

# Unlocking the Potential of AI in Language Teaching: Opportunities and Risks

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**Abstract:** This study explores the integration of Artificial Intelligence (AI) technology into language teaching to enhance learning outcomes and address contemporary educational challenges. Drawing on the research findings and expert insights, this presentation highlights the benefits and potential issues associated with AI adoption in language education. The author discusses the pros and cons of AI integration into language education. The benefits of AI integration include personalized learning (AI-driven tools offer tailored learning experiences, improving engagement and proficiency levels) and Enhanced Efficiency (automation of administrative tasks allows educators to focus on interactive teaching methods). However, challenges and considerations consist of Data Privacy (concerns regarding the collection and use of student data in AI-powered systems) and Bias in Algorithms (risks of perpetuating biases and inequalities through AI algorithms). By examining these aspects, this presentation aims to provide educators with valuable insights into leveraging AI technology effectively while mitigating potential risks and optimizing language teaching methodologies.

**Keywords:** AI Integration, Language Education, Challenges and Considerations, Pros and Cons, Methodologies

## INTRODUCTION

In recent years, integrating Artificial Intelligence (AI) technology has garnered significant attention across various fields, including education. Language teaching stands to benefit from the innovative capabilities AI offers to enhance learning outcomes and address contemporary educational challenges. This study explores the multifaceted landscape of AI integration in language education, delving into its potential to revolutionize traditional teaching methodologies.

Drawing on a synthesis of research findings and expert insights, this presentation illuminates the nuanced benefits and potential issues associated with AI adoption in language education (Eslit, 2023, Ou et al., 2024; Son et al., 2023). Through a comprehensive examination of the pros and cons, this study aims to provide educators with a deeper understanding of how AI can reshape language learning paradigms. The benefits of AI integration, such as Personalized Learning and Enhanced Efficiency, offer promising avenues for improving engagement and proficiency among language learners. However, challenges such as Data Privacy and Bias in Algorithms underscore the importance of critically evaluating the ethical and practical implications of AI implementation in educational settings (Kuddus, 2022; Sharpe, 2024).

By navigating these complexities, this study seeks to equip educators with valuable insights and strategies to effectively leverage AI technology while navigating potential risks. This study endeavors to contribute to the optimization of language teaching methodologies in the AI era.

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### ***A Brief Review of Literature***

Exploring AI Integration in Language Teaching, Hadjiphanis et al. (2023) delved into the integration of Artificial Intelligence (AI) technology in language teaching, emphasizing its potential to enhance learning outcomes and address contemporary educational challenges. The author draws on research findings to underscore the benefits of AI integration, such as personalized learning and enhanced efficiency. Furthermore, Hadjiphanis et al. (2023) critically examined the challenges associated with AI adoption, including data privacy concerns and algorithmic biases.

Patty (2024) provides insights into the transformative role of Artificial Intelligence (AI) in education, with a focus on language learning. It discusses the various applications of AI in language education and highlights its potential to enhance learning outcomes. Focusing on language learning, Patty (2024) discussed the evolution of automation leading to AI in educational settings. It explores the potential benefits and challenges associated with integrating AI into language education and provides a comprehensive overview of the topic. With a focus on language learning, Patty (2024) discussed the evolution of automation leading to AI in educational settings. It explores the potential benefits and challenges associated with integrating AI into language education, providing a comprehensive overview of the topic.

Wei (2023) explored the continuous integration of AI into language education and presented seven categories of AI technology and application. Specifically, it examines the use of AI in computer-assisted language learning (CALL), including natural language processing (NLP) and data-driven approaches. Through a mixed-methods study, Wei (2023) investigated the effects of AI-mediated language instruction on English learning achievement and second language (L2) motivation. This study offers valuable insights into the implications of AI integration for language-learning outcomes.

Through a comprehensive literature review, Kussin et al. (2023) discussed the advantages and drawbacks of integrating AI into language education. It highlights the benefits of AI-driven personalized learning experiences and the automation of administrative tasks while also addressing the potential risks related to data privacy and algorithmic biases. The author provides valuable insights into leveraging AI effectively to optimize language-teaching methodologies.

Navigating the Challenges in AI Integration for Language Learning, Mavropoulou and Arvanitis (2023) explored the advantages and challenges associated with using artificial intelligence in language education. It critically examines issues such as data privacy concerns and algorithmic biases, while acknowledging the potential benefits of AI-driven personalized learning. By synthesizing expert insights, this study aims to provide educators with valuable guidance on effectively leveraging AI technology in language teaching.

## AI Development and Influencing in Education

The history of AI and generative AI dates back several decades. Lee (2023) indicates the key milestones and developments of AI in education.

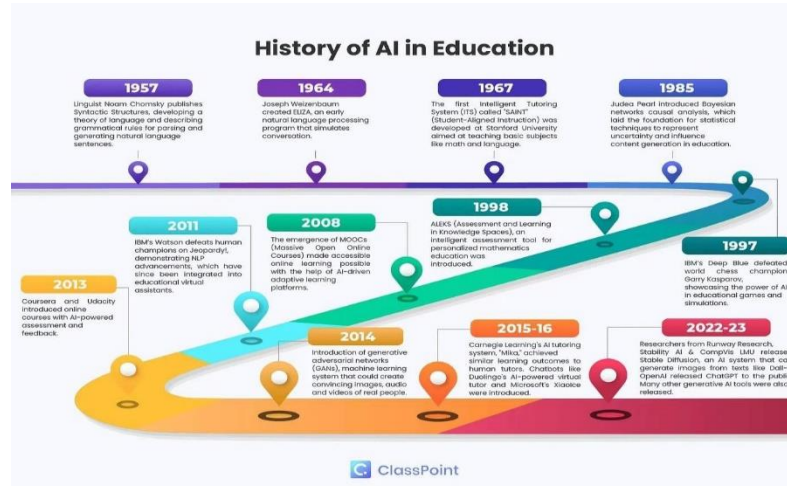


Fig. 1. History of AI in Education (Lee, 2003)

As shown in Fig 1, Lee (2003) summarizes the history of AI in education in the following:

1. Early Exploration (1950s-1960s): The term "artificial intelligence" emerged, alongside the development of initial natural language processing programs such as ELIZA and the inception of the first Intelligent Tutoring System (ITS) known as "SAINT."
2. Structural Development (1970s-1980s): This era witnessed the introduction of Bayesian networks for causal analysis by Judea Pearl and the establishment of the inaugural publication of the International Journal of Artificial Intelligence in Education.
3. Progress in Machine Learning and NLP (1990s-2000s): The defeat of world chess champion Garry Kasparov by IBM's Deep Blue heralded the commencement of AI integration into educational games and simulations. Additionally, the rise of Massive Open Online Courses (MOOCs) emerged. Noteworthy NLP-based AI applications such as Rosetta Stone Language Learning Software, Turnitin, and ALEKS were also introduced.
4. Emergence of Chatbots (the 2010s): AI made notable advancements in generating human-like text (e.g., GPT-2 and GPT-3), image generation from the text (e.g., DALL-E and Stable Diffusion), and the implementation of AI tutoring systems like "Mika." Chatbots gained prominence for their role in supporting language learning.
5. Popularization Phase (2020s): Generative AI tools became widely accessible, leading to their application in streamlining administrative tasks and enhancing learning experiences across various educational contexts.

### Discussion: Pros and Cons of AI Integration in Language Education

AI integration in language education offers various advantages and disadvantages:

### Pros

Three significant benefits arise from incorporating AI into language education:

1. **Tailored Learning Experiences:** AI-powered tools provide customized learning experiences, catering to the unique needs of each student, thereby boosting engagement and skill levels (Talkpal AI, 2024).
2. **Streamlined Teaching Processes:** AI streamlines administrative duties for educators, enabling them to dedicate more attention to interactive teaching approaches and fostering student participation (Walden University, 2024).
3. **Augmented Student Involvement:** AI's use in education amplifies student engagement and motivation, leading to enriched learning encounters (Adlawan, 2024).

### Cons

These three primary drawbacks exemplify the integration of AI in language education:

1. **Reduced Human Interaction:** Incorporating AI may result in diminished human interaction, crucial for language learning, given its social nature (Redes, 2023).
2. **Challenges to Critical Thinking:** Excessive reliance on AI tools may present obstacles to the development of students' critical thinking skills (Harrow International School, n.d.).
3. **Risk of Bias and Misinterpretation:** AI systems have the potential to perpetuate biases and misinterpretations, affecting the accuracy and impartiality of language learning outcomes (Carrara, 2023).

According to Open AI (n.d.) and Mohan (2024), the pros and cons of AI integration in language education can be summarized in Fig. 2 below:

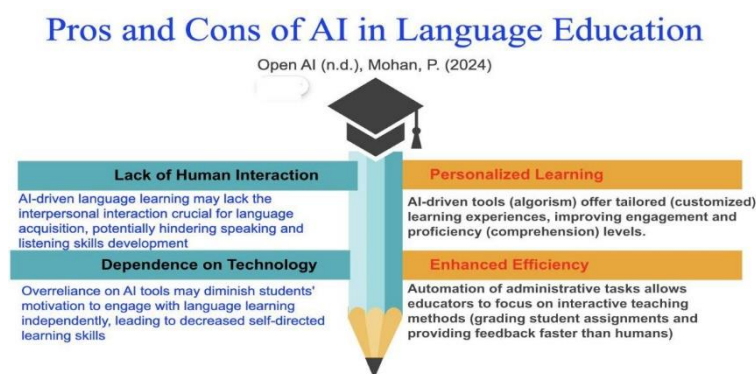


Fig. 2. The summary of pros and cons of AI integration in language education

### Challenges and Considerations of AI Integration in Language Education

In the realm of language education, the integration of artificial intelligence (AI) holds great promise for enhancing learning outcomes and facilitating personalized instruction. However, this integration also presents a set of challenges and considerations that educators and stakeholders must carefully navigate. Understanding these challenges is essential for effectively harnessing the potential of AI while mitigating potential drawbacks.

The Challenges and Considerations of AI Integration in Language Education delves into the complexities and nuances surrounding the adoption of AI tools in language learning environments. It explores various obstacles such as the need for human interaction, the interpretation of contextual language nuances, and the reliance on vast datasets. Additionally, it examines considerations related to maintaining student engagement, fostering critical thinking skills, and addressing potential biases inherent in AI systems.

By examining these challenges and considerations, educators and policymakers can make informed decisions regarding the implementation of AI technologies in language education. Moreover, they can develop strategies to maximize the benefits of AI integration while minimizing its limitations, advancing the field of language education in the digital age.

The following factors require careful consideration:

Data Privacy Concerns:

- **Unauthorized Access:** AI applications in educational settings have the potential to accumulate extensive student data, prompting concerns about unauthorized access and potential misuse.
- **Data Security:** It is imperative to ensure the security of student data stored within AI-driven systems to prevent breaches and safeguard sensitive information.
- **Compliance with Regulations:** Educational institutions must comply with data privacy regulations such as GDPR and COPPA to uphold student privacy and rights.

Bias in Algorithms:

- **Data Bias:** AI algorithms trained on biased datasets may perpetuate existing biases, resulting in unfair treatment or discrimination against specific student demographics.
- **Algorithmic Bias:** Inherent biases in algorithms can lead to decisions that favor certain groups or reinforce stereotypes, thereby influencing student learning experiences.

Ethical Implications:

- The utilization of biased algorithms raises ethical concerns related to fairness, transparency, and accountability in educational practices.

These considerations underscore the importance of implementing AI technologies responsibly in educational settings, prioritizing student privacy, equity, and ethical standards.

### ***Utilizing AI Technology Alongside Risk Management Approaches***

The ever-changing business landscape presents diverse risks, requiring advanced methods for identification, evaluation, and mitigation. Artificial Intelligence (AI) offers a powerful solution when integrated with risk management strategies. The following seven approaches are emphasized how AI can empower risk management:

1. **Data Quality Assurance:** Ensure the caliber and inclusivity of the data utilized for training AI models to diminish bias and bolster precision (Way with Words (n.d.)).
2. **Strategic Development:** Formulate distinct objectives and tactics for incorporating AI into educational settings, with a focus on cooperation and continual assessment (Rajaratnam, 2024).
3. **Bias Mitigation:** Employ strategies to alleviate biases within AI language models, such as the compilation of varied datasets and adjustments to algorithms (Božić & Poola, 2023).
4. **Ethical Conduct:** Embrace ethical and responsible conduct in AI utilization, encompassing careful management of sensitive data and adherence to privacy protocols (Consorte, 2023).
5. **User Feedback Mechanisms:** Establish avenues for gathering input from users to consistently refine AI systems and proactively address concerns (Božić & Poola, 2023).
6. **Customization:** Employ AI to tailor learning experiences, accommodating individual preferences, and enhancing engagement (Bhaduri, 2023).
7. **Proactive Risk Prediction:** Deploy AI algorithms for anticipatory risk evaluation to refine decision-making processes and optimize resource allocation (Kalogiannidis et al., 2024).

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## ***Foreign Language Teachers and AI Applications***

### ***AI-Enhanced Language Teachers***

There are not specific qualifications to use AI technology for language teachers, but there is a need for professional development to effectively integrate AI into lessons. Language teachers interested in using AI can benefit from courses that cover:

- The fundamentals of AI in language teaching: <https://hongkongtesol.com/courses/ai-language-teaching> or <https://academy.europa.eu/courses/artificial-intelligence-ai-and-language-teaching-challenges-and-possibilities>)
- How to evaluate and select different AI tools: <https://hongkongtesol.com/courses/ai-language-teaching> or <https://academy.europa.eu/courses/artificial-intelligence-ai-and-language-teaching-challenges-and-possibilities>)
- How to integrate AI into tasks like grading, feedback, assessment, and lesson planning: <https://hongkongtesol.com/courses/ai-language-teaching>

Overall, a willingness to learn and explore innovative technologies is key for language teachers who want to use AI in their classrooms.

If language teachers use AI applications such as ChatGPT and/or Google Gemini for their teaching purposes, what can they do?

Gatto (2024) provides some tips to enhance speaking skills using Google Gemini and sample prompts: 1) practice conversations using prompts and follow-up questions or addition of conversational details; 2) role-playing by setting up scenarios; 3) analyze recordings by using recorded speech to check grammar, fluency, and vocabulary or error correction with the created scripts; 4) Enhance Vocabulary & Phrasal Verbs with word association by providing synonyms, antonyms, and example sentences in context, Fill-in-the-blanks by creating sentences with blanks and suggesting appropriate options and explain their usage, and Story Creation by suggesting interesting verbs and phrasal verbs to incorporate into created narrative; 5) Personalized Practice with Identify Weak Areas by analyzing speech recordings or written samples to pinpoint specific areas for improvement and Create Custom Prompts by designing prompts relevant to field, hobbies, or current events.

ChatGPT (2024) recommends writing exercises: 1) Assign writing prompts to students and have them use ChatGPT or Google Gemini to generate responses. This can help improve writing skills, vocabulary, and grammar usage. Teachers can then provide feedback on the generated responses.

Kandybovich (2023) suggests language games by creating language games where students interact with ChatGPT or Google Gemini to practice language skills in a fun and engaging way. For example, students can play games like "20 Questions" or "Word Association" using the AI as a partner or judge.

Furze (2024) recommends proofreading and editing by providing students with passages or essays to proofread and edit using suggestions from ChatGPT or Google Gemini. This activity can help students identify errors, learn from suggested corrections, and improve their writing skills.

Wayne (2023) explores the capabilities of ChatGPT and suggests listening comprehension practice by providing audio clips or recordings of native speakers speaking English, then having students use ChatGPT or Google Gemini to transcribe the speech. This enhances listening skills and helps students understand natural language usage.

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## **Prompts for AI to help Language Educators**

### *Lesson Planning*

- Generate creative writing prompts based on a specific topic or skill level <https://teachingenglishwithoxford.oup.com/2024/03/12/prompts-for-ai-lesson-planning/>.
- Develop engaging conversation exercises around a particular theme <https://www.aiforeducation.io/prompt-library>.

### *Activity Creation*

- Design interactive quizzes or games to reinforce grammar concepts <https://www.aiforeducation.io/prompt-library>.
- Create role-playing scenarios for students to practice speaking skills <https://www.aiforeducation.io/prompt-library>.

### *Student Support*

- Provide personalized feedback on student writing, highlighting strengths and weaknesses <https://www.amazon.co.jp/ChatGPT-Language-Teachers-Productivity-Essentials/dp/1915607167>.
- Offer clear explanations of complex grammar rules or idiomatic expressions <https://team-gpt.com/blog/chatgpt-prompts-for-teachers/>.

## **Using AI Apps for Language Learners**

AI language learning apps typically do not require any specific technical skills from the learner. These apps are designed to be user-friendly and accessible for anyone who wants to learn a new language.

- An internet connection: Many AI features rely on cloud-based processing: <https://wordtap.net/vocabulary-learning-game/>, <https://www.quora.com/What-are-the-server-requirements-for-a-language-learning-AI-model-app-to-run>.
- A smartphone or device to run the app: The app will need to be compatible with your device's operating system: <https://belitsoft.com/custom-elearning-development>.

AI language apps can be a great tool for language learners, offering features like:

- Personalized learning: AI can adjust the difficulty and content based on your progress: <https://intellias.com/how-ai-helps-crack-a-new-language/>.
- Interactive exercises: AI chatbots can simulate conversations for speaking practice: <https://towardsdatascience.com/building-an-ai-powered-language-learning-app-learning-from-two-ai-chatting-6db7f9b0d7cd>.
- Instant feedback: AI can provide feedback on pronunciation and grammar: <https://wordtap.net/vocabulary-learning-game/>.

## **Challenges with AI Applications**

The individual exhibits a personal stake in acquiring knowledge pertaining to AI applications, namely Grammarly, ChatGPT, or Google Gemini, with a primary intention of utilizing these tools for the preparation of educational materials or for instructional purposes within a classroom setting. (See Fig. 3) The ensuing recommendations are envisioned to possess universal relevance for language educators.

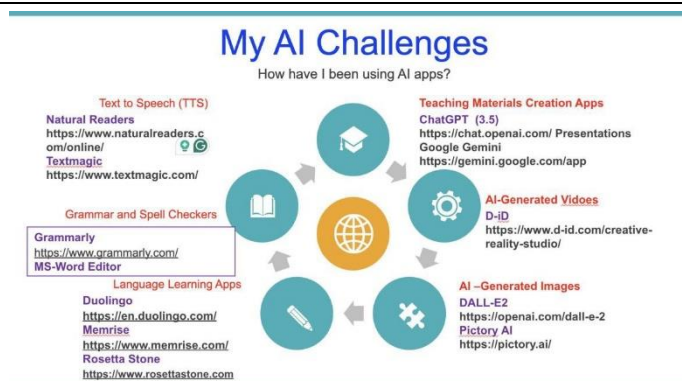


Fig. 3. My Challenges with AI apps

### Spelling and Grammar Checker

1. Grammarly – an AI writing assistant (<https://www.grammarly.com>)

### Text to Speech (TTS)

1. Natural Reader for listening to scripts lacking audio files (<https://www.naturalreaders.com/online/>)
2. Textmagic for converting text to speech (<https://www.textmagic.com/>)

### Creating teaching materials with ChatGPT or Google Gemini

1. Formulating quizzes (e.g., vocabulary quizzes, mid-term, final tests) based on text scripts.
2. Generating keywords from paraphrased texts.
3. Identifying supplementary reading materials or references.

### Video creation

1. Utilizing a trial version of the D-ID agent from Generative AI Technology for self- introductions (<https://www.d-id.com/creative-reality-studio/>) [4]
2. Employing a trial version of Pictory AI for self-introductions (<https://video.pictory.ai/preview/2228134476065495981713579024844>)

## CONCLUSION

In conclusion, the integration of Artificial Intelligence (AI) technology into language teaching offers promising opportunities to revolutionize traditional educational practices. Through personalized learning experiences and enhanced efficiency, AI-driven tools have demonstrated their potential to significantly improve student engagement and proficiency levels. However, as with any technological advancement, there are challenges and considerations that must be addressed.

Data privacy concerns regarding the collection and use of student data in AI-powered systems raise important ethical questions that necessitate careful management and regulation. Additionally, the risks of bias in algorithms underscore the importance of implementing measures to mitigate potential inequalities and ensure fair treatment for all learners.

By acknowledging these benefits and challenges, educators can effectively leverage AI technology to optimize language teaching methodologies while proactively addressing potential risks. Through ongoing research, collaboration, and responsible implementation, AI integration in language education holds the promise of fostering inclusive, innovative, and effective learning environments for all students.



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