intelligence" (Ahmet,2018). Artificial Intelligence (AI) is a booming computing sector capable of transforming any part of our social experience. AI has established a new learning and teaching technology in education, now being examined in multiple domains (UNESCO, 2019). AI technologies replicate human intelligence and assist with problem-solving and decision-making. AI has been utilized and is still being utilized in several fields, including economy, engineering, law, science, medicine, and manufacturing (Shehab et al., 2017; as cited in Dost et al., 2020). Artificial intelligence can be referred to as an artificial method. This meant that Artificial Intelligence (AI) was programmed to enhance human intelligence and increase capabilities. Artificial intelligence is concerned with its interface with the program.

Gaining information is the process of learning. Each student steadily progresses from novice to primary aim in the field by following highly detailed activities. To build practical skills and understand their values, participants in the practice of participation communicate their personal and

social experiences through various direct and indirect methods (Naseem et al., 2020). English must serve as a universal language. Thus, its utility is crucial, especially in nations where it may be spoken as a second language. As a result, it is essential to enhance the learning environment in the classroom and nurture learners in a language-simulating environment (Ma L., 2021). Building an artificial intelligence English education system is often used as a breakthrough to facilitate the transformation of contemporary information technology into English education, increasing students' initiative in learning English. Advances in computer science in language translation and comprehension programs have developed into a new idea for human language processing.

In this case, artificial intelligence (AI) can help language learners, enabling them to accelerate learning a particular language. Learners can learn a language based on the repeatability of phrase patterns that show relationships between words. An example of AI being used for language learning is when learners use Siri, an iOS operating system designed by Apple, to communicate in English. This is relatable for ESL (English as a Second Language) and EFL (English as a Foreign Language) learners. More particularly, it allows this learner to improve their speaking ability, specifically pronunciation and listening skills.

2. Chatbot in Language Learning

Many researchers and practitioners have recognized that chatbots can be used pedagogically to aid language learning. Studies have documented students' experiences, perspectives, restrictions, and issues with integrating chatbots into the learning process. According to Yin and Satar (2020), students with low levels of English language proficiency profited the most from employing chatbots, whilst those with greater proficiency levels voiced dissatisfaction with chatbots. Huang, Hew, and Fryer (2022) conducted a systematic review of the use of chatbots in language learning. The studies revealed several technological and pedagogical benefits of chatbots.

Regarding interlocutors, simulations, transmission, helplines, and

recommendations, the benefits of technology were considered. They also encourage social presence through effective, open, and coherent communication. This study's obstacles were related to technological frustrations, constraints, novelty impact, and cognitive load. Kim, Ryoo, Lee, and Lee (2022) designed Ellie, a chatbot based on second language learning theories. Three conversation modes are available: General Talk, Skill conversation, and Task Chat. The General Chat option is intended to allow quick conversations with Ellie about personal issues. Learners can complete a variety of L2 issues in Task Chat mode to attain learning objectives. Practice with forms-focused language is the goal of skill conversation. According to the study, Ellie is necessary to create future L2 chatbots and holds much potential as a learning partner.

ChatGPT is a robust large language model developed by OpenAI (Baidoo-Anu & Owusu Ansah, 2023; Kasneci et al., 2023; Lund & Wang, 2023; Sallam, 2023). The model is trained using a transformer architecture that utilizes unsupervised learning to generate human-like text across various domains. ChatGPT's text-generation abilities make it an excellent tool for providing instructional content and interactive learning experiences. The model's ability to produce realistic dialogues can give learners authentic language use examples in language acquisition (George & George, 2023). In addition, the model may produce writing prompts and provide comments on written work, which can help learners develop their writing skills (Baidoo-Anu & Owusu Ansah, 2023). ChatGPT also enables translation and provides a novel second-language learning technique (Jiao et al., 2023). Learners can enter content in their original language and have it translated into their target language automatically. They can also use ChatGPT to practice translating messages from their target language into their native language, which gives them more practice.

2.4 Chatbots Use in an Educational Context

ELIZA, created by Joseph Weizenbaum in 1966 to replicate the job of a therapist, was the first chatbot in history to be used in a practical setting. Since the appearance of ELIZA, there has been an ongoing research effort to use chatbots for educational purposes. So far, most chatbot-related educational research has been on chatbot creation rather than its application. Sandoval (2018), for example, built and executed a syllabus FAQ chatbot and documented the context of its creation, including the organizational needs and the chatbot's performance optimization methods. However, because no case study data were presented in the publication, nor was there any follow-up study on this chatbot's actual performance in real life, it is difficult to know its actual utilization in an online learning setting. Later, there was research to test the performance of multiple types of chatbots in enhancing social presence and enforcing knowledge gains (Huang et al., 2019) and exploring various designs of voice-based chatbots (Kloos et al., 2018) in online learning; however, the research emphasis was on the development of new chatbot designs.

As the usage of chatbots in online learning matures, more studies have been undertaken on their role in facilitating learning. Song et al. (2019) investigated the association between students' online learning participation and interaction with chatbots by comparing learning management system data and chatbot log data. Winkler et al. (2020) have studied using a voice-based scaffolding chatbot as an "assistant instructor" in video-based online courses. Even though it was a lab-based experiment, the results demonstrated the voice-based chatbot's full potential in promoting meaningful learning in online instructional films.

In short, the current trend in chatbot research in online learning is shifting from development to examination of its applications. The most recent research demonstrates the efficacy of chatbots in enabling students' authentic learning by augmenting the teacher's restricted guiding role in online learning, particularly synchronously. Despite the recent growth of chatbot adoption in online education, more studies need to focus on student-chatbot interaction, analyzing the diverse learning experiences caused by a chatbot as a new

technology adoption.

2.5 Previous Studies

Several previous studies have investigated the use of Chatbots in English language learning. Previous studies include the following.

The first study was conducted by Nagaletchimee (2023), titled "Exploration of Undergraduate Students Lived Experiences of Using a Chatbot for English Language Learning". The purpose of this study is to explore the experiences of undergraduate students using a chatbot for English language learning and to investigate the effectiveness of chatbots in different modes of language learning, including passive, active, constructive, and interactive modes: this study utilized a qualitative approach, specifically a phenomenological research design. The result of this study is that chatbots can effectively facilitate passive, active, and constructive language learning modes.

The second study was conducted by Baskara and Mukarto (2023), titled "Exploring the Implications of ChatGPT for Language Learning in Higher Education". This study aims to explore the potential implications of ChatGPT for language learning in higher education. This study used a mixed-method approach, combining qualitative interviews and quantitative surveys to gather data. The result of this study shows that the potential of ChatGPT to impact language learning in higher education is significant.

The third study was conducted by Puri and Baskara (2023), titled "Exploring Theoretical Perspectives on the Use of Chatbots and AI in Language Learning in the Post-Pandemic Era". This study aims to investigate the applications of chatbots and AI in language learning in the post-pandemic era through the theoretical framework of constructivism, sociocultural theory, task-based language learning, and computational linguistics. This study utilized an ethnographic qualitative method, emphasizing the significance of tasks and activities in language acquisition. The result of this study shows that chatbots and AI have the potential to provide learners with personalized, interactive, and engaging language learning experiences.

Based on the three previous studies, this study is similar in terms of the

usefulness of using chatbots in English language learning. However, there are some differences between the current studies. The previous studies, on average, used mixed methods, while this study will use descriptive qualitative method. The other difference is the place where the study takes place and the time of the research. Therefore, this research refers to all previous studies as a guide to conducting this research, regardless of the differences in conducting this research.