THE USE OF CHATBOTS IN THE ENGLISH LANGUAGE TEACHING TO PROMOTE MODERN LANGUAGE LEARNING: A LITERATURE REVIEW

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Abstract
Our world continues to become increasingly connected. The use of technology has become a must in this modern era to live accordingly. The requirement to use technology also widens the world of teaching, especially in teaching English. Nowadays, all generations of educators, whether young or old generations are expected to utilize technologies in their respective classrooms in an attempt to facilitate students with the newest atmosphere of the teaching and learning process. Speaking of those, chatbots are one of the technologies that can be engaged in English language teaching and learning. Relying on the huge benefit and easiness of implementation, the use of chatbots could be the leading technology for teachers to promote modern language learning. In this literature review-based research paper, the writers would like to encourage the use of chatbots in English language teaching as a medium for teachers to promote modern language learning.

Keywords: chatbots, ELT, technology

Introduction
Our world continues to become increasingly connected. The use of technology has become a must in this modern era to live accordingly. There are a lot of people who are using technology in their everyday lives, which marks it as people's favorite to do their work (Kari, Kettunen, Moilanen, & Frank, 2017). The use of technology is believed to stimulate the students to become autonomous learners. Becoming autonomous learners will enhance the students to comprehend their abilities in relationship to both themselves and society to ensure that they are ready to meet the challenges of our global societal needs (Ambrose & Sternberg, 2016). With barely countable and so many technologies, students are expected to be able to utilize them to compete in the modern era like today. In this present day, it cannot be avoided that the use of technology has emerged as a potent instrument with significant contributions to inspiring and advancing students' motivation to enhance their academic accomplishments (Abachi & Muhammad, 2014).

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Nowadays, all generations of educators, whether young or old generations are expected to utilize technologies in their respective classrooms in an attempt to facilitate students with the newest atmosphere of teaching and learning. Technology plays a significant part in facilitating pedagogical activity progress within the context of education. To facilitate learners' learning improvement, technology holds an essential part for teachers because they can utilize it in the classroom (Ahmadi, 2018).

Certainly, the requirement to use technology also widens the world of teaching, especially language teaching (Larsen-Freeman & Anderson, 2011). Technology serves as a teaching asset and it has been long associated with language teaching. There are numerous types of technologies that language teachers can utilize in this globalization era, and one of those is chatbots. Language educators utilize chatbots as a means of providing support for the implementation of mobile learning inside the classroom setting.

Chatbots are computer programs designed to have human-to-human interactions, which are becoming essential for language practice (Petrović & Jovanović, 2021). In the late 1960s, Joseph Weizenbaum (a German-American scientist) introduced a simple bot named "ELIZA" to the world. ELIZA functions as a virtual agent that generates responses by analyzing keywords provided by its users (Fryer & Carpenter, 2006). ELIZA could be considered the first chatbot ever created. At present, chatbots are made to be more human-like. Chatbots that resemble people take inputs other than text. From virtual assistants like Google Assistant, Siri, and Alexa to text-based chatbots that may be deployed in chat applications such as Facebook Messenger, Discord, and Telegram (Chuah & Kabilan, 2021).

Recent research on chatbots

There were studies done by some researchers regarding the utilization of chatbots in ELT. The first was research done by (Sarosa, Kusumawardani, Suyono, & Wijaya, 2020). The authors were engaged in the development of a chatbot that utilized social media platforms. This project started based on the growing presence of international companies that provide job opportunities. The chatbot was designed to assist job searchers in enhancing their proficiency in English. The research aimed to make job seekers become autonomous English learners. The development of the chatbot by the authors included Natural Language Processing (NLP) and expert systems. The findings of the research pointed out that the use of a social media-based chatbot was able to improve the participants' English skills. The determination of the question levels (easy, medium, hard) helped the participants to utilize the chatbot based on their cognitive abilities.

The second research was conducted by (Kim, 2018), who tried to find out how chatbots affected their ability to read and listen in English. The author set 46 college students as the participants of the study, where 24 of them were put into the experimental group and the rest were put into the control group. The findings of the study indicated that there was a considerable improvement in the listening and reading skills of both groups. However, on listening post-test, the experimental group's pupils outperformed the control group's students. The author claimed that the student's proficiency level in the experimental group had developed from intermediate to advanced level after engaging in chat with the chatbot. One year

later, the same author (Kim, 2019) continued her research on the use of chatbots in ELT. In this study, the researcher examined the impact of chatbots on students' proficiency in English grammar. The findings of this study corroborated the outcomes of the preceding study, which showed that the implementation of chatbots in ELT effectively enhanced students' proficiency in English grammar.

Not only investigating the effectiveness of chatbots for students, recent research also examined the perceptions of teachers in using chatbots in ELT. This research was done by (Yang, 2022), who put an effort into discovering whether the use of chatbots was effective or not based on teachers' perceptions. In this study, the researcher extended invitations to 28 pre-service teachers who were pursuing a degree in English education to engage with chatbots. The activity was done for a week under the guidance of the author himself. Subsequently, the author inquired with the participants regarding their perspectives on chatbots, specifically focusing on their perceived use, applicability, educational advantages, and limitations. The obtained data were analyzed qualitatively and the findings revealed that chatbots can play an important role as learning tools in an attempt to stimulate interactive communication in the target language.

About the huge benefits that chatbots offer to language teaching, especially ELT, the writers would like to encourage the use of chatbots in English language teaching as a medium for teachers to promote modern language learning. As a form of literature review-based research, this paper mainly attempts to explore the theoretical justifications for the use of chatbots in ELT and describe some practical issues of the utilization of chatbots.

Method

This research adopts a literature review as the research methodology. A simple literature review is a scholarly examination that documents analyzes, and develops conclusions about the existing knowledge on a certain issue, culminating in the expression of the writer's stance on the subject matter (Machi & McEvoy, 2016).
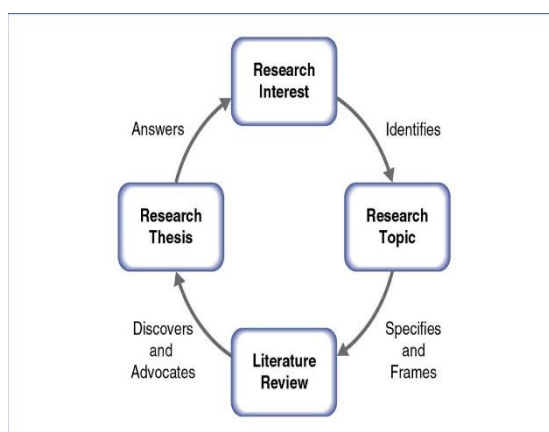

Figure 1. The simple literature review (Machi & McEvoy)

Literature review articles serve the purpose of connecting readers with the current state of knowledge on a particular issue, while also offering novel perspectives that contribute to the growth of knowledge (Galvan & Galvan, 2017).

In this research, the writers position themselves as the promoters of the application of chatbots as a teaching medium for English language teaching and learning. Initially, the writers conducted a comprehensive review of the relevant literature associated with chatbots. The sources primarily consisted of current research papers and articles. Furthermore, the writers assessed the gathered literature in terms of its findings and reliability. To ensure the quality of the data, the writers selected the relevant references that contribute directly to the topic. The chosen sources should offer facts, figures, theories, or insights that provide readers with in-depth knowledge. The reputation of the journals that provide the articles was also taken into account to protect the reliability of the data. Finally, the writers provided a rationale for incorporating chatbots into English Language Teaching (ELT) by highlighting their recent activity on the implementation of chatbots in the classroom.

The writers view chatbots as a fresh medium for English teachers to face millennial students. From birth, millennials are familiar with digital devices, such as mobile phones and tablets. They are digitally savvy compared to previous generations (Duh & Dabula, 2021). Hence, the writers would like to document and explore the origins of chatbots, the types of chatbots, and the benefits and practices of using chatbots in ELT.

Findings and Discussion

This part encompasses the findings and discussions about the relevant literature in the study, which focused on the use of chatbots as a medium for teachers in teaching English. There are three sub-chapters, including (1) The origins of chatbots, (2) Types of chatbots, and (3) Benefits and practice of using chatbots in ELT

The origins of chatbots

In the time when a computer was discovered, a brand-new technology named "chat" also followed. Since then, chat has emerged as a prominent mode of communication in recent decades. Nowadays, scientists have successfully developed the utilization of chat by integrating it with robotic systems, so that the term "chat" becomes "chatbot" as it at the same time remarks the successful integration between technologies. The chatbots are well-equipped, they are designed with goals. One of the most widely desired objectives is to strengthen the authenticity of interaction that such systems are capable of producing (Augello, Saccone, Gaglio, & Pilato, 2008).

As previously mentioned, Joseph Weizenbaum was the first who originally introduce a chatbot in the 1960's. The chatbot was named "ELIZA". ELIZA had the goal of simulating a therapist by employing open-ended questioning techniques. More than that, it could also even respond with follow-ups.
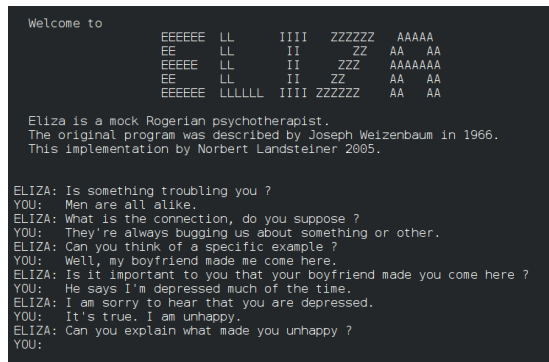
Figure 2. ELIZA chatbot by Weizenbaum

Although ELIZA was considered the first chatbot ever made, it was Michael Mauldin (founder of the first Verbot named Julia) who introduced the use of the term *chatterbot* in 1994. The term *chatterbot* was derived from the term *verbot,* which was the result of the combination of two words, *verse* (talk) and *bot* (robot). As time went by, the term *chatterbot* naturally shortened to *chatbot*. Unlike in kind with ELIZA which was used to impersonate a therapist, Julia's chatbot was an attempt to recreate human conversation more naturally. The utilization of chatbots serves as a means of facilitating human-computer interaction by creating a resemblance to natural human discourse (Lokman & Ameedeen, 2019). The program was also equipped with real-time animations to show expressions together with the speech responses.

Figure 3. Julia Verbot by Mauldin

A study conducted by (Yin & Satar, 2020) examined the quantity and structures of Negotiation for Meaning (NfM) by using two different types of chatbots, the first is called Pedagogical Chatbot Tutor Mike and the other one is the Conversational Chatbot Mitsuku. Both of the chatbots had their functions. The former incorporated a language educational framework dedicated to English learners, whilst the latter was specifically developed to facilitate general conversational interactions among English speakers. In terms of commonalities, both entities serve to fulfill general duties in diverse domains of daily life, such as geography, culture, weather, and other relevant areas. They both also have similarities in avatar image and language, where both are in the form of animated

figures that can blink as human-like and also use the same language which is English.

Figure 4. Pedagogical Chatbot Tutor Mike *(left)*
and Conversational Chatbot Mitsuku *(right)*

Addressing the history of chatbots would be inefficient without understanding the concept of chatbots itself. A *chatbot* refers to a computer software that accepts input in the plain English form by the user and generates responses that are intelligent and contextually suitable. These responses are then transmitted back to the user (Khan & Das, 2018). Chatbot was primarily empowered by rules-driven engines which were recognized as *Artificial Intelligent* (AI). This AI communicates with the users via a text-based interface. AI is a broad concept that encompasses the utilization of computational systems to simulate intelligent actions while requiring minimal human involvement. AI embodies itself as the beginning of the creation of robots (Hamet & Tremblay, 2017). Nowadays, chatbots have become a promising technology to enhance the quality of the teaching-learning process through digital learning (Wollny et al., 2021).

Types of chatbots

In the previous section, we have already examined some of the chatbots that are used by some practitioners. Started with ELIZA Chatbot (the first chatbot that was ever made) until the chatbots used to find out the quantity and structures of Negotiation for Meaning (NfM), such as Pedagogical Chatbot Tutor Mike and Conversational Chatbot Mitsuku. Meanwhile, (Haristiani, 2019) divided the types of chatbots based on their structure, purpose, and audience, as follows:

Table 1. Types of chatbots (adapted from Haristiani, 2019)

Category	Sub-category	Function
Structure	Flow chatbot	Has fixed responses set by the developer, and only responds to questions that are already in the database.
	Artificial Intelligence (AI)	Has the capacity to enhance one's knowledge and perception based on prior dialogues and users' experiences.
	Hybrid	Embodies as a combination of Flow and AI chatbots.
Purpose	Functionality	Facilitating learning, providing personal assistance, serving as a reminder, assisting online shopping, etc.
	Fun	Chatbot that is designed solely to provide entertainment and relaxation.

Category	Sub-category	Function
Audience	Generalist	Has a broad range of information that can be directly inquired about. For example: Cortana and Siri.
	Specialist	Concentrate on a single specific task and execute it with utmost proficiency. For example: Chatbots that were designed to assist clients during online purchase transactions.

From the table above, we can take into account that all of the types of chatbots that are categorized are made based on the necessity or the requirement of the developer himself/herself. In terms of education, the chatbot that tends to be used is Artificially Intelligent (AI), as it has the great ability to adjust itself to the users since it always updates their knowledge system. Hence, the students who are using AI for learning will be served a broad system of knowledge by AI so that they can have a great experience in using it.

In a study conducted by (Gupta, Hathwar, & Vijayakumar, 2020), chatbots were categorized according to criteria such as the level of user interface simplicity, the algorithms employed, and the underlying technology employed. The classification of the chatbots can be seen in the below figure.
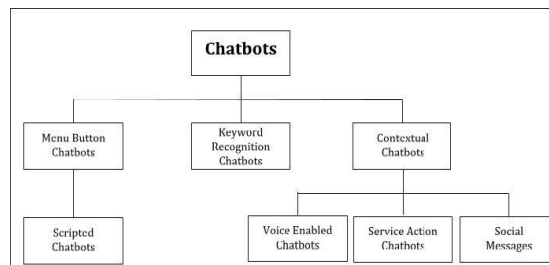

Figure 5. Classification of chatbots by Gupta et al. (2020)

Menu/Button-Based Chatbots are widely regarded as the most straightforward variant of chatbot systems. These chatbots have a ready-made knowledge base, with questions presented to the user in the form of buttons. Because of the very limited use of artificial intelligence in this type, the opportunity for users to perform an open conversation with the bot is also very limited. Obtaining the desired responses can be considered highly untrustworthy.

Keyword Recognition-Based Chatbots rely heavily on the user-entered keywords. The chatbots analyze the keywords and then respond accordingly. To utilize them maximally, the keywords must be clear and concise. The chatbots then will generate responses utilizing AI technologies and a tailored list of keywords.

Last but not least, the *Contextual Chatbots*, are the most sophisticated bots nowadays. Artificial intelligence in this type of chatbot can cover advanced technologies such as voice recognition and the conversion of speech to text. With the support of this kind of artificial intelligence, the opportunities for users to perform multiple variations of conversations will be widely opened.

Of those types of chatbots, it can be seen that the chatbots are varied based on their purposes. Some are used for learning and some are used for personal uses such as finding specific information or even online shopping. For learning purposes, it is highly recommended for the educator to choose the proper chatbots to be used

in his/her classroom. Make certain that the used chatbots provide benefits that are in line with learning expectations.

Benefits and practice of using chatbots in ELT
Benefits

As one of the newest technologies that ever existed in the world of ELT, chatbots are surely equipped with a lot of benefits for users. The study conducted by (Okonkwo & Ade-Ibijola, 2021) identified several benefits associated with the utilization of chatbots in the field of ELT. Initially, students have a chance to utilize these bots to inquire about various topics and receive prompt and immediate answers. The use of chatbots in ELT was able to enhance the effectiveness of online learning, where the students can access the learning materials anywhere and anytime. Second, chatbots were able to engage and motivate students to learn. This occurrence transpired due to the interactive system of chatbots, which enabled the students to stay engaged and motivated to learn and also allowed them to learn comfortably. In terms of administration, chatbots are also beneficial. AI-driven chatbots assist with administrative matters, including the provision of information regarding admission procedures, scholarships, and tuition expenses (Hwang, Xie, Wah, & Gašević, 2020).

Chatbots also provide benefits because of their practicality and ease of use. Students can engage with chatbots effortlessly due to their general availability on both web pages and mobile applications. Consequently, students do not have to install an additional application that could potentially consume significant storage capacity on their mobile devices (Huang, Hew, & Fryer, 2022). The usefulness of language learning is being enhanced as a result of the ease-of-use interface of the chatbot (Tegos, Demetriadis, & Karakostas, 2015).

Nowadays, chatbots and artificial intelligence systems are changing education (Pham, Pham, Nguyen, Nguyen, & Cao, 2018). The existence of chatbots is helping the learners in encouraging their motivation to learn. A certain number of students claim that they experience a greater sense of ease while engaging with a computerized response system rather than interacting with their peers or teachers. It indicates that chatbots could be considered as students' best friends in language learning. Hubert (Pham et al., 2018) highlights several effects of chatbots in the area of education. These effects include automatic essay grading, periodic interval learning, conversational course evaluations and student ratings, instructor support, and student-centered feedback.

Chatbots provide a lot of benefits for the users, not an exception for language learners. In the digitalization era like it is today, the existence of chatbots supports modern language learning. Not only that, chatbots also enable the students to be autonomous learners. The practicality of chatbots makes them easy to use and access by the students.

Practice

The recent practice of using chatbots in ELT was done by the writers (Jamiluddin, Khairul, Putri, & Eisenring, 2022) through public service activity at SMP Negeri 9 Palu. The activity was done in two days and took 30 students as the participants. The methods used by the writers were lecturing, discussing, questions and answers, and practicing.

Figure 5. A practice of using chatbots in ELT done by the writers

The training began by giving motivation to the students about the importance of English nowadays and how necessary for students to familiarize English in their daily lives. One of the ways is to use chatbots. The writers then explained the concept of a chatbot and how a chatbot could familiarize them with English. The writers also explained that the chatbot was easy for students to get to, as the majority of the students had smartphones. By using the chatbots, it was expected that the chatbots could boost students' passion for learning English because chatbots can be used anytime and anywhere in their daily lives.

After lecturing and introducing the chatbots to the students, the writers then let the students download the chatbot application and try it themselves. In the process of trying the chatbots, the writers mentored the students as some of them still did not understand how to download the application and also how to use it properly. In this case, the writers separated themselves from the students so that all of them could be fairly facilitated in terms of using chatbots.

The communication patterns while using the chatbots by the students were quite diverse. Some of them were chatting about personal information such as name, address, hobbies, etc. Meanwhile, some of them were just using it to improve their vocabulary in English by asking the bots about some English words that they were not familiar with. There were no significant problems found by the writers in mentoring the students as most of them were already capable of operating smartphones.

Figure 6. The process of mentoring the students

The training ended by asking one of the students to be the representative to give comments and testimony about the use of chatbots in ELT. The result indicated that the students were happy and enjoyed their moments in learning English through chatbots. They acknowledged that the chatbot was fun to use because it could answer anything that they asked. The accuracy of the answers was also good which made them feel that they just had a chat with their friends, not robots. The privacy of chatbots also made the students feel relaxed because they were not afraid anymore of having bad grammar in chatting, as the chatbot was always ready to answer anything even with bad usage of grammar. In other words, the students' testimony aligns with the study implemented by (Annamalai et al., 2023), who also considered that chatbots have sufficient benefits to fulfill the role of an interlocutor in the context of English language acquisition.

The findings indicated that chatbots had positive impacts on the students. Chatbots can help students to become self-sufficient learners, without the teacher's substantial assistance. Other than that, chatbots are also beneficial in terms of practicality. Since most of the students already own smartphones, they can be downloaded with ease. Moreover, chatbots can protect students' privacy in learning. What is meant by "privacy" here is that the students will have the freedom to type or ask anything to the bot, without having to be intervened by the teacher. Learning with a lot of intervention from the teacher will hinder students' creativity in utilizing the chatbots. Therefore, in the training, the writers position themselves as facilitators, rather than as active leaders in the class. By examining a lot of benefits that chatbots offer, the writers would like to suggest that teachers use chatbots in their respective classrooms. Teachers can employ chatbots to help students expand their English vocabulary, as the writers did. Apart from that, chatbots can also be used for teaching English productive skills such as writing and speaking. The difficulty of the materials can be freely adjusted with the level of the students.

Conclusion

This literature review-based research mainly attempts to explore the theoretical justifications for the use of chatbots in ELT and describe some practical issues of the utilization of chatbots. It aims to encourage the use of chatbots in English language teaching as a medium for teachers to promote modern language learning. Based on the findings of this study, it can be inferred that the integration of chatbots in English Language Teaching (ELT) has yielded numerous advantages for students, boosting their enthusiasm and motivation towards English language learning. Besides that, chatbots are also excellent in terms of practicality. Most chatbots are free to download and easy for the students to reach as the majority of them have smartphones and are proficient enough to run them. As the results indicate, this study has implications for both encouraging English teachers to employ chatbots in teaching the English language to their students and justifying the benefits that chatbots offer to the students. However, this study is mostly wrapped up in a literature review and needs more practical studies to follow up. Therefore, the writers suggest that future researchers implement more experimental-based research to uncover and justify the truth of the influence provided by chatbots on the development of English language teaching and learning in the future.

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