



## **Revolutionizing AI in Education: A Review of Ethical Challenges and Frontiers**

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### **Abstract**

*AI driven language learning platforms and applications have revolutionized traditional teaching methods by offering interactive and adaptable tools. These platforms provide personalized study schedules and appropriate materials using natural language processing (NLP) and machine learning algorithms based on the participants' proficiency level, learning preferences and skills. The integration of AI in foreign language education through virtual reality (VR) and augmented reality (AR) enables immersive learning experiences. With the help of such interactive virtual environments, our students may practice their speaking skills in authentic contexts while gaining a greater awareness of cultures. AI also has an impact on language assessment since automated evaluation systems examine students' spoken and written language. Immediate feedback on pronunciation, grammar and proficiency enables targeted interventions to effectively address specific knowledge gaps. AI-driven language translation services help overcome language barriers, fostering intercultural dialogue and international cooperation. These programs help people with different linguistic origins to exchange ideas, promoting multi-cultural understanding and fostering a more interconnected network. However, the use of AI in language learning raises ethical concerns, including data privacy and biases in language models. To ensure responsible and efficient foreign language learning, it is crucial to balance maximizing AI's potential with addressing its challenges. AI's revolutionizes foreign language education by making it more individualized, immersive, and inclusive for students with different learning styles. In this regard, teachers' role is decisive in unleashing AI's full potential to foster linguistic competency and embrace a linked global community by its conscious and ethical use.*

**Key words:** AI platform; ethics issues; foreign language learning; linguistic competency; multicultural understanding

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## 1. Introduction

Technology has introduced us to an era of innovative ideas that impact every aspect of our lives. Artificial intelligence has introduced innovations in education, transforming school management and teacher-student interactions. A variety of inventions, including artificial intelligence, have been developed, thus making it possible for humans to socialize better than ever before. In education, one of the most interesting advancements has been ChatGPT, a language model that has revolutionized personalized learning. Revolutionary new technology overcomes barriers of resistance to change, due to its practical applications in education. The methods used to teach students have evolved, enhancing their skills through artificial intelligence. Thus, the ChatGPT platform understands natural language, enabling each student to have a personalized educational experience where they can learn at their own pace in their preferred style (Huawei Technologies, 2023). In this prospect, the learning community has shown a critical interest in the impact of AI-powered technologies like ChatGPT on academic writing. Many believe that aids have made accessing information easier and faster for students and researchers. Nevertheless, others argue that they might undermine creativity and analytical reasoning skills. While there has been considerable debate regarding this issue, it is without any doubt that AI can update the education sector, leading to a more personalized and effective learning system for all users.

AI offers multiple benefits in the language acquisition process by creating an interactive and personalized learning environment. AI systems provide opportunities for authentic language practice through simulated conversations, contextualized exercises, and real communication scenarios, continuously adapting the level and complexity of the content to the learner's progress (Istrate, 2022). The technology allows instant pronunciation correction, provides personalized grammar explanations, and detects common error patterns, proposing targeted exercises to fix them. Through a sophisticated analysis of user performance, platforms can generate optimized learning paths, focusing on consolidating active vocabulary, improving fluency, and developing communication skills in various contexts. This adaptive approach, combined with instant feedback and continuous practice opportunities, significantly accelerates the language learning process, while maintaining learner motivation and engagement. The ethical approach to the use of AI and data in teaching and learning supports teachers to understand the potential that AI applications and the use of data can have in education (*Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for teachers*, 2022). Awareness of the possible risks of using AI is necessary so that it is possible to engage positively, critically, and ethically with new systems and explore their full potential.

## 2. Artificial intelligence

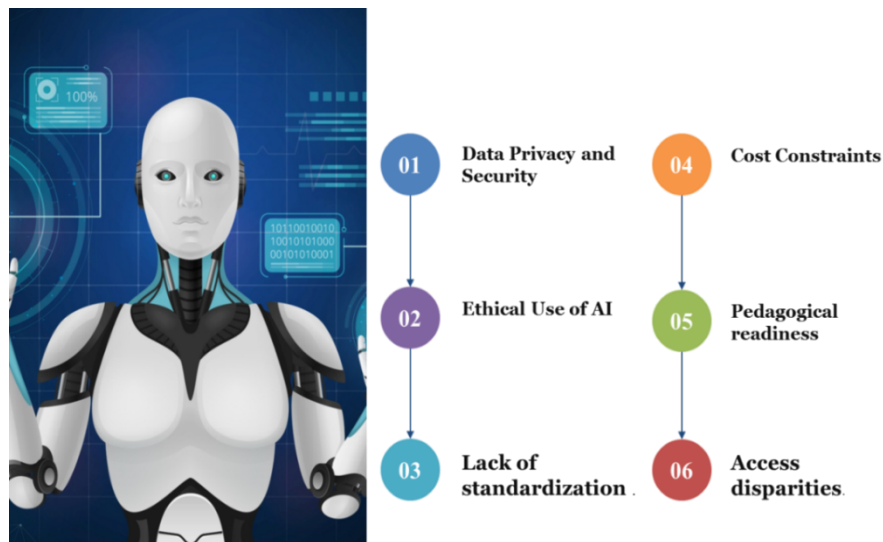
ChatGPT is a language model that allows people to interact with a computer in a more natural and conversational way. GPT stands for “Generative Pre-trained Transformer” and is the name given to a family of natural language models developed by open Artificial Intelligence (AI). This is also known as a form of generative AI because of its ability to produce original results. (UNESCO, 2023, p.5)

Machines mimic human intelligence using a technology known as artificial intelligence, primarily employed in computer systems. Over the years, AI has had a variety of implementations, such as expert systems, natural language processing, speech recognition, and

machine vision, among others (Qadir, 2023). This has enabled these technologies to automate tasks that require intelligence, empowering machines to carry them out accurately. Human-like texts precede artificial intelligence-type speeches; however, they only describe what has always been done. Artificial intelligence elaborates more on developing machines with virtual minds that can perform several complex actions such as decision-making, planning strategies, analysing data, and so forth. (Halaweh, 2023).

### **2.1. Ai ability and functionality**

One of the most remarkable linguistic characteristics of ChatGPT is lexical diversity. The platform's extensive data and knowledge of nearly all world languages enabled it to generate a broad corpus of words and terminologies besides creating meaningful texts. This Chatbot lexicon is somehow ambiguous and redundant. For the consistency of the argument, many ChatGPT users in our faculty, for example, did not improve their vocabulary; they do not use them in their studies, either in oral nor written productions. As long as Ai usability is concerned, the awareness of its function is compulsory. For example, the tasks performed by ChatGPT are not limited to generating knowledge as a response to the questions shared by its users; this app may play the role of a student, teacher, or machine; therefore, the human has the ability to control Ai at all levels. As depicted in the figure below, AI provides many facilities that help its users to surf into the world of knowledge where any question could be answered anytime and anywhere.



**Figure 1: Ai regulations and limits**

Regardless of its accessibility and availability, many ethical concerns might arise upon its use. The content provided by ChatGPT platform is narrative, metaphoric and literary whereby many common words are redundant in its texts including: ‘unravelling’, ‘a tapestry of’, ‘overall’, ‘delve into’, ‘in this article’, ‘in summary’, ‘in the dynamic world of’, ‘embark on a journey’, ‘in the realm of’, ‘explore’, ‘captivate’, ‘leverage’, ‘elevate’, ‘unwavering’, ‘seamlessly’, ‘dynamic’, ‘ubiquitous’, ‘ameliorate’, ‘endeavour’, ‘prevail’, ‘nefarious’, ‘eco linguistic’, ‘ventriloquist’, ‘convergence’, ‘proximity’, ‘multifaceted nuances’, ‘constancy’, ‘meticulous’, ‘prosperity’, ‘scrutinize’, ‘seamlessly’, ‘quixotic’, ‘embrace’, ‘explore’, ‘inquiry’, ‘nihilistic’, ‘sunder’, ‘awkward’, ‘immense’ even the users do not concentrate much on the type of information provided and they unintentionally use them in their written works. Though any user is able to have access to their platforms, yet there are advanced platforms that require additional fees with enhanced access to advanced knowledge, whereby these services are mostly premium.

By delivering interactive and adaptable tools, AI-powered language learning platforms and applications have altered conventional teaching approaches. These platforms provide tailored study plans and material recommendations based on the users' learning preferences and competence levels using natural language processing (NLP) and machine learning algorithms (Adiguzel, Kaya, & Cansu, 2023). Immersive experiences are facilitated by the incorporation of AI into the study of languages through virtual reality<sup>2</sup> (VR) and augmented reality<sup>3</sup> (AR). In order to practice the foreign language skills in authentic contexts and gain a greater awareness of intercultural communication, students might interact in virtual language environments (Verma, Lamsal, & Verma, 2022).

## **2.2 The role of Artificial Intelligence (AI)**

The incorporation of Artificial Intelligence (AI) in education is to a far reaching extent a promising experience. Nevertheless, it brings forth notable challenges that require careful consideration and action. In fact, artificial intelligence has provided the educational sector with the potential to improve the traditional approaches of teaching to elaborative techniques (Atlas, 2023; Gocen & Aydemir, 2020). AI platforms found a gap in teaching/learning foreign languages too, providing students and teachers with an effective learning experience to improve their academic achievements. As maintained by Sok and Heng (2023, p.4) “*unlike traditional tutoring methods, ChatGPT is a potential tool that can be used as an ideal personal tutor for students*”. AI rapid progress is still affecting the future of education, especially within the dawn of emerging tools to monitor learners' performance like ChatGPT. The popularity of this AI model is associated with several benefits including:

- Data analysis
- Personalization
- Natural language processing
- Solving complex problems
- Education
- Translation
- Healthcare

ChatGPT is accessible to everyone with its user-friendly and versatile nature, while there are advanced versions that are premium and requires payment. This Chabot offers an opportunity for those who are unfamiliar with a specific topic or specialty where the users need just to type any question they have in mind and simply interact with AI conversational agents. Additionally, the speed to receive feedback is very satisfactory as it has constructed a global reputation for ChatGPT to be an ideal tool with decontextualized background knowledge. Still, the responses provided by AI virtual platforms require careful consideration in terms of originality and credibility, besides the literary and metaphoric expressions used within the responses (Son, Ružić, & Philpott, 2023).

The use of AI helps its users to expand their stock of knowledge by answering their questions as a response to their requirements, as asking for a text with specific number of lines and information, or longer paragraphs including an analysis of a specific passage, besides the reformulation or rephrasing of certain sentences; its function is kind of a partner whose responsive and available, It appears as though there is a wise friend in your hands. To enhance one's skills and competencies in writing, this language model can be a useful tool to ameliorate

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<sup>2</sup> A reality technology that replaces a real-life environment with a stimulated one (computer-generated simulation).

<sup>3</sup> Reality technology that enhances a real-life environment by adding digital elements throughout the use of camera on a smartphone (gaming tool)

the writing skills and enrich as well vocabulary and terminologies. Its capacity exceeds the other traditional Chat bots, which makes it an innovative resource for a special learning adventure (Chinonso, Theresa, & Aduke, 2023).

### **2.3 AI potential to revolutionize education**

AI is crucial in education for students at all levels. A key benefit of AI in education is its capacity to personalize the learning experience. The concept of a virtual tutor who can adjust his teaching to our learning preferences helps a lot in individualizing our learning and breaking the cycle of monotony in traditional education. Learning platforms equipped with AI capabilities can analyse vast amounts of data to determine the subjects in which learners struggle the most. This ensures that no student is left behind, allowing teachers to intervene at the right moment. The context of learning is like having a coach who continually motivates you to win. Artificial Intelligence in Education refers to the technology behind virtual Chat bots like Alexa and Siri. AI has technically invaded academic institutions. This is not an alarming situation, it could be a blessing in disguise if we maintain to professional standards and adhere to ethical guidelines. It offers personalized attention and support by customizing learning experiences for students while ensuring availability, virtual tutoring, accessibility, inclusivity, and convenience (UNESCO, 2023).

Common learning AI tools are helpful for students and teachers; they help them learn at their own pace and earn certificates as well. Some applications require payment, while others are free; these tools support deep learning. Applications like Grammarly, for example, assist in writing quality as it provides feedback and alternatives for complex sentences or words, while data analysis could be done through IBM Watson Studio. The Tinywow app helps users create written content of varying lengths depending on their specific needs. In this regard, we have compiled a list of the following applications:

*Coursera, TinyWow, edX, Udacity, TensorFlow, PyTorch, Fast.ai, IBM Watson Studio, Kaggle, DeepAI, AI4ALL Open Learning, Grammarly, Quillionz, Zoho Books, Netex Learning, Brainly, Khan Academy, Blackboard Learn, Pearson's AI Products, ScribeSense, and Duolingo.*

## **3. Referencing ChatGPT information**

An important thing to consider is that Chat GPT was developed by OpenAI as a language model while using it as a source of information. Do not treat any answer from Chat GPT as an original source, because everything ChatGPT generates is computerized responses (Stokel-Walker, 2023). In case you would like to make a reference to the Chat GPT program you will include the name of the platform "Chat GPT" plus the date of the conversation or the date of generation of the particulars (Rudolph, Tan, & Tan, 2023). Velibor and Indrasen, 2023). You may also include a statement that Chat GPT is a language model made by OpenAI using artificial intelligence. For example: OpenAI's Chat GPT. (2023, April 11). [Conversation Transcript].

Learning through AI is more:

- Personalized
- Instantaneous
- Multimodal
- Adaptive
- Flexible

### **3.1 Personalization**

The concept of "personalized" in AI-driven learning is the system's ability to customize educational content and experiences based on the user's characteristics, including their background knowledge, learning styles, and preferences. Personalized learning improves

engagement and boosts positive outcomes by aligning instructional materials with the special needs of learners. AI could fulfil this through analysing the learner data, adapting the curriculum in real-time and providing individualized feedback. For example, algorithms can modify task complexity or suggest targeted resources, improving the learner's comprehension of the content.

### ***3.2 Instantaneous learning***

AI can provide immediate feedback, a key feature often missing in traditional educational settings. In traditional classrooms, feedback loops can be slow—homework or assignments may take several days to grade, and this latter leads to delays in corrections. On the contrary, AI systems provide instantaneous evaluation of the learner's responses, enabling students to receive immediate feedback. This immediacy speeds up the learning process, reinforcing concepts while they are newly introduced and prevent as well misunderstandings. Research in the field reveals that immediate feedback improves retention and strengthens self-regulation among users.

### ***3.3 Multimodel learning***

AI-driven virtual platforms improve multimodal learning by incorporating multiple forms of media—such as text, audio, video and interactive simulations—into a cohesive educational experience. This multimodal approach is based on cognitive load theory, which suggests that learners process information effectively when presented in diverse formats that align with their competencies. AI can reinforce these modalities based on the learner's preferences and the nature of the content. For example, ambiguous scientific concepts can be better clarified through visual diagrams, or textual explanations, addressing different sensory channels.

### ***3.4 Adaptive learning***

Adaptive learning in AI-based learning systems is deeply rooted in the idea that the educational context should respond to the 21st-century needs of learners. Adaptive learning systems progressively evaluate learners' progress, identifying areas of weakness and adjusting the difficulty level of tasks. Research has exhibited that adaptive learning can enhance learners' progress by maintaining a high level of challenge (Son, Ružić, & Philpott, 2023) thereby avoiding frustration (when activities are too difficult) and monotony (when activities are too easy) . AI systems use machine learning algorithms to identify patterns in learner behaviour. This enables the continuous adjustment of instructional content and assessment strategies, creating a space that empowers the efficiency and effectiveness of learning.

### ***3.5 Flexible learning***

Flexibility is one of the main advantages of AI in education; it enables learners to access materials and learning resources at their convenience, regardless of time and location. This flexibility supports asynchronous learning, where the users can engage with the content at their own pace. This latter is functional since it increases learners' autonomy, motivation and academic performance. In addition to this, AI's can provide personalized, adaptive learning experiences, effectively addressing the challenges presented by diverse learner populations and the limitations inherent in traditional, fixed-schedule instructional models

The use of ChatGPT should be controlled at all levels; its excessive use by students may lead to passivity and dependency. It is important to assure that technology is a double-edged sword, with its positivity and negativity that should be wielded carefully. It affords fascinating accessibility to information, in parallel; it could be misused and abused by its users (Azaria, 2022; Sok & Heng, 2023). As maintained by Kasparov (2017): creating better humans will always be more important than creating smarter machines.

#### **4. AI Dependency**

Given that ChatGPT can produce a massive amount of data instantly, students may use it for cheating on examinations, homework, and this can lead to discrepancies in learning results and the rise of academic misconduct that harms the quality of teaching and learning' (Sok & Heng, 2024, p. 2)

AI use could have advantages when used properly, it fosters students' assessment, it improves pedagogical practices and provides as well a virtual tutoring. However, its extensive use may lead to overreliance, creating passive learners. Over dependency on AI tools is a real problem. In light of ChatGPT's convenience, students, especially those who prefer procrastinating and doing their homework before late deadlines, tend to use this virtual platform to accomplish their work fully without using their analytical thinking and problem-solving skills (Sok & Heng, 2023, 2024). Using ChatGPT has been claimed to negatively impact the learners' fundamental skills, including cognitive skills (critical thinking, memory, and decision-making), creative skills (creativity, innovation), and social and emotional skills (communication, emotional intelligence), besides academic skills. These skills play a crucial role in students' vocational success. ChatGPT overuse may lead to many other unfavourable outcomes, such as a lack of creativity and poor reasoning abilities. Another issue faced by AI use is cheating and plagiarism. Many higher educational (HE) institutions and academic staff are concerned about the high risks of plagiarism, as students use ChatGPT to correct their homework and write full essays for final year's research projects without proper citations, referencing and quoting.

Considering the potential risks associated with using ChatGPT, it is important to suggest some recommendations. First, although some HE institutions have banned ChatGPT content, this emerging AI tool could be taken considerably in education and research; workshops on using AI ethically are compulsory. Second, maximizing the benefits of using ChatGPT is important, while assuring inclusive and ethical use of ChatGPT. Third, HE institutions should plan for blended training and deliver ChatGPT innovative techniques to students and teachers while maintaining ownership and ethics to adhere to academic principles. Thus, instead of restricting ChatGPT use, training days must be organized at schools and universities to improve the quality of education. It is pivotal to use AI tools to outline or brainstorm but not to produce full research articles or texts; by doing so, the users prevent all academic misconduct. When generating ideas, the information generated must be accurate through editing and proofreading. If used properly, AI applications, including ChatGPT, could turn its curse into a blessing.

#### **5. Ethical issues of using artificial intelligence in education**

Educational institutions must securely store data and implement policies for protecting and ethically using personal data by the General Data Protection Regulation (GDPR). Given the large volume of data needed to train AI systems, alongside the automated nature of algorithms, and the scalability of applications, the use of AI raises serious questions regarding personal data, data protection, and respect for privacy. Poorly designed or misused AI applications could lead to negative consequences. Teachers need to be aware of and ensure that the AI systems they use are reliable, fair, safe, and trustworthy and that the management of educational data is secure, protects individuals' privacy, and is used for the common good. Ethical AI is the development, implementation, and use of AI following ethical norms, principles, and core values (*Ethical Guidelines on Using Artificial Intelligence (AI) and Data in Teaching and Learning for Teachers*, 2022). The ethical challenges of artificial intelligence applications are related to issues of privacy, surveillance, autonomy, bias, and discrimination (Akgun & Greenhow, 2022).



**Figure 2.** Ethical issues of using AI in education

Privacy breaches arise as people expose excessive personal information to online platforms. The ethical issue in using AI is forcing students and parents to use these algorithms as part of their education, even if they explicitly agree to give up privacy (Regan, Steeves, 2019). Artificial intelligence systems require users' consent to access their data. However, many people give their consent without knowing or considering the extent of the information they are sharing, such as language spoken, racial identity, biographical data, and location.

Another ethical concern is related to surveillance systems that collect detailed information about the actions and preferences of students and teachers. Predictive artificial intelligence systems can integrate tracking mechanisms to assess students' learning performance, strengths, weaknesses, and patterns. Teachers who access social networks for pedagogical purposes face issues such as accountability and availability (Asterhan & Rosenberg, 2015). Monitoring students' actions is a teacher's responsibility and an effective pedagogical tool for intervening in dangerous online cases. Tracking students' online conversations and actions can limit their participation in the learning event and make them feel unsafe to take ownership of their ideas. It is challenging to ensure safety if students know that AI systems are being used to monitor and control their thoughts and actions.

Difficulties can also be identified when surveillance systems trigger issues related to autonomy, which consists of the person's ability to act based on their interests and values (Akgun & Greenhow, 2022). Artificial intelligence systems affect the autonomy of students and teachers, as well as their ability to govern their own lives (Piano, 2020). Bias and discrimination are central issues in debates about the ethics of AI in education (Krutka et al., 2019). Gender bias is one of the most obvious forms of this problem. A notable example concerns how AI models applied to language translation incorporate societal biases and gender stereotypes into data (Miller et al., 2018). Several problematic cases of racial bias are associated with AI facial recognition systems.

## **6. Conclusion**

AI integration in education presents many challenges, opportunities, and threats. By tailoring learning experiences to each student's unique styles and interests, AI can enhance the educational process and improve its pre-designed outcomes. Imagine a classroom where students receive personalized instruction. This approach allows them to progress at their own pace and explore subjects that truly engage them. Since the digital revolution has transformed many aspects of our



lives, it is time for us to exploit the power of AI and bring it into the classroom. By doing so, we can create a more inclusive, efficient, and effective learning environment that prepares students for a challenging future. Education will undergo a profound transformation by adopting artificial intelligence, enabling the adaptation and personalization of curricular content. AI can create a flexible educational environment, one that is responsive to individual needs. Each student will be able to benefit from an educational path adapted to their own pace and learning styles. Given the growing integration of AI in education, the ethical use of data systems must be ensured consistently and collaboratively at the managerial level. The ethical use of AI in education requires the active involvement of students, teachers, and educational institutions, with each playing a unique role in ensuring responsible implementation.

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