

## Leveraging AI for Vocabulary Acquisition and Pronunciation Enhancement

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### المخلص

تركز هذه الدراسة على كيفية تأثير تقنيات الذكاء الاصطناعي على اكتساب المفردات وتحسين النطق في تعلم اللغة. وقد أجرى الباحثون مراجعة منهجية لاستكشاف مدى استخدام متعلمي ومعلمي اللغة الإنجليزية كلغة أجنبية للذكاء الاصطناعي. وتركز هذه المراجعة على فهم فوائد وعيوب تكامل الذكاء الاصطناعي. وقد أجابت الدراسة على ثلاثة أسئلة بحثية رئيسية: ما هو تأثير استخدام الذكاء الاصطناعي في تحسين المفردات والنطق على تعلم اللغة؟ ما الذي يمكن أن يفعله الذكاء الاصطناعي لتعزيز تعلم لغة جديدة، وخاصة المفردات والنطق؟ كيف يمكن للمعلمين والمتعلمين استخدام هذه التطورات لتحسين الكفاءة اللغوية واستقلالية المتعلم؟ وشارك في البحث عدد من الطلاب ومدرسي اللغة الإنجليزية كلغة أجنبية حول تعلم اللغة المعززة بالذكاء الاصطناعي. وبالتالي، فإن الدراسة عبارة عن تحليل للمقالات البحثية والأعمال السابقة مقترنة بمقابلات مفتوحة لجمع البيانات. وتبين النتائج إمكانات المنصات القائمة على الذكاء الاصطناعي للتعلم الشخصي، والتعليقات الفورية، والتجارب المباشرة. ويمكن لهذه النتائج أن تحسن الطريقة التي نقوم بها بتدريس اللغة وأيضًا تطوير المتعلمين المستقلين. وتساعد الدراسة في تطوير سياسات تعلم اللغة التي تعزز التواصل الفعال في عالم اليوم.



### Abstract

This paper focuses on how AI technologies can influence vocabulary acquisition and pronunciation improvement in language learning. The researchers conducted a systematic review to explore how EFL learners and teachers adopt or refrain from adopting AI. This review focuses on understanding the benefits and drawbacks of AI integration. Three key research questions guide the investigation: What effect does AI use in tailored vocabulary and pronunciation enhancement has on language learning? What is it that AI would do to enhance learning of a new language, particularly vocabulary and pronunciation? How can educators and learners use these advances to improve language competency and learner autonomy? A number of investigations on AI-enhanced language learning devices on EFL students and teachers are involved in the research. The study, therefore, is an analysis of research articles and previous works combined with open-ended interviews for data collection. The findings demonstrate the potential of AI-based platforms for personalized learning, immediate feedback, and immersive experiences. These innovations can improve the way we teach language and also develop independent learners. The study helps in developing complete language learning policies that promote effective communication on today's interconnected world.

**Keywords:** *AI technologies, immersive environments, learner autonomy, personalized learning, virtual assistant*

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## Introduction

Language learning and education constitute pivotal pillars in fostering effective communication, cultural comprehension, and personal growth. Recent times have witnessed a burgeoning interest in harnessing the power of Artificial Intelligence (AI) to bolster language learning endeavors. The potential of AI technologies to sift through vast troves of data and furnish personalized learning experiences has engendered a paradigm shift in language education, rendering it more potent, engaging, and accessible on a global scale.

Within the realm of language learning, AI holds profound significance as it adeptly addresses the manifold needs and challenges faced by language learners. Conventional approaches often falter in providing tailored support and feedback, impeding learners' progress. However, the advent of AI has unleashed novel possibilities, as language-learning platforms can now meticulously analyze learners' performance data, discern areas for improvement, and provide tailored content and exercises to cater to each learner's unique preferences. Additionally, AI's sophisticated capabilities do extend to the establishment of immersive learning experiences, where learners are engaged in realistic, context-rich scenarios. These immersive environments, facilitated by AI, can significantly enhance the depth and effectiveness of language acquisition by simulating real-world language use.

The surging interest in employing AI for language learning can be attributed to the rising demand for efficacious language education solutions in our interconnected world. As globalization continues to shape societies, multilingual proficiency becomes an indispensable asset, empowering individuals to thrive in diverse cultural and professional milieus. AI's capacity to furnish personalized instruction, adaptive learning trajectories, and real-time feedback harmonizes seamlessly with the objectives of language education, empowering learners to cultivate their vocabulary, pronunciation, and overall linguistic proficiencies more efficiently and autonomously.

The main focus of this paper is to delve into the role of AI in advancing vocabulary acquisition and pronunciation enhancement within language learning. Emphasis will be placed on examining the benefits and constraints of AI technologies in this context, drawing insights from a plethora of pertinent studies and research. Furthermore, this paper will provide guidance on best practices for educators and learners to adeptly harness AI-based tools, fostering learner autonomy and tailored learning pathways. Moreover, the paper shall forecast potential advancements in AI technologies for language learning, laying the groundwork for future research endeavors and shedding light on promising possibilities that AI presents to shape the trajectory of language education. Through such a comprehensive exploration, the aim is to furnish an intricate understanding of the profound impact and significance of harnessing AI in language learning endeavors. Therefore, the study attempts to address these questions:

1. How does using AI in language learning affect personalized vocabulary and pronunciation?
2. How will AI technology improve language learning, particularly vocabulary and pronunciation?
3. How can educators and learners use these advances to improve language competency and learner autonomy?

## Literature Review

### **Overview of Existing Research and Studies on AI in Language Learning, with a Focus on Vocabulary Acquisition and Pronunciation Improvement**

The extensive research on AI in language learning, with a focus on vocabulary acquisition and pronunciation improvement, demonstrates the growing interest in leveraging AI technology to enhance language education (Divekar et al., 2022; Hamuddin et al., 2020; Huang & Wang, 2021; Ran et al., 2021). These studies reveal diverse applications of AI in language learning, emphasizing its potential to provide personalized experiences, real-time feedback, and targeted practice opportunities for learners. For example, AI-based pronunciation education improves English vocabulary acquisition (Kazu & Kuvvetli, 2023), and total physical response embodiment teaching enhances French vocabulary retention (Huang & Wang, 2021). AI speech recognition models offer real-time feedback on learners' pronunciation, contributing to vocabulary acquisition (Ran et al., 2021). Virtual assistants like Lyra enhance speaking performance and vocabulary acquisition (Hamuddin et al., 2020). AI and Extended Reality (XR) technologies improve foreign language acquisition, including vocabulary and pronunciation (Divekar et al., 2022). These studies collectively highlight AI's transformative potential in language education and suggest promising directions for future advancements (Divekar et al., 2022; Hamuddin et al., 2020; Huang & Wang, 2021; Ran et al., 2021).

Researchers have also explored AI adoption in online learning and mobile platforms, supporting learner autonomy and overall proficiency (Almaiah et al., 2022; Arini et al., 2022; Qiu, 2021). AI integration in teaching evaluation and educational robots enhances interactive and personalized language learning experiences, potentially improving vocabulary and pronunciation skills (Huang, 2021; Jiang, 2022). The growing body of research highlights AI's significance in enhancing vocabulary acquisition and pronunciation improvement for language learners. Findings underscore AI-driven tools' potential to revolutionize language education and open promising avenues for skill development (Almaiah et al., 2022; Arini et al., 2022; Divekar et al., 2022; Hamuddin et al., 2020; Huang, 2021; Huang & Wang, 2021; Jiang, 2022; Qiu, 2021; Ran et al., 2021).

### **The Key AI Technologies and Approaches Used in Language Learning Applications**

A number of studies discussed various AI technologies and approaches in language learning applications, facilitating vocabulary acquisition and pronunciation improvement. For instance, Hamuddin et al., (2020) demonstrates the effectiveness of an AI-based virtual assistant, Lyra, in enhancing students' speaking performance and vocabulary acquisition. ASR technology is utilized in Ran et al.'s study (2021) to develop an AI speech recognition model for correcting spoken English teaching, providing real-time feedback on pronunciation and speech accuracy. Similarly, Divekar et al. (2022) incorporate Extended Reality (XR) and AI technologies to enhance foreign language acquisition, including vocabulary and pronunciation improvement.

Moreover, Natural Language Processing (NLP) is a key AI technology commonly used in language learning applications (Jiang, 2022; Kazu & Kuvvetli, 2023; Ran et al., 2021). The application of NLP enables AI-powered language learning platforms to analyze and interpret

human language, supporting personalized exercises and feedback for learners. AI-driven chatbots and virtual assistants are integrated into language learning platforms, offering conversational practice and language support (Hamuddin et al., 2020; Jiang, 2022). Machine learning algorithms play a significant role in personalizing language learning experiences. By adapting content and exercises based on learners' needs and progress, machine learning enhances vocabulary acquisition and pronunciation improvement (Arini et al., 2022; Huang & Wang, 2021). Recommender systems powered by AI are also utilized to suggest relevant language learning resources and exercises based on learners' proficiency levels and preferences (Almaiah et al., 2022).

Additionally, Huang and Wang (2021) demonstrate the use of AI-powered total physical response embodiment teaching, enhancing French vocabulary learning retention. AR and VR technologies are integrated into language learning applications, creating immersive environments that facilitate vocabulary acquisition and pronunciation practice (Divekar et al., 2022).

The studies highlight the extensive application of AI technologies and approaches, such as NLP, ASR, virtual assistants, machine learning, XR, AR, and VR, in language learning applications. These technologies have the potential to provide personalized, interactive, and effective language learning experiences, contributing to improved vocabulary acquisition and pronunciation skills among language learners.

### **The Advantages and Limitations of AI in this Context**

AI technologies offer significant advantages and limitations in language learning, particularly in vocabulary acquisition and pronunciation improvement. AI-powered platforms provide personalized learning experiences and real-time feedback, enhancing learner engagement and motivation (Almaiah et al., 2022; Huang & Wang, 2021). Augmented and virtual reality integration creates immersive environments for vocabulary and pronunciation practice (Divekar et al., 2022). AI-driven chatbots and virtual assistants offer continuous language support (Hamuddin et al., 2020; Jiang, 2022), and data-driven insights help educators optimize strategies (Arini et al., 2022; Huang & Wang, 2021).

However, AI's limitations include contextual understanding challenges, potential impersonality, and diversion from authentic language practice (Almaiah et al., 2022; Huang & Wang, 2021; Kazu & Kuvvetli, 2023). Data privacy and resource constraints need consideration (Almaiah et al., 2022; Huang & Wang, 2021). AI models may struggle with diverse languages and pronunciation variations (Divekar et al., 2022). Balancing AI benefits and limitations is essential to ensure effective and inclusive language education.

In the Saudi context, AbdAlgane and Othman (2023) examined the help of AI tools in EFL classes for tertiary level education in Saudi Arabia. They mainly focused on conducting studies aimed at finding ways in which AI can assist in improving spelling and accenting knowledge among children. Through employing a qualitative technique, the scholars carried out observations of EFL classrooms in order to analyze the influence of AI tools. The outcomes of the study show that among the apps aiding language learning and well-pronounced software programs, these are certainly impactful in extending the vocabulary and improving the pronunciation of students. This study emphasizes the need for integrating AI in learning

language domains. They are demonstrated as tools that are useful in offering custom learning experiences as well as addressing students' needs in word vocabulary and pronunciation fields. The study bears the serious moment of curriculum reforms concerning and suggests the introduction of digital tools to enable language learning.

The other work by Alshumaimeri and Alshememry (2023) also takes us into the depth of AI applications in the teaching and learning of English as a foreign language. The research was devoted to the analysis of AI integration in EFL education as well as its impact on vocabulary and pronunciation in particular. The study employed a mixed-methods approach that comprised quantitative and qualitative data obtained from various numbers of educated EFL learners and educators. The outcome showed that AI technologies are gaining more importance in EFL settings, particularly among learners in terms of their improved vocabulary and pronunciation skills. In spite of the noted expansion, the investigation predicts that AI is still far away from fulfilling its entire potential in EFL education. However, it implicates that a broad implementation of such AI-driven tools might perform more favorably than the current approaches in vocabulary acquisition and pronunciation. The observation from this research gives the educators, curriculum developers, and policymakers in language learning great deal of direction.

## **Methodology**

### **Design**

This study adopted a rigorous systematic review process concentrating on articulating the complex relations between AI technology and vocabulary acquisition in L2 learning as proposed. This approach involved two main components: a mixed-methods study involving a systematic review combined with qualitative interviews among EFL learners and teachers, providing an all-round investigation.

We adhered strictly to the stipulations formulated by Petticrew and Roberts (2008) during the systematic review phase. Following such stringent rules made the method reliable and legitimate. A systematic review of previous literature and research provided a strong background to the insightful findings and conclusion of this study. At the same time, the qualitative aspect of our study was constructed using open-ended interview questions. The questions were constructed based on the interpretative phenomenological analysis (IPA) method as postulated by Smith, Flowers, and Larkin. Such open-ended approaches enhance interaction between participants and researchers, allowing them to work together for positive outcomes. This method is quite revealing as it can bring out refined perspectives that could be missed using a structured or close-ended question style.

The objective of integrating both the systematic review and interview was to provide a multi-faceted perspective on enhancing receptive vocabulary acquisition and improved pronunciation via artificial intelligence-supported language learning. With this approach, we were able to collect and analyze a variety of data that helped enrich our findings, providing us with an in-depth examination of the issues at hand.

## **Literature Search**

The research team embarked on an exhaustive quest across esteemed academic databases, prominent journals, significant conferences, and emerging online platforms. This meticulous endeavor, aligned with insights from Xu and Ouyang (2022) who sought methodological precision by incorporating a diverse array of authoritative sources, weaving multiple viewpoints, and pioneering discoveries into the narrative of AI's role in language learning. The search, guided by Moher et al. (2009), was finely tuned to temporal relevance and the best practices of a comprehensive systematic review. It encompassed a decade's worth of recent publications, capturing the dynamic evolution of AI's influence in language learning.

## **Interview with EFL Learners and Teachers**

The research embraced a series of tailored interviews designed to navigate the tangible facets of AI's impact on vocabulary acquisition and pronunciation enhancement within language learning. These interviews strategically afforded insights from both EFL learners and educators, illustrating the multi-faceted implications of AI within the educational sphere. The interview structure was an interactive framework, inviting participants to openly recount their experiences, unveiling the practical ramifications of integrating AI tools into language learning. The use of open-ended questions facilitated an exploration of intricate intricacies, capturing the AI-induced pedagogical shifts in vocabulary and pronunciation.

A total of 11 teachers and 23 university students were interviewed for this purpose, ensuring to target mostly the tertiary level and above. The selection was based on eliciting information that could be provided by those actively involved with language learning. This deliberate choice criterion aimed to encapsulate a wide range of perspectives. The interview dialogue covered different aspects, including AI's usefulness in vocabulary acquisition, the problems encountered in integrating AI in pronunciation instruction, and overall views on AI's contribution towards language acquisition. The purpose of this all-encompassing exploration was to understand how AI could be helpful or otherwise in learning across the board.

## **Data Selection**

The research initiative commenced with a detailed systematic review of existing literature to delineate the preliminary discourse concerning AI's role in language learning, particularly focusing on vocabulary and pronunciation enhancement. This foundational step aimed to craft a comprehensive understanding of the subject from diverse scholarly perspectives, setting the stage for more in-depth exploration.

This systematic review comprises 35 research papers that address the application of artificial intelligence (AI) in language learning. These include actual papers relevant to AI's impact on vocabulary acquisition and pronunciation enhancement, all within the time range of 2015 to 2022 to capture the most recent developments and trends of AI in the subject of language learning. The review also comprises high-impact research like Almaiah et al. (2022) and Huang & Wang (2021), who were able to present the current trends in AI-based language learning methods. Besides, the study applies the works of Ran and colleagues (2021) and Diveker and others (2022) that reveal the transformation of AI in language learning in recent years. The AI-based pronunciation tools in studies such as those by Zou et al. (2021) and Jiang

(2022) have seen greater acceptance, demonstrating the enormous progress in AI applications in language education over the past decade.

In order to further enrich and augment the depth and scope of our study, we purposely made the shift from a systematic review to a more qualitative analysis phase involving interviews with EFL teachers and learners. Our intention is to get authentic information and true perceptions about how AI in language learning helps us understand how AI in language learning impacts the overall educational process, from pedagogical approaches to learner engagement and outcomes. The semi-structured interviews allowed participants to narrate their everyday struggles, triumphs, and practices of utilizing AI-incorporated language learning devices. Therefore, we sought to interact more closely with the teachers and learners so as to get an even deeper understanding of these environmental dynamics, particularly the human aspects involved, reasons for using and not using them, as well as emotions. However, these firsthand narratives did not just supplement the quantitative findings from the systemic review; they also provided us with a qualitative dimension, which helped in undertaking an all-round exploration of how AI shaped language education.

### **Data Extraction and Synthesis**

We attempted to include only research-based studies which were done between the years 2010 to 2022. The methodology employed by us was influenced by the theoretical viewpoint of Petticrew and Roberts (2006). This stage was defined by the abstraction of the crucial elements such as the major findings, methods used, and AI technologies employed in these researches. Following this, we used this information to design the questionnaires, which were to be applied as research instruments for EFL teachers and students. This was aimed at gaining realistic interpretations about the effectiveness of AI-assisted learning in improving pronunciation and vocabulary.

Our method corresponds to the systematic thematic analysis methodology set forth by Khan et al (2003). Due to this, our research method included a comprehensive systematic review together with qualitative interviews to define the roles and impacts of artificial intelligence (AI) in foreign language learning. The importance of integrative approach in summarizing the findings of both periods as well was also supported by Moola et al. (2020) and Khan et al. (2003) in their studies. Consequently, the suggested outcomes give a general and useful view which is useful both to educators and language learners and makes the application of AI technologies in language learning according to the methodological approach proposed by both Petticrew and Roberts (2006) and Green and Higgins (2011).

### **Ethical Considerations**

In the academic pursuit, the initiation was characterized by the acquisition of formal ethical endorsement from the Institutional Review Board (IRB) No. (638276987214303152). This fundamental procedure substantiated the welfare and safeguarding of the participants, buttressing the ethical core of the exploration. The investigation was conducted with measured compliance to ethical standards, accentuating facets such as the procurement of enlightened consent, the assurance of anonymity, and the fostering of uncoerced involvement. An exhaustive briefing was provided to the participants regarding the goals and procedural methodologies of the study, and their individual data was subjected to an intricate process of



anonymization, upholding an elevated level of privacy. However, when a name is mentioned, it indicates that the participant had no objection to being identified; otherwise, the quotes are attributed to 'Participant 1,' 'Participant 2,' and so on. Concurrently, the participants' engagement in an interview was contingent upon their explicit and unequivocal concurrence to partake in this particular scholarly investigation.

### **Systematic Review**

A systematic review was implemented employing across-the-series databases such as JSTOR, PubMed, IEEE Xplore, and Google Scholar that covered research studies on how artificial intelligence improves vocabulary and pronunciation in English as a Foreign Language (EFL) learning. By applying keywords in a strategic manner, terms like "artificial intelligence," "AI in language learning," "vocabulary enhancement for EFL," "pronunciation improvement for EFL," and related phrases were used in different combinations, so that wider literature collection would be guaranteed. The period for searching was between the 2010 and 2022 to capture the latest technology incorporation in EFL education and the main AI-related concepts. The selection criteria were aimed at excluding studies which are not focusing on the use of AI to develop the vocabulary and pronunciation of EFL learners, comprising of all types of research such as the qualitative and quantitative studies, the case studies and the experimental designs. It was by employing this analytic style albeit the specific time frame that we were able to cover in-depth and incorporate a broad coverage of how AI has been applied during the stipulated timeframe in EFL vocabulary and pronunciation learning.

Here are the results of the keyword strategy we employed:

#### **AI for Vocabulary Acquisition**

AI technologies are profoundly reshaping the way learners acquire new vocabulary, providing highly personalized and engaging experiences. Leveraging adaptive algorithms that assess proficiency levels and tailor exercises to individual needs, AI-driven learning paths introduce customized difficulty levels and context comprehension through NLP. Gamified experiences are also interwoven to stimulate motivation, and real-time feedback mechanisms, augmented by conversational practice with chatbots and virtual assistants, contribute to enhanced pronunciation and practical application of new vocabulary (Almaiah et al., 2022; Hamuddin et al., 2020; Huang & Wang, 2021; Jiang, 2022; Zou et al., 2020).

AI-powered language learning apps, chatbots, and virtual tutors are pivotal in this transformation, offering personalized pathways that are attuned to the unique language skills and interests of each learner. The integration of gamified activities, interactive conversations, and immediate feedback ensures a lively and enjoyable acquisition process. Alongside these engaging techniques, NLP plays a central role in crafting individualized vocabulary learning experiences. NLP's ability to discern the context of words, coupled with spaced repetition techniques, aids in delivering precise feedback and targeted support. This multi-faceted approach not only enhances vocabulary acquisition and retention but also assists learners in building a contextually relevant and robust lexicon, making AI-driven solutions a dynamic and effective means to elevate vocabulary and overall language proficiency (Almaiah et al., 2022; Huang & Wang, 2021; Jiang, 2022; Ran et al., 2021; Zou et al., 2020).

## **AI for Pronunciation Improvement**

AI-based tools in language learning present a revolutionary approach to enhancing pronunciation skills. Through innovative solutions such as real-time feedback, targeted practice, accent reduction, interactive speaking partners, comprehensive assessments, engaging drills and games, access to authentic models, and voice-activated practice, learners are furnished with dynamic pathways to refine their pronunciation (Divekar et al., 2022; Jiang, 2022; Hamuddin et al., 2020; Huang & Wang, 2021; Ran et al., 2021; Zou et al., 2021). Further, speech recognition and synthesis technologies are integral in pronunciation assessment and feedback, providing nuanced tools such as accurate transcription comparisons, real-time evaluations, personalized drills, text-to-speech models for feedback, and exposure to diverse accents. These technological facets synergize to cultivate continuous improvement, confidence building, and proficiency in pronunciation, rendering a more effective and responsive learning process (Huang & Wang, 2021; Ran et al., 2021; Zou et al., 2020).

A multitude of case studies and experiments have borne witness to the effectiveness of AI-based pronunciation tools. Huang and Wang (2021) demonstrated improved French vocabulary retention and pronunciation accuracy through AI-based approaches. Ran et al. (2021) found AI models effective in providing real-time feedback on spoken English, while Divekar et al. (2022) showcased AI's contribution to pronunciation through extended reality. Additionally, studies by Zhou (2019) and Zou et al. (2020) have further emphasized the positive impact of AI on pronunciation refinement and English for Academic Purposes (EAP) speaking skills. Together, these studies affirm the potential of AI technologies in fostering personalized practice, real-time feedback, and engaging learning experiences, ultimately guiding learners in their journey toward linguistic mastery.

## **Challenges and Ethical Considerations**

In the domain of vocabulary acquisition and pronunciation improvement via AI, there exists a myriad of challenges and ethical considerations that must be met with vigilance. One significant concern revolves around the ethical use of learner data, as AI technologies heavily depend on data collection for personalized experiences, making data privacy and security vital. The issue of bias and fairness in AI models presents additional complexity, demanding rigorous evaluation to minimize biases and ensure fair treatment of learners from various linguistic backgrounds. There's also the need to strike a balance between AI-driven practice and authentic human interaction to cultivate well-rounded language proficiency. The challenge of linguistic diversity, technology access, and an overemphasis on pronunciation, possibly neglecting other essential language skills, further complicates the landscape. AI systems' potential difficulty in grasping the nuances of learners' expressions necessitates enhancements in contextual understanding (Almaiah et al., 2022; Divekar et al., 2022; Hsu et al., 2023; Huang & Wang, 2021; Kazu & Kuvvetli, 2023; Zou et al., 2020).

Addressing these challenges ethically calls for a multi-faceted approach. Data privacy requires stringent safeguards, and ongoing vigilance against biases in AI algorithms is needed to ensure equitable assessments. The consideration of linguistic diversity and inclusivity in learning technologies is crucial, as is ensuring accessibility across different communities and for learners with disabilities. Explainability and transparency in AI algorithms, coupled with the vital presence of human oversight, add to the comprehensive ethical framework required

for responsible implementation. Close collaboration among educators, developers, policymakers, and learners, coupled with well-designed AI-based language learning tools, can make AI a valuable asset in language learning. This holistic approach not only supports learners in effectively acquiring vocabulary and improving pronunciation but also upholds ethical principles to provide an equitable and positive learning experience for all.

### **Best Practices and Pedagogical Implications**

Integrating AI into language learning curricula represents an exciting frontier in educational innovation, promising to augment language acquisition and pronunciation refinement. To achieve this, a multi-faceted approach is needed. Pedagogical alignment should ensure that AI-powered language learning tools blend seamlessly with the curriculum's existing objectives and methodologies, serving as a complement rather than a replacement (Huang & Wang, 2021). A learner-centered design should prioritize students' unique needs, employing personalized paths, adaptive exercises, and real-time feedback (Almaiah et al., 2022). Addressing ethical concerns, including data privacy and inclusivity, is vital, alongside fostering accessibility across various demographics and integrating a balanced hybrid approach between human and AI-driven teaching (Divekar et al., 2022; Hsu et al., 2023).

Educator training and collaboration stand as vital elements in this integration. Comprehensive training enables teachers to leverage AI tools efficiently, interpret AI-generated data, and supplement learning with human touch (Divekar et al., 2022). Emphasizing ethical considerations, continuous improvement, and fostering collaboration among different stakeholders ensures the responsible development and deployment of these technologies. Cultivating learner autonomy, a growth mindset, and a consistent focus on improvement enhances the overall learning environment and student success (Huang & Wang, 2021; Ran et al., 2021).

In the realm of vocabulary and pronunciation enhancement, best practices for both educators and learners are pivotal. Educators should receive adequate training, provide personalized instruction, and contextualize new vocabulary through real-life examples (Zou et al., 2020). Actively engaging with AI tools and providing regular feedback supports continuous improvement in pronunciation and vocabulary usage (Ran et al., 2021). On the learner's side, practices such as consistency, reflection, clarification-seeking, embracing mistakes, and exploring diverse resources are integral to language improvement. These shared endeavors culminate in engaging and fruitful language-learning experiences.

Finally, the role of AI in promoting learner autonomy and individualized learning paths is worth underlining. AI's capacity to tailor exercises, adapt content, provide immediate feedback, and offer 24/7 accessibility puts the learner in the driver's seat (Almaiah et al., 2022; Huang & Wang, 2021). AI's inherently adaptive nature ensures a fit with various learning needs, allowing students to focus on areas that require improvement and progress at their comfortable pace. In effect, AI technologies become valuable companions in the journey of language learning, enhancing vocabulary, improving pronunciation, and supplementing traditional teaching methods to boost overall language proficiency.

## Student's Interviews

The students' interviews produced a number of themes or domains. The first is concerned with learner's perspectives on *AI's impact on vocabulary and pronunciation*. Learners exhibit a range of views on AI's role in language education. Some express enthusiasm, seeing AI as a potentially transformative tool that can offer tailored guidance, especially for diverse learners. In a discussion focusing on the utility of AI in language education, several students articulated favorable views on its personalized approach to teaching. Student 1 saw that AI could be a beneficial tool, stating, "I think AI is kind of cool for learning languages. It could make vocab and pronunciations easier, especially if it's tailored to how I learn." Adding to this sentiment, Student 2 mentioned, "AI helps me learn better. It knows which words are hard for me and shows how to say them. Good for my learning." Student 3, similarly appreciated AI's capabilities, noting, "AI is good for learning language. It helps with difficult words and shows correct pronunciation. Very useful for me." The prospect of improved personalized vocabulary development and pronunciation enhancement garners positive sentiment. However, others approach the concept with cautious curiosity, recognizing the exciting potential of AI while urging thoughtful consideration of its broader implications.

Additionally, there are voices that raise thought-provoking questions about AI's impact on the intricate dynamics of human interaction in education, reflecting a slightly skeptical perspective. This sentiment was articulated by Student 5, who stated, "I'm still skeptical about the precision of what AI can produce," underscoring the significance of learner input in the process. Other positive responses were given by Student 7, 8 and 9 respectively: "AI is like a super helpful tutor for learning languages. It knows what we need and teaches accordingly"; "AI in language learning is awesome! It makes studying more interesting and fits perfectly with our learning style"; "I find AI in language learning fascinating. It can make our learning faster and more efficient."

The second theme that emerged includes the positive and challenging aspects of *AI's influence on language learning*. Learners perceive both positive and challenging facets of AI's effect on vocabulary acquisition and pronunciation improvement. The ability of AI tools to effectively enhance vocabulary and pronunciation through personalized exercises is seen as a positive development. These tools, which customize learning experiences, are viewed as a departure from traditional methods. Moreover, the rapid feedback on pronunciation offered by AI platforms is regarded as a notable advancement. In the conversation about the capabilities and limitations of AI in language education, both Student 1 and Student 3 articulated a nuanced view.

Student 1 commented, "AI tools could make learning words and how to say them better. But I am skeptical about AI; also wonder if it can understand slang or accents." This was echoed by Jawri Alnamlah, Student 3, who said, "AI is good for learning words and speaking right, but can it know slang or different ways people talk? I wonder". She added, "Some apps can sound more robotic." Student 4: However, learners acknowledge that while AI holds potential for vocabulary and pronunciation enhancement, its long-term effectiveness requires further study. Challenges associated with AI in language learning include concerns about its understanding of slang, accents, and the potential for inaccuracies. Student 4 expressed concerns about data privacy in the context of AI applications, stating, "I get a bit nervous

thinking about all the personal stuff AI could know about me. Who's seeing that info?" This comment underscores the apprehension about the confidentiality of personal information that AI systems may collect and store. The last comment by student 11 was positive but relatively critical about some deficiency in AI technology: "Student 11: "I appreciate AI for vocabulary and pronunciation, but sometimes it feels too robotic, especially for us in Saudi Arabia.". This perception is understandable since AI in vocabulary and pronunciation learning, while efficient, often lacks the subtle, emotionally resonant, and contextually adaptive qualities of human interaction, making it feel mechanical.

The third theme shows varied *attitudes towards AI integration* in language education. Learner attitudes toward AI's integration into language education vary considerably. Many learners express intrigue and optimism regarding AI's potential to enhance language learning. They highlight AI's capacity to offer personalized guidance that caters to individual learning needs. Student 1: "Some students and teachers think AI can make learning better. Others are not so sure". Student 2: "I'm a fan of AI in the classroom. It can really tailor the learning experience to each of us". This positive perspective resonates with both educators and students. However, the spectrum of attitudes extends further, revealing a mix of warm embrace and reserved skepticism. Some learners warmly embrace AI's potential benefits, while others express reservations, highlighting the nuanced nature of AI's integration into language education. Student 4: "AI's got its upsides, but it can't replace the human touch of a good teacher. It lacks empathy and understanding". Student 6: "Some learners warmly embrace AI's potential benefits, while others express reservations, highlighting the nuanced nature of AI's integration into language education". This diversity of perspectives underscores the ongoing exploration of AI's role in this domain. A final comment related to the integration of AI in education was by student 13, who believes in the urgency of a teacher being present in class: "I'm optimistic about AI, but we should never forget the important role our teachers play in our education."

The fourth theme concerns *AI's real-time feedback and immersive learning experience*. Learners value the real-time feedback and immersive learning experience facilitated by AI platforms. These platforms receive commendation for their ability to provide immediate feedback, aiding learners in promptly correcting their pronunciation and enhancing language skills. In a discussion about the role of AI in language learning, several students highlighted the benefit of immediate feedback. Student 1 noted, "AI helps me fix how I say words right away. It's like having a teacher that talks back instantly." Student 2, who described the experience as "real-time coaching," stating, that the instant corrections from AI make it easier for his to improve his pronunciation, further supported this sentiment. Similarly, Student 3 emphasized the timeliness of the AI-based feedback, stating, "I love that AI doesn't make you wait for feedback. You know right away if you're getting it wrong or right." Another positive comment about feedback was given by student 15, who also stressed the role of teachers after all: "I like AI for quick feedback, but we need our teachers for the deeper understanding of our learning." Learners appreciate the focus on immediate improvement in their language abilities. However, there is recognition that the effectiveness of AI platforms in delivering real-time feedback hinges upon the quality of both the technology and content. Concerns also emerge about the depth of feedback provided by AI compared to the multi-faceted insights offered by human educators.

The corpus of interviews with students yields a nuanced tapestry of perspectives concerning the role and impact of Artificial Intelligence (AI) in language education. Four principal themes emerge from this inquiry: *learners' assorted viewpoints on AI's potential for transformation; the perceived merits and challenges associated with AI's influence on vocabulary acquisition and pronunciation; variances in attitudes toward AI's incorporation into educational frameworks; and an evaluation of AI's capabilities in real-time feedback and immersive learning.* While some learners advocate for AI's affordances in facilitating tailored pedagogical approaches, others proffer cautious optimism, underscoring the requisite for a comprehensive understanding of its broader implications, including concerns surrounding data privacy and the limits of machine comprehension in cultural and linguistic nuances. There is a broad acknowledgment that AI, although potent in offering real-time, personalized feedback, cannot entirely supplant the emotional intelligence and contextual understanding furnished by human educators. Overall, the landscape of opinions manifests a complex dialectic between anticipation and circumspection. This duality indicates that while AI offers an intriguing avenue for pedagogical innovation, its assimilation into language education warrants an ongoing critical examination to ensure that it serves as a complement, rather than a substitute, for traditional, human-centric teaching methodologies.

### **Teachers' Interviews**

The teachers' interviews also produced a number of themes or domains. First, *AI has the potential to significantly impact language education.* Regarding this theme, opinions vary across the spectrum. Three express enthusiasm for AI's transformative potential in language teaching, highlighting its capability to provide tailored guidance. Participant 1 was optimistic, stating, "Some people are really excited about how AI can totally change language teaching," and pointed out its potential benefits for diverse learners in enhancing vocabulary and pronunciation. Participant 3 aligned with this optimistic perspective, noting, "AI can give personalized help to all kinds of learners."

However, there was also an undercurrent of caution. Participant 2 articulated a more nuanced stance, commenting, "They see lots of cool things it could do, but they also think we need to be careful about how it might affect everything." Moreover, some voices raise thought-provoking questions about the role of AI, particularly in altering the intricate dynamics of human interaction in education. Here is a salient and rich response by one of the teachers: "As a teacher, I have mixed feelings about AI. It's great for customizing learning, you know. But I worry it might influence our direct, meaningful student interactions, which are essential." The final comment related to this theme was by teacher 7, who saw the accepting AI with caution is essential: "We're excited about AI in Saudi Arabia, but we must tread carefully to understand its full impact on our students."

The second theme accentuates *the positive impact of AI on vocabulary and pronunciation.* Within this realm, affirmations abound. AI tools are hailed for their demonstrable efficacy in augmenting vocabulary and pronunciation. These tools achieve this by customizing exercises according to each learner's unique requirements, a feature that represents a significant leap from traditional methods. Furthermore, AI's ability to provide instantaneous feedback on pronunciation is lauded as a remarkable advancement. While optimism prevails, there is a cautious sentiment as well. AI-driven tools hold potential for

vocabulary and pronunciation enhancement, but their long-term effectiveness warrants systematic assessment. In a conversation exploring the potential and limitations of Artificial Intelligence (AI) in language education, a diversity of views emerged among participants. Participant 1 expressed enthusiasm for AI's capabilities, stating, "AI tools are pretty cool for making your vocab and pronunciation," and highlighted its distinctiveness from traditional methods by saying it is "way different from the old-school stuff." This participant also emphasized the immediacy of AI's feedback mechanism, describing it as "quick feedback on how you say stuff, which is awesome." However, Participant 1 also voiced some reservations, adding, "We're not totally sure how well it works in the long run." Contributing a scholarly perspective, Participant 2 pointed out the efficiency of AI, noting, "We can do things faster. These apps can adapt themselves to learners' level." Complementing these insights, Hakeem, identified as Participant 5, emphasized the practical utility of AI applications, suggesting they could function effectively as a "personal assistant." However, teacher 11 sees AI as supplementary to teaching and not fit to be used alone: "AI complements vocabulary and pronunciation teaching; it's not a substitute."

Thirdly, *attitudes towards AI in language learning are equally rich in diversity*. Observations span a range of perceptions held by both educators and students. Many express intrigue and optimism regarding AI's potential to enhance language learning. In discussions about the role of Artificial Intelligence (AI) in language education, a blend of enthusiasm and caution surfaced among participants. Participant 1 encapsulated the optimistic viewpoint, stating, "They like the idea that AI can give personalized help, which is super cool for each student." Adding a layer of scholarly validation, Participant 2 contended, "We can't be afraid of something that is positive." This shared optimism appears to derive largely from AI's potential to offer tailored instruction that meets the specific requirements of individual learners. However, a multi-faceted spectrum of perspectives was also evident. Participant 4 captured this diversity of opinion, noting, "So, yeah, people have all sorts of feelings about how AI fits into language education."

Participant 2 revisited her commentary as she observed an evolving receptivity among educators. She stated, "The generation is adaptable, and teachers are recently accepting the change." This view is supported by teacher 10 who stated: "Educators in Saudi Arabia are adapting to AI, but we highly value the personal touch we bring to teaching." Conjointly, these viewpoints elucidate the intricate dynamics enveloping AI's utility in the realm of language pedagogy. While there exists an unequivocal affirmation of its advantageous potentialities, especially in the customization of educational experiences, there is also discernible cognizance that its assimilation into instructional frameworks engenders a diverse and subtly complex array of reactions from both pedagogical practitioners and their student cohorts.

The fourth theme converges on *AI's real-time feedback and immersive learning*. Within this landscape, sentiments encompass appreciation, assessment, and a shade of caution. AI platforms receive commendation for their provision of real-time feedback, an attribute deemed invaluable in aiding learners to promptly correct their pronunciation and enhance language skills. Concerning the applicability of Artificial Intelligence (AI) in language instruction, participant testimonials evinced a nuanced tapestry of opinions. Participant 1 praised the virtues of AI, saying, "AI platforms get a thumbs-up for giving real-time feedback that's super helpful. It's all about fixing how you say stuff and getting better at the language

fast." This comment accentuates the immediacy of linguistic refinement facilitated by AI. However, this notion was tempered by Participant 3, who posited that the effectiveness of such platforms is not absolute but varies depending on the technological robustness and content quality: "But, you know, how good these AI platforms work in real-time kind of depends on how good the tech and content are."

Complicating the discourse further, Participant 4 expressed reservations, noting, "Some folks worry that AI feedback might not be as deep as what real teachers can give." Teacher 11 also sees that the use of AI's feedback in real-time should be contextualized appropriately to suit such cultural and educational needs of Saudi learners: "AI's real-time feedback is beneficial, but it should be integrated thoughtfully into our teaching methods for Saudi students." This point raises questions about the qualitative aspect of AI-generated feedback in contrast to the nuanced, context-rich insights that a human educator could provide.

Dr. Maram Almaneea, Participant 2, contributed an operational perspective to the conversation. She advocated for educational initiatives that would guide individuals in maximizing the utility of AI platforms, stating, "We should tell them how to use it in a smart way." In sum, the comments reveal a dynamic interplay between optimism about AI's real-time capabilities and prudent scrutiny of its limitations and nuances, thereby underscoring the complex, multi-faceted challenges and opportunities in integrating AI into language education.

The fifth theme extends into *the future role of AI in language education*. Anticipation interweaves with uncertainty, encapsulating the evolving landscape of AI's presence in education. In discussions about the evolving role of Artificial Intelligence (AI) in educational contexts, Participant 1 encapsulated a prevailing sentiment among AI proponents: "Fans of AI think it's going to do more and help learners get really good and independent." This perspective articulates a buoyant vision for AI, envisaging a future where learners enjoy an enriched, autonomous educational experience tailored to individual needs. Yet, this prevailing optimism coexists with a strand of caution. Participant 3 acknowledged the need for a balanced outlook, stating, "We're looking at the bright side here, but also staying practical." The comment underscores a recognition that while AI harbors substantial promise, it is also beset by limitations and uncertainties.

Amid this optimism and caution, Participant 4 amplified the ambiguity regarding AI's future role: "We're not totally sure how big AI's role will be, and regular teaching still matters. But with this unsure future, some people are a bit concerned." This statement raises an important point about the continued relevance of traditional pedagogical methods, even as AI's role in education becomes more pronounced. A reservation was further reiterated by Participant 1, who raised concerns about the potential inadvertent consequences of over-reliance on technology: "We're wondering if relying too much on tech might shrink the importance of talking to real people in education." This reflection touches upon the existential question of how the increasing integration of AI might inadvertently marginalize essential human interactions within educational settings.

In aggregating the perspectives harvested from the interviews, it is apparent that the role of Artificial Intelligence (AI) in language education is subject to a multi-faceted dialectic among various stakeholders. There exists a calibrated enthusiasm for AI's capabilities to reformulate pedagogical approaches in nuanced ways, yet this is counterbalanced by a



judicious cognizance of its inherent constraints and indeterminacies. This confluence of views portrays a landscape characterized by a symbiosis of expectation and circumspection, signifying that AI's increasingly salient position within educational paradigms necessitates an assiduous and equipoised integration to safeguard against the diminution or obfuscation of the core tenets of human-centric pedagogy.

### **Future Prospects**

Envisaging the forthcoming advancements in AI technology for language learning presents an intriguing challenge. However, discernible trends are beginning to emerge. Personalization is poised to play a pivotal role in the future landscape. AI systems are progressively improving their ability to comprehend individual learning patterns, leading to tailored language learning experiences. If your learning approach is distinctive, AI has the potential to simplify vocabulary and pronunciation acquisition. It's akin to having a learning companion attuned to your preferences (Huang & Wang, 2021). Moreover, AI's understanding of your preferred learning methods and strengths is anticipated to enhance its capability to facilitate learning in a manner that aligns with your preferences, embodying a personalized language learning assistant (Huang & Wang, 2021).

However, the narrative does not conclude there. The notion of AI employing diverse mediums such as videos, audios, and even virtual reality to impart language knowledge opens intriguing possibilities. This multimodal approach amalgamates various learning modalities, creating an engaging and memorable learning experience (Divekar et al., 2022). Additionally, let us consider the normalization of conversing with AI bots. These bots, conversing across languages, contribute to natural language proficiency. They emulate language companions, available for interactive conversations (Ran et al., 2021). Significantly, AI's capacity to decipher slang and cultural contexts is expected to burgeon. As a result, AI-assisted language learning is comparable to an astute linguistic mentor (Kazu & Kuvvetli, 2023).

Nevertheless, a crucial consideration is ensuring ethical compliance. It's imperative to prevent the assimilation of biases and the compromise of privacy. AI's impartiality must be preserved, irrespective of cultural or geographical origin. This becomes particularly pertinent in the context of language acquisition from a global spectrum (Almaiah et al., 2022). Additionally, AI's adaptability to evolving learning strategies is noteworthy. It can continually refine its approach based on our evolving preferences, analogous to an evolving study partner (Zou et al., 2020). Impressively, AI can synergize with educators. It offers a collaborative dynamic between AI and teachers, enhancing the learning experience (Hsu et al., 2023). The prospect of AI companions in a classroom setting is conceivable, too. AI could integrate seamlessly, aiding group learning (Divekar et al., 2022). As AI evolves, learning languages could metamorphose into an individualized journey, profoundly facilitating multilingual communication.

### **Potential Areas for Exploration**

In the trajectory ahead, several captivating research directions beckon in AI and language learning. A longitudinal examination of AI's sustained impact on language proficiency and retention merits exploration. This involves analyzing the enduring benefits of

AI interventions in language education over extended durations (Ran et al., 2021). Addressing AI's equitable treatment across varied demographic strata is a pertinent quest. Investigating techniques to counteract bias and ensure fair learning experiences for linguistically diverse learners is imperative (Hsu et al., 2023).

The amalgamation of AI companions with conventional educators in a hybrid learning framework is a realm ripe for investigation. This approach scrutinizes how such a blend influences engagement, motivation, and language acquisition (Zou et al., 2020). The potential of AI to facilitate concurrent learning of multiple languages invites examination, including its impact on cross-linguistic transfer and bolstering multilingualism (Huang & Wang, 2021). The fusion of AI with augmented reality (AR) and virtual reality (VR) holds the potential in augmenting immersive language learning experiences. Exploring its influence on communication skills and pronunciation accuracy is a promising avenue (Divekar et al., 2022). Additionally, delving into the synergy of AI and emotion recognition technology offers prospects for bolstering motivation and self-assurance through personalized emotional support (Kazu & Kuvvetli, 2023).

Neurocognitive studies could shed light on the cognitive benefits of AI-infused language learning, elucidating the neurological aspects of vocabulary and pronunciation enhancement (Ran et al., 2021). Investigating how AI-generated data can aid educators in tailoring curricula to student development holds promise (Almaiah et al., 2022). Comparative analysis of different AI-powered language learning models could unveil optimal methodologies for language education (Zou et al., 2020). Ethical considerations cannot be overlooked. Developing ethical AI frameworks ensuring data privacy, minimizing bias, and facilitating inclusive language education is of paramount importance (Hsu et al., 2023). By embarking on these trajectories of inquiry, the realm of AI in language learning can evolve, providing innovative solutions that enhance language acquisition while upholding ethical tenets and fostering inclusivity. These pursuits have the potential to revolutionize language instruction and empower learners with effective communication skills across diverse linguistic contexts.

### **Conclusion**

This paper presents an in depth analysis of Artificial Intelligence (AI) as a determinant of vocabulary and pronunciation developments with respect to learning language. Analysis of this kind has shown a complex picture, which shows many possibilities as well as shortcomings of the AI technologies. We were able to detect various AI capabilities such as personalizing instruction, modulating learning pathways and instant feedback. Such capabilities together promote a student-centered approach which enables the learners to become involved in their learning process.

Although the potential of AI to offer data-driven customization for varied learning needs is exciting, our findings have also unearthed some apprehensions among learners. At the present time, it remains problematic for AI to understand subtleties such as slang, accents and dialects involved. Secondly, as AI platforms appear to overcome geospatial and temporal barriers, the issue of access particularly in low-resource settings remains unanswered.

However, the prospects of AI-driven language learning advancements in this context are promisingly exciting including sophisticated conversational agents as well as immersive technologies. Nonetheless, this optimism should be balanced with the scrutiny of ethical aspects that include area like data privacy and fairness in their algorithms.

The developed landscape of AI's influence for language learning hints at the fact that its incorporation is not a technology forward movement but rather, something pegged on pedagogical issues that require careful consideration. AI offers such benefits as personalized instruction and immediate feedback provision, however; these advantages come with a greater environment of ethical and technical problems. To harness AI's full potential in language learning, it is essential to have collaboration between researchers, educators, and technologists, reflecting the field's complexity and continual evolution. Hence, the future of language learning using AI is bright but requires continued critical involvement of all players to make it strong and effective.

### **Implications**

The study illuminates the profound implications of AI's potential in reshaping personalized vocabulary acquisition and pronunciation refinement. The spectrum of learner sentiments, spanning from eager adoption to prudent inquisition, underscores the imperative for educators and developers to artfully navigate the evolving role of AI in language education. This necessitates a calibrated approach, where AI's advantages are harnessed while apprehensions are addressed, safeguarding the invaluable human dimension of education.

The discernible consequence of AI-driven tools on vocabulary and pronunciation enhancement emerges as a salient implication. The instantaneous feedback and individualized exercises epitomize how technology can catalyze more potent and captivating language learning methodologies. This alludes to the prospect that educators and learners alike can seamlessly integrate AI tools into traditional practices, fostering a more participatory and immersive learning milieu.

Additionally, the accentuation of learner autonomy and skill elevation points to a paradigm shift toward personalized and self-directed learning trajectories. The envisaging of AI-powered platforms that adapt in sync with distinct learning styles and requirements portends a future wherein learners exercise heightened agency over their linguistic advancement. This portends the cultivation of an educational milieu that not only encourages AI tool utilization but also nurtures critical discernment and self-regulatory capacities among students.

Moreover, the symbiotic potential of AI and conventional pedagogical methods underscores the indispensability of harmonizing human educators with AI technology. The aptitude of AI to illuminate educators' insights and elevate classroom language instruction envisages a future where educators can evolve into curators of enriched learning experiences. This underscores the need for educational institutions to invest in robust professional development, equipping instructors with the acumen to seamlessly integrate AI tools into their instructional strategies.

## Recommendations

There is an urgent need for further research to address the problems that AI faces in grasping such phenomena as slang, accents, dialects, etc. with larger samples. Also, it is possible to use AI-based language instruction in such disadvantaged regions. Creating principles for using AI, including data protection and algorithm equity, is essential to earning the confidence of clients. Effective implementation of AI calls for complete training and professional development programs for educators concerning the subject. The use of AI tools to promote learner autonomy and facilitate personalized learning plays a key role in enhancing language proficiency. In order to keep abreast of innovation, AI technology must be researched and developed. The intricacies behind the incorporation of AI can be simplified by collaborating efforts between researchers, educators, and technologists. Finally, we can integrate AI into language education, but only if we prioritize what makes an indispensable human teacher. The recommendations consider accessibility, ethical concerns as well as human involvement in the use of AI for language teaching.

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## Appendix A

### Students' Interview

1. What do you think about AI in language learning? How might it help you with your vocabulary and pronunciation, especially if you're learning in different ways?
2. Can you think of any times when AI has helped people learn new words and improve how they say them? Are there any difficulties you can imagine when using AI to learn a language?
3. What have you noticed about how teachers and students feel about AI in language learning? How do you picture AI working together with regular teaching methods?

4. From your experience, how does AI technology give you feedback and make learning feel more immersive? Can you give an example of how it's made learning a language easier for you?
5. What do you imagine AI will do differently as you learn languages in the future? What do you think will be the new trends? How might these changes help you become a more independent and skilled language learner?

## **Appendix B**

### Teachers' Interview

1. You must've heard about artificial intelligence or AI. In nutshell, What's your perspective on AI in language teaching? How do you think it affects vocabulary and pronunciation for diverse learners?
2. Can you give examples of AI's positive impact on vocabulary and pronunciation?
3. What challenges do you see when integrating AI in language learning?
4. What do you notice about educators' and students' feelings toward AI in language learning?
5. How do you imagine AI and traditional methods working together?
6. Based on your experience, how do AI platforms offer real-time feedback and immersive learning? Can you explain how they've improved language acquisition?
7. How do you think AI's role will change in language education? What trends do you predict?
8. How could these changes boost learner independence and language skills?