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A Study of Personalized Language Learning with AI Technology and Media Convergence

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Abstract:

The convergence of AI and social media opens up a whole new path for personalized language learning. Traditional classroom teaching methods often fail to meet the individual needs of today's learners, a dilemma that is eased by AI's intelligent recommender systems and ability to analyze data. With the rapid development of AI technology, its application in the field of education is becoming more and more extensive, especially with the combination of social media for personalized learning has brought new opportunities. This combination not only accurately captures learners' needs but also enhances engagement and motivation through social interaction, further improving learning outcomes. While many media platforms offer a wealth of language-learning resources, AI makes it easier for these language-learning resources to meet the individual needs of students through intelligent recommendations and a mechanism of continuous learning and updating. Through this emerging learning model, students can achieve immersive language learning through social interaction. However, this new approach also raises new issues such as student autonomy, validity of information and even recognition in the face of disinformation. Therefore, it is crucial to investigate the combination of AI and media for personalized language learning, and this thesis will explore the prospects and challenges of its application.

Keywords: AI; Second language acquisition; English teaching.

1. Introduction

Against accelerated globalization, the need for language learning has become increasingly urgent. The introduction of Artificial Intelligence technologies, especially in conjunction with media, is shaping new ways of learning languages. Learners can now use AI to provide them with personalized learning plans to

effectively improve their listening, speaking, reading, and writing skills. In addition, social media provides learners with a wider range of opportunities for language practice. However, with the development and popularity of this emerging model, new concerns have arisen about how to ensure the effectiveness and safety of the learning process.

2. AI and Media Convergence in Personalized Language Learning in Practice

The convergence of AI technology and media, especially in the field of personalized language learning, opens a new path for students to personalize their language learning. AI can calculate a learner‘s language level, learning habits, and interest orientation with near-accurate accuracy through big data algorithms. Through these analyses, AI and media convergence can provide learners with a very well-fitted set of personalized learning plans or paths. This approach not only significantly improves language learners‘ learning efficiency but also enhances their engagement and mastery. Nowadays, there are many learning software (e.g., Multi-Neighbor) that have applied this kind of intelligent recommendation system to foreign language learning. It helps the software to update the learner‘s knowledge in real-time, and in doing so, it dynamically updates and adjusts the difficulty of the learning program. For example, when a learner has a more solid grasp of newly learned vocabulary or grammar and other knowledge points, the AI can provide timely feedback to the learning platform by recognizing the learner‘s performance and appropriately adding more challenging content to promote further improvement. This dynamic adjustment mechanism not only personalizes the learning path but also effectively maintains the learner‘s motivation and interest. Instead, their mistakes will be corrected, and the program may be altered to reinforce and strengthen the parts that were learned with repetition. This approach can significantly improve learning when compared to traditional teaching. Some aspects of language learning are analyzed below:

2.1 For Students‘ Listening and Speaking Skills

Today, AI can quickly recognize human language and can give timely feedback to correct student errors. Research has shown that this kind of timely correction can greatly improve the practice of „dumb English“ by today‘s students. In addition, teachers‘ pronunciation may sometimes not be standardized enough to accurately detect or correct students‘ pronunciation errors. However, with the continuous advancement in speech recognition technology, the system can recognize students‘ pronunciation, analyze it accurately and provide instant feedback. The application of this technology not only improves the efficiency of pronunciation correction, but also provides students with more personalized learning support, which helps them to acquire standard pronunciation faster. At the same time, the AI can play the voice repeatedly for students to follow, and the AI can help students improve their speaking skills by giving them a score based on the pronunciation of their followers. With this feedback, AI can drastically improve students‘ autonomy in learning the language and enable them to speak English boldly in the future [1]. Moreover, AI or computer technology is effective in maintaining the foreign language learning enjoyment (L2 enjoyment) that students experience during the language learning process [2,3]. This enjoyment refers to the positive emotions that arise when learning a foreign language, which is essential for foreign language acquisition. Through personalized learning paths and instant feedback, AI can enhance the learning experience and help students maintain a positive affective state, which improves learning outcomes and enhances their enduring interest in learning a foreign language. Learners who maintain a sense of pleasure in learning a foreign language will acquire a language better and more effectively. At the same time, AI can save a lot of listening material. In this case, for different students, AI can play the material that is more suitable for the students‘ learning situation or in line with the students‘ interests to help them improve their listening skills. It is also a good way to keep foreign language learning enjoyable for students and to retain their interest and autonomy in language learning.

2.2 For Students‘ Writing Skills

When it comes to writing, AI has long been more effective. For example, the WORD document that students use to complete their assignments will be labeled with word spelling errors, punctuation errors, and semantic repetitions to help students correct their errors in a timely manner. Also in the present day, the extreme growth of ChatGPT can help students develop their writing skills. ChatGPT can first and foremost provide students with a variety of perspectives to think about issues and help them enhance their range of thinking. Due to the large amount of article literature stored within the AI, it can help students to broaden their thinking when they encounter writing bottlenecks and move away from their own narrow thinking perspectives. In the long run, students will be able to analyze the topic and thus write better essays from different aspects when faced with writing. In addition, ChatGPT can also correct errors throughout the article.

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Students can submit their written essays to ChatGPT for analysis, pointing out grammatical errors. With constant error correction, students will consolidate this knowledge by paying extra attention to these error-prone grammar points in their writing.

2.3 For Students‘ Reading Skills

Another important area where AI and media convergence can help students with second language acquisition is helping them improve their reading skills. The reading learning that students experience in school is a very traditional one-size-fits-all approach to reading instruction. All students will read the same articles the same passages and do the same exercises. Although this approach helps teachers in classroom management, it ignores the variability among students (e.g., different interests, language comprehension, and efficiency of knowledge absorption). As a result, students will inevitably encounter the dilemma of reading with boring content or texts that are difficult to comprehend. This „one-size-fits-all“ approach not only limits students‘ individual learning needs but may also affect their interest and motivation. And AI, through its personalized analytics as well as recommendation system, customizes reading content for students from the vast amount of reading material recorded by the system [4]. By analyzing the student‘s interests, level, and habits, the AI will provide the student with articles that are moderately difficult and in line with his or her interests. With this personalized recommendation, students can greatly avoid the boredom and anxiety of reading an article.

Secondly, AI can also help students improve their efficiency when reading articles and help them master more efficient ways of reading. For students who read traditionally, it is very difficult for them to discover key points, text structure or hidden information in a text by themselves. However, AI can help students better understand the deeper meaning of the text by using language processing technology to mark keywords, grammatical structures, and semantic hierarchies for them as they read [5]. For example, when reading difficult academic articles, AI can quickly extract the topic sentences, main ideas and key arguments to help students quickly understand the main idea of the article. The AI also dynamically adjusts the difficulty of the essay based on the student‘s progress or lack thereof. That is, if the student can successfully and efficiently complete the recommended essays, the AI will recommend essays that are a bit more difficult so that the student can slowly adjust to the demanding academic environment. This dynamic adaptation allows the AI to give students regular tests based on their reading ability level. These tests can help AIs assess a student‘s current reading ability and can be tailored to his or her current situation and targeted to the next stage of the reading program [6]. It ensures that students can train their reading skills at a moderate level of difficulty and gradually improve their reading level. With this kind of long-term training, students will be more comfortable with complex texts in the future and will be able to extract the main points of the text quickly.

2.4 For Students‘ Vocabulary Acquisition

Not only for the four areas of listening, speaking, reading and writing, AI is also effective in improving students‘ vocabulary acquisition. First, AI can track the vocabulary words students encounter while reading through the analysis of data and will record these words to provide personalized vocabulary learning suggestions for students. For example, the system will summarize the vocabulary words that a student encounters in listening or speaking, and the single times that the student can‘t read, and provide a personalized vocabulary list just for the current student, so that the student can target vocabulary memorization. Besides, AI will be able to help students understand vocabulary words in a more vivid way. In students‘ traditional vocabulary learning, most of the time students will since rote memorization, resulting in that although students master the vocabulary well in the short term, after a period, students will forget the word. This is because students are simply memorizing words without really understanding them. And AI can make students learn vocabulary in a relaxing and enjoyable atmosphere through various interactive exercises, tests, and games [6]. For example, Multi-Neighbor will present vocabulary exercises to students through mini-games. Let the students play the game and memorize the words better with the vivid pictures or root words it gives them. There are also, for example, apps such as 100 Word Chop, which repeat the examination based on the students‘ connections, while adjusting the learning difficulty to gradually increase the difficulty of the vocabulary.

At the same time, the traditional way of vocabulary learning tends to lead to „input learning“ of vocabulary, i.e., students only know the surface meaning of vocabulary but are unable to export vocabulary flexibly in actual communication. And AI can provide students with vocabulary applications in real situations based on the material stored in the system [4]. For example, when students learn the word „enthusiasm“, the system will show how it is used in different contexts. For example, the system will demonstrate how to use the word to describe a strong fondness for a hobby through everyday conversations, as well as how to express a high level of interest in a research area in aca-

demic discussions. This multi-dimensional contextualized presentation helps students better understand the semantic scope and usage scenarios of vocabulary and enhance their practical application skills. Through these examples of different contexts, students can better understand how the word „enthusiasm“ is used in different situations, which will help them grasp its actual usage, and then output the vocabulary more naturally in actual communication.

3. Computer-assisted language learning

With the continuous leap and innovation of intelligent technology, artificial intelligence is disrupting human production and lifestyle at an unprecedented speed, and its development and application have profoundly driven the change of language education industry. In this context, computer-assisted language learning (CALL) has been accelerated. Computer-Assisted Language Learning (CALL) is effective in facilitating personalized language learning for learners because it includes a wide range of adaptive learning applications such as augmented reality, automated writing evaluation systems, intelligent tutoring systems for reading and writing, automated error detection, personalized language learning systems, natural language and vocabulary learning platforms, language learning for Web resources and systems, tutoring systems designed for ESP (English for Specific Purposes) writing, and intelligent tutoring and assessment systems for speech training [7]. These technological tools not only provide customized support based on learners‘ individual needs, but also provide real-time feedback and assessment to enhance the efficiency and effectiveness of language learning [8]. Artificial Intelligence has revolutionized the education model by accurately analyzing individual differences, personalizing the allocation of educational resources, and revolutionizing the education model with diversified interactive forms and dynamic adaptive content, which realizes the ease and efficiency of the learning process. Artificial Intelligence (AI) is increasingly widely used in education, but the ethical dilemmas it raises, such as data privacy and lack of reliability of knowledge content, are becoming more and more prominent, and have become an important obstacle to the deep integration of AI and education. In addition, there is a lack of clear explanation of AI terminology and guidance on its application in the education sector, making educational decision-making challenging. Therefore, there is an urgent need to explore the best practice path for AI education applications and seek apt solutions to ensure the sustainable development of AI education.

3.1 Benefits of CALL

In the field of computer-assisted language learning (CALL), technological innovations have opened new horizons for diversity and richness in language practice. Technologies such as Augmented Reality (AR), Virtual Reality (VR) and digital game-based language learning not only provide learners with an immersive learning experience, but also enhance the authenticity and interactivity of language learning by simulating real-world language use scenarios. For example, the virtual community Second Life provides a multi-user online platform where teachers and students can simulate a variety of language use environments for language practice and communication. These studies of virtual environments have not only focused on assessing the effectiveness of teaching and learning but have also explored how the development of language skills can be facilitated through virtual communities.

The development of CALL has also given rise to blended learning, a new teaching model. The blended learning model combines online learning with traditional face-to-face instruction and aims to leverage the strengths of both learning modalities to provide students with a more flexible and personalized learning path. Research has shown that this model improves the efficiency and effectiveness of learning by adapting the content and methods of instruction to student‘s individual learning styles and progress. However, effective implementation of blended learning is not without its challenges. Teachers need to carefully design classroom tasks to ensure that online and face-to-face teaching sessions are seamless. At the same time, the way teachers and students interact with each other needs to be adapted to this new mode of teaching, which may involve adjustments in teaching strategies and communication skills. Additionally, student adaptability is a key factor, as not all students are able to adapt quickly to this blended learning environment.

With the continuous progress of artificial intelligence technology, its application in the field of language learning is also deepening. The application of AI technology is not limited to automated language assessment and recommendation of personalized learning paths but also extends to the development of intelligent tutoring systems and adaptive learning platforms [9]. The development of these technologies has not only changed the scenarios of language learning but also broadened the scope of language learning, enabling learners to practice language in more diverse environments. However, the application of new technologies also brings new challenges. How to ensure that the technology is fair and inclusive, how to assess and enhance learning outcomes, and how to integrate digital tools and multimodal media to support effective language

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learning are all hot issues in current research.

In summary, research in the field of CALL is facing unprecedented development opportunities and, at the same time, needs to address a series of new theoretical and practical issues. Future research needs to bridge the gap between theory and practice by continuously exploring and validating the effectiveness of new technologies in language education to promote the effectiveness and sustainability of language learning.

3.2 Disadvantages of CALL

Computer-assisted language learning (CALL) as an educational technology has indeed revolutionized language teaching and learning, but some challenges and limitations also accompany it.

Technology dependency: The popularity of CALL may lead to learners becoming overly dependent on technology, which may undermine their ability to learn independently. Learners may be overly reliant on the instant feedback and answers provided by the software rather than solving problems through their own thinking and practice. This dependency may affect the learner‘s ability to use the language independently without the aid of technology.

Lack of cultural understanding: Language is more than a set of grammatical rules and vocabulary; it is deeply rooted in culture. CALL tends to focus on teaching language forms and may overlook the importance of cultural background and context. This bias may lead to learners‘ lack of cultural sensitivity in language use and difficulties in understanding and using cultural elements in language.

Limitations of practical application: Although CALL provides rich language input, learners may lack the opportunity to apply what they have learned to real-life situations. The actual application of language needs to be practiced in real social interactions, which CALL often fails to fully simulate.

Reduced face-to-face communication: An important aspect of language learning is face-to-face communication and interaction, which helps learners to develop fluency and naturalness in the language. CALL may reduce direct teacher-student and student-student communication, which may affect learners‘ communicative language skills.

Challenges of personalized learning: While CALL can provide a degree of personalized learning experience, it may not be able to fully replace the ability of human teachers to provide personalized feedback and guidance. Each learner has their own unique learning style and ability level, and the CALL system may not be able to fully accommodate these differences.

Development of social skills: Language learning is not only about learning the language itself but also about developing social skills to communicate with others. CALL may limit the opportunities for learners to develop these skills because they lack the experience of interacting with real humans.

To overcome these limitations, CALL research and practice need to continually explore how to better integrate technology with the role of the human teacher and how to design language learning activities that promote cultural understanding and practical application. At the same time, the design of CALL tools should also take into account learners‘ individual needs and provide a more flexible and adaptable learning experience. In addition, CALL should be seen as a complementary tool for language learning and not as a substitute for traditional face-to-face instruction. In this way, CALL can maximize its advantages while reducing its potential negative impact.

3.3 Future Research Directions

CALL can pay more attention to students‘ emotional changes on the technical side and build a contextual recommendation system to achieve dynamically optimized content recommendations. Recommender systems not only push content based on the learner‘s performance and behavior, but also consider their emotional state. By recognizing emotional changes, the system can adjust the recommended content to better suit the needs of the learner and the characteristics of the environment. In this way, students can be more actively engaged in learning tasks and have a personalized learning experience. Traditional CALL rarely considers the emotions of the learner. As researchers and educators have gained a deeper understanding of how emotions affect learning, more and more adaptive CALLs have begun to take learners‘ emotions into account to improve their learning processes, as well as intelligently manage learners‘ emotions and mobilize the interplay between emotions and learning behaviors to facilitate the onset and maintenance of positive learning behaviors.

In addition to this, therefore, big data access currently provides the means to track learner performance; data mining techniques can reveal learners‘ hidden behavioral patterns and help students develop effective learning strategies and expand personalized learning paths. In addition, the feedback and assessment provided by the machine are gradually becoming more personalized based on the individual learner differences shown by the data. With the help of an intelligent teaching system, students‘ ability to self-identify and correct errors will also be improved. In the future, CALL learning will further promote research on language

use characteristics and personalized development paths [10].

4. Conclusion

In the context of accelerated globalization, the integration of AI and social media provides a brand-new path for language learning, especially the development of personalized language learning, which is becoming more mature. Through its powerful data processing and analysis capabilities, AI can customize personalized learning programs for learners, improving the efficiency and effectiveness of learning. Whether in the four aspects of listening, reading, and writing or vocabulary mastery, AI can help students improve their language skills comprehensively by means of intelligent feedback mechanisms, speech recognition technology, and writing error correction systems. At the same time, introducing social media allows learners to easily access diversified language resources in their daily interactions, realizing a more immersive language learning experience.

However, with the convenience brought about by the combination of AI and media, many new issues are emerging. First, over-reliance on technology may diminish learners‘ autonomy and affect their ability to solve problems independently. In addition, while AI‘s recommendation system can help students personalize their learning, it may neglect the teaching of cultural context, resulting in learners‘ lack of cultural sensitivity in language use. At the same time, although AI is able to simulate certain linguistic communication scenarios, it is still difficult to completely replace the real interaction between people, which is crucial for the natural application of language and fluency improvement.

In the field of computer-assisted language learning (CALL), technological developments continue to revolutionize language education, but there are also many challenges. Despite the enhancement of personalized learning paths, issues such as how to ensure the depth of cultural understanding and the development of learners‘ social skills during the learning process still need to be explored in depth. While the combination of AI and media has greatly expanded the avenues for language learning, it cannot completely replace the emotional communication and cultural transfer that occurs in traditional classroom teaching.

Overall, the convergence of AI and social media offers unprecedented opportunities for personalized language learning, but it also comes with challenges. Future research and practice will need to pay more attention to integrating the roles of technology and human teachers, balancing the individualized needs of learners with the development of cultural and social skills, and ensuring the sustainability of AI technology in education. This is not only the direction of the deep integration of AI and the education field but also an important issue in promoting the innovation of language learning.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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