

AI FOR LANGUAGE LEARNING: FRIEND OR FOE?

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ABSTRACT

This is a study of the implementation of artificial intelligence (AI), especially in language learning and teaching, especially in the 2021 stages. AI has taken significant roles in learning activities that focus on student-centered learning, namely the customization of the learning speed, direct feedback, and assessment, which have benefited their intended users. It has also addressed language learning-teaching challenges, including pronunciation, vocabulary, grammar, cultural differences, and motivation. However, some issues need to be addressed and regulated to ensure the safe and effective use: privacy and security of the user, technical expertise, bias, cultural sensitivity, a lack of human interaction, ethical considerations, and over-reliance on technology. Furthermore, the benefits and limitations have yet to be determined based on their dominance or balance: On one side, AI enables the learners to decide how they want to learn, while the instructors have a virtual assistant to construct curricula, materials, and assessments. On the other hand, its impact on the students in general in other learning aspects must also be considered. Therefore, it is essential to investigate its effectiveness further. One approach is to integrate AI-based language learning tools with traditional language instruction, providing learners with a comprehensive and balanced language learning experience. For example, AI-based tools can provide learners targeted instruction and feedback on specific aspects of language use. In contrast, traditional language instruction can provide learners with opportunities for authentic language use and interaction with native speakers and peers (Lambelet & Chassot, 2019).

Keywords: AI, Foreign Language Learning, Student-centered Learning

INTRODUCTION

AI technology has become a powerful tool with many applications, including foreign language learning. While it does not seek to replace instructors, it serves as a helpful assistant accessible to both teachers and students. AI assists teachers by providing relevant information and creating customized activities based on instructional needs and curriculum requirements. It also supports independent learning for students, which helps them achieve their goals and improves the overall learning experience.

AI technology has many benefits, mainly as it takes on instructional and guidance roles. Personalized instruction, autonomous learning, and prompt feedback are some areas where AI has made significant contributions. Using natural language processing and machine-learning algorithms, AI can rapidly assess a student's speaking and writing proficiency, as Vasalou et al. (2017) demonstrated. As used by Liu et al. (2021) and Zheng et al. (2019), virtual agents or chatbots can facilitate conversational interactions and promote learner autonomy, mainly when face-to-face engagement is limited.

AI also offers adaptive learning platforms tailored to individual users, which customize learning materials based on the learner's proficiency level, preferred learning style, and performance. For example, Duolingo, a language learning app designed by Xu and Lee (2019), encourages learners to develop their skills through personalized lesson plans and exercises. Pronunciation Power and English Central applications employ speech recognition technology to evaluate learners' accuracy, intonation, and rhythm as they imitate video examples and complete assigned tasks. Additionally, AI-powered tools like Turnitin and ETS e-rater use NLP to provide instantaneous assessments of essays, serving as a basis for improvement and grading (Shi et al., 2021).

These examples illustrate how AI can be used to study foreign languages. As AI continues to develop, more effective tools are expected to be created to help teachers and learners achieve their goals. However, concerns regarding what extent AI can help in facing the challenges of teaching and learning and the potential adverse effects on teachers and learners also need to be considered.

There is a need to address how the potential of AI in language learning aids facing the challenges of teaching-learning and concerns arising from engaging with such technology. It revisits the common challenges of language teaching-learning, the critical issues of AI implementation and use, and what further actions are needed to reap the benefits effectively.

LITERATUR REVIEW

The Challenges of Foreign Language Learning

The challenges of learning a foreign language are pronunciation, vocabulary, grammar, cultural uniqueness, and motivation. Pronunciation is considered as one of the most challenging aspects of language learning. The main struggle consists of producing sounds, rhythm, and intonation commonly used in the foreign language but may be non-existent in their native language (Derwing, T. M., & Munro, M. J. 2015).

Acquiring vocabulary is another task that may prove daunting for learners. It requires accumulating many words and phrases and their voice, meaning, and usage in different contexts (Schmitt, N., 2010).

Grammar is another challenge a language learner faces. Its rules are complex and binding, and its exceptions further confuse the learner. In addition, the differences in grammatical constructions of the native and the foreign languages often create hurdles as a learner attempts to communicate information from and to the languages (Ellis, R., 2006).

Cultural differences affect the learner as she has to switch from her culture to a foreign language culture during the interaction. Kramsch (1993) highlighted etiquette appropriateness to show how culture shapes the context in which communication takes place. Misunderstanding or even loss of face may result from the lack of cultural sensitivity.

The last key issue in language learning is motivation, as Dorney (2009) pointed out. Foreign language learning entails investment in time, effort, and commitment to reach an acceptable proficiency level. In the process, a learner may have to learn autonomously, meaning they have to monitor their progress or even use the target language in a scripted and less natural setting. In addition, it may demotivate her since there needs to be more feedback.

To address these challenges, comprehensive and holistic approaches have been implemented, aiming at catering to the needs of a learner to learn linguistic skills as well as the social and cultural aspects of the target language. One of the implementations is learning via various modes of learning experience. It incorporates real-life materials with collaboration with native speakers and peers. Larsen-Freeman (2018) advocates the importance of having a variety of modes so that the learner experiences real contexts in which the language is used.

The second implementation is the promotion of autonomous learning. A learner is encouraged to actively participate in building their skills through individual goal setting, progress monitoring, and feedback acquisition from peers

and teachers. According to Oxford and Crookall (1990), active steps are crucial to making the learning process more effective.

According to Byram (1997), learners can benefit significantly from building their intercultural communication competencies. It places the conventions and structures in contexts that serve the linguistic and social purpose of the interaction. In a familiar setting of the native user, a learner has a better chance to interact naturally and appropriately. Also, a learner benefits from an environment that provides support and inclusion. By reciprocally acknowledging and appreciating learners' linguistic and cultural backgrounds, they may feel at ease participating in learning experiences promoting "interaction and collaboration across cultural boundaries" (Kramsch, 2009).

Lastly, incorporating technology in teaching and learning foreign languages is inevitable. As the previous examples demonstrate, AI has allowed learning tools to be unique and flexible toward the needs of the learner and the instructor. Online activities that once were predictable and repetitive due to their limited platform capabilities can now offer new ways of communicating with native users and fellow learners in their learning process. Alkhatiri et al. (2021) noted how the new functions provide ways to suit the platform to the user by adjusting to her current mastery level and providing guidance synchronously with information that may not be provided as the primary material of the training.

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With these challenges in mind, AI may help fill the gaps that previous teaching media, instructors, peers, and other factors still need to accomplish. However, there are concerns that parties involved must consider when using AI, language learning included.

The first issue is regarding privacy and data security. For AI to function as an individualized tool, it must collect and keep personal data. Data collection includes voice, IP address, and personal or institutional address recordings. It, therefore, places the learner prone to identity misuse by unauthorized parties (Jiang & Chen, 2021).

Another concern is the level of technical expertise expected of the users. One of the early reluctance to use online technology is the readiness of the training provider and the participants. Before immersing themselves in the actual language training, they must learn how to properly use the platform, which may discourage less confident students from using the technology (Li & Zhang, 2019).

Cultural sensitivity is also imperative to address. Bias presentation, including stereotypes, may be overlooked while designing the materials, showing only specific gender or ethnicity in a particular context and unintentionally promoting negative conclusions international students may draw (Joo & Ham, 2019).

Ethical considerations are also highlighted, especially concerning accountability, transparency, and human supervision. For example, Dawson, McWilliam, and Tan (2019) give an example of a possible case of students receiving erroneous grades and feedback due to technical and human errors. The question, therefore, is which party is eligible to be held responsible.

The last concern that is equally imperative to weigh is the tendency to depend heavily on technology. For example, instead of using AI-based technology as an assistant, students may use it as the primary source to complete tasks. Alternatively, an instructor may rely heavily on AI for learning materials and activities. However, Warschauer (2018) warns that such dependence is a limiter to "human interaction and cultural immersion."

METHOD

This research reviews the extent to which AI has been applied in English language learning as well as the advantages, limitations, and threats experienced by participants when AI is applied to learning platforms.

Case Determination Techniques

The cases raised come from research by Chen et al (2018), Zheng et al (2019), Xu and Lee (2019), and Liu et al (2021). Chen's research explores the use of AI in determining material algorithms that suit individual trainees' proficiency levels. Meanwhile, Xu and Lee raised the motivation of training participants in encouraging independent learning through the Duolingo platform with structured learning materials and additional materials. Zheng's research is related to the implementation of chatbots as a support for interaction between training participants and instructors and native speakers. These cases relate to the implementation of AI in English language learning. This case was found in an education journal and occurred not only in Indonesia but in other countries that provide English language training. Case reports are the basis for answering these research questions.

Case Analysis Techniques

The research method uses analytical-descriptive by observing cases of AI implementation in English learning methods and their impact on individual educational participants. The impact in question is English language skills as well as factors mentioned in the Literature Review as potential obstacles and threats to users of AI-based English learning platforms. The results of case observations are conclusions that return to the initial research question

FINDING

From the cases mentioned above, this research comes to the following conclusions based on the advantages and limitations/threats seen in the studies mentioned above.

AI is developing as a tool for measuring and determining material customization for effective and efficient learning materials and learning experiences. Such customization is a priority that can be achieved with the help of AI algorithms that can be used at various learning stages (pre-training, training, post-training) to determine the level of proficiency of trainees (Chen et al., 2018). Data relating to the strengths and weaknesses of training participants is obtained from the participants' performance at these stages. The results of data analysis can be used as a basis for suggestions for improving or refining skills. Because of this adjustment, participants can adjust the learning process according to their abilities. Adaptive learning programs such as Duolingo (Xu & Lee, 2019) with customized instruction and evaluation can be programmed to decide the relevance of material based on progressive data of learner progress. Because the activities and assignments are unique to the learner's preferences, skills, and goals, the learning load is flexible and easier to manage. This gives the learner greater control, resulting in a positive impact on learner engagement and motivation (Chen 2018). In other words, the learner's learning experience is more meaningful because he can navigate the material according to his needs, interests and learning goals.

Another crucial factor that contributes to student success is feedback that monitors their performance individually or by the instructor. Traditional educational programs rely on human feedback (instructors and other learners), which may require more immediate, detailed, or readily available feedback. However, AI technology can be programmed to provide this information so that students can act independently, quickly and efficiently. In addition, its guiding function can be spread among language skills, as stated by Miao et al. (2018) stated, namely grammar, vocabulary, pronunciation and fluency.

Chen (2018) believes this has an impact on learners' metacognitive skills because they are given more responsibility in their respective progress. They can review material and tests as needed and move on to material they deem more relevant to their needs. Chen (2018) further explained that responsibility for one's own efforts motivates learners because the decision is in the hands of the participants themselves.

Adaptive nature is the next benefit of AI. Language training providers can update and modify materials centrally for relevance and efficiency. Lambelet & Chassot (2019) compared the slow response of traditional curricula to needs and changing trends with AI design for the purpose of rapid adjustment. These modifications include current events that create relevance of learning to real life.

These updates require only minor material changes and are done in stages especially if they are technical in nature to reduce confusion caused by updates.

AI-based platforms may have increasing capabilities, but they are not free from limitations. Independence in learning increases compared to the level of reliance on human instructors. However, Wang and Li (2019) and Lambelet and Chassot (2019) found that a reduction in human interaction is potentially bad for learner development. Their observation is that AI-based language learning tools cannot reproduce the socio-cultural nuances inherent in the target language.

Additionally, students learning to use AI alone may need more human interaction to help them build their interactive skills and fluency. The opportunity to learn and be motivated by peers can influence auditory and verbal speaking skills as well as the ability to communicate in real life situations (Wang & Li, 2019).

To maintain human interaction, video conferencing and metaverse meetings are viable alternatives available today. During the pandemic, students in particular and society in general use platforms such as Zoom for video conferencing, thereby enabling interaction between humans that is not limited to space and time. Students can schedule sessions in the comfort of their home to engage in activities with their instructor and assignments are available online before or after the conference. Metaverse and Second Life are currently less popular because they require additional peripherals. Nevertheless, the principle of virtual presence when engaging in conversation with an avatar representing a human may be sufficient, if not more interesting. Instead of being a human participant, AI works in the background of interactions to provide a virtual ambiance and other audio-visual effects to create an environment that supports learning.

In terms of learner security and comfort, these studies conclude that there is an ongoing need to maintain learner privacy. Because platform interactions and materials refer to the user's identity, user data must be guaranteed to be safe from hacking and misuse. This can be achieved by the cybersecurity platform and the quantity of personal data required and stored. This is a shared responsibility, namely, the platform provider who requires the participant's personal data and the participant who provides that data. The middle ground found by these studies is a transparent disclaimer and user-approved data expiration

DISCUSSION

This section weighs the benefits and limitations of AI technology in foreign language education to address the challenges and concerns to arrive at recommendations for bridging the gap.

As highlighted earlier, personalization for effective and efficient learning experiences (Chen et al., 2018) is a priority, and it is increasingly achievable with

AI. AI algorithms can analyze proficiency levels at various process stages (pre-test, learning stage, and post-test). Data regarding strengths and weaknesses based on performance can be rapidly interpreted into recommendations for improvement. An adaptive learning program such as Duolingo (Xu & Lee, 2019) with tailored instruction and evaluation can be programmed to decide which materials to provide based on data collected as the user progresses through the training. Since they are unique to the learner's preference, proficiency, and goals, the tasks become more manageable. Chen also argues that as a result of having more control over her efforts can positively affect the engagement and motivation of the learner. The experience is more meaningful since she can navigate the materials suited to her needs, interests, and learning goals.

Another vital factor that contributes to the learner's success is feedback as a means to monitor their performance individually or by instructors. Traditional education programs rely on human feedback (instructors and other learners) that may need more prompt, detailed, or readily available. However, AI technology can be programmed to provide such information for the learner to act independently, quickly, and efficiently. Moreover, its guiding functions can be spread among the language skills, as Miao et al. (2018) pointed out, namely grammar, vocabulary, pronunciation, and fluency.

Chen (2018) argues that it impacts the learners' metacognitive skills because they are given more accountability for their progress. Unlike traditional education, the learner can set her lesson plans, schedule, and evaluation to suit her agenda. She can revisit the materials and tests as required and jump to materials deemed more relevant to her needs. Chen (2018) further explains that having ownership of her efforts motivates the learner to engage because it is based on her decision.

Speech recognition is an example of AI implementation to build a platform that caters to instantaneous feedback. It can evaluate a learner's speaking skill, including pronunciation and intonation, by comparing it with data stored in the provider's database. As the learner completes a task, she instantly receives information regarding her performance, with the possibility of more detailed feedback as the provider enhances the algorithms and responses as part of its routine updates. Apps such as Babbel provide such features.

Adaptability is another benefit AI offers. Language training providers can centrally update and modify materials to provide relevant materials efficiently. Lambelet & Chassot (2019) contrasted the traditional curriculum's slow response to need and trend changes with AI's design for quick adjustment purposes. The modification can include current events that create a real-life learning experience, thus staying relevant to the student's realm. However, it only entails replacing the

entire material sparingly, as it may create confusion due to technical or logistical issues deriving from the updates.

AI-based platforms may have increasing abilities, but they are not free of limitations. They elevate autonomous learning and lessen the need to rely on human instructors. However, Wang and Li (2019) and Lambelet and Chassot (2019) argue that decreasing human interaction may be costly for a learner's development. Their concern is that AI-based language learning tools cannot create social-cultural nuances adherent to the target language. Language is not only about mastering grammar and vocabulary but also about social and cultural context.

Additionally, students learning solely on AI may need more human interaction that helps learners build their interactive skills and fluency. The opportunity to learn from and be motivated by peers may affect their listening and speaking skills and ability to communicate in real-life situations (Wang & Li, 2019).

Video conferencing and metaverse meetings are feasible alternatives presently available to maintain human interaction. During the pandemic, students in particular and people in general used platforms such as Zoom for video conferencing, allowing human interaction not limited to space and time. Learners can have scheduled sessions in the comfort of their homes to engage in activities with their instructors and the tasks available online before or after the conference. Metaverse and Second Life are currently less popular since they require additional peripherals. Nevertheless, the principle of virtual presence while engaging in conversations with avatars representing humans may suffice, if not more interesting. Instead of being a human participant, AI works in the background of the interaction to provide virtual ambiance and other audio-visual effects to create a supportive environment for learning. AI-powered chatbots, Lambelet and Chassot add, may also be incorporated to support the learner in answering impromptu questions from other participants.

Automation tends to limit context, which Lambelet and Chassot also highlight. They draw an example of writing proficiency analysis using NLP algorithms that can regard variations outside their database as incorrect or irrelevant, focusing mainly on structure and word use accuracy. However, again, the algorithms may need to pay more attention to social and cultural elements that may serve naturally in an intercultural communication setting, leading to inaccurate feedback and evaluation. Wang and Li also argue that miscalculation may confuse or even demotivate learners to develop their competence in communication in the target language.

Mitigating the shortcomings entails the proactive roles of the instructors and researchers. For example, while assigning the algorithms, they should be aware of the potential biases deriving from less thorough considerations. In addition, it

entails real human instructors' oversight in learning material and assessment construction to ensure broader inclusion and ethical measures for accountability and transparency.

Technology has made vast advancements in many life aspects, including language education. Students welcome its convenience in daily life, such as online dictionaries, translation, and text-generator tools. However, Wang & Li (2019) and Lambelet & Chassot (2019) warn of their over-dependence. For instance, text-generator tools can create entire essays in minutes based on a learner's prompt instead of using them as an assistant in the writing process. In addition, although AI-generated text detectors such as Turnitin can now detect AI-generated texts, some applications provide text spinning to pass the test.

The example above conveys an extreme case of overusing AI, and the debate remains on its legitimacy. On the one hand, students are learning to use AI optimally with specific prompts, exhibiting their willingness to learn to adapt to the latest technology. However, their intention of passing the test with the misuse of AI should not be taken lightly.

There are no definite guidelines for AI-based authoring related to language learning and assessment. Therefore, there is a need for a standard in which AI-generated text is regulated to avoid its misuse or overuse.

CONCLUSION

Based on the literature presented, AI-based language learning tools are intended to assist learners under circumstances where teacher-learner or learner-learner interaction is limited or unavailable. Data and algorithms are pre-loaded into their systems in anticipation of the learner's needs to complete the training. The benefits and limitations of using AI discussed revolve around the three main factors in language learning: the materials, the parties involved, and the access. AI has been proven to provide convenience regarding adaptive functionalities and centralized and rapid updating and modification of materials. For the participants, AI is partially responsible for tweaking the roles of the instructor and the learner from the traditional information source-information seeker relationship to that of guidance-co-creation. As for access, AI is increasingly present in applications for various purposes, including language learning. However, overreliance on the apps has raised the question, "Are the learners improving their skills, or are they succumbing to automation?" The articles suggest that human oversight should still be present to balance human interaction and the machine. Accountability and transparency are also solid reasons to involve humans in learning languages using AI.

Therefore, further studies should investigate how instructors and learners can leverage AI-based language learning tools to their advantage. A specific target

of such study is based on the specific goals an app caters to, such as practical language skills for daily use or strategic skills to pass the language skill proficiency test. Last, there should be studies leading to a framework of regulations that places AI in its rightful place in language education.

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