



The Role of Artificial Intelligence Technology on English Language Learning: A Literature Review

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Abstract

The word (AI) stands for artificial intelligence, a computer-based simulation of human intelligence meant to act like humans. AI is one of the driving forces behind the 4.0 industrial revolution, making teaching and learning more accessible in schools. This study aims to understand the function of AI in ELT and examine AI technologies in ELT. This is a library research project. The findings indicate that AI provides a positive learning environment for learning English. Depending on the learner's current level of English, career needs, or hobbies, it has much potential to create a customized environment where students can simultaneously use their senses to learn English. AI boosts practical abilities like writing and offers a trustworthy simulation dialogue platform like spoken English. It maximizes the teaching impact of English in ELT while increasing students' practice ability. With the advancement of technology and platforms, learning English has gotten simpler. Artificial intelligence technology provides the chance to enhance English linguistic competence. Students may comprehend English more quickly because many different learning technologies are available. Students get access to a wide variety of ELT apps that are built on AI technology. These technologies include Google Translate, Text to Speech (TTS), EnglishAble, Orai, Elsa, Chatbot, Duolingo, Neo platforms, and many others. Using a method that computers and mobile devices can use, these intelligent machines can mimic intelligence and make decisions as people do.

Keywords: Artificial Intelligence (AI), Machine Learning, Applications, Learning English, Industrial Revolution

Introduction

Everyone has been affected by the industrial period to be able to adapt to quick changes. Globalization and the Fourth Industrial Revolution have brought us new creative opportunities and technological problems. As a result, technology is crucial in transmitting information through text, pictures, and sound (Rahayu & Pujiyono, 2017). Technology was

developed to make human jobs and hobbies easier. Artificial intelligence is a technology that is actively being developed. One aspect of computational creativity that has drawn more attention to the development of artificial intelligence (AI) technology is artificial intelligence (AI) (Cheng & Day, 2014). Numerous artificial intelligence technologies have been deployed to boost creativity in computers. According to Rahman (2009, p. 343), artificial intelligence (AI) produces computer programs that filter knowledge and do independent tasks like computing or student search. Artificial intelligence (AI) creates "intelligent" objects like computer systems (online platforms) and robots that operate and respond similarly to human brains (Karsenti, 2019). Machine intelligence is another name for artificial intelligence (AI) (Mehrotra, 2019). Through the inherent intelligence exhibited by people, the algorithm can forecast human intelligence. In other words, AI aims to improve computer job execution by incorporating human intellect. According to Mehrotra (2019), artificial intelligence (AI) is a field of computer science that focuses on analyzing and creating intelligent devices and software. It is the science of programming a machine to think and act like intelligent humans. The intelligence component is the cornerstone of AI technology (Wang, 2019). According to Whitby (2009), AI seeks to understand intelligent behavior in people, animals, and technology. Artificial intelligence is made from the phrases "artificial" and "intelligence" (Ahmet, 2018). The term "artificial" refers to something imitated but not wholly untrue in the sense of being a fake. At the same time, "intelligence" might replace actual goods because the former has superior characteristics.

The phrase "intelligence" is quite complicated. It encompasses a variety of manifestations, including consciousness, emotional awareness, self-knowledge, preparedness, and creativity. According to Joshi (2019, p. 4), AI may not mean creating a knowledgeable computer that can solve every issue but instead creating a device that can function like a person. Artificial intelligence aims to create computer programs or hardware systems that exhibit characteristics of human intellect or think like humans (Campesato, 2020). Theoretically, an AI-powered computer system is capable of activities that ordinarily require human intelligence. Artificial intelligence may comprehend some elements of the human intellect, including speech comprehension, linguistic awareness, decision-making, and visual perception. There is a need for AI to develop expert systems and discover answers to challenging issues like recognition and natural language processing (Devi et al., 2020). Using AI as a language instructor AI delivers persistent, customized instruction, giving learners the copious amounts of feedback and scaffolding exercises required to attain fluency, all in a low-stakes setting (learners are more likely to take chances and make mistakes). The primary promise of artificial intelligence is that it will accelerate the skill development process. According to Kaur & Gill (2019), artificial intelligence (AI) is a digital effort to replicate human intellect by utilizing various machine calculations. It is a cutting-edge technology collection that lets people think, feel, act, and

learn like machines. Artificial intelligence (AI) is a subfield of computer science that stresses machines' capacity for human-like thought and behavior. Machines assist in solving complicated issues in a way that is more like human thought (Sridhar, 2018). This necessitates taking aspects of human intellect and adapting them to work well with computers. Artificial intelligence (AI) can perform human behaviors like language acquisition, planning, decision-making, and other cognitive tasks (AI).

With the rise of technology and digital platforms, English teaching and learning have grown simpler. Now, there is a chance to develop your English-language abilities. As a result, if a machine could teach English, perhaps we wouldn't need English teachers in the classroom or English education (Shin, 2018). The Fourth Revolution does not thus need to replace English education. An artificial intelligence-based English class model should instead be developed in conjunction with the teaching and learning of English. An effective combination to increase global competency is language literacy and digital literacy. According to Ribeiro (2020), the most important practical use of artificial intelligence for English language instructors is in ELT. English is one of the world's most common languages with a structured grammatical system. As a result, studying English has always been challenging for pupils learning it as a second or foreign language (ESL/EFL) (Mehrotra, 2019). Therefore, using artificial intelligence, machine learning, intelligent search, and natural language processing may successfully advance reforms in English teaching and learning (Wang, 2019). The purpose of this research, connected to the description above, is to understand the function of artificial intelligence (AI) and to look at AI technologies in English language teaching (ELT).

Methodology

This is a library research study. It is research that is done through the collection of data, scientific writing that focuses on the subject of the investigation, the gathering of bibliographic data, or a study that is done to address a problem based on a critical and in-depth examination of relevant library resources. One aspect of library research is that the researcher is face-to-face with the text (Zed, 2004, p. 4). In order to establish a theoretical framework for the problem at hand, this study will consult many reference books and periodicals as well as the results of related earlier research. Books, journals, and websites connected to the researcher's chosen topic are the sources of information applied as the basis for this study. Numerous publications and periodicals relevant to this study topic serve as research data sources. The data collecting technique utilized in this investigation is documentation, which looks for information about things or factors in books, journals, papers or postings, newspapers, and other sources. However, this study evaluated the concepts and hypotheses based on the available literature, particularly many publications published in different scientific journals. The writer then examines the material to reach a

conclusion when all the data has been gathered. The writer employs content analysis approaches to obtain accurate and accurate results while reviewing the data. A detailed investigation of the written materials' contents is required for content analysis since the investigated data needs a descriptive justification.

Findings and Discussion

Teaching the English Language Concerning Artificial Intelligence

AI-enabled tools are a branch of computer-assisted language learning for learning foreign languages. A wide range of advancements in foreign language instruction is made possible by AI thanks to the exponential growth of technology for extensive data management and natural language processing (Li, 2020). English language instruction aims to increase students' ability to engage with people from other countries (Mukhallafi, 2020). With the rapid advancement of big data and natural language processing technology, artificial intelligence (AI) offers various improvements to foreign language instruction. The area of teaching English with artificial intelligence (AI) is demanding and innovative (Zhu, 2017). Learning environments accessible to everyone, including those who speak different languages or may have hearing or vision impairments, may be made possible through artificial intelligence technology (Marr, 2018). According to Gawate (2019), AI will be a crucial component of the supplementary support system for English language learners and teachers. The claim that "Artificial intelligence also functions as a tool for enhancing English teaching" is backed by Li (2017). Language proficiency and digital proficiency make an excellent match in AI to boost global competency, like studying English. Digital learning technology likewise depends heavily on personalized material. Big data and artificial intelligence-based adaptive systems are now available. According to Mukhallafi (2020), artificial intelligence (AI) is defined in the current study as applying AI systems for teaching and learning English to enhance organizing, arranging, and choosing content. It further diversifies instructional methods and educational streams following the students' proficiency levels. It also develops instructional strategies and evaluation methodologies by personalizing self-study processes and imitating intelligent and expert systems. The following is the link between artificial intelligence and English teaching (Wang, 2019) in his study titled "Research on Artificial Intelligence Promoting English Learning Change":

1. English learning environments are altered by artificial intelligence. English immersion learning is made possible by artificial intelligence. English learning becomes more stereoscopic and visual via integrating and rationally understanding data such as visuals, voice, and text in an intelligent gadget. Through the human-computer interface, students may connect with AI, which enhances the authenticity of language settings. The claim that AI has a substantial capacity to build a tailored environment in which adult

learners employ all of their senses to simultaneously train their English abilities in connection with their current level of English or occupational demands or wants is backed (Zilberman, 2019).

2. English teaching effectiveness is maximized using artificial intelligence. AI will offer a real simulation conversation platform for English language education and study. We will aid students in improving their usage of written, spoken, and written English and their comprehension abilities. The knowledge about the many English-speaking nations' cultures and practices that AI has gathered may be utilized to connect and engage with students and considerably increase their enthusiasm for studying English.

3. Students in English classes have better practical skills because of artificial intelligence. The industry's hottest technological topic for social science right now is artificial intelligence (AI). Teachers and students must understand how to operate a system and find quick solutions to issues for science and technology to be effectively applied in English language teaching (ELT). As a result, as AI is used to teach English, students' practical operational capacity rises.

Gawate (2019), in his paper "Artificial Intelligence (AI), Based Instructional Programs in Teaching-Learning of English Language," claims that any benefits of AI-based instructional programs for teaching and learning English include:

1. programs for customers that are friendly and need-based. The AI-based teaching software integrates the demands of the learners' context with their goals. It is outlined with the learners' precise standards and explicit expectations. Without considering the requirements of the learners, English language teaching-learning is ineffective.

2. Contents of high quality: Using artificial intelligence, it is now feasible to develop teaching and learning tools of high quality that cover all aspects of language acquisition, including hearing, speaking, reading, and writing.

3. support mechanisms for teachers and students in addition. As an external support system, (AI) serves a crucial role for English language learners and teachers. When AI adds humanized knowledge, it can accomplish this whenever, whenever, and with the exact help. Although there are built-in AI-based services, educators' roles are still recognized.

4. Immediate feedback system: Several AI-based designs may be created to learn English and get feedback. In AI-based educational systems, it may be used to measure and interpret the input under the demands of the students, such as grading, reviews, cross-verification, and in-depth presentations. The achievement of the pupils is evaluated from every angle.

5. The teacher's position as a director and guide is altered. It is challenging to remove the teacher from the teaching process and replace the role of the instructor as a director and guide. Only AI-based technology in the ELT process alters the teacher's role. Teachers ought to guide and help the students. Such an AI-based application may be handled and managed by instructors, and teachers can make the necessary manual changes.

AI-related educational services are limited to helping with the teaching and learning of the English language.

6. Worldwide connectivity. Students have all the options with various AI-related educational systems. Artificial intelligence allows for the resolution of time and space restrictions. Knowledge sharing between organizations and from reputable organizations is feasible. This is a genuinely fantastic opportunity to use AI-based education tools. It enables remote access with facial identification, voice recognition, and student mobility. In summary, AI-based solutions may be used to regulate all student actions.

7. The Intelligence learning platform supports students' learning styles by allowing them to repeat concepts they struggle with, highlight those concepts, and engage in activities that match their interests. AI-based educational applications are created to improve English teaching and learning. It emphasizes how the English course materials were developed in response to needs.

8. English language teaching and learning personalized. The course may be developed based on student desires and needs. It may be customized to be student-centered.

Learning English Using Artificial Intelligence Technology

As one of the most sophisticated information systems in the world at first, artificial intelligence technology studies how robots can do intelligent tasks that only humans can complete (Han, 2019). The advancement of technology also makes it simpler for us to do some tasks, including studying and learning English. Artificial intelligence technology is one of the technologies that is frequently discussed among the general public. Numerous new opportunities are being created by technology for language learning (Fryer & Carpenter, 2006). According to Luo & Cheng (2020), artificial intelligence (AI) technologies are the driving force behind foreign language instruction. Artificial Intelligence (AI) technology, among other things, may effectively address issues including limited instructional time, available space, resources, and a tedious measuring procedure. According to Thornton (2007, p. 1), practically all Artificial Intelligence (AI) algorithms and technologies may be claimed to do some problem-solving. Thus, this fluid problem-solving and human-like ability to perceive behavior and purpose are all included in the large field of study known as artificial intelligence (AI). (Cobar, 2019). With the ability to mimic intelligence and make judgments using a method akin to human thinking, AI aims to develop intelligent computers that think and behave like people (Salvaris et al., 2018, pp. 3–4). The three components of how AI operates are having many data, doing repeated tasks, and using clever algorithms.

The program can learn automatically by recognizing patterns and other elements in the data. AI is a highly diverse subject of research. Machine learning, neural networks, cognitive computing, computer vision, and scientific language processing are a few of the

ideas, methodologies, technologies, and sub-fields that fall under the umbrella of AI. Humans may use an almost effortless method or one that is incredibly difficult and still little understood when communicating with others through language (Nilsson, 2014). Therefore, developing a computer system that generates and translates English language fragments has been quite challenging. Language emerged among intelligent beings as a way of communication, which is one reason for the problem. The growth of digital platforms has made teaching and studying English simpler. Artificial intelligence (AI) technology has enabled advanced English language proficiency. Combining digital and language literacy can help you become more globally competent. The text processing of a language serves as the foundation for AI. The language he learned became more and more precise the more advanced the AI. Therefore, utilizing AI technology would improve the teaching and learning of foreign languages. (Yingsoon,2021).

AI contributes to disseminating varied information and enhances the effectiveness of English learning. The availability of various forms of educational technology makes it simpler for these students to comprehend what the instructor has conveyed. Even kids may efficiently study without needing to speak with professors in person. Many applications for learning languages based on Artificial Intelligence (AI) technology may be utilized by English instructors, students, and learners. The following are some AI technology that can be applied to learning English.

The Impact of Google Translate As An Example of (AI)

Google Translate can define words and pronounce words in a new language. The users may instantly interpret street signs using the smartphone app "Translate." Websites may be translated into some languages using Google Translate as well. Although Google has produced many user tools, Google Translate may be the most crucial program, accessed at <http://google.com/translate> (Smallwood, 2015, p. 51). Even a translator has been used in place of text speech. Google Board has already been connected with programs like Google Translate. Therefore, translating from Indonesian to English or vice versa is as simple as typing. According to Covili (2016), Google Translate is notable for five reasons, including the following: Up to 50 languages are supported by Google Translate. Using Google Translate, users may translate complete documents. The primary use of Google Translate in teaching and learning English is as an online translator. Students may use it to translate words, phrases, sentences, and paragraphs from Indonesian to English or Indonesian, frequently used in translation exercises. To check the spelling of terms that result from errors, utilize Google Translate. When it comes to verifying English spelling, it is pretty helpful. You may use Google Translate to learn how to pronounce words in other languages. Google Translate may be used by students who wish to study English for free, mainly to learn how to pronounce words.

Translating Texts to Speech As the Second Example of (AI)

Text-to-speech is an extra capability of Google Translate. The text-to-speech feature of Google Translate allows words translated from several languages, including English, to be uttered in various languages. GoogleTranslate's text-to-speech tool reads words more smoothly and with a less flat tone than the competition. A Text-To-Voice system is a device that can automatically phonetically translate text into speech (the arrangement of phonemes to form an address). Because this system has an infinite vocabulary, it can pronounce any word. Regarding instructing and learning English, Text-To-Speech (TTS) may turn computer-generated text into pronunciation (audio), where the pronunciation can be modified for speed and intonation, and the output audio format can be recorded as an audio file. TTS technology may enhance English learning materials and speed up the teaching and learning process, particularly in the English laboratory (Yudhistiro, 2016).

English ABLE

English ABLE, which stands for "Assessment-Based Learning Environment for English," is an environment where students may study grammar via assessment. Zapata-Rivera conceived of this method in addition to others (2007). In assessment-based learning environments, also known as ABLEs, the information obtained from various assessments is utilized to direct instruction (e.g., formative and summative). "English ABLE" refers to a learning environment oriented on tests designed to assist English language learners (ELLs) learn English grammar. English ABLE uses a TOEFL CBT job library to generate new upgraded assignments for specific ELL component skills. In addition, learner packages can be found in an adaptive and scaffolded learning environment. These packages are designed to assist students in acquiring different English grammatical ideas.

Orai

The ideal candidate for public speaking is Orai. It may serve as both a teacher and a support system for teachers. Excellent evaluations are being given to Orai, which is also fun to use. Orai is simple to use. Your oratory abilities may be quickly and independently improved. Orai's talents in teaching and studying English are her ability to count the number of words we use and the number of fillers we use while communicating. When using Orai in class, teachers can mix it with other English-speaking topics, such as describing individuals. They can then allow students around 15 minutes to utilize Orai before randomly selecting students to practice speaking immediately. Lessons, Practice, Progress, and Recordings are just a few of the elements that Orai offers to help students improve their speaking abilities. You can frequently study the primary factors to improve

these speaking abilities because they have fascinating information. Those who wish to practice speaking can learn and do so in the "Lessons" section using the offered information. Before you may study the following lesson's topic, you must finish the first three steps of that content. An app called Orai was created to assist students in becoming better English speakers (Suryani et al., 2019).

Another Artificial Intelligence is English Learning Speech Assistant (ELSA)

English Learning Speech Assistant (ELSA) was created in 2015 by Vu Van and is headquartered in San Francisco, California, in the United States. This application uses artificial intelligence (AI) and speech recognition to improve English pronunciation. ELSA (English Learning Speech Assistant) (English Learning Speech Assistant) Speak is a program for learning English that uses speech recognition and artificial intelligence. This technology enables a two-way learning process, allowing users to say specific phrases or sentences, after which the system analyzes them and offers corrected input. In order to identify non-native speakers from most other speech recognition algorithms, the ELSA framework is trained using voice samples of persons speaking English with various accents. A test is administered to users to measure their degree of proficiency. Most native speakers have ELSA ratings of 95 or above, which range from zero to one hundred. ELSA can customize the user's learning route by using the findings to identify compelling sounds that need further adjustment. Based on the user's current skill level, ELSA will recommend courses they should take next. Regarding the teaching of English and the process of learning it, Application ELSA (English Learning Speech Assistant) (English Learning Speech Assistant) Speak is an application for learning English that uses artificial intelligence and voice recognition to assist students in becoming more fluent in spoken English. This technology allows for a two-way learning process; for instance, users may hear how specific English words are spoken or phrases, after which the algorithm analyzes and makes grammatical or structural corrections (Eka, 2020).

Chatbot

The newest technology created to connect with both people and computers automatically are chatbots, one of the artificially intelligent conversational systems (Nghie et al., 2019). Previous research has shown the effectiveness of chatbots as a learning tool, particularly for English language learners (Afrianto et al., 2019). The created chatbot application will function as a conversation buddy for English learners and teachers. In general, conversations may be conducted either vocally or in writing, and therefore, the user should be able to practice both. Grammar mistake correction and a daily record feature are required to support the goal of the chatbot application as a tool for English conversation training. The replies received included descriptions of the problems, recommendations for

words or phrases to replace them, and locations of the faults. This aims to reduce grammatical mistakes made by the user. Because of this, the daily log feature helps determine how much the user's practice has improved their grasp of English conversation and the structure of sentences. Users get more comfortable with conversational English via this method and receive feedback on their practice and any errors they may have made. The message the user enters is the first item the fundamental chatbot function analyses. The chatbot and NLP (Natural Language Processing) could decipher the message's meaning by comparing it to the information already included in the database (Haristiani, 2019).

Duolingo

Visit the Duolingo website to become fluent in many languages. A software application called Duolingo employs a way of learning a language via a game-like format that involves matching words and completing incomplete sentences. This strategy teaches students the syntax, vocabulary, and phrases necessary for constructing sentences. No of the student's current level of English proficiency, they can utilize Duolingo to teach and learn English while also learning a new science. Duolingo starts by evaluating its users to determine their skill levels and then provides them with teaching materials tailored to those levels. Users of Duolingo who take the exam will get insight into their current level of English proficiency. Duolingo will not make available any English-language content until it has first determined the user's current level of proficiency in the language. In addition to instruction in grammar, Duolingo provides the opportunity to study vocabulary, nomenclature, and various other subjects. The method of education that Duolingo uses to teach English is designed to be similar to gaming and to encourage "competition" amongst users. The users of this program will then be able to track their progress in improving their English language abilities.

NEO

The NEO program, a worldwide system for learning English, was introduced by the California-based English application business Nexgen English Online Co. Neo is a cellphone-based integrated learning program that can adjust to the user's learning progress thanks to speech recognition and artificial intelligence. A novel approach to learning English is Nexgen Neo. Neo is an efficient, adaptable, and simple tool for users who lead busy lifestyles. Neo also offers a unique experience for each user with an easy-to-use interface, an adaptive learning system using worldwide standard English technology, and certifications. The NEO Study application uses artificial intelligence (AI) to continuously evaluate user behavior and data and then give information that automatically changes as users advance. When teaching and studying English, Neo assists users in doing so more

quickly than they could. Users of the Neo Study program may train their powerful voice recognition technology to pronounce each word until they can speak English fluently and correctly.

Using AI systems to learn English has many benefits, including the following:

1) Artificial intelligence can do things that are hard for humans to carry out, such as analyzing English down to the phoneme level and recognizing nearly instantaneously how your language talents have grown over time.

2) They can be accessed (sometimes even without the internet) anytime and place.

3) AI technology is an alternative that is more effective and easily accessible for learning spoken English.

4) They can assist a much larger number of students and are more scalable than people.

5) Since human teachers are becoming more complex, they could speed up the learning process by attaining a higher level of knowledge.

6. Those apprehensive about their speaking talents may study in an atmosphere free of tension, thanks to the resources provided by AI.

The Recommended Conceptualization Steps And Assessment Techniques

Participant self-training and applications of AI are the two main pillars of the methodology that will be used to put the proposed conceptualization into practice. Processing activity may be seen in the final stage of a dynamic conceptual presentation developed through discussion and brainstorming. This is supported by instruction in the skills during more intimate teaching sessions, deliberate, interactive assessment observation, and research on the need to practice them during formal, interactive training sessions.

The Outcomes of the Study's Suggestions

Based on the findings of the research, it is feasible to make the following recommendations:

1. The usefulness of the AI-based method for assisting university students improve their language skills.

2. Examining the training requirements for English instructors in academic places in light of AI applications.

Conclusion

Robots with an intellect comparable to or greater than that of humans are what artificial intelligence seeks to create. In addition to processing everyday language, artificial

intelligence is anticipated to be able to move and manipulate objects, reason about perception and reasoning, move and manipulate objects, learn, and perform many other things that will make life simpler for humans. This complex device's creation aims to shorten working hours so tasks may be completed more quickly. Humans can make judgments and do jobs more cheaply by applying artificial intelligence. With the growth of digital platforms, learning English has become simpler. The usage of artificial intelligence will grow thanks to computer and mobile technologies, which will also provide more individuals the chance to become more capable. Digital learning technology also relies heavily on personalized material. We now have an extensive data and artificial intelligence-based adaptive system. We may choose the most effective method of English learning based on each user's requirements and time constraints.

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