



Received: October 11, 2024

Revised: October 25, 2024

Accepted: October 30, 2024

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## DESCRIPTIVE OF QUANTITATIVE DATA | RESEARCH ARTICLE

## The Use of Artificial Intelligence Based Technology in English Language Teaching

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**Abstract:** Artificial Intelligence (AI) is a technology that enables computers and machines to simulate learning, understanding, problem-solving, decision-making, creativity, and computer-based human intelligence. AI is also one of the driving forces of the industry 4.0 revolution to facilitate education in the teaching and learning process. This research aims to understand the role of AI in English Language Teaching (ELT) and to investigate AI technologies in ELT. This is a library research study. The results show that AI offers a conducive learning environment for English language learning. It has significant capabilities to create a personalized environment where learners use their senses to simultaneously practice English skills depending on their current English proficiency level, vocational needs, or interests. AI provides a real-life simulation platform for dialogue, such as spoken English, and enhances practical skills like writing. It increases students' practice capacity and optimizes the impact of English teaching in ELT. Learning English has become easier with the development of technology and platforms. AI technology offers opportunities to enhance English language skills. The availability of various learning technologies makes it easier for students to understand English. There are many AI-based ELT applications available for students to use. This technology, as a smart machine that thinks and behaves like humans, can simulate intelligence and make decisions similar to human reasoning through processes on computers or mobile phones, such as Google Translate, Able Platform, Orai, Elsa, Chatbot, Duolingo, Hello English Apk, and many others.

**Keywords:** Artificial Intelligence, Technology, English Language Teaching.

### 1. INTRODUCTION

The rapid advancement of technology in the Industrial 4.0 era has transformed many aspects of life, including English language education. This shift requires everyone to adapt quickly to these changes. With globalization and the advent of the Industrial 4.0 era, new creativity and opportunities emerge. Therefore, technology is crucial for delivering information in the form of sound, text, and images (Rahayu and Pujiyono 2017). Technology is designed to facilitate human tasks and activities. One of the technologies being intensively developed is Artificial Intelligence (AI). According to Cheng & Day (2014), computational creativity includes artificial intelligence (AI). Many artificial intelligence technologies have been used to encourage creativity through the use of computers. AI-created software includes programs that gather knowledge and perform other autonomous tasks, such as computation and student search (Syed 2009). Artificial intelligence (AI) is also known as machine intelligence (Mehrotra 2019). These "smart" devices include computerized machines (robots) and computer systems (online platforms) that operate and react similarly to the human brain (Karsenti 2019)

Machines use human intelligence to predict speed. In other words, artificial intelligence is the enhancement of human intelligence in machines to enable tasks to be performed. Artificial Intelligence (AI) is a type of computer science technology that focuses on the analysis and

development of smart machines and applications, according to Mehrotra (2019). It is a field that studies how to create machines that can act and think like intelligent humans. Intelligence is at the core of AI (Wang 2019). Whitby (2009) stated that artificial intelligence studies intelligent behavior in humans, animals, and machines and seeks ways to replicate it.

According to Ahmed (2018), the words "artificial" and "intelligence" form the term "artificial intelligence." The word "artificial" refers to something fabricated or unreal, but it is not entirely deceptive. However, "intelligence" can substitute the original because of its better quality in certain situations. The term "intelligence" is highly complex. Its various forms include reasoning, self-knowledge, emotional awareness, planning, awareness, and creativity. As Joshi (2020) noted, artificial intelligence may not mean creating super-intelligent computers that can solve problems but rather making machines that can act like humans. According to Campesato (2020), the goal of artificial intelligence is to create computer software or hardware systems that can demonstrate thinking similar to human thinking or display features traditionally associated with human intelligence. In computer systems theory, human intelligence is typically required to perform certain tasks. Artificial intelligence can understand several aspects of human intelligence, including speech understanding, language awareness, decision-making, and visual perception. According to Devi et al. (2020), artificial intelligence is highly sought after for building expert systems and finding solutions to complex problems such as natural language processing or recognition.

Artificial intelligence (AI) is a digital effort to achieve human-level intelligence goals using various machine computing technologies, according to Kaur and Gill (2019). It is a collection of highly advanced technologies that allow humans to perceive, understand, function, and learn from them. It can be said that artificial intelligence (AI) is a branch of computer science that emphasizes the ability to act and think like humans, assisted by machines' capacity to find solutions. This approach enables solving complex problems in a more human-like way (Sridhar 2018). With the development of technology and digital platforms, learning English has also become easier. Now, there are opportunities to enhance your English skills. This means that if we have tools that can teach English, we might not need English teachers in the classroom or English education (Shin 2018). As a result, the Fourth Revolution does not necessarily replace English language education. The development of English classroom models that use artificial intelligence should work in tandem with effective English learning processes. Enhancing competencies worldwide can be achieved through a combination of language literacy and digital literacy. Ribeiro (2021) found that artificial intelligence is the most realistic approach for English teachers in teaching English. English is one of the most widely spoken languages in the world.

## 2. RESEARCH DESIGN AND METHOD

This is a library research study, conducted by collecting scientific data or writings focused on the research subject, a collection of bibliographic data, or studies that have been carried out to solve problems based on a critical and in-depth study of relevant library materials. One of the characteristics of library research is that the researcher communicates directly with the reader along with the text (Zed 2008). In this research, various reference books or journals, as well as previous research results, are used to build a theoretical foundation for the ongoing issues. For this study, books, journals, and the internet were used as relevant research sources. The data consist of various books and journals that discuss the topic of this research. Information sources serve as a method for data collection.

### 3. RESULT AND DISCUSSION

#### 3.1. *The Relationship Between English Language Teaching and Artificial Intelligence (AI)*

Computer-assisted foreign language learning devices are AI-assisted devices. According to Li (2020), artificial intelligence contributes to the improvement of natural language processing and natural language technology, enabling greater data processing and variation in foreign language education. According to Mukhallafi (2020), English language teaching (ELT) is considered one of the educational goals because it enhances students' ability to interact internationally. Artificial intelligence (AI) is an exciting and challenging field for English language teaching, but with the exponential development of natural language processing and technology that can work with big data, artificial intelligence (AI) enhances foreign language education (Anggraini 2022). Artificial intelligence technology can help open classrooms to everyone, including those with hearing or visual impairments or those who speak various languages. Mukhallafi (2020) states that AI research is characterized by the use of artificial intelligence systems for English language teaching and learning to improve the process of organizing, structuring, and selecting content. It increases the variety of teaching sources and schooling flow based on students' levels and through the individualization of independent learning procedures, as well as intelligent systems and simulation of teaching and assessment methods. In his study (Wang, 2019) titled "Research on Artificial Intelligence Driving Change in English Learning," there is a relationship between artificial intelligence and English language teaching, as shown below:

1. The atmosphere of English learning is changed by artificial intelligence. It offers a good learning environment for more in-depth English learning, integrating and interpreting information such as images, sounds, and text logically in a smart device. English learning becomes more visual and stereoscopic. Students and AI communicate through a human-computer interface, enhancing the language environment. Additionally, Zilberman (2019) indicates that artificial intelligence is very capable of creating personalized environments where adult learners use all their senses to simultaneously practice English by associating their language skills with their language proficiency levels, as well as their needs and desires for their current jobs.
2. AI optimizes English language teaching. AI will provide a real simulated dialogue platform for teaching English. We will use it to help students improve their understanding and use of English vocabulary, both written and spoken. By integrating cultural awareness and customs from various English-speaking countries, AI can help students become more interested in learning English.
3. Artificial intelligence helps students acquire practical skills in English classrooms. Currently, a major topic in the social sciences within the industry is artificial intelligence (AI). To apply science and technology in English language education (ELT), teachers and students must understand the ability to use systems and solve problems quickly. Therefore, the use of AI in English language teaching will enhance students' practical operational capabilities.

In the article by Gawate (2019) titled "AI-Based Instructional Programs in English Language Teaching and Learning," he lists several advantages of AI-based English learning programs, including:

1. Customer-friendly, needs-based learning programs. AI-based teaching software integrates learners with targeted goals and their contextual needs. It is created with clear student

expectations and precise criteria. English learning is misleading without analyzing students' needs.

2. Quantitative Content: Teaching materials that function at all language levels, such as listening, speaking, reading, and writing, can be created using artificial intelligence.
3. Systems that assist teachers and students. AI is very beneficial for teachers and English language learners as an external support tool. As AI integrates human knowledge, it can do so anytime and anywhere with the right assistance. While AI-based services already exist, the role of educators remains important.
4. Fast feedback system: AI-based systems can be created to learn English and receive feedback in various ways. It can be used to measure and interpret inputs according to students' needs, such as grading, reviews, cross-verification, and in-depth exposure, in AI-based learning programs. Every component of student success is evaluated.
5. Enhancing the role of teachers as guides and mentors. It's difficult to eliminate teachers from the method and change the role of teachers to be guides and mentors. AI-based systems only change the function of teachers in the ELT process. Teachers must lead and assist students. Teachers can manage and administer AI-based programs that require manual modification. AI-focused instructional services can only benefit English teaching.
6. Global connection. AI-related learning systems provide students with every possibility. Artificial Intelligence can overcome time and place boundaries. It allows people to share knowledge with good organizations and bad organizations. It is truly great to get remote access to AI-based learning software with the help of facial recognition, voice recognition, and student movement recognition. In short, AI-based applications can control all student behavior.
7. Customizing English language teaching. Courses can be created according to students' needs.
8. AI-based learning platforms help students learn at their own pace, revisit topics, highlight things that are problematic for students to engage them in activities, and adjust teaching programs to meet students' interests. This emphasizes making English suitable according to course materials.

### 3.2. *AI Technology for English Learning*

According to Han (2019), artificial intelligence (AI) is a technology that studies how robots can perform intelligent tasks that were initially only possible for humans. AI is also one of the most advanced information systems in the world. Technology has also become more advanced and makes it easier for us to do many things, such as teaching and learning English. Artificial intelligence technology is one of the most talked-about technologies in society. According to Fryer and Carpenter (2006), technology enables many new ways to learn languages. AI can successfully create intelligent machines that think and act like humans. They have the ability to simulate intelligence and make decisions through processes similar to human reasoning (Salvaris, Dean, and Tok 2018). Repetitive processing, data availability, and intelligent algorithms are how AI works. This allows software to automatically learn from patterns or features in the data. AI's very broad field of study encompasses many theories, methods, technologies, and subfields, including natural language processing, machine learning, neural networks, cognitive computing, and computer vision. When humans use a language to communicate with others, they may apply a process that is either almost effortless or very complex and still poorly understood (Nilsson 2014). AI aims to create intelligent machines that think and act like humans, capable of simulating intelligence and making decisions. As a result, computer systems

can create and interpret English phrases that are very difficult to construct. One of the challenges is the fact that language has become a tool of communication for intelligent beings. With the advent of digital platforms, English learning has become easier. English skills can now be enhanced thanks to artificial intelligence (AI) technology. Competency improvement worldwide can be achieved through a combination of language literacy and digital literacy. AI relies on processing language text as the foundation of its processes. The more advanced AI becomes, the more accurate the language it masters. As a result, the use of AI will improve the teaching and learning of foreign languages. According to Yingsoon (2021), AI helps convey various information and teaches English better. There are various learning technologies that make it easier for students to understand teacher material. They can also learn without talking to the teacher. Many AI-based language learning applications are available for English teachers and learners. Some examples of AI technology that can be used to teach English include:

*a. Google Translate*

Even though Google has provided various tools that are very useful for users, Google Translate—accessible at <http://google.com/translate>—might be the most important application (Smallwood 2015). Even a translator has replaced text-to-speech. Google Keyboard is already integrated with applications like Google Translate. Therefore, translating from Indonesian to English, or vice versa, is the same as typing on a keyboard. According to Covili (2016), Google Translate has five features: it can translate up to 50 languages. Using Google Translate, users can translate entire documents. Google Translate has the ability to translate and define new terms. Users can quickly translate road signs with the mobile app to "translate." Additionally, Google Translate has the ability to translate.

Google Translate, as a translator, is the best for teaching and learning English. Its function as an online translator allows students to translate words, phrases, sentences, or paragraphs from English to Indonesian. It is often used in translating between Indonesian and English. Google Translate has the ability to check word spelling affected by typographical errors; this is very useful in terms of learning foreign languages with Google Translate. Specific to students who want to learn English for free, they can use Google Translate to pronounce words correctly.

*b. English Able*

English Able is an assessment-based learning environment for English, developed by Zapata-Rivera et al. (2007). ABLE uses assessment knowledge to guide instruction from various sources (such as formative and summative) in terms of teaching and learning English. English ABLE is an exam-focused learning environment that helps English language learners (ELLs) learn English grammar. TOEFL is used for ABLE. The CBT job library builds new, enhanced task sets for different ELL skill components. Additionally, the structured and customizable learning environment offers packages for learners to help students gain a better understanding of the elements of English grammar.

*c. Orai*

Orai is the right choice when it comes to public speaking. It can not only help a teacher but also be used as a teacher. Orai receives excellent reviews, and it is easy to use. Orai is very easy to use. The improvement in speaking ability is a fast and independent method. Using Orai in class, teachers can combine it with English lesson materials, such as describing people, and give students about fifteen minutes to use it and then select individually. One of Orai's advantages in teaching and learning English is its ability to identify how many words are spoken and how many filler words are used when speaking. Instruction, practice, progress, and recording are components designed to improve students' speaking ability. Each of the main aspects has interesting content that can be studied repeatedly to

improve speaking skills. People who want to speak can learn and practice their speaking skills on the content provided in the "Lessons" feature. Each content consists of three stages of content, which you must complete before you can proceed to the next lesson. Orai is an app designed to help students learn to speak English better (Suryani, Syahrizal, and El Fauziah 2019).

*d. ELSA (English Learning Speech Assistant)*

English Learning Speech Assistant (ELSA) was created by Vu Van in 2015 and is currently based in San Francisco, USA. To improve English pronunciation, this app uses voice recognition and AI. ELSA Speak, which stands for English Learning Speech Assistant, is an English learning application that uses artificial intelligence and voice recognition. This technology enables a two-way learning process. For example, if someone says a certain word or sentence, the system will analyze and correct it. The ELSA framework teaches the use of voice data from people speaking English with dual accents to identify non-native speech patterns, distinguishing it from most other voice recognition technologies. Users are given an assessment test to determine their abilities. ELSA can support students' pronunciation skills. This is done to determine the impact of using the ELSA Speak application in improving students' pronunciation skills (Anggraini, Yastanti, and Faisal 2023).

*e. Chatbot*

Chatbots are the latest type of AI technology designed to automatically communicate with humans and computers (Nghì, Phuc, and Thang 2019). Chatbots can be used as learning tools in some research, especially in English language education (Afrianto and Fahmi Irfan 2019). Chatbots can be English-speaking friends. To practice both, users can speak verbally or in writing. The chatbot app should have user log features and grammar correction features to support their goals as a media for English conversation training. Error locations, suggestions for word or sentence replacements, and error descriptions are part of the response. This is done to reduce user sentence structure errors. Additionally, the daily log feature is useful for evaluating how well users' practice activities are progressing in mastering English conversation and sentence structures. In this way, users not only gain an understanding of how to speak in English but also receive corrections and evaluations on their practice. A simple chatbot begins with a message sent by the user. The natural language processing (NLP) and chatbot then interpret the message according to the available database.

*f. Duolingo*

One of the websites that can be used to learn foreign languages is Duolingo. Duolingo teaches words, phrases, and basic grammar in sentences through a game-like method by matching words and filling in blank parts of sentences. Duolingo allows any student, at any level of English, to learn a new language. To get learning materials that match the user's abilities, Duolingo asks them to take a test. After they complete the test, Duolingo will determine their English language proficiency level and then provide materials tailored to their English proficiency. Duolingo not only teaches grammar but also teaches vocabulary, terms, and much more. Duolingo's English learning method is also designed like playing a game and "competing" with other users. In this way, users of this application can see how well they have mastered English so far.

*g. Hello English*

The Hello English app has various features, including lessons and interactive games. Researchers chose Hello English because this app is used by many people worldwide, can be downloaded for free on the Google Play store, has millions of new dialogues spoken in English, and its information explanations are clear—sometimes with errors in meaning or common sentences. The developers of

the Hello English app hope to help students solve problems and improve their speaking skills. Hello English's social media app can encourage users, especially learners, to be creative and interactive. According to Yunita (2019), English apps can offer various features, such as vocabulary, grammar, conversation, pronunciation, and so on. This research focuses on the conversation feature, which will be used with students to help them speak more accurately and fluently. Additionally, this app has game features that can spark users' or students' interest in learning. Afterward, they can improve their English skills, especially their speaking skills, by discussing various topics with other Hello English users. Hello English is a strategy used by experts to learn from home and present conversations in class (Anggraini, 2023).

#### 4. CONCLUSION

Artificial intelligence seeks to create robots that possess intelligence equal to or even superior to that of humans. It is hoped that artificial intelligence can perform many tasks that ease human activities, such as natural language processing, perception, reasoning, movement and manipulation of objects, and learning. The goal of creating these advanced machines is to reduce the amount of time spent on tasks so that activities can be carried out more efficiently. Humans can save money by using AI to perform activities and make decisions. The emergence of digital resources has made learning English easier. Computer and mobile phone technology will enhance the use of AI and help more people around the world learn. In digital learning technology, personalized content is also important. There are now adaptive systems that rely on big data and AI. We can determine the best way to learn English according to individual needs.

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