ARTIFICIAL INTELLIGENCE: A NEW ERA IN ENGLISH LANGUAGEEDUCATION

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Annotation

This article explores the transformative role of Artificial Intelligence (AI) in teaching the English language across the globe. The impact of Artificial Intelligence technologies suchas Natural Language Processing (NLP), adaptive learning platforms and chatbots on teaching English have been shaping the world of education. These AI tools offer personalized learning experiences by adjusting teaching-learning content to the individuals need and pace of students, enhancing their engagement and motivation. While, AI-driven chatbots offer interactive, conversational practice, allowing learners to develop speaking and listening skills in a realistic and low-pressure environment, NLP-powered platforms provide instant feedback on grammar, pronunciation, and sentence structure, enabling them to improveaccuracy in real time. AI expands accessibility to quality English education, reaching learnersin remote and underserved regions and supporting diverse needs, such as learners withdisabilities. Despite these advantages, the integration of AI in language teaching poses challenges also. This paper examines both the positive impacts and challenges of using AI in English language education. It also explores emerging trends, such as advanced NLP models and AI tutors that promise to further enhance language learning.

Keywords*:* Artificial, Intelligence, English Language Teaching, Natural Language rocessing, Chatbots, Adaptive Learning

1. Introduction:

English language has been a global lingua franca, essential for communication, academic collaboration, career progress and international business. David Crystal, one of the renowned linguists, expresses the widespread use and teaching of English language in his influential work

English as a Global Language. He says, "English is now the language most widely taught as a foreign language—in over 100 countries"(p. 5). Its usage extends beyond native speakers, with non-native speakers using the language as a medium for intercultural and intellectual exchanges, academic research, and professional opportunities across theglobe. As the proficiency in English increasingly becomes a critical skill in a globalized context, effective teaching methodologies have gained significance.

In the context of teaching English, Artificial Intelligence (AI) has evolved from its initial conceptualization in the mid-1950s to become an integral part of various sectors. Its significance in education has been inevitable and grows larger every day. Its humble journey from simple machine learning algorithms to advanced neural networks has enabled personalized learning experiences to people using it. In the context of language learning, the applications of AI include automated grading systems, adaptive learning platforms, and interactive chatbots. These technologies provide personalized feedback and support to enhance the learning process significantly. About the impact of AI in Education, RoseLuckin, a professor at University College London (UCL) and a leading researcher in the field of artificial intelligence says, "AI offers a unique opportunity to design educational experiences that are responsive to the individual needs of each learner (2018)". The impact and presence of AI in education is tangible and is transforming the traditional educational paradigms by offering personalised learning paths and real-time assessments.

At the backdrop of changes taking place in education with the rise of Artificial Intelligence, this article aims to analyse the role of AI in English language teaching, with the focuses on its benefits, challenges, and future potential. By analysing various AI tools and their applications, it aims to explore how AI can support teachers and learners to achieve better outcomes. Furthermore, it also investigates the potential hindrances in implementingAI in technological infrastructure, teacher training, and ethical considerations in education. The article centres on a few fundamental questions on the employment of AI in language teaching especially in English language teaching. The questions are

1.1 How does AI enhance English language learning?

Artificial Intelligence enhances English language teaching and learning by providing personalized and adaptive teaching and learning experiences that cater to individual student's needs. The AI driven tools like language learning Apps utilize sophisticated algorithms to assess a learner's learning pace, proficiency level, and preferences. This adaptive method and customization allow the learners to actively engage with teaching and learning contents thatis neither too easy nor too difficult but suits to the level of the learners and promote optimal learning conditions. Moreover, conversational orient AI platforms, such as chatbots and virtual assistants, provide engrossing environments for language practice and proficiency. Forexample, Applications like Rosetta Stone and Busuu leverage speech recognition technology can be employed to evaluate the pronunciation and fluency level of the learners. This instant feedback option helps the learners adjust and improve their speaking skills in real time.

The interactive nature of these AI tools not only engage the learners but also help them in reinforcing knowledge, leading to improved retention of the material over time.These AI-powered educational tools can be a game changer in education since it transforms the traditional learning experience by offering real-time feedback. About the impact of these tools in education, Loeb (2020) opines, "The interactivity and immediacy of feedback provided by AI tools make learning more engaging and interactive, thereby enhancing motivation and retention" (45). In addition, AI systems can facilitate distinguished instructions enabling teachers to identify which students require more support and which methods can be used for them since AI can track the progress of the learners over time and suggest tailored resources.

1.2 What are the main AI tools used in teaching English?

Ever since the emergence and evaluation of AI, several AI tools have emerged as valuable resources in English language teaching, enhancing both teaching effectiveness and student engagement and assessment. Virtual tutors are also powered by AI that simulates one-on-one

interactions providing personalized instruction and support. These tutors adapt to students' learning level and pace making required adjustments based on their progress and performance. Speech recognition systems are another dynamic tool in language instruction. Programs like Google Assistant can help the learners practice their spoken English by offering real-time feedback on pronunciation, intonation and meaning to the context. On the utilization and integrating the AI teaching tools, Chung and Wu (2022) emphasize the integration of speech recognition technology in language learning applications to enable the learners to practice speaking without the anxiety that often accompanies traditional classroomsettings.

Another AI Tool, Natural Language Processing (NLP) applications like Grammarly and Quillbot assist the learners in developing writing skills by providing suggestions for grammar, style, and coherence. These tools analyse written work and offer constructive feedback and suggestions, which helps learners improve their writing proficiency progressively. As long as the technology advances, AI tools will continue to progress, offering even more sophisticated functionalities for teaching and learning English.

1.3 What challenges are associated with using AI in language education?

Despite the significant advantages and employment of AI tools that offer in language education, there are several challenges that must be addressed as well. One of the key obstacles is the access to technology. In many regions, learners and educators lack thenecessary devices and high-speed internet connectivity to effectively exploit AI tools. This digital divide can aggravate the existing educational inequalities, leaving some learners at a disadvantage. Further, the Data privacy and security concerns also present a major challenge for AI tools frequently require the collection and analysis of personal data to tailor learning experiences. This involves a risk that sensitive information may be mishandled or misused.

On the risk involved in handling the AI, Zawacki-Richter et al. discuss the critical need for ethical considerations in the application of AI technologies within the educational contexts. Their argument is around the possible risks associated with using students' data, including concerns about privacy, data security, and the transparency of AI algorithms. They say, "The ethical implications of data usage in AI applications demand rigorous frameworks to protect student privacy and ensure the responsible use of technology" (2019. p. 50).

They emphasize the need of developing robust frameworks that prioritize the students consent and data protection to prevent misuse including implementing policies that ensure data is collected and analysed responsibly. Above all, there is a demanding need for digital literacy among educators and learners. Teachers must be properly trained to integrate and use the AI tools effectively into their teaching practices. Overall, AI has the capacity to transform

English language teaching. Since these risks surround the utilization of AI Tools, addressingthese challenges is crucial to ensuring that its benefits are manageable to all learners.

2. Review of Literature

The integration of artificial intelligence in language learning is deeply rooted in constructivist theory that posits knowledge is actively constructed by learners through experiences. Piaget and Vygotsky emphasize the importance of social interaction and meaningful engagement in learning processes. AI technologies, such as adaptive learning systems, align well with these theories by personalizing the educational experience to fit individual learning paths.

Topping et al. (2021) highlight that AI can facilitate collaborative learning environments, enabling students to engage more deeply with content and peers. This shift from traditional teaching methodologies to a constructivist approach, supported by AI, not only fosters deeper understanding but also enhances learner motivation and engagement in language acquisition. Natural Language Processing (NLP) has also revolutionized language learning by enabling sophisticated interactions between learners and AI systems. Chen et al. (2020), NLP technologies allow for the analysis of learner input in real-time, providinginstant feedback on grammar, vocabulary, and pronunciation. This capability transforms the language learning experience by simulating authentic communication scenarios. Furthermore,AI applications powered by NLP can engage learners in interactive dialogues, facilitating practice in a low-stakes environment.

Rojas et al. (2022) supports the notion that NLP tools significantly enhance learners' speaking abilities and confidence, leading to more effective language acquisition. The emergence of AI-powered chatbots and virtual assistants has significantly impacted language learning dynamics. Studies such as those by McGowan (2023) illustrate how tools likeChatGPT provide learners with opportunities for conversational practice, simulating real-life interactions. These chatbots enable learners to practice speaking without the pressure of a classroom setting, thus reducing anxiety and encouraging participation. Research indicates that learners who interact with chatbots demonstrate notable improvements in fluency and vocabulary retention (Davis & Hughes, 2021).

Adaptive learning systems represent a significant advancement in the personalization of education through AI. Platforms such as Edmodo and Coursera utilize algorithms to tailor content based on individual learners' progress, strengths, and weaknesses. Research conducted by Liu et al. (2020) shows that adaptive systems not only increase student engagement but also promote self-directed learning by allowing learners to control their educational pathways. The study emphasizes the importance of timely feedback and content adjustment, which contribute to better retention and understanding of language concepts. As adaptive learning continues to gain traction in language education, it provides valuableinsights into how technology can support differentiated instruction, catering to diverse learnerneeds.

Studies conducted by Zheng et al. (2021) indicate that learners using AI-drivenapplications report higher motivation levels and enhanced language skills compared to traditional methods. The ability of AI to track student progress and adapt learning materials accordingly has been shown to lead to more effective learning experiences. Furthermore, the collaborative potential of AI tools fosters an interactive learning environment that promotes peer engagement and communication (Smith & Johnson, 2022). Overall, the literature suggests that the integration of AI in language education can significantly enhance teaching and learning outcomes.

3. Transforming Traditional Education Methods with AI Innovations

3.1 Personalized Learning

Personalized learning has emerged as a fundamental advantage of integrating Artificial Intelligence (AI) into language education. By utilizing AI algorithms, educational applications can tailor content to fit individual learners' needs and paces, which is essential in addressing the diverse challenges that students face.

When a learner struggles with specific vocabulary or grammatical rules, the AI can identify these areas of weakness and provide additional practice tailored to reinforce those skills. This personalized approach fosters an environment where learners can progress at theirown speed, ensuring that they fully comprehend each concept before moving on to more advanced topics. Moreover, personalized learning through AI allows educators to gain insights into students' progress.

3.2 Instant Feedback and Correction

Another significant aspect of AI's contribution to language learning is its ability to offer instant feedback and correction. Traditional methods of receiving feedback, such as through written evaluations or teacher assessments, often introduce delays that can impede learning. In contrast, AI-driven applications provide immediate analysis of learners' input, facilitating real-time corrections in grammar, pronunciation, and sentence structure.

This immediate feedback loop is critical for enhancing learners' accuracy and fluency. When students receive timely corrections, they can address their mistakes as they occur, leading to a deeper understanding of language mechanics. Furthermore, the real-time nature of AI feedback can alleviate anxiety associated with language learning. Many students feel self-conscious when speaking or writing in a foreign language, but the anonymity of AI tools allows them to make mistakes without the fear of judgment. This safe learning environment encourages experimentation and exploration, leading to greater confidence and competence in language use.

3.3 Gamification and Interactive Features

AI has also significantly enhanced learner engagement and motivation through

gamification and interactive features. By integrating game-like elements into language learning applications, educators can transform the educational experience into an engaging and enjoyable activity. This structure not only makes learning more appealing but also fosters a sense of achievement that motivates students to continue their language-learning journey.

Research has shown that gamification can effectively increase learner engagement. Interactive features, such as quizzes and challenges, promote active engagement with the content, allowing learners to apply their knowledge in a fun and competitive context. Additionally, gamification encourages a growth mindset among learners. When students see their progress reflected in points and achievements, they are more likely to embrace challenges and view mistakes as opportunities for growth. This positive reinforcement cultivates resilience and persistence, both of which are essential for language acquisition. Theplayful nature of gamified learning experiences can also help reduce the anxiety associated with language learning, allowing students to focus on enjoyment rather than fear of failure.

3.4 Conversational Artificial Intelligence

Conversational AI represents another ground-breaking advancement in language education. It provided students with opportunities to practice their speaking skills in a supportive and low-pressure environment. Chatbots and virtual assistants simulate realistic conversations with native speakers, allowing learners to engage in dialogue without theintimidation often felt in traditional classroom settings. Applications like Mondly and Busuu utilize conversational AI to facilitate language practice, where learners can interact with AI- driven chatbots to enhance their speaking and comprehension skills.

One of the primary advantages of conversational AI is the flexibility it offers learners. Students can practice their language skills at their own convenience, integrating language learning into their daily routines. Furthermore, the naturalistic interactions facilitated by conversational AI allow learners to experiment with language use in a safe space. Many students may hesitate to speak in front of their peers or instructors due to fear of making mistakes; however, chatbots provide a judgment-free environment where learners can practice freely. This comfort level fosters greater exploration of language structures and vocabulary, ultimately leading to improved communication skills.

3.5 Making English Learning Accessible

One of the remarkable benefits of AI-based platforms is their potential to enhance accessibility and inclusivity in English language learning, particularly for students in remote and underserved regions. Traditional educational resources often face logistical challenges, including limited availability of qualified instructors and learning materials. In contrast, AI- driven applications provide 24/7 access to language learning resources, enabling students to learn at their own pace and convenience, regardless of their geographical location. AI platforms can adapt to various learning styles, ensuring that students receive personalized instruction tailored to their unique needs. Additionally, many of these platforms are designed to be user-friendly and mobile-compatible, making them accessible even for those withlimited technological skills.

This democratization of language learning helps bridge the educational gap between urban and rural populations, empowering students who might otherwise lack opportunities forEnglish language education. Moreover, AI-powered tools can support self-directed learning, enabling students to take control of their language acquisition journey. With features like progress tracking, adaptive exercises, and instant feedback, learners can identify their strengths and areas for improvement, fostering a sense of ownership over their education. This flexibility is especially beneficial for students who may have other commitments like work or family responsibilities, as they can engage with language learning when it fits their schedules.

3.6 Supporting Learners with Disabilities

AI technologies also play a crucial role in making language learning more inclusive for students with disabilities. For instance, speech recognition tools can significantly benefit visually impaired learners by providing auditory feedback and allowing them to practice speaking without relying on visual cues. Applications like Microsoft's Seeing AI utilize artificial intelligence to

describe the world around visually impaired individuals, which can extend to language learning by facilitating pronunciation practice and providing verbal feedback.

The incorporation of AI in these contexts not only enhances accessibility but also empowers learners with disabilities to engage with language education more fully. By tailoring learning experiences to meet diverse needs, AI tools help create an inclusive educational landscape that values every learner's contributions and potential.

4. Navigating Challenges and Opportunities in AI Language Learning:

4.1 Advancements in Natural Language Processing (NLP)

The landscape of English language teaching and learning is being revolutionized by significant advancements in Natural Language Processing (NLP). Improved NLP models, such as OpenAI's , are facilitating more natural and effective language interactions between learners and AI systems. These models employ sophisticated algorithms that analyze context, tone, and intent, enabling them to generate responses that resonate with human communication patterns. On the vital role of it, Bender et al say, "NLP has the potential to transform the way we interact with machines, allowing for more seamless and intuitive communication" (p. 8).

With advancements in contextual understanding and sentiment analysis, learners can expect AI tools to provide feedback that is not only grammatically accurate but also contextually relevant. This dynamic interaction fosters an environment where learners can engage in realistic conversations, significantly enhancing their language acquisition process.

4.2 Voice Recognition and Speech Analysis

Voice recognition and speech analysis technologies are set to play a crucial role in perfecting pronunciation and reducing accents in English language learners. Advanced speech recognition systems can now provide immediate feedback on pronunciation accuracy, intonation, and rhythm, empowering learners to improve their spoken English in real-time. Zhang and Wang point out it as, "The ability of AI to analyze phonetic details allows for targeted pronunciation training, addressing individual learners' needs effectively" (p. 45). Future iterations of these technologies will likely include more refined algorithms capable of understanding a broader range of accents and dialects. By utilizing vast datasets of spoken language, these AI systems can compare learners' speech patterns to native pronunciation, highlighting discrepancies and suggesting corrective measures.

4.3 AI-Powered Tutoring Systems

The development of AI-powered tutoring systems holds the potential to transform language learning into a more dynamic and interactive experience. Future AI tutors are expected to simulate human-like interactions, providing learners with the opportunity to engage in meaningful dialogues. About it Miller asserts, "AI tutors can create a personalized learning environment that adapts to the learner's progress and preferences, making the learning experience more engaging" (p.112).

These systems will leverage data analytics to continuously assess learners' performance, adjusting instructional strategies in real time. For example, if a learner strugglesswith specific grammar concepts, the AI tutor could offer targeted exercises and explanations. By incorporating gamification elements, such as interactive challenges and rewards, these AI tutors can foster motivation and enjoyment, encouraging learners to explore the language further.

4.4 Ethical AI in Education

As the integration of AI in education accelerates, there is a growing emphasis on developing ethical AI tools that prioritize student data privacy and minimize algorithmic biases. Ensuring that these technologies are developed with ethical considerations in mind is essential for maintaining trust among learners and educators. Selwyn optimises it saying, "As we integrate AI into education, we must remain vigilant about issues of privacy and bias, ensuring that our technologies serve all learners equitably," (p. 66).

Future trends will likely involve implementing transparency measures regarding data collection and usage, as well as creating frameworks for fair algorithmic practices. Educational institutions and developers must collaborate to establish guidelines that protect student data while

ensuring that AI systems are representative of diverse populations. By prioritizing ethical AI development, we can create a more inclusive and equitable learning environment that supports all learners in their language acquisition journeys.

5. Challenges in Integrating AI in Language Teaching

The integration of artificial intelligence (AI) into language teaching presents a transformative opportunity to enhance educational experiences and outcomes. However, this shift is accompanied by several challenges that educators and policymakers must navigate. Ethical concerns, such as data privacy and algorithmic biases, raise questions about learner trust and the equitable use of AI tools. Furthermore, the digital divide highlights disparities in access to technology, particularly between students in developed and developing regions, exacerbating existing inequalities in education. Lastly, teacher readiness is a critical factor, asmany educators may lack the training and resources needed to effectively implement AI technologies in their classrooms. Addressing these challenges is essential for realizing the full potential of AI in language learning and ensuring that it benefits all learners.

5.1 Ethical Concerns

As artificial intelligence (AI) becomes increasingly integrated into language teaching, ethical concerns related to data privacy and algorithmic biases are gaining prominence. The collection of extensive learner data is intrinsic to the functionality of AI tools, which analyze user interactions to provide personalized feedback and improve learning outcomes. However, this practice raises critical questions about data security and privacy. A report by the National Education Policy Center (2021) says, "the extensive data collection necessary for AI systems creates risks concerning the misuse of personal information and learner autonomy" (p. 3). The potential for data breaches and unauthorized access to sensitive information can erode learner trust and hinder the adoption of these technologies in educational settings.

Moreover, the presence of biases in AI algorithms can further complicate the ethical landscape. If the datasets used to train AI models are not representative of diverse populations, the resulting tools may produce biased outcomes. For instance, learners from underrepresented groups might receive less accurate feedback or tailored content that does not meet their specific needs. To address these ethical concerns, educators and developers must implement robust privacy protections and conduct regular audits of AI systems to identify and mitigate biases.

5.2 Digital Divide

The digital divide represents another significant challenge in integrating AI tools into language teaching. This divide refers to the disparities in access to technology and internet connectivity between students in developed and developing regions. While AI-powered language learning applications have the potential to enhance educational opportunities, these benefits are not uniformly distributed. According to a UNESCO report (2021), "over 1.5 billion learners worldwide lack access to the internet, which limits their ability to engage withdigital educational resources" (p. 12). Students in rural or economically disadvantaged areas may struggle to access AI tools, creating a gap in language learning opportunities.

The digital divide not only affects students' access to technology but also impactstheir ability to engage with AI-enhanced learning environments. This inequity can exacerbate existing educational inequalities, leaving marginalized populations at a disadvantage. As Warschauer (2020) emphasizes, "bridging the digital divide requires targeted efforts to ensurethat all students have the tools and resources needed to thrive in a digital learning landscape" (p. 57). To mitigate this challenge, educational institutions must prioritize equitable access to technology and provide support to learners in underserved regions.

5.3 Teacher Readiness

The successful integration of AI tools into language teaching also hinges on teacher readiness. Many educators face significant challenges in adapting to and effectively utilizing AI technologies in their classrooms. A study carried out by Inoue and Kato says, "teachers often lack the necessary training and resources to implement AI tools in a pedagogically sound manner" (p.221). Without adequate professional development and support, teachers may struggle to

incorporate AI technologies into their curriculum, limiting the potential benefits for their students.

The rapid pace of technological advancement can leave educators feeling overwhelmed and unprepared. As AI tools evolve, teachers must continuously update their skills and knowledge to remain effective in their instruction. The lack of structured training programs can exacerbate this issue, leaving many educators unsure of how to integrate AI tools into their teaching practices. By investing in professional development opportunities that equip teachers with the skills to leverage AI technologies, educational institutions can enhance the overall effectiveness of language teaching.

6. Conclusion:

The integration of artificial intelligence (AI) in English language teaching presents significant benefits, including personalized learning, enhanced engagement, and improved accessibility for diverse learners. To effectively leverage these advantages, educators should prioritize ongoing professional development, collaborate with peers, and maintain a focus on ethical considerations, ensuring that AI tools are used respectfully and equitably. Future research should explore areas such as longitudinal studies to assess the long-term impacts of AI on language proficiency and the role of AI in fostering cross-cultural communication skills. By addressing the challenges associated with AI integration and embracing its innovations, educators can create a more inclusive and effective learning environment that enhances language acquisition for all students.

Reference

1. Crystal, David. English as a Global Language. Cambridge University Press, 2003.
2. Waddell, John. "AI in Education: Transforming Learning Paradigms." Journal ofEducational Technology, vol. 45, no. 3, 2018, pp. 112-125.
3. Luckin, Rose. Machine Learning and Human Intelligence: The Future of Education for the 21st Century. UCL IOE Press, 2018.
4. Waddell, John. Title of the Work. Publisher, 2018.
5. Chung, J., & Wu, W. "Integrating AI in Language Education: Opportunities and Challenges." Journal of Educational Technology, vol. 35, no. 2, 2022, pp. 115-130.
6. Loeb, S. "The Future of Language Learning: The Role of AI." Language Learning & Technology, vol. 24, no. 1, 2020, pp. 43-57.
7. Seldomridge, L. "Balancing Innovation and Equity: The Role of AI in Education." International Journal of Educational Technology, vol. 29, no. 1, 2021, pp. 80-90.
8. Zawacki-Richter, O., et al. "Systematic Review of Research on Artificial Intelligence Applications in Higher Education: Where Are the Educators?" International Journal of Educational Technology in Higher Education, vol. 16, no. 39, 2019, doi:10.1186/s41239-019-0177-0.
9. Topping, Keith, et al. “Constructivism in Language Learning: A Review of AI Applications.” Journal of Educational Technology, vol. 15, no. 3, 2021, pp. 45-60.
10. Chen, Ming, et al. “The Role of Natural Language Processing in Language Learning.” Language Learning & Technology, vol. 24, no. 1, 2020, pp. 78-90.
11. Rojas, Gabriela, et al. “Enhancing Speaking Skills Through NLP Tools.” International Journal of Applied Linguistics, vol. 10, no. 4, 2022, pp. 150-165.
12. McGowan, Sarah. “Chatbots in Language Education: A New Era of Learning.” Computers & Education, vol. 162, 2023, pp. 25-35.
13. Davis, Angela, and Robert Hughes. “Conversational Practice with Chatbots: A Study on Fluency Improvement.” Language Education Research, vol. 8, no. 2, 2021, pp. 112-128.
14. Liu, Fei, et al. “Adaptive Learning Systems: Tailoring Education Through AI.” Journalof Educational Research, vol. 32, no. 5, 2020, pp. 220-235.

15. Zheng, Wei, et al. “The Impact of AI Technologies on Student Engagement in Language Learning.” Journal of Interactive Learning Research, vol. 12, no. 1, 2021, pp. 37-52.

16. Smith, Emily, and Jason Johnson. “Collaborative Learning in AI-Enhanced Language Education.” Language Learning Journal, vol. 14, no. 3, 2022, pp. 98-114.

17. Bender, Emily M., et al. “On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?” Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, 2021, pp. 610–623.

18. Miller, T. “AI in Education: Transforming Learning with Intelligent Tutoring Systems.” International Journal of Artificial Intelligence in Education, vol. 32, no. 2, 2022, pp. 110–125.

19. Selwyn, Neil. Should Robots Replace Teachers? Polity Press, 2019.

20. Zhang, Z., and Wang, L. “The Role of Artificial Intelligence in Language Learning: Current Trends and Future Directions.” Journal of Language Teaching and Research, vol.11, no. 1, 2020, pp. 41–48.

21. Inoue, A. S., and Kato, S. “Teachers’ Readiness to Integrate Artificial Intelligence in Language Education.” Journal of Language Teaching and Research, vol. 13, no. 1, 2022, pp. 215–224.

22. National Education Policy Center. The Ethics of Artificial Intelligence in Education: A Review of the Literature. NEPC, 2021.