

Redefining Language Learning: The Impact of AI Technology on Second Language Acquisition

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Abstract. Second language acquisition (SLA) is a complex long-term process which is time-consuming and requires a huge number of resources. However, with the advance of technology, artificial intelligence (AI) has been gradually integrated into the aspect of SLA which provides great convenience for more people to get access to artificial intelligence education (AIED). As both AI technology and the Internet continuously evolved, the AIED in SLA showed great benefits to society and this is the reason for its widespread among students. While AI is bringing great efficiency and accuracy to the SLA, it is important for society to pay attention to the potential disadvantages that using AI might bring to the learners, such as the fear of communicating with real native speakers after the long-term learning accompanied by AI. This paper gives a systematic review of the AI technology that has been used throughout the SLA and presents both its positive and negative feedback to make people aware of the future impact that AI might bring to society. In addition, this paper includes the future directions and suggestions for better development of AI in the field of SLA which enables the AIED to highlight its benefits and eliminate the potential risks.

Keywords: Artificial Intelligence; Second Language Acquisition; AI-facilitated Language Learning.

1. Introduction

With the advancement of technology, artificial intelligence (AI) is revolutionizing various aspects of society and enhancing the use of technology in people's daily lives. Being a fundamental social imperative, education also incorporates cutting-edge technology. It is not surprising to find AI appearing in the second language acquisition (SLA) educating process as a tool in recent years. At first, AI just helped correct some simple mistakes for the SLA learners. With the development of AI technology, it is now able to provide personalized services which include analysis and specific courses that fit each learner. It is apparent for people to find AI gradually playing an important role in the field of SLA. While everyone is simply relying on AI education due to the efficiency and accuracy of the technology, the effectiveness and impact of AI-facilitated education should be evaluated.

There are already a lot of studies on the topic of AI's impact in the field of SLA, stating that even though AI provides convenience to education but also reduces the chances of SLA learners' opportunity to communicate with native speakers using the second language. To eliminate those concerns, new designs are also created for better and personalized teaching. So far, there are quite a few innovations for AI education and research evaluating the effectiveness of AI in the field of education.

This paper aims to find in what ways SLA has been affected by the attendance of AI and analyze whether they are positive or negative. The paper will give a summary and review many research articles about AI's application in the education field. It will include the techniques used in AI education, the advantages of AI in education and further applications, the negative impact of AI education and suggestions for future directions.

It can help the public critically see through this new technology, whether it is bringing convenience or misleading to the second language acquisition and providing suggestions to the future development direction. It is essential for people nowadays to realize the negative impact that cutting-edge

technology can bring to society while it provides great convenience and efficiency to people. This essay can help bring the awareness of not completely relying on the technology, and how appropriate usage of AI can benefit the field of education.

2. Educational Technology

With the popularity of the Internet and the rapid development of information technology, education technology in the early 21st century has entered a brand-new stage of networking. In this era, education technology not only covers a wider range of technological fields, such as the Internet, mobile devices, virtual reality, etc., but also gives rise to a series of innovative teaching modes and learning tools, such as Massive Open Online Courses (MOOCs) and intelligent educational applications. These emerging technologies have made education more flexible, personalised and intelligent, providing students with richer and more diverse learning experiences.

Moreover, in recent decades, AI has been introduced as a power tool in the sector of educational technology. AI applications help to reshape the roles that educators, students, and schools play in society. Additionally, they will alter both the conventional and online patterns of communication in the learning environment.

In order to accomplish the necessary goals and share educational experiences, teachers and students will work using interactive devices. From the simple combination of AI with basic teaching to some innovation of applying AI in specific situations, providing the learners with specific teaching that fits. Various AI techniques are employed during AI education, such as knowledge acquisition, natural language processing, and learning algorithms [1]. AI is mostly used in error correction in the SLA field due to its accuracy. The AI tutor which targets genuine errors based on the request of each individual learner, is designed for self-correction opportunities and meanwhile provides hints for learners to understand their mistakes. This kind of design of AI tutor aims to enhance SLA outcomes effectively [2].

There are also some new designs and innovations for better AI education, filling the gap of the limitations of communication brought by AI. New designs combined AI and extended reality (XR) technologies together in the cognitive immersive language learning environment (CILLE) to create naturalistic conversational interactions for AI education [3].

3. Advantages

There are numerous benefits of integrating AI technology into the field of SLA.

The integration of AI guaranteed the accuracy of the second language learning process. Due to the rapid learning ability of AI and its own sufficient resources, AI can present the most accurate content to learners in the process of teaching a second foreign language. Especially when it comes to correcting spelling, pronunciation, and grammatical errors, AI's intervention ensures the accuracy of the correction and makes the whole process more efficient than manual correction.

Meanwhile, second language learning can become more efficient with the help of AI. There are some tasks that are tedious for human beings that become convenient and fast with the help of AI, such as the correction of writing fragments in a second foreign language. The original manual corrections require teachers to spend a lot of time to make repeated corrections to ensure the fairness and accuracy of the evaluation, but the AI only needs to read once to list the framework and key points of the article, and quickly find out some errors and help learners to make corrections.

Such help makes learning a second foreign language more time and labor-efficient, and AI can be used by many people at the same time compared to the limited nature of human resources, making AI-assisted second foreign language learning rapidly popular and helping more people access learning resources.

Meanwhile, relying on the quick speed of AI to learn new things and pick up skills, it is easy for them to customize the content of SLA sessions for individual children since language learning really requires personal guidance and support. The abundant resources on the Internet that AI can get access and help create sessions and provide the SLA learners with fit textbooks or videos for learning. The range of learning resources can be guaranteed with AI tools, helping the learners to break the language barriers, and support lifelong learning which some period study cannot achieve [4].

As an assistance to the teachers, it can work and provide a lot of help as well. By collecting and analysing the performances and score data on students, AI can identify where each student struggles during SLA learning and adjust the course difficulty based on the conclusion, they draw on the performance of the whole class, whether they can accept the content in the following classes or maybe reduce the difficulties of the course. With the AI recommending teaching strategies and resources to fit the students, the courses can be more acceptable for each student. In addition, by identifying the students who might fall behind in some specific aspects of SLA such as the oral part, the AI can suggest the teacher intervene and provide support if necessary [4].

In addition, AI can give commands and create chatbots and conversation stimulators for learners to stimulate the scene when communicating with native speakers. The AI can quickly substitute into the role of a native speaker and provide natural conversation with the SLA learners to help them apply their knowledge to real situations. The content of the conversation can also be based on recent content the individual learned and the AI can generate feedback just after the chat, giving evaluation on the pronunciation, grammar, and vocabulary [5].

4. Disadvantages

Besides the benefits listed above brought by the AI integrated SLA education, some concerns, restrictions, and disadvantages are also created when AI is introduced into SLA education.

Even though AI with abundant resources can provide various sessions, it is difficult for them to provide some new content besides the knowledge that is already created. Many new contents require human wisdom and creativity to design, which is usually done by experts or experienced teachers based on their past experiences in the field of SLA. The content created by humans is more emotional, easier for the student to have a sense of substitution to gain knowledge, instead of the mechanical sessions provided by AI technology [6].

During the process of having a conversation with AI roleplaying a native speaker, it might give some SLA learners the sense of losing a natural environment with native speakers. While communicating with real people, there are emotions embedded in the conversation which can bring both value of gaining knowledge and positive feelings. Yet with AI, the feeling of real people apparently disappeared and exacerbated of feeling of fear about unreal lives. Some SLA learners will still be afraid of communicating with native speakers after the chat with AI since the communication between people cannot be simply substituted by AI even though it brings convenience and efficiency [6].

Additionally, knowing the culture of the country or region is also an important part of understanding the second language and using it. For AI, it is difficult to ensure whether the initial trainer of the AI fully knows about the culture and historical backgrounds from where the language comes from. If the trainers themselves did not have a comprehensive understanding of the background, the AI would be hard to train so well. Also, some biases and stereotypes about the culture should not be included in the teaching of AI which will have a negative impact on the values of the learners [5].

Also, personalised learning in second language acquisition poses a challenge to AI. Although AI systems can be personalised according to learners' needs, it remains a challenge to accurately understand and identify learners' needs. In addition, personalised learning can lead to information overload and learning anxiety, which need to be managed and guided by appropriate measures.

5. Suggestions

AI can significantly improve the SLA process by offering customized instruction, interactive practices, and feedback to the learners as they are mentioned in this paper. However, it is important for the education system to maintain a balance between using AI and human teaching. It will be helpful if AI can assist teachers in completing some simple jobs, but instruction and support from humans should be a necessary part of SLA education [5].

In the future, to make the teaching of a second foreign language more relevant to the local culture, AI can learn local slang, etc. based on the understanding of the local history and culture to help the learners establish a more localized language system and expression. This requires the AI's trainer to give the AI a more realistic linguistic environment to help it understand the laws of natural language and how it is used. As a result, the AI can help build a more natural native environment when engaging in interactive conversations with learners, and the natives modeled by the AI can be more closely aligned with real-life scenarios.

In case people are afraid of talking to AIs or are still unsure of themselves after conversing with them, the education system can also not tell the learners the identity of the AI during the conversation, so that the learners can think that they are talking to a real person to increase their self-confidence.

At the same time, people should be aware of the potential threats posed by an over-reliance on AI. In the process of language education, human involvement can provide emotional value to learners, and human help is more emotional than AI reminders, providing encouragement to learners.

6. Conclusion

As a conclusion, AI, a new technology that has emerged in recent decades, has made a great contribution to the field of second language education. The intervention of AI has made second language teaching efficient and accurate and has made second language learning resources accessible to a wider audience.

However, while AI education provides convenience, over-reliance on AI may cause people to overlook the importance of human beings in the field of education. As a suggestion for the future direction of AI education, AI can be used as an efficient tool to help human teachers teach with higher quality, but teachers are indispensable in second language education, and AI participation in education should be more culturally relevant, and AI training should be fair and free of any cultural or value bias. In this way, AI can be used as a tool to improve efficiency in the field of second foreign language education under the concept of human-centered education.

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