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Original article

RESEARCH ON AI TOOL USAGE AND LANGUAGE ACQUISITION IN FOREIGN LANGUAGE EDUCATION

Liying Pan

Abstract

Background. With various AI tools represented by ChatGPT and Grammarly deeply integrated into higher foreign language education, the teaching models of this field have entered a critical period of transformation from technical assistance to intelligent integration. Through timely feedback and personalized guidance, these tools are gradually becoming important aids for teachers and students in the conduct of writing tasks, oral practice, and personalized independent study.

The **purpose** is to employ the Technology Acceptance Model and Second Language Acquisition theories to examine how AI tool usage behaviors, such as frequency, scenarios and purposes, affect foreign language acquisition outcomes, with particular emphasis on testing the mediating roles of perceived usefulness and perceived ease of use.

Materials and methods. To investigate two distinct groups, i.e., university foreign language students and teachers, this research employs questionnaire surveys and documentary analysis to examine their AI tool usage behaviors, technology acceptance levels, and the relationships between these factors and self-perceived effectiveness in language acquisition or teaching.

Results. Survey results indicate that purposeful and high-frequency use of AI tools enhances learners' perceived usefulness of these technologies, and this value recognition ultimately translates into significant progress in language proficiency. While this study confirms these benefits, it also highlights the risk of excessive dependence on AI undermining learning autonomy. Future research should therefore focus on investigating the long-term

impact of AI tools on the development of learners' higher-order thinking skills, including critical thinking and innovative capacities.

Keywords: artificial intelligence; foreign language education; AI user behavior; AI technology acceptance; second language acquisition

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Научная статья

ИССЛЕДОВАНИЕ ИСПОЛЬЗОВАНИЯ ИИ-ИНСТРУМЕНТОВ И ПРИОБРЕТЕНИЯ ЯЗЫКА В ИНОСТРАННОМ ЯЗЫКОВОМ ОБРАЗОВАНИИ

Лиин Пань

Аннотация

Обоснование. С глубокой интеграцией различных инструментов искусственного интеллекта, среди которых выделяются ChatGPT и Grammarly, в высшем иностранном языковом образовании наступает ключевой период трансформации педагогических моделей, которая направлена от технической поддержки к интеллектуальной интеграции. Благодаря предоставлению своевременной обратной связи и индивидуального консультирования эти инструменты постепенно становятся важным вспомогательным средством для преподавателей и студентов при проведении письменных работ, тренировок устной речи, а также организации индивидуализированного самостоятельного обучения

Цель. В рамках модели технологического принятия и теории усвоения второго языка исследовать влияние характера использования инструментов ИИ (частоты, сценариев, целей) на эффективность овладения иностранным языком, с акцентом на проверку ключевой опосредующей роли "воспринимаемой полезности" и "воспринимаемой простоты использования".

Материалы и методы. Для проведения исследования двух групп, а именно студентов и преподавателей иностранных языков в высших учебных заведениях, используются методы анкетирования и анализа научной литературы; особое внимание уделяется анализу характеристик поведения при использовании инструментов искусственного интеллекта, уровня принятия этих технологий, а также связи указанных факторов с субъективно воспринимаемыми результатами изучения иностранного языка (или педагогической деятельности).

Результаты. Результаты исследования показывают, что целенаправленное и частое использование инструментов искусственного интеллекта усиливает у обучающихся воспринимаемую полезность этих технологий; такое признание их ценности в конечном итоге трансформируется в значительный прогресс в языковых компетенциях. Однако существует и риск, что чрезмерная зависимость от искусственного интеллекта может подорвать самостоятельность обучающихся, поэтому следует сосредоточиться на изучении его долгосрочного влияния на развитие высших форм мышления, таких как критическое и инновационное.

Ключевые слова: искусственный интеллект; обучение иностранному языку; поведение пользователей ИИ; овладение вторым языком; принятие технологий ИИ

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Introduction

With the rapid development of higher education, teaching quality has become a core issue of widespread social concern. AI tools are regarded as a key force for improving educational quality, and particularly in foreign language teaching, they exhibit significant advantages in the provision of contextualized practice and immediate feedback. Despite the wider application of AI tools in foreign language education, there remains a lack of systematic empirical support for the mechanism through which they influence learning outcomes.

Meanwhile, higher education in foreign languages is in the middle of a core transformation from "digital assistance" to "intelligent reshaping", and traditional rigid teaching models can hardly adapt to the new educational ecosystem. The cultivation objectives for foreign language talents are in a process of parallel evolution. In the digital economy era, whether foreign language education can cultivate new-type talents with the ability to integrate interdisciplinary knowledge, the applied ability to combine theory with practice, and sound digital literacy has become a key new standard for measuring foreign language education effectiveness.

Research on artificial intelligence technology began in the 1950s. In the early stage, expert systems found their main application in fields such as military affairs, and this laid the technical foundation for rule-based reasoning. Later, AI expanded gradually into the field of education and provided technical support for educational applications like intelligent tutoring systems [17]. Hinojo-Lucena et al. conducted a systematic analysis of 132 articles related to Artificial Intelligence in Education (AIEd) published between 2007 and 2017, using bibliometric methods. Their review confirmed global attention to Artificial Intelligence in Education, and at the same time emphasized that the period from 2007 to 2017 marked the initial stage of academic literature publication activities in this field [8].

AI, as a machine-based algorithmic technology, possesses predictive, diagnostic, recommendation, and decision-making capabilities. In recent years, its importance in the field of education has become increasingly prominent due to its potential application value in the support of diverse learning environments [11]. Take the globally popular ChatGPT as an example. As a typical representative of generative AI chatbots, it relies on large-scale language models and is capable of generating high-quality texts in different scenarios according to students' specific needs. Most studies point out that this technology shows broad applicability in the field of education [14; 15; 24]. The systematic integration of artificial intelligence technology into foreign language teaching contributes to the construction of more diverse language training environments and corpora, and at the same time provides a real and dynamic data foundation

for empirical research on foreign language acquisition and teaching intervention. Current studies mostly focus on the realization of technical functions and the verification of short-term effects, while systematic research on long-term and medium-term language proficiency development from the perspective of behavioral characteristics remains insufficient. This study adopts a questionnaire survey method to reveal the internal connection between AI tool usage patterns and foreign language acquisition effects. The ultimate goal of this study is to construct an empirical data-based explanatory model of "usage behavior-acquisition effect", which can provide a theoretical basis and practical guidance for the optimization of AI-assisted foreign language teaching.

The fundamental purpose of the in-depth integration of AI and foreign language education is to better serve the objective laws of language acquisition. Therefore, a grasp of second language acquisition theories is of crucial importance.

In practical foreign language teaching, learners have already achieved proficiency in the use of their first language. Therefore, teachers should take a more proactive approach to the innovation of their teaching philosophies and methods, and abandon the traditional teaching model that "focuses primarily on the inculcation of linguistic knowledge".

Second Language Acquisition (SLA) refers to the process in which learners, based on their first language mastery, make active adjustments or gradually break away from the linguistic habits and cognitive patterns of their mother tongue to further construct the knowledge system and application competence of a second language. In this process, learners' learning behaviors exhibit both passivity and initiative. The passivity is reflected in the requirement for learners to receive and internalize the linguistic rules of the second language, as well as to reorganize and coordinate their established linguistic knowledge system; the initiative is manifested in learners' ability to set clear learning goals based on their own needs, improve their comprehensive linguistic competence through continuous language practice, and ultimately achieve fluent and context-appropriate language expression.

Beyond linguistic forms and skills, another goal of Second Language Acquisition (SLA) is intercultural awareness [19; 30]. Howev-

er, the attainment of linguistic competence does not equate to cultural understanding. As a high-level cognitive and affective competence, intercultural awareness usually relies on intentional instructional intervention, authentic intercultural experiences, and systematic reflection on cultural differences. It does not form naturally alongside the process of second language acquisition. In higher foreign language education, teachers should systematically integrate Second Language Acquisition (SLA) theory into their teaching and continuously refine and optimize their teaching philosophies and methods. With the help of this theory, teachers can more acutely identify students' needs and difficulties during the learning process, thereby providing more supportive instructional interventions and effectively enhancing students' motivation for second language learning and their self-efficacy.

Acculturation plays a key role in second language acquisition. As Norton and Kramsch pointed out, if learners do not achieve a certain level of acculturation, the effectiveness will be very limited even if they receive systematic target language instruction [18]. Foreign language teaching should not remain merely at the surface level of language; it should further promote learners to engage with the deep dimension of intercultural understanding. In this way, the integrated acquisition of language and culture in the true sense can be achieved.

Material and methods

This study adopts a cross-sectional survey design to collect quantitative data at a single time point through questionnaires, and systematically explores the behavioral characteristics, technology acceptance of artificial intelligence tools among two groups, namely foreign language students and teachers in colleges and universities, as well as the correlations between these factors and their self-perceived language acquisition or teaching effectiveness. The theoretical framework of the study integrates the core dimensions of the Technology Acceptance Model (TAM) and second language acquisition theory, and establishes a conceptual model with "usage behavior" as the antecedent, "technology acceptance" as the mediator, and "acquisition effectiveness" as the outcome, so as to

reveal the actual effects and mechanism of AI tools integrated into foreign language education.

The first part of the questionnaire focuses on the collection of respondents' background information, mainly gathering variables such as identity category, target foreign language, and years of learning. The second part conducts an in-depth investigation into users' interaction behaviors with AI tools, and depicts the characteristics of behavior patterns through variables like usage frequency and usage purpose. The third part adopts a 5-point Likert scale to measure the psychological perception dimension, and concludes with the measurement of attitudes toward AI predictive modeling; these together form the core variable system of the predictive model. The study covers variables from background information to specific behaviors, and then to in-depth psychological perceptions, with each variable clearly defined. This provides an effective measurement basis for the subsequent implementation of descriptive statistics.

Finally, a total of 200 questionnaires were distributed online, among which 150 were valid.

Results and discussion

Although the application of AI tools in foreign language teaching has become increasingly widespread, the relationship between these tools and language acquisition outcomes is far from a simple "use equals benefit". This association is influenced by the complex interaction of multiple factors, such as usage methods, learners' individual differences, and teaching contexts, and its internal mechanism still requires in-depth analysis from the perspectives of cognitive and metacognitive theories. Zhao indicated in his survey study that although students possess a certain level of awareness of English autonomous learning, their specific behavioral performance in the actual learning process still needs improvement, and they have not fully transformed the concept of autonomous learning into practical actions[34]. Most students lack confidence in completing learning plans and overcoming learning difficulties, and they also lack awareness of monitoring the completion of their own learning plans.

From this perspective, the French linguist Holec was the first to introduce the concept of autonomous learning into the field of second language acquisition research, and defined this competence as "an individual's ability to self-manage the learning process"[9]. He further elaborated that this competence is specifically manifested in learners' capacity to independently set learning goals, select learning content and progress pace, adopt appropriate methods and techniques, monitor the learning process, and ultimately conduct self-assessment of learning outcomes. At the same time, metacognitive theory provides a deeper cognitive framework for understanding this self-management process. Schraw and Moshman defined metacognitive theory as "an individual's knowledge and regulation of cognition", whose core value lies in explaining cognitive phenomena and predicting cognitive behaviors[21]. This theoretical framework is highly consistent with the needs of higher foreign language education and second language acquisition.

Based on the aforementioned theories, AI tools should not be regarded merely as auxiliary means for providing answers or immediate feedback; they should rather serve as "cognitive partners" that support students in conducting independent planning and reflection. For instance, when learners use AI to generate initial texts and adjust instructions repeatedly to enable AI to help optimize logical structure and stylistic features, this process goes beyond simple language practice and transforms into a clear metacognitive practice. Learners continuously evaluate the gap between their current expression and their ideal goals, and proactively adjust learning strategies to get closer to their communicative intentions. In this way, they achieve an efficient learning experience similar to cognitive guidance in a technological environment.

Whether AI tools can effectively promote language acquisition largely depends on whether learners can shift from viewing them as simple tools to truly use them for the support of thinking and learning processes. If learners only turn to AI for mechanical vocabulary lookup, direct sentence translation, or direct adoption of ready-made expressions, such superficial use is often difficult to bring about substantial improvement in language competence. On the contrary, it may strengthen dependence

on technology and weaken learning initiative. By contrast, learners who engage in situational dialogues with AI to develop communication skills, or restructure essays and refine expressions based on AI feedback, usually show more obvious progress in the accuracy of language expression. The key to this effect lies in whether learners have good metacognitive strategies, which are specifically reflected in whether they can issue instructions with clear goals or whether they can critically examine the content generated by AI and finally internalize the gains from human-computer interaction into a part of their own language system. As Hadley and Boon pointed out, when they make use of language materials generated by artificial intelligence [7], both teachers and students should develop critical thinking to examine the content in a systematic and reflective way (Fig. 1).

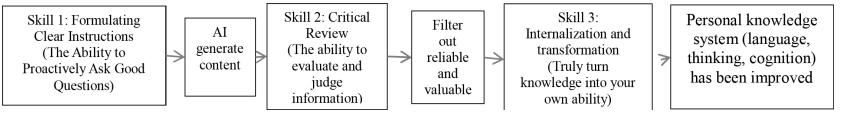

Fig. 1. Learner Competence Development Model in the Artificial Intelligence Era

Through the statistical analysis of 150 valid questionnaires, this study reveals that students account for the largest proportion of user groups, followed by teachers. In terms of application methods, teachers mostly use AI tools for lesson preparation and teaching resource design; this is consistent with the research view of Guan et al., which states that AI can assist teachers in conducting teaching work more efficiently through personalized and adaptive teaching [6]. By contrast, students mostly rely on AI tools for extracurricular independent learning, with wide application particularly in links such as oral practice, writing assistance and translation exercises. In addition, the education system empowered by artificial intelligence also shows potential to analyze classroom dynamics and student participation; it helps identify students with learning difficulties in real time to provide support for timely intervention, and this function is also consistent with the research conclusion of Tsai et al. [27].

From the perspective of target languages, English learners show a higher frequency of use and dependence, as the technology of relevant

AI tools is mature and their resources are abundant. Users of less commonly taught languages, however, have relatively low usage rates, constrained by the incomplete functions of such tools, and their use mostly focuses on basic translation functions.

The questionnaire report shows that AI tools are highly popular in foreign language learning. 80% of respondents state that they will continue to use AI tools in the future and maintain a positive attitude toward their use. AI tools can help users accomplish foreign language learning more efficiently, especially in the aspects of foreign language writing and speaking skills. Over half of high-frequency users indicate that they often rely on AI tools to prepare for speaking exams. This result is consistent with Ali's review study on automatic speech recognition. In his study, Ali found that AI can assist interpersonal communication through the recognition of human speech; AI tools can conduct intelligent conversations through keyword match technology, and this function is used to evaluate students' speaking ability [1].

The effectiveness of personalized language education, as emphasized by Chen et al. [3], is also verified in this study. AI can meet the needs of different learners: nearly 70% of respondents hold the view that AI is capable of providing timely feedback and personalized learning support; meanwhile, 82.17% of respondents express the expectation that AI can accurately predict learning difficulties during the learning process and provide personalized learning suggestions based on this prediction (Fig. 2).

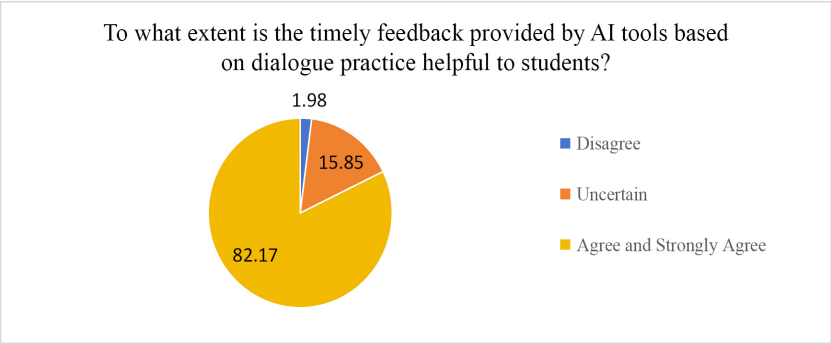

Fig. 2. Proportion of Survey Results on the Helpfulness of AI to Students

In terms of language acquisition effectiveness, the frequency of AI tool use and specific application scenarios exert a significant impact on the improvement of users' foreign language proficiency. High-frequency users show significantly better self-assessment results than low-frequency users in dimensions such as oral expression, writing quality and learning efficiency, with a more prominent advantage particularly in oral English. In addition, users who mainly use AI tools for "document or material translation" report better feedback in foreign language reading and writing abilities; by contrast, users who take "expression generation and optimization" as their main goal receive more positive evaluations in foreign language output abilities. Users of less commonly taught languages, however, generally give lower evaluations on the improvement of various abilities than English learners, which reflects an obvious imbalance in language support provided by AI tools.

However, the effectiveness of AI tool use does not depend solely on frequency, the relevance of application scenarios and consistency with learning goals are equally crucial. For instance, in writing and speaking practice, learners who use AI in a targeted and structured manner to obtain feedback and make revisions show a much greater improvement in language proficiency than those who use AI generally without clear purposes. On the other hand, although AI tools demonstrate a positive effect of immediate assistance, users generally point out that limitations still exist in aspects such as the conveyance of cultural contexts, the handling of professional terminology, and the generation of long logical texts.

The data also shows that some users hold concerns about dependence in study caused by excessive use of AI tools. In addition, half of the users worry that AI may lead to "labeling" during the data collection process or involve privacy issues.

Compared with traditional methods, AI tools show significant advantages in foreign language learning, such as strong interactivity, personalization and high data processing capability. As reviewed by Pokrivcakova, these advantages are reflected in multiple aspects of language education [20]. They can create a highly targeted language environment for learners by offering support including grammar checking, writing polish,

translation assistance, content generation and speaking practice. To be specific, the support covers provision of personalized learning content, delivery of cross-language translation, use of chatbots for conversations, and development of intelligent virtual reality technology for learners to practice speaking. These functions provide real-time and diversified training resources, which can effectively promote the comprehensive development of foreign language learners' listening, speaking, reading and writing abilities.

These technological advantages provide a new path for in-depth foreign language learning. Tochon argues that in-depth foreign language learning relies on abundant language resources and diverse interaction methods; through in-depth cognitive processing of knowledge, it promotes the completion of higher-order tasks and language internalization [26]. Currently, with its notable portability and flexibility, AI tools offer a new path to achieve this goal. They not only break the constraints of time and space, making learning anytime and anywhere possible, but also help learners conduct speaking practice in diverse contexts by building highly realistic immersive dialogue environments. The survey data of this study shows that nearly 80% of respondents express their willingness to continue using AI tools in the future. This trend not only reflects learners' recognition and acceptance of new teaching paradigms, but also indicates that AI technology has broad application prospects in the promotion of personalized learning, the establishment of adaptive language environments, the empowerment of teachers' role transformation, and the reshaping of the foreign language education ecosystem. As a new dimension, artificial intelligence has become a new type of learning mediation technology, which provides unlimited teaching possibilities for second language learning [28].

However, behind technology empowerment lies a hidden concern of weakened autonomy, forming a "paradox" where high acceptance coexists with dependence risks. Vigilance must be maintained against the potential inhibitory effect of excessive reliance on AI tools on learners' motivation and initiative. Huang et al. emphasize that artificial intelligence needs to shift from technology-oriented applications to human-cen-

tered applications: the former emphasizes improvement in production and performance, while the latter focuses on the integration of human and machine intelligence [10]. Yang et al. refer to this new trend of artificial intelligence as Human-Centered Artificial Intelligence (HAI) and point out that some limitations of Artificial Intelligence in Education (AIEd) can be addressed through HAI [32]. Therefore, in current higher education foreign language teaching, how to combine intelligent technology with autonomous learning more effectively and explore a collaborative model that can not only leverage the advantages of technology but also promote human subjectivity has become an important topic worthy of in-depth discussion.

To build this new paradigm of human-machine collaboration, a series of challenges at the technological and ethical levels must be addressed as priorities. With the continuous advancement in the field of artificial intelligence, product developers and publishers must prioritize the resolution of key issues. For example, in terms of obtaining training datasets, it is necessary to collect diverse learning data covering different languages and different students, including classroom interaction records, assignment completion status, and exam scores. Such data serves as the foundation for optimizing AI applications in foreign language education. In terms of data privacy protection, it is necessary to be familiar with and comply with various data privacy protection regulations. Foreign language learning data may contain students' personal information such as voice recordings and written works, so strict measures must be taken to ensure the security of students' information and prevent data leakage. In the aspect of algorithm bias prevention, it is essential to ensure that AI applications will not produce unfair evaluation or teaching guidance for foreign language learners with different native language backgrounds and learning styles due to biases in training data, so as to maintain the fairness of foreign language education. At the same time, it is also necessary to improve the transparency of model decisions, enabling teachers and students to clearly understand the basis for AI's evaluation of foreign language learning performance and the generation logic of teaching suggestions. This helps enhance their trust in such AI

tools. The essence of these technological challenges is, in the final analysis, profound ethical issues.

In the process of educational application of AI tools, ethical issues have become a core topic of concern among academic circles and ordinary users. To address the ethical issues arising from the application of AI tools, Ismail developed an ethical content standard based on the Technological, Pedagogical, and Content Knowledge framework [13]. This standard is used to assess teachers' level of pedagogical knowledge in integrating AI. On the other hand, in the research on artificial intelligence models, Wolf attempted to embed ethical templates directly into chatbot systems [31]. This effort aimed to avoid ethical issues such as racial discrimination and gender discrimination from a technical perspective. It is evident from this that in studies related to AI-empowered foreign language teaching, considerations of the ethical dimension have received high attention.

Beyond technological and ethical factors, emotional and motivational factors in foreign language learning are equally crucial, as they directly influence the depth of human-machine interaction. The low-pressure environment built by AI helps alleviate foreign language anxiety and boost confidence in speaking. Survey data shows that the timely feedback provided by AI tools is highly beneficial for foreign language learning, whether for students or teachers. The system detects students' emotions and develops matching learning materials to help them avoid learning anxiety. For example, when the system detects negative emotions, it will provide relatively simple learning tasks; this approach helps boost students' confidence [2]. Automated essay scoring systems can offer abundant formative feedback, which addresses the issue that teachers tend to provide summative feedback due to limited teaching time [4]. However, it is worth noting that only students who learn out of a genuine willingness for communication, instead of merely to complete assignments, are more likely to establish deeper interaction with AI. In this way, the potential of artificial intelligence in foreign language learning can be truly unleashed.

The most effective positioning of artificial intelligence in higher education remains that of an auxiliary tool. Its core value lies in working

in collaboration with teachers, rather than replacing teachers' core role. Mucoz-Basols et al. argue that to integrate artificial intelligence into education, it is necessary to consider not only the characteristics of the teaching environment but also the elements and steps required for the implementation of artificial intelligence in the field of language learning from both pedagogical and ethical perspectives [16]. He mentions the need to systematically integrate learning portfolios, language exposure, and language materials to fully leverage the role of this technology in second language teaching and learning. Currently, most AI applications still lack validation of their effectiveness in real-world scenarios. Therefore, practical decision-support tools should be developed to verify whether AI educational applications can adapt to real scenarios and become effective tools [12].

As a new type of tool, AI tools can be used by educators and learners. By extending learning beyond traditional environments and providing more opportunities for language exposure and practice, they hold great potential to enhance learning. However, how educators respond to the challenges and opportunities brought by this technology will directly affect its integration effect in classrooms [22]. Meanwhile, as Pokrivcakova emphasizes, in the era of widespread AI application, teachers also need to focus on developing relevant technological literacy and integration capabilities, and this will be the key to achieving a balance between intelligent empowerment and human development [20].

To truly enhance the application effectiveness of AI tools in foreign language education, collaborative innovation in teaching philosophies and design methods is essential. Teachers need to guide students to establish AI usage patterns with clear goals and definite strategies, and strengthen their sense of subjectivity and reflective awareness in human-AI collaboration; they should deeply integrate AI into the learning cycle of "planning, practice, assessment and adjustment", and this integration allows AI to play the role of a cognitive scaffold in multiple links such as writing conception, oral simulation, and cultural simulation. In particular, emphasis should be placed on AI's unique advantages in the promotion of intercultural understanding and pragmatic awareness, so

as to make up for the deficiency of traditional classrooms in the provision of real contexts.

The educational value of AI technology does not lie in the replacement of teachers' functions; instead, it lies in the creation of possibilities for the building of a more empowerment-oriented, adaptability-oriented and reflection-oriented foreign language learning environment. Most studies in the field of Artificial Intelligence in Education (AIEd) mentioned by Zawacki-Richter et al. still lack experimental designs that "make a comparison between artificial intelligence and traditional instruction" to verify effectiveness in a systematic way. This gap results in insufficient evaluation of the actual instructional value of AI-based education systems. Researchers need to shift their focus from mere attention to the improvement of subject-related outcomes to an examination of AI's role in the cultivation of specific competencies. Future studies should further explore the impact of AI on the development of learners' higher-order thinking, which will help teachers gain a deeper understanding of how technology can serve more essential educational goals [25]. Future research on AI tools in foreign language education needs to further focus on "how to use them" rather than merely focus on "whether to use them".

Conclusions

Thanks to the advancement of generative artificial intelligence, today's AI tools can not only accurately identify literal meanings but also deeply understand various linguistic phenomena including idioms and metaphors, and generate corresponding translations based on different usage scenarios. In fact, as millions of users input a large amount of linguistic content every day, these tools are becoming increasingly powerful; in other words, artificial intelligence continuously learns through interaction with humans, thereby constantly improving its response capabilities [16].

As Godwin-Jones points out, with the significant enhancement of artificial intelligence's language processing capabilities, language professionals in various fields can hardly ignore the functions of these intelligent tools, as well as the public's expectations regarding the language-related

developments of these tools [5]. This trend is particularly prominent in the field of foreign language teaching.

In the field of higher education foreign language teaching, the evolution of artificial intelligence technology is undergoing a profound transformation from pure text processing to multimodal integration, gradually covering diverse information forms such as images, audio, and video. This transformation has a profound impact on the development and use of foreign language teaching resources: corpus types have expanded from traditional texts to cross-modal materials, driving the teaching environment to evolve toward immersion and interactivity. Accompanying this is the diversification and complication of AI usage behaviors among teachers and students, such as using multimodal tools to achieve real-time pronunciation correction, cross-cultural scenario simulation, and academic audio-visual comprehension training. These specific application scenarios reshape the interaction mode of "teaching" and "learning" while directly affecting the quality of language input and the effect of language output.

Mucoz-Basols et al. propose that AI tools have long been integrated into people's daily lives for decades. Their applications extend beyond professional fields and have also penetrated widely into education and daily communication [16]. For instance, grammar checking tools such as Grammarly and Ginger, as well as machine translation tools like DeepL and Google Translate, have become commonly used aids in daily language practice.

Currently, the demand for interdisciplinary foreign language talents in the market and among national entities has increased significantly. The traditional teaching model centered on knowledge imparting is limited by its unitary and standardized content design, making it difficult to meet learners' personalized needs for competence and literacy development. Higher-order literacies such as cross-cultural communication competence and critical thinking ability have gradually replaced traditional language skills, and have become core indicators in the foreign language talent development system of the new era. We must ensure that the integration of artificial intelligence does not diminish learners' opportunities to acquire

key skills. These skills, defined by UNESCO as core to the development of 21st-century citizens, include ingenuity, self-efficacy, self-regulation, metacognition, and critical and independent thinking [29]. Therefore, in the construction of future teaching systems, artificial intelligence should be regarded as an important force for promoting educational innovation and reform. It can assist in curriculum planning and respond to teaching needs, while also facilitating the realization of personalized learning and supporting the effective implementation of diverse teaching activities and resources. In this way, it systematically enhances learners' language proficiency in additional languages and cross-cultural communication capabilities [16].

With the widespread penetration and application of intelligent technology in the field of education, the AI-assisted learning model, leveraging its advantages of personalization and intelligence, is gradually breaking through the limitations of traditional foreign language teaching and becoming a normalized development direction in educational practice. Through an in-depth analysis of the inherent connection between the specific ways teachers and students use AI tools and the effects of foreign language learning, this study finds that the real role of artificial intelligence technology cannot be played without the alignment between users' behavioral habits and specific scenarios. Therefore, future research can go a step further by focusing on the in-depth causal relationship between "behavior and effectiveness" and, based on this, constructing a more intelligent and humanized foreign language teaching framework. This provides a new perspective for us to understand how human-AI collaboration shapes language learning, and also offers solid theoretical and practical foundations for promoting the development of foreign language education toward a more personalized and responsible direction.

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DATA ABOUT THE AUTHOR

Liying Pan, PhD Student

Peoples' Friendship University of Russia Named after Patrice Lumumba

6, Miklukho-Maklaya Str., Moscow, 117198, Russian Federation

panliying@mail.ru

ORCID: https://orcid.org/0009-0006-7547-5803

ДАННЫЕ ОБ АВТОРЕ

Пань Лиин, аспирант

Российский университет дружбы народов им. Патриса Лумумбы

ул. Миклухо-Маклая, 6, г. Москва, 117198, Российская Федерация

panliying@mail.ru

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