

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter would like to discuss related studies, an Overview of AI in education, The role of AI in personalized learning, The impact of Artificial Intelligence on language learning, advantages and disadvantages of Artificial Intelligence in student competencies and perceived

A. Overview of AI in Education

AI exists and is divided into several segments in the use of AI in the realm of medical companies and the economic sector. AI's function cannot be separated from humanprogramming in it which aims as it should (Popenici & Kerr, 2017) AI is referred to in modern learning in the European region, its use was developed through NLP where the useof NLP is a form of coding that can assess students and their ability capacity. (Jou et al., 2016). AI in English has its segmentation which is contained in English competencies including reading listening writing and speaking, the following is AI in education which is a reference or learning in AI in English language skills

1. Using AI for writing

There are AI-based applications that can help you with writing tasks. Manyexperts say that it is completely acceptable to use AI-based platforms or applications to help your student write tasks (Fitria, 2021; Fyfe, 2022; Gayed et al.,2022; Godwin-Jones, 2022). Many students and professionals use these platforms and applications to help improve the quality of their writing and ensure that it is error-free (Fitria, 2021). AI-powered writing platforms and apps typically work by analyzing text andmaking

suggestions for improvement. Some apps can even generate text on certain parameters, such as certain keywords or topics. Grammarly is a great example of an AI-powered writing assistant. It helps students improve their writing by detecting errors in grammar, spelling, punctuation, and style. It provides real-time suggestions and explanations to improve clarity and efficiency while writing. So, some basic text editors like Microsoft Word and Google Docs already offer AI features to improve the writing experience for students. Grammarly offers suggestions for improving grammar, spelling, and style as students write. AI features can also detect problems clearly and concisely, helping students improve their skills and the quality of their writing. Students progress in the quality of their writing. ChatGPT is another popular AI-powered writing platform. ChatGPT is a powerful language model established by OpenAI. It may help users produce human-like text and engage in conversational interactions. Some popular features provided by ChatGPT, which bring many benefits when writing, are the subject of thought process and generating ideas; providing text reminders; providing feedback and suggestions; and helping with language and vocabulary. These features have been very popular recently among students.

2. Using AI to listening and speaking

AI itself refers to speaking and listening and contains supporting elements and measurements of speaking and listening abilities. The development and transfer of conventional technology seem to be a major revolutionary change in the world of education. AI-based platforms and applications can also be especially useful for developing listening and

speaking skills as they offer a wide range of possible features to improve the learning process. AI-enabled applications in providing listening and speaking services. Students have the opportunity to practice and perfect their language skills in an interactive and personalized way. By providing instant feedback, targeted exercises, and authentic information. Practice situations and AI technology help students develop speaking skills and communication skills (Wu, 2022). learning to speak as well as listen to English, namely, speech recognition and assessment; interactive conversation practice; accent reduction and pronunciation improvement; listening comprehension exercises; and natural language understanding and response generation. Acting as a peer or reviewer, AI technology can transcribe and assess students' spoken language. By comparing pronunciation, intonation, and proficiency with native speakers, AI can provide instant feedback and suggestions for improvement. Additionally, as a virtual language tutor, AI can participate in interactive discussions with the students. These tutors use natural language processing (NLP) to understand and respond to student speech, providing a realistic and engaging practice environment (Hapsari and Wu, 2022). AI applications can identify a student's specific pronunciation challenges and target areas for improvement. They provide targeted exercises, feedback, and model pronunciation examples to help students refine their tone and pronunciation skills. AI-based platforms and applications, according to Chu (2020), can create and deliver personalized listening exercises based on student skill levels and interests. These exercises may include different accents, speaking

speeds, and genres to improve students' understanding. AI models can understand and create natural language responses, allowing students to participate in conversations and practice conversation. These models take advantage of large amounts of linguistic data to provide. There are abundant AI-based applications that can help students in listening and speaking in English, such as ELSA Speak, Duolingo, HelloTalk, Rosetta Stone, Babbel, Speechling, etc. Duolingo and HelloTalk may be the most popular applications in this area. Duolingo is a widely recognized language learning platform that utilizes AI technology to help students practice listening and speaking skills in English. It offers interactive exercises, pronunciation practice, and speaking exercises that provide immediate feedback (Handini et al., 2022). On the other hand, HelloTalk also provides a medium that connects users with native English speakers for conversation practice (Taufan & Wicaksono, 2022).

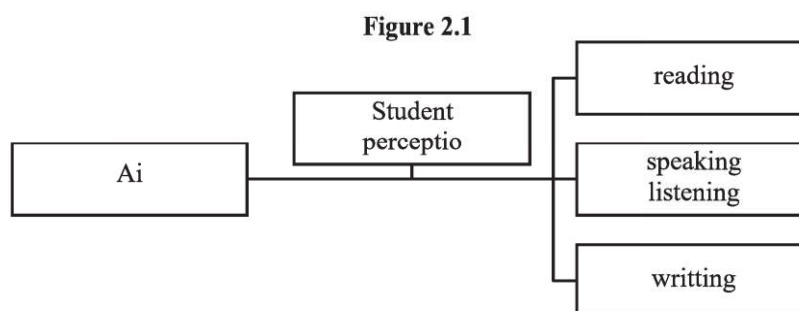
3. Using AI to reading English

The dynamics of AI are not only in complex segmentation visually and in feedback but also in the realm of strengthening reading and helping students in creating and processing in finding something optimal in creating work or in terms of objective reading. Reading is an important skill when it comes to learning English and, as technology, continues to develop, increasingly AI-based platforms and applications to help students improve their reading skills. These AI-based platforms and apps offer many features that can be helpful to students who are looking for one to improve their comprehension, vocabulary, and overall reading ability. AI-powered

applications also offer features that assist students in improving their vocabulary, such as providing definitions of words and highlighting unfamiliar terms in texts. These features can help students expand their vocabulary and improve their comprehension of the texts they are reading (Alsadoon, 2021; Huang et al., 2023). Another benefit of AI-powered platforms and applications is text-to-speech technology, which converts written texts into audio files. This feature can be especially helpful for students who struggle with reading, as they can listen to the audio and practice speaking along with it (Nuraini Herawati et al., 2022). Text-to-speech technology can also be useful for improving pronunciation and intonation.

Similar to speaking and listening practice, AI-based platforms and applications adaptive learning algorithms can be used to personalize instruction based on student needs, personal needs and progress. This can help students practice reading at a higher level tailored to their current abilities, can help build confidence, and improve their understanding. AI-based platforms and applications can offer a wide variety of Interactive exercises and activities designed to help students improve their reading ability SKILL. These may include reading comprehension questions, fill-in-the-blank exercises, or reading games. These activities can be engaging and fun, helping students grow their reading skills in a fun and interactive way. Readlang is an AI-powered language-learning app that helps students improve their foreign language reading skills (Magfirah, 2022). It allows students to enter and read text on the Web or upload their documents. The

application provided immediately translates words and allows users to create flashcards to memorize vocabulary. artificial intelligence Algorithms adapt to the student's reading level and provide targeted recommendations to practice deeper reading.



In the picture above there is a strong connection Kaur & Gill (2019) argue that artificial intelligence (AI) is a digital effort to achieve Human-level intelligence using various machine calculations. It's a series of Advanced technology that allows humans to sense, understand, operate, and learn Machines. It can be said that artificial intelligence (AI) is a branch of computer science that emphasizes the ability to think and act like humans. He was helped by machines to find a solution to solve complex problems in a more humane way (Sridhar, 2018). This requires loan characteristics of human intelligence, then combining them in a computer-friendly way. Mankind Activities such as learning, planning, decision making, and language Ribeiro (2020) believes that artificial intelligence in English language teaching (ELT) is the most practical way English teachers can use it. English is one of the current languages The world's languages have systematic grammatical structures. So, learning English is always a very difficult problem for ESL/EFL (English as a second/foreign language) students (Mehrotra, 2019). Therefore, innovation in English teaching and

learning is possible 215

Driven efficiency through artificial intelligence machine learning, intelligent search, and natural language processing (Wang, 2019). Related to the explanation above, this study is known the role of artificial intelligence (AI) and research AI technology in English Language Teaching (ELT).

B. The Role of AI in Personalized Learning

It can also be said to be a form of AI embodiment which is the main component of the theory that was discovered that the artificial brain is capable of changing and creating several forms of work or changing role functions. However, on the contrary, personally and well-developed, AI is felt to be able to form a strong polarization to trigger critical thinking in students trying their best. Student perceptions of the use of GenAI in education

User acceptance is key to the successful adoption of technological innovations (Davis, 1989). John Biggs emphasizes the importance of student perception in his 3P (Presage-Process-Product) teaching and learning model (Biggs, 2011). According to Biggs, students' perceptions of the learning environment, abilities, and teaching strategies used have a significant impact on their approach to learning (Biggs, 1999), which in turn affects outcomes. their learning. Students who perceive the learning environment (such as program content, teaching methods, assessment methods, learning resources, learning context, and student support services) positively and confidently on your abilities. GenAI tools cannot assess the validity of content and determine whether the output they produce contains lies or misinformation, so their use requires regulatory oversight. humans (Lubowitz, 2023). Additionally, because

most AI-generated plagiarism checkers cannot detect it, it is difficult to determine whether a given passage is the author's original work (Peres et al., 2023). According to Chan (2023a), “this raises the question of what constitutes unethical behavior in academic writing, including plagiarism, attribution, copyright, and authorship in the context of AI-driven content created” – plagiarism by AI. As Zhai (2022) warns, the use of text-to-text generators such as ChatGPT may affect the validity of assessment methods, especially those involving written assignments. The widespread use of GenAI could therefore pose a serious threat to academic integrity in higher education. In Chan and Tsi's (2023) study, there was particular interest in developing general skills such as creativity and critical thinking.

There are various types of organizations active in the field of educational AI applications. On the one hand, we see that some publishers add a ‘machine learning layer’ to digital educational resources. Here, classification based on hard-crafted rules is being replaced by classification based on machine learning algorithms. In addition, various start-ups are experimenting with applications of AI in education. The major tech giants, such as Google and Facebook, are dominant players in AI development, but we see a limited presence in the Dutch education market. This is probably because AI requires specific contextual data in education (in this case from Dutch students) that is not easily available.

- a. Adaptive learning
- b. Data analysis
- c. NLP

The impact of AI will vary across different educational sectors. In

primary education, AI may result in students being less likely to receive an in-class explanation of the topic, but are more likely to receive a personalized explanation based on their skill level and learning style. This will cause students to spend more time in class in front of computers (or at least screens). However, we expect that there will still be a lot of personal contact (necessary) between students and teachers.

C. The impact of Artificial Intelligence on language learning

In the current era, students need to have a disciplined nature and take responsibility for an important role in education, which specifically concerns English. The enthusiastic attitude towards English language learning and the methods offered encourage the need for a change. However, competence in English can be divided into 4 types, listening, reading, speaking, and writing. The role of each focus contains elements of unity. In this modern era, many important points must be maintained regarding the use of technology in learning and mastering English language skills. The use of AI cannot be separated from the role of a curriculum that includes technology in its benefits and innovation skills (critical thinking and problem solving, creativity and innovation, communication, and collaboration), (2) digital information literacy (information literacy, media literacy, and information literacy) and knowledge of communication technology (ICT) and (3) career and life skills (flexibility and adaptability, initiative, and autonomy, social and intercultural interaction, productivity and responsibility, leadership, and accountability). The Nature of These skills is that they constitute important skills that learners will need to have their social and professional lives in the future. These skills also focus on

the learner's ability to use and communicate knowledge. Artificial intelligence technology is a technology that explores how robots can accomplish smart work that initially only humans can do as one of the most advanced information systems in the world (Han, 2019). Technology is also evolving in ways so that it becomes more advanced and it becomes easier for us to do certain tasks, e.g., teaching and learning English. A technology that is often discussed in the wider community is artificial intelligence technology. Technology opens up many new possibilities for language learning Fryer and Carpenter, (2006). Luo & Cheng (2020) affirm that foreign language teaching relies on artificial intelligence technology (AI). The challenges of short teaching time, limited space, Monotonous resources, and measurement methods can be effectively solved by Artificial Smart technology (AI), etc. Thornton (2007, p. 1) defines that almost all Artificial intelligence (AI) programs/technology can be said to take several forms of problem-solving. This means that artificial intelligence (AI) is a vast scientific field that integrates this dynamic problem-solving ability and the human ability to sense behavior and targets. Cobar (2019).and solve problems in complex situations so that they can achieve Deep levels of personal learning as well as lifelong learning Shadiey et al., (2022) several impacts occur in AI in terms of learning:

1. Personalized Learning

AI-powered platforms can assess each student's abilities and learning style, enabling personalized learning journeys tailored to their specific needs and interests. This personalized approach helps students learn English at their own pace and in a way that meets their unique learning needs.

2. Improve Language Acquisition Ability

AI can provide real-time feedback on pronunciation, grammar, and vocabulary usage, facilitating more effective language acquisition. By providing immediate corrections and suggestions, AI helps learners improve their language skills faster and more effectively.

3. Access to Language Resources

AI technology has made a plethora of language learning resources available to students, regardless of their geographical location or socioeconomic background.

Through online platforms and applications, students can access a variety of English materials, including exercises, videos, and interactive quizzes.

4. Adaptive Learning Platform

The AI-powered learning platform adapts to student progress and adjusts the difficulty level of the content accordingly. This ensures that learners are continually challenged while avoiding content that is too advanced or too basic, resulting in a more engaging and effective learning experience.

5. Language Practice and Immersion

AI-powered language learning tools deliver rich experiences that simulate real-world language use. These tools can engage students in conversations, role-playing scenarios, and interactive exercises, providing simulated environments to practice English skills in a variety of contexts.

Teacher support and development:

AI tools can help language teachers evaluate student performance, identify areas for improvement, and provide targeted feedback. This support allows teachers to focus more on individualized teaching, mentoring, and solving specific learning problems, thereby improving the overall quality of English teaching.

6. Language Translation and Interpretation

AI-powered translation tools have improved language understanding, allowing students to access English content from around the world. These tools help students understand and communicate more effectively in English, promote a global perspective, and facilitate intercultural communication.

D. Advantages and Disadvantages of Artificial Intelligence in Student

Competencies

AI development continues to be capable and remains a major pioneer that needs to be addressed according to Gawate, S. (2019). reveals that hierarchically, AI himself is consumed by us because of a habit that tends to make us take things for granted. According to Han (2019), the intensity and exploration of the human brain will help in learning English, especially in English competencies. so that the tools used refer to needs, students' simple thoughts can be processed with machine learning through AI exploration, and the objectivity that plays a role in it. It takes a lot of preparation, logical presentation, practical examples, practical practice, selection and scoring of topics and sub-topics as well as practical exposure to the target language. Considering all these aspects will lead to this process Use different teaching aids to improve teaching effectiveness. Quality of content and delivery method

content must be targeted and analyzed by English teachers at each level. Many methods have been used and accepted to teach English.

According to Gawate (2019), in the article titled "An educational program based on artificial intelligence (AI) for Learning English", clearly states all the benefits of learning English is:

1. Personalized Learning

AI can personalize the learning experience by adapting to each student's individual needs and pace. This ensures that students can learn at their own pace and focus on areas where they need more help, ultimately leading to a more effective learning process.

2. Improved Accessibility

AI can provide access to educational resources and materials to students from diverse backgrounds and geographies. This can help close the educational opportunity gap, allowing students to access high-quality learning resources regardless of their geographic location.

3. Instant Feedback and Ratings

AI can provide immediate feedback on assignments and assessments, allowing students to understand their strengths and weaknesses in real-time. This timely feedback helps students make necessary improvements and adjustments, thereby promoting a more effective learning process.

4. Advanced Learning Tools

AI can provide advanced learning tools, such as interactive simulations and virtual reality experiences, that can improve students' understanding of complex concepts. These tools can make learning more

engaging and interactive, leading to better understanding and retention of information.

Referring to the side of the disadvantages that occurred are as follows:

a. Too dependent on technology:

Overreliance on AI could lead to students placing less emphasis on critical thinking and problem-solving skills. Overreliance on AI for learning can hinder the development of independent learning and analysis abilities.

b. Privacy and data security concerns:

The use of AI in student skills raises concerns about privacy and data security. Educational institutions must ensure that student data is protected and that AI systems follow strict privacy regulations to protect sensitive information.

c. Technology barriers:

Not all students have equal access to the technology needed for AI-based learning. Economic disparities and inadequate infrastructure may limit the ability of some students to fully benefit from AI-based educational tools, creating a digital divide in the skills of pupils.

d. Reduce human interaction:

The use of AI can reduce the number of face-to-face interactions between students and teachers. Human connection and mentorship are essential for well-rounded development, and a lack of personal interaction due to overreliance on AI can hinder students' social and emotional growth.

e. Ethical concerns:

AI algorithms can perpetuate biases and stereotypes, leading to potential ethical implications in educational contexts. Educators must be vigilant to combat and mitigate any biases present in AI systems to ensure fair and equitable learning opportunities for all students.

E. Types of Perceived

Based on (Irwanto, 2002), individuals interact with perceived objects results in two perceptions. Those are:

1. Positive Perceived

Positive perceptions are views that encompass all information, regardless of one's awareness of it and reactions that persist when one makes an effort to put it into practice. Positive perception suggests that the thing being viewed will cause a favorable reaction (Irwanto, 2002:71). A favorable response to the viewed object is likewise contingent upon a positive perception. A good reaction, according to Ahmadi (1999:164), is any kind of conduct, attitude, or response that exemplifies, recognizes, accepts, endorses and puts into practice the norms that are relevant in the person's community's negative Perceived

A perception that describes all information, whether an individual is knowledgeable of it or not, as well as behaviors that are not aligned with the perceived object (Irwanto, 2002). Negative perception signifies a negative reaction to the viewed item. According to Ahmadi (1999:164), a negative reaction is a type of behavior, action, or attitude that expresses rejection or disapproval of the prevailing norms in the environment in which the

individual resides.

F. The Process of Perceived

Perception doesn't happen in directly. There are several psychological processes which influences a perception. (Qiong, 2017) states there are three stages of the perception process, the first one is selection, The first stage of the perception's process is selection. In this stage of the environmental stimulus turns out into a meaningful experience. The second one is organization; organization is the second stage of perception's process which information needs would be organized by finding the meaningful patterns. This stage has two characters. The first is to organize a process, it has to provide the structure of human perception. The raw stimuli from out of the world will be placed into a structural meaningful experience of human beings. In addition, after selecting stimulus and placing it into a category, it becomes durable. The third is interpretation, which the attaching process of meaning would be chosen by its stimulus.

G. Factors Affecting Perception

Based on (Zamroni 2013), that perception consists of Perceived Usefulness/ PU Attitude towards /A T Actual Use Behavior. individuals are formed from observation and experience. Therefore, the attractiveness of students' perception is influenced by the cognitive structures which are learned and experienced.

H. Related Studies

There are some related studies as follow:

A previous study by Kumar (2019) proposed that the assistance of AI

makes the model of human intelligence methods conceivable. Here we practice the changing role of artificial intelligence along with its methods in a new learning paradigm that aims to create a modified learning environment in schools. Different topographical structures such as models, recognition, and decision-making are both practical as well as education-based systems, as well as machine learning oriented to the entire educational and assessment approach. Based on a knowledge-based system and supervised machine learning, a comparative assessment of learners' performance was performed.

A previous study by Yuchen (2021) proposed a study that said that with the rapid development of civilization, the English proficiency requirements for students are getting higher and higher, which brings pressure as well as challenges. Great knowledge for teaching English to postgraduate students. The widespread use of information technology has opened up a new perspective in education to improve English teaching at the graduate level. Taking the topic of writing and reading graduate English as an example, this study addresses intelligent learning methods in the design of graduate English courses, which have specific significance in improving learning efficiency. postgraduate English subject.

A previous study by Al-Farrani, L. A. K., & El-Hejaili, S. A. S. (2020) proposed a study in which efforts are being made on the learning methods of mediators from a pedagogical point of view. Efforts to eliminate “schools” of educational philosophies based on distinct models, as well as focus on the intermediaries of learning as global university lecturers: What is their role in the educational process and how do they achieve it? This study proposes a

fundamental difference between the pedagogical parts of the mediator as the "mimetic" and "emergent" roles, the former being modeled after any type of human educator while the latter is new and specific to online educational processes.

A previous study by Sidana (2019) proposed a detailed study to evaluate the application of AI as well as its effectiveness in the field of education. Various functional research has been discussed from the perspective of theoretical foundation and AI evaluation. The use of enhancement tools has been very encouraging. Different forms of using AI in teaching, learning to sing, draw, etc. have been effectively tested. Sometimes there is no benefit from using a musical instrument other than conservative learning.

Alfarsi et al. (2021) proposed the topic of artificial intelligence training and the use of advanced teaching and discovery methods. This study demonstrates the need to anticipate the integration of AI in higher education institutions, new technical innovations as well and higher rates of advanced teaching of AI tools. The analysis concludes by highlighting the benefits of AI using machine learning, education department devices, and improving security and communication between learners.