**Critical Thinking in 21st Century Learning: The Impact of Artificial Intelligence (AI) on Teaching English as a Foreign Language (TEFL)-A Philosophical Perspective**

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**Abstract:** About the use of Artificial Intelligence (AI) in the context of Teaching English as a Foreign Language (TEFL), numerous articles have discussed its impact, ranging from positive to negative effects. Although the majority of literature asserts that AI has a significantly positive impact, this research aims to evaluate and critically analyze these effects. The focus of this study is on the variables of critical thinking, the impact of AI on TEFL, and philosophical perspectives. This research employs a qualitative approach with document analysis methods, beginning with the selection of documents based on authenticity, credibility, representativeness, and meaning factors. The research findings support the positive effects of using AI in TEFL, emphasizing the improvement of students' English language skills in speaking and writing, particularly in terms of grammar. However, the research highlights the importance of specific conditions that must be met for these positive impacts to be achieved. A critical analysis of AI's impact on TEFL reflects the necessity of incorporating critical thinking in this research to avoid uncertainties. The study also explores philosophical views related to ontology, epistemology, and axiology. In the ontological perspective, AI aids students in understanding existence and reality in language learning, especially concerning vocabulary, phrases, and grammar. From an epistemological perspective, AI serves as a foundation for students' knowledge acquisition by presenting tailored learning materials and supporting a deep understanding of linguistics. Meanwhile, from the axiological perspective, the use of AI creates positive values such as accessibility, diversity, and equality in education.

***Keyword:*** *impact AI, TEFL, grammar, philosophical perspective*

**INTRODUCTION**

The development of technology in the 21st century is advancing rapidly, particularly in the field of computers. Computers have become an inseparable part of human life. Currently, computers have been developed to mimic human intelligence, known as Artificial Intelligence (AI). AI is capable of analyzing problems and finding solutions to these issues. This new discovery is highly beneficial in assisting humans in solving their everyday life problems. Therefore, all fields of knowledge, including education, harness this advanced technology.

In the field of education, for example, AI chatbots have become a very popular tool for both teachers and students. Teachers can use AI as an aid in explaining a subject to students, while students use AI for tasks ranging from answering assignment questions to creating short essays. With AI, learning and completing coursework become more accessible. Musthoza et al., (2023) suggests that the use of artificial intelligence in education provides opportunities for personalized learning, instant feedback, access to quality resources, efficient assessment, language assistance, and data-driven insights. This has the potential to significantly enhance English language learning and teaching, creating a more engaging and effective educational experience. According to Alhalangy & Abdalgane (2023) the positive impact of artificial intelligence on English as a Foreign Language (EFL) is manifested through the simplification of pedagogical and learning processes. However, it is important to note that training for EFL instructors is crucial to effectively implement AI technology in the language classroom.

There are numerous articles discussing the impact of AI usage, ranging from positive to negative effects. Most articles state that AI has more positive impacts than negative ones. However, among the many positive impacts, there are potential negative effects that may arise from excessive use of AI. One of them is the suppression of students' cognitive ability to think critically. According to Cottrell (2005) critical thinking encourages students to review, evaluate, and assess the study material, leading to a deep understanding of the subject matter.

This article aims to encourage readers to think critically about the impact of AI usage in TEFL. Does AI truly provide positive impacts as indicated by existing research? Or are there specific conditions that must be met for AI to have a positive impact in TEFL? Are there pieces of evidence showing AI's positive impact in TEFL? To answer these questions, the researcher conducts document analysis on articles discussing the impact of AI in TEFL. The results of this research will either support the theory of the positive impact of AI usage in TEFL or challenge it.

It is crucial to involve critical thinking in this matter to avoid doubt. A common tendency among students and the general public is to not question research based on a small sample from a population or rely on outdated or flawed reasoning. Often, evidence from small or isolated projects is considered as unquestionable proof related to a general principle and is sometimes cited repeatedly from year to year as if that evidence were absolute truth (Cottrell, 2005). Meanwhile, the philosophical perspective is used to avoid skepticism of theory. According to Bowell & Kemp (2010) the challenge arising from this perspective is that it can quickly lead to a philosophical skepticism attitude, believing that true knowledge does not exist or is very limited. The primary effort in philosophy is to formulate a consistent knowledge theory that does not induce a skeptical attitude.

**Method**

This research employs a qualitative approach, and the method used is document analysis. The research process begins by searching for documents to be analyzed. Flick, as cited in (Morgan, 2022) states that in selecting documents, at least four factors should be considered: authenticity, credibility, representativeness, and meaning.

In this study, the researcher uses articles from scientific journals whose authenticity and credibility are assured. To ensure authenticity and credibility, the researcher only selects articles from accredited scientific journals. Meanwhile, representativeness and meaning are ensured by choosing articles that align with the topic of this article, which is the impact of AI usage in TEFL.

As a researcher or analyst, it is crucial to assess the relevance of documents to the research problem and objectives. Additionally, researchers must ensure that the content of the documents aligns with the conceptual framework of the study. Furthermore, it is emphasized that there is no need to worry about the quantity of articles analyzed but rather to focus on the quality of the documents and the evidence they contain, considering the research goals and design. Generally, having access to a variety of documents that provide more evidence is considered better, especially if the research heavily depends on or relies solely on documents.

Therefore, document analysis is not just about compiling quotes from printed material to present any ideas that come to the researcher's mind. Instead, it is an evaluation process of documents that produces empirical knowledge and enhances understanding. In performing this process, researchers are expected to achieve objectivity and sensitivity while maintaining a balance between the two (Bowen, 2009). The goal of document analysis should be to provide benefits by generating information useful for evaluating or explaining social or educational practices (Best & Kahn, 2006).

**RESULT AND DISCUSSION**

The term Artificial Intelligence (AI) was first introduced by John McCarthy, often referred to as the pioneer of AI, in 1955. This occurred when he and his colleagues drafted a proposal for the Dartmouth Summer Research Project on Artificial Intelligence in 1956. In the proposal, they outlined AI as a machine that utilizes language, creates abstractions and concepts, tackles problems typically handled by humans, and enhances their own capabilities (Toar et al., 2022). AI technology has rapidly evolved and is widely used by humans in various fields, including foreign language teaching. Many AI-based applications have emerged to assist Teaching English as a Foreign Language (TEFL). According to Fitria (2021) there are several AI technology applications that can be used to aid TEFL, such as Google Translate, Text to Speech (TTS), English Able, Orai, Elsa, Chatbot, Duolingo and Neo. Tulasi & Rao (2023) add Nuance Dragon Speech Recognition, Cognii, Knowji, Plaito, Queirum, Carnegie Learning's Platform, Praktika, as AI technologies that can be integrated into TEFL. In other words, AI in this article not only refers to the term AI itself but also encompasses AI-based applications used in TEFL.

The researcher conducted a search on Google Scholar using the keyword "Impact of AI in TEFL" to refine the search results. Many articles discussing the "use" of AI in TEFL were found. These articles were further filtered by selecting only those that discussed the "impact" of AI in TEFL. The result was 19 articles that specifically addressed the impact of AI in TEFL. To obtain the impact of AI in TEFL as a tangible result in the field, the researcher further filtered these articles by selecting only those that used data collection tools such as interviews or questionnaires, or both, on their research participants. The result was 8 articles meeting the specified criteria. The outcomes can be seen in the following table:

**Table 1. References to article studied**

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| --- | --- | --- | --- | --- | --- |
| **No** | **Author** | **Year** | **Title** | **Journal** | **Link** |
| 1 | Arini, D. N., Hidayat, F., Winarti, A., & Rosalina, E. | 2022 | Artificial intelligence (AI)-based mobile learning in ELT for EFL learners: The implementation and learners’ attitudes. | *International Journal of Educational Studies in Social Sciences (IJESSS)* | <https://doi.org/10.53402/ijesss.v2i2.40> |
| 2 | Li, Y | 2022 | Teaching mode of oral English in the age of artificial intelligence | *Frontiers in Psychology* | <https://doi.org/10.3389/fpsyg.2022.953482> |
| 3 | Dewi, H. K., Putri, R. E., Rahim, N. A., Wardani, T. I., & Pandin, M. G. R., Dr., M.Si., M.Phi., M.Psi., Psi. | 2021 | The Use Of AI (Artificial Intelligence) In English Learning Among University Student: Case Study In English Department, Universitas Airlangga. | SocArxiv | <https://doi.org/10.31235/osf.io/x3qr6> |
| 4 | Marzuki, Widiati, U., Rusdin, D., Darwin, & Indrawati, I. | 2023 | The impact of AI Writing Tools On The Content And Organization Of Students’ Writing: EFL Teachers’ Perspective. | *Cogent Education* | <https://doi.org/10.1080/2331186X.2023.2236469> |
| 5 | Enzelina, Y. N., Santosa, M. H., & Paramartha, A. A. G. Y. | 2023 | Exploring English Language Education Major University Lecturers’ and Students’ Perceptions of AI-Based Applications in Post-Pandemic Learning | *SALEE: Study of Applied Linguistics and English Education* | <https://doi.org/10.35961/salee.v4i2.843> |
| 6 | Toar, D., Sumakul, Y. G., Hamied, A., & Sukyadi, D. | 2022 | *Language Education and Acquisition Research Network Artificial Intelligence in EFL Classrooms: Friend or Foe?* | *LEARN Journal* | <https://so04.tci-thaijo.org/index.php/LEARN/index> |
| 7 | Shu, X., & Xu, C. | 2022 | Artificial Intelligence-Based English Self-Learning Effect Evaluation and Adaptive Influencing Factors Analysis. | *Mathematical Problems in Engineering* | <https://doi.org/10.1155/2022/2776823> |
| 8 | Alhalangy, A. G. I., & Abdalgane, M. | 2023 | Exploring the Impact of AI on The EFL Context: A Case Study of Saudi Universities. | *Journal of Intercultural Communication* | <https://doi.org/10.36923/jicc.v23i2.125> |

Based on the results of the document analysis of the articles, the following findings were identified:

1. The application of artificial intelligence in English language learning conducted by teachers through mobile devices provides significant benefits in enhancing students' motivation, autonomy, and efficiency, particularly in pronunciation. AI technology can correct pronunciation and grammar errors, yielding achievable results. The use of AI as an English language learning tool can reduce students' anxiety, enabling them to perform at their best. Teacher policies play a crucial role here. In conventional classrooms, student anxiety tends to be higher as they have to interact directly with others (Arini et al., 2022).
2. Natural language processing, a crucial aspect of artificial intelligence, allows for instant analysis of language signals. Experiments have shown that teaching methods focusing on natural language processing for oral English can improve students' comprehensive understanding of spoken English (Li, 2022).
3. Artificial Intelligence (AI) can enhance the efficiency and speed of students in completing English language tasks, such as looking up the meaning of unfamiliar words and working on writing assignments (Dewi et al., 2021).
4. The utilization of artificial intelligence (AI) can improve students' writing abilities by enriching vocabulary usage and presenting fresh ideas proposed by AI. However, there are concerns that the vocabulary suggested by AI may feel complex, sometimes making it difficult for students to understand the meaning and correct usage of those words. Additionally, there is a concern that students' reliance on such tools may diminish their critical thinking and problem-solving skills. Therefore, teacher guidance is essential (Marzuki et al., 2023).
5. There is a difference in perception between students and teachers regarding the benefits of artificial intelligence (AI) in Teaching English as a Foreign Language (TEFL). Most students believe that AI greatly helps them efficiently complete English language assignments, improve English language proficiency, create a more comfortable learning atmosphere, and provide more access to beneficial English language learning resources. On the other hand, teachers' views state that although AI can enhance students' English language proficiency, it should be done following guidelines set by teachers. AI should function as an additional tool, not the primary learning tool. The responsible and wise use of AI is crucial to prevent students from overly relying on AI, so they truly master the English language (Enzelina et al., 2023).
6. Research on the utilization of artificial intelligence (AI) by teachers and students shows that AI usage can improve students' English language abilities in grammar, writing, and pronunciation. This occurs because AI utilization can enhance students' learning motivation, freeing them from time constraints in school-based learning. AI allows students to learn independently, anytime and anywhere. It should be noted that teachers need to have technological knowledge and pedagogical understanding when implementing AI in English as a Foreign Language (EFL) classes. With the adoption of AI, teachers feel assisted in lightening their workload to improve students' English language proficiency (Toar et al., 2022).
7. The use of artificial intelligence (AI) has the potential to enhance students' learning stability and quality, as well as improve cognitive learning achievements and completeness. By integrating AI into the English teaching process, students can more effectively enhance and analyze data to facilitate learning. This success can be achieved if students can adapt well to the use of AI. In this case, the role of the teacher is crucial (Shu & Xu, 2022).
8. Understanding a new language may be a challenging task, but with the help of artificial intelligence (AI) technology, teachers and students can interact more efficiently in the English as a Foreign Language (EFL) classroom. This allows students to invest less time in learning complex materials. With the use of AI, teachers can support the development of analysis, debate, and argumentation skills for EFL students. AI technology support has the potential to significantly improve student participation and performance in class, especially in the context of oral communication skills. Although there may be some challenges, AI can be the key to students' success, emphasizing crucial aspects of communication, both written and oral (Alhalangy & Abdalgane, 2023).

In conclusion, the application of artificial intelligence in English language learning provides significant benefits, enhancing students' motivation, autonomy, and efficiency in pronunciation and writing tasks that adhere to grammar rules. Research indicates that the use of artificial intelligence by teachers and students can improve English language proficiency, freeing students from time constraints in school-based learning. However, there are slight concerns related to the complexity of vocabulary suggested by AI and the potential detrimental impact on students' critical thinking ability. Additionally, differences in perception between students and teachers highlight the importance of using AI as an additional support tool with responsibility in its implementation.

In this research, there are three variables that need to be explained. These variables are critical thinking, the impact of AI on TEFL, and a philosophical perspective. The critical thinking referred to in this study is critical thinking regarding the impact of AI usage on TEFL. The author aims to invite readers to think critically about the research findings, as many articles state that the use of AI has a positive impact on TEFL. The question is whether this positive impact is absolute without any conditions, or if there are requirements that must be met. Based on the findings discussed in the results section of this article, it is indeed true that the use of AI in TEFL has a positive impact. This positive impact includes enhancing students' English language skills in aspects such as speaking and writing. AI can detect and correct grammar errors practiced by students in both speaking and writing. Additionally, the use of AI can ease the workload of teachers in improving the English language proficiency of their students.

However, there are some conditions that must be met to achieve these positive impacts. In other words, the positive impact resulting from the use of AI in TEFL is not automatically obtained. Teachers and students must collaborate to achieve the best results from the use of AI. The role of the teacher in TEFL remains crucial, while AI serves as an additional tool. The use of AI must be under the guidance and supervision of the teacher. Therefore, teachers need to have good knowledge of both technology and pedagogy. This is necessary to ensure that students quickly understand the benefits of AI and how to use it wisely and responsibly. It is also important to prevent students from becoming overly dependent on AI. Teachers can provide guidance to students on what is allowed and what is not allowed when using AI. Clear limitations are necessary to ensure that students truly master the English language in all its aspects. Irresponsible or unguided use of AI can result in a superficial mastery of the English language.

Now let's delve into the discussion of the third variable in this article, namely the philosophical perspective. As mentioned in the introduction, the goal of the philosophical perspective is to eliminate doubts and produce a solid theory. In the field of philosophy, there are three crucial aspects for discovering truth in knowledge (science). These three aspects or pillars of philosophy are the most fundamental aspects used to find truth or the essence of knowledge. The three philosophical aspects are ontology, epistemology, and axiology. To make this discussion more focused, the philosophical perspective will be applied to the impact of AI on TEFL. In other words, the philosophical study will focus on the usefulness of AI in teaching English as a foreign language.

**Ontological Perspective**

The first aspect is ontology. Ontology, as a discipline, is a method or investigative activity regarding philosophical issues about the concept or fact of existence (Jacquette, 2002). Ontology is defined as a philosophical study to determine the true nature of an object to establish the meaning, structure, and principles of that object (Burhanuddin, 2018). Therefore, ontology discusses the nature of existence and reality. From an ontological perspective, the benefits of using AI for learning English essentially include understanding the existence, reality, and relationships between entities or specific concepts. The entities referred to here are vocabulary and phrases, while specific concepts are defined as grammar. English often contains words or phrases with richer meanings, allowing individuals to explore and understand the reality behind these words, delving into the underlying thought framework. AI can accomplish this as a technological reality that assists in understanding the existence of a word or phrase meaningfully. Understanding the meaning of a word can be obtained by students through the analysis command features in AI.

Unlike conventional dictionaries that are rigid, AI can be engaged in communication to analyze the meaning of an unfamiliar word. By understanding the meaning behind words, students can more easily remember a word along with its function in a sentence. The implication is an expansion of the students' vocabulary, and they can apply the word appropriately. The ability to place a word appropriately is what is referred to as understanding the concept of grammar. In other words, the ontology of the impact of AI on TEFL is a clear existence and reality, namely as a proposition in philosophy that can be proven to exist.

**Epistemological Perspective**

The second aspect is epistemology. Epistemology is the study of knowledge, involving questions such as how humans know what they know, the true nature of knowledge, and the limitations of what humans can know (Smith, 2022). Epistemology is how knowledge is acquired, sources of knowledge, and the scope of knowledge (Suaedi, 2016). Based on epistemological perspective, the use of artificial intelligence (AI) in learning English brings several benefits related to the process of acquiring knowledge, understanding, and cognitive development.

AI's ability to provide in-depth analysis and evaluation of students' learning progress establishes an epistemological foundation. The understanding that students' knowledge can be measured, evaluated, and systematically improved through technology becomes increasingly clear. Furthermore, AI systems can present learning materials personally tailored to each student's level of understanding and learning style. The understanding that each individual has a unique way of understanding and processing information becomes central to this approach. Through AI, students can access global sources of knowledge in English, such as literature, articles, and up-to-date information. This creates an epistemological foundation that recognizes knowledge is not limited by physical or geographical boundaries.

AI helps students understand the structure of the English language and enrich their English vocabulary. This means that language learning involves a deep understanding and mastery of linguistic concepts. The integration of AI into English language learning introduces students to the use of technology as a source of knowledge. This creates an epistemological foundation that technology can be a tool for acquiring and building knowledge.

Lastly, AI helps students recognize and understand various speaking styles and dialects in English. The understanding that language is dynamic and reflects variations in its usage becomes clearer through this epistemological foundation. Thus, from an epistemological perspective, the use of AI in learning English is a source of lexical knowledge, including vocabulary and grammar and their proportions.

**Axiological Perspective**

The third aspect is axiology. Axiology is a branch of philosophy that studies the evaluation of values, including ethics and aesthetics (Chopra, 2005). In line with this, according to Arora (2010) the branch of axiology includes ethics and aesthetics. From an axiological perspective, the use of artificial intelligence (AI) in learning English brings benefits that involve the creation and understanding of values reflected in the use of technology in the context of linguistic education. The importance of technology in education, especially through the integration of AI, shows positive values related to educational progress. This creates an axiological foundation that the use of technology, including AI, can enhance and enrich students' experiences. Furthermore, AI can improve the accessibility of education by providing resources and learning materials that can be accessed evenly by various groups of people. This axiological understanding emphasizes that education should be accessible to all individuals regardless of background or geographical location, creating justice and diversity.

The use of language is not only related to communication but also reflects diversity and cultural values, opening space for understanding and tolerance. The integration of AI as a driver of equality in learning creates an axiological foundation. Providing a learning experience that is parallel and tailored to individual needs underscores that every student has intrinsic value and the right to receive equal education, thereby creating equality in education. The development of digital ethics skills through AI emphasizes that the use of technology must be treated with responsibility and ethics, strengthening moral values in the context of learning. Technology must be integrated wisely and balanced, emphasizing that humans still have a primary role in the context of education, highlighting the values of collaboration between AI and humans. Although AI provides assistance in learning, it still appreciates and emphasizes the role of the teacher. Guidance, inspiration, and guidance from the teacher are recognized as values that cannot be fully replaced by technology. Thus, the use of AI in learning English creates axiological benefits that emphasize values such as accessibility, diversity, equality, responsibility, and the important role of humans in the context of education.

Based on the findings in the research on the impact of AI on TEFL and philosophical perspectives (ontology, epistemology, and axiology), it is concluded that the research findings in the article align with philosophical perspectives. This reinforces the theory that the use of AI in TEFL has a positive impact as long as technology and human collaboration is done responsibly and wisely. In the context of the educational world, this means that the role of the teacher as an English language instructor remains paramount. AI is simply a tool or resource to acquire knowledge in mastering the English language. Guidance and direction from the teacher are essential for the goals of learning English through AI to be achieved. Therefore, teachers must have a good mastery of both technology and pedagogy.

**CONCLUSION**

The conclusion of this research indicates that the use of artificial intelligence (AI) in English language learning, especially in the context of Teaching English as a Foreign Language (TEFL), has a positive impact on students' speaking and writing abilities in accordance with grammar. However, these findings are not absolute but depend on several conditions that must be met.

The positive impact involves enhancing students' English language skills in both speaking and writing. AI can detect and correct students' grammar errors, as well as alleviate the burden on teachers in improving the English language proficiency of students. However, specific conditions must be met, such as active collaboration between teachers and students. The role of the teacher in TEFL remains primary, while AI functions as an additional tool.

From an ontological perspective, the use of AI in English language learning opens up a new understanding of linguistic entities and realities. Through grammar analysis, AI enables a deep understanding of the meaning of words and phrases, introducing students to a broader linguistic reality.

From an epistemological perspective, the use of AI expands students' knowledge by providing in-depth analysis of learning progress. Personalized learning, access to global sources of knowledge, and the development of language skills are also epistemological benefits of utilizing AI.

From an axiological perspective, the use of AI reflects positive values related to technology in education. Even distribution of educational accessibility, language and cultural diversity, equality in learning, the development of digital ethics, and the importance of collaboration between humans and technology are values reflected in the utilization of AI.

As a recommendation, it is crucial for teachers to have a good understanding of both technology and pedagogy to guide students wisely in using AI. Emphasizing effective collaboration between teachers and students is essential to achieve the best results from the use of AI. Additionally, restrictions and guidance in the use of AI should be implemented to prevent students from becoming overly dependent and to ensure awareness of limitations. The awareness of the teacher's role as a guide remains key to the successful implementation of AI in English language learning.

**REFERENCES**

Alhalangy, A. G. I., & Abdalgane, M. (2023). Exploring the impact of AI on the EFL context: A case study of Saudi universities. *Journal of Intercultural Communication*, *23*(2), 41–49. https://doi.org/10.36923/jicc.v23i2.125

Arini, D. N., Hidayat, F., Winarti, A., & Rosalina, E. (2022). Artificial intelligence (AI)-based mobile learning in ELT for EFL learners: The implementation and learners’ attitudes. *International Journal of Educational Studies in Social Sciences (IJESSS)*, *2*(2). https://doi.org/10.53402/ijesss.v2i2.40

Arora, N. (2010). *Educational philosophy*. Saurabh Publishing House.

Best, J. W., & Kahn, J. V. (2006). *Research in education* (10th ed.). Pearson Education Inc.

Bowell, T., & Kemp, G. (2010). *Critical thinking a concise guide* (3rd ed.). Routledge.

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, *9*(2), 27–40. https://doi.org/10.3316/QRJ0902027

Burhanuddin, N. (2018). *Filsafat ilmu*. Prenadamedia.

Chopra, R. (2005). *Academic dictionary of  philosophy*. Isha Books.

Cottrell, S. (2005). *Critical thinking skills  developing effective analysis and argument* (1st ed.). Palgrave Macmillan.

Dewi, H. K., Putri, R. E., Rahim, N. A., Wardani, T. I., & Pandin, M. G. R. (2021). The use of AI  (artificial intelligence) in English learning among university student: case study in English Department, Universitas Airlangga. *SocArXiv*. <https://doi.org/10.31235/osf.io/x3qr6>

Enzelina, Y. N., Santosa, M. H., & Paramartha, A. A. G. Y. (2023). Exploring English language education major university lecturers’ and students’ perceptions of AI-based applications in post-pandemic learning. *SALEE: Study of Applied Linguistics and English Education*, *4*(2), 487–502. https://doi.org/10.35961/salee.v4i2.843

Fitria, T. N. (2021). The use technology based on artificial intelligence in English teaching and learning. *ELT Echo : The Journal of English Language Teaching in Foreign Language Context*, *6*(2). https://doi.org/10.24235/eltecho.v6i2.9299

Jacquette, D. (2002). *Ontology central problems of philosophy* (J. Shand, Ed.; 1st ed.). Acumen.

Li, Y. (2022). Teaching mode of oral English in the age of artificial intelligence. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.953482

Marzuki, Widiati, U., Rusdin, D., Darwin, & Indrawati, I. (2023). The impact of AI writing tools on the content and organization of students’ writing: EFL teachers’ perspective. *Cogent Education*, *10*(2). https://doi.org/10.1080/2331186X.2023.2236469

Morgan, H. (2022). Conducting a qualitative document analysis. *Qualitative Report*, *27*(1), 64–77. https://doi.org/10.46743/2160-3715/2022.5044

Musthoza, D. A., Syariatin, N., Tahalele, O., Telussa, S. I., Rasmita, R., & Mokodenseho, S. (2023). Analyzing the impact of artificial intelligence (AI) on the future of English language teaching and learning. *Journal On Education*, *6 (1)*(Vol 6 No 1 (2023): Journal On Education: Volume 6 Nomor 1 Tahun 2023), 1549–1557.

Shu, X., & Xu, C. (2022). Artificial intelligence-based English self-learning effect evaluation and adaptive influencing factors analysis. *Mathematical Problems in Engineering*, *2022*. https://doi.org/10.1155/2022/2776823

Smith, N. (2022). *Introduction to philosophy*. Open Stax.

Suaedi. (2016). *Pengantar filsafat ilmu*. IPB Press.

Toar, D., Sumakul, Y. G., Hamied, A., & Sukyadi, D. (2022). language education and acquisition research network artificial intelligence in EFL classrooms: friend or foe?. *LEARN Journal.* https://so04.tci-thaijo.org/index.php/LEARN/index

Tulasi, L., & Rao, C. S. (2023). Integration of AI-technologies into ELT: A brief study. *Journal for Research Scholars and Professionals of English Language Teaching*, *7*(38). https://doi.org/10.54850/jrspelt.7.38.003