Scientific and Social Research, 2026, Volume 8, Issue 10
https://bbwpublisher.com/journal/SSR
Online ISSN: 2981-9946
Print ISSN: 2661-4332

Acceptance of Artificial Intelligence-Assisted Chinese Learning Among International Students in China: A Study Based on the Unified Theory of Acceptance and Use of Technology (UTAUT)

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Abstract: Based on the Unified Theory of Acceptance and Use of Technology (UTAUT), this study investigates the acceptance of artificial intelligence-assisted Chinese learning among 310 international students in China and constructs a theoretical model that influences their behavioral intention to adopt such learning approaches. The theoretical model encompasses four core variables: performance expectancy, effort expectancy, social influence, and facilitating conditions. The results reveal that: (1) Performance expectancy and facilitating conditions exert a significantly positive effect on behavioral intention; (2) Effort expectancy has a negative impact on behavioral intention; (3) Social influence shows no significant effect. The findings provide valuable implications for teachers and developers of artificial intelligence-assisted Chinese learning technologies. To better promote the application of artificial intelligence in learning scenarios, this study proposes four optimization strategies: enhancing the practicality and efficiency of AI learning tools, reducing users' learning costs and optimizing interactive design, strengthening the positive guidance of social norms and cultural context, and perfecting relevant technical support and supporting infrastructure.

Keywords: Unified Theory of Acceptance and Use of Technology (UTAUT); Artificial intelligence; International Chinese language education; International students in China

Online publication: November 3, 2026

1. Introduction

With the rapid development of artificial intelligence technology, AI profoundly transforms the mode of teaching and learning in the education field. Meanwhile, the application of AI in international Chinese language education could facilitate the provision of personalized teaching. Convenient auxiliary teaching

tools do not necessarily guarantee effective language learning for international students. In addition to the continuous improvement of AI technology, it is necessary to further examine international students' technology usage from their own perspectives, since their perception and adoption of AI technology can directly affect their Chinese learning outcomes. Now, research on international students in China's acceptance of AI remains relatively scarce, and there are likewise few studies that adopt the Technology Acceptance Model to explore their use of artificial intelligence in assisting Chinese learning. Based on the Unified Theory of Acceptance and Use of Technology (UTAUT) and questionnaire survey data, this study analyzes international students' acceptance of artificial intelligence and the influencing factors of AI on their learning behaviors, which aims to provide references for the development of educational technology in the field of international Chinese language education.

2. Literature review

2.1. Development and research of artificial intelligence in international Chinese language education

AI develops rapidly across the globe and has been applied in various fields, profoundly transforming the world. In an interview, Musk said that the advancement of AI is beyond imagination. Artificial General Intelligence (AGI) will be realized in 2026, and by 2030, the intelligence of AI will surpass the combined intellectual capacity of all humanity [1]. In November 2025, the Guidelines for Teachers' Application of Generative Artificial Intelligence (Version 1.0) were formulated aiming to better empower teacher development through artificial intelligence, promote the large-scale application of AI in education and teaching, and guide teachers to use general artificial intelligence in a scientific, safe, compliant, and rational manner [2]. In April 2025, the Ministry of Education issued the Opinions on Accelerating the Advancement of Educational Digitalization. The document calls for adhering to reform and innovation, proactively aligning with the development trends of new technologies such as artificial intelligence, and improving the institutional framework adapted to digital development [3]. In October 2025, the Explanation on the Proposals of the Central Committee of the Communist Party of China for Formulating the 15th Five-Year Plan for National Economic and Social Development stated that China should advance the integrated development of education, science and technology, and talent, and further promote the development of a Digital China [4]. The training objectives of the General Education Guidelines for Artificial Intelligence in Primary and Secondary Schools (2025 Edition) are to construct a hierarchical, progressive, and spirally upgraded general education system of artificial intelligence for primary and secondary school students, and cultivate their core competencies to adapt to an intelligent society. Through the organic integration of knowledge, skills, thinking, and values, it aims to foster an all-round literacy of artificial intelligence in a four-in-one framework, and cultivate students' scientific and innovative thinking, critical thinking, human-computer collaboration capability, AI literacy, and sense of social responsibility [5].

In May 2025, the Ministry of Education released an article titled "What Will the Future Classroom Look Like? Find Answers at the 2025 World Digital Education Summit," which states that the future classroom vividly demonstrates the application and development trends of "AI + XR" technologies in education, showcases innovative pathways for cultivating top-tier talents of the new generations, explores the future education ecosystem, and provides a Chinese solution for building a new paradigm of education with global smart collaboration [6].

In recent years, a wealth of research and curriculum development related to artificial intelligence has emerged. Representative examples include research on human-computer interaction technology in virtual reality immersive learning (Shen Yang et al., 2023), as well as training courses focused on intelligent agents [7]. As stated in the General Education Guidelines for Artificial Intelligence in Primary and Secondary Schools (2025 Edition), the objectives of general artificial intelligence education are to foster students' scientific and innovative thinking, critical thinking, human-computer collaboration competence, artificial intelligence literacy, and a sense of social responsibility [8]. It is evident that artificial intelligence has become an irresistible general trend. Most existing relevant studies center on AI technology research and teachers' practical application of AI. Few studies carry out research from the learner perspective. There is a lack of research targeting international students in China to explore their acceptance of AI technology. Learner acceptance lays an important foundation for practical technology application. It is worthy of further in-depth research.

2.2. Technology Acceptance Model Theory

Fred Davis first proposed the Technology Acceptance Model (TAM) in his doctoral dissertation in 1986. Since then, Davis and his collaborators have revised and improved the model many times to enhance its explanatory power. The evolution of this theory can be divided into five stages: the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), the Technology Acceptance Model (TAM), the Extended Technology Acceptance Model (TAM2), and the Unified Theory of Acceptance and Use of Technology (UTAUT).

Numerous studies have shown that UTAUT can effectively explain the acceptance behavior of teachers and students toward various information technologies, such as online learning platforms and MOOCs [9–10]. In recent years, the UTAUT model has been introduced into the field of international Chinese language education to explain and predict Chinese learners' learning intention regarding online live courses [11]. The Technology Acceptance Model has also been adopted to investigate university English learners' acceptance of live teaching platforms, so as to explore online learners' acceptance of such platforms and their influencing factors [12]. Wei et al. published "CSL learners' acceptance and use of ChatGPT: an extended technology readiness and technology acceptance model," exploring CSL learners' acceptance and use of ChatGPT [13].

3. Research design and hypotheses

Based on the Unified Theory of Acceptance and Use of Technology (UTAUT) as the fundamental theoretical framework, this study draws on the proposition by Venkatesh et al. (2012) that future research on technology acceptance across various contexts should adopt this model. To enhance the model's explanatory power, they emphasized the necessity of extending the original framework by incorporating additional constructs [14]. Furthermore, to better align the model with the actual scenarios of international students in China who use artificial intelligence for Chinese language learning, this study conducts adaptive modifications to the original UTAUT model.

AI technology has a short development period. Some international students in China have no experience with AI-assisted Chinese learning tools. This study mainly analyzes their willingness to accept this learning mode. This study excludes the dependent variable usage behavior of the original UTAUT model from the research framework. Learners use AI-assisted Chinese learning on a voluntary basis. This study removes the moderating variable voluntary from the UTAUT model. Venkatesh et al. pointed out that in workplace

settings, facilitating conditions are usually provided by organizations and show little individual variation. Facilitating conditions have no significant impact on behavioral intention but exert a direct effect on usage behavior [15]. However, Venkatesh et al. found in the UTAUT2 model that in the context of consumers adopting new technologies, there are significant individual differences in facilitating conditions. Such conditions can directly affect both behavioral intention and usage behavior [16]. Given that international students in China come from diverse countries and their facilitating conditions vary considerably, the proposed research model retains the path from facilitating conditions to behavioral intention.

The revised research model is illustrated in **Figure 1**. It comprises four independent variables (performance expectancy, effort expectancy, social influence, and facilitating conditions), one dependent variable (behavioral intention), and five moderating variables (gender, experience, age, academic major, and Chinese proficiency). The core aim is to examine the influencing mechanism of the four independent variables on behavioral intention.

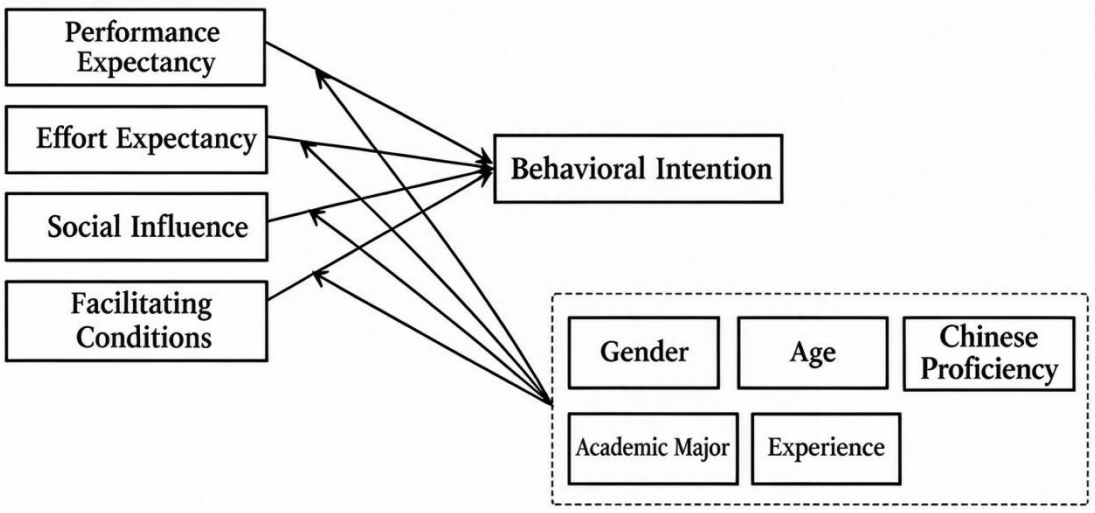


Figure 1. Initial model of international students in China's acceptance of AI-assisted Chinese learning

This model uses four core variables of the UTAUT theory. They are performance expectancy, effort expectancy, social influence, and facilitating conditions. It contains one dependent variable named behavioral intention. This study gives clear definitions to all variables. Performance expectancy means international students in China believe AI can improve their Chinese learning. Effort expectancy means these students feel it is easy to use AI for Chinese learning. Social influence means opinions from important people affect students' willingness to use AI in Chinese learning. Facilitating conditions mean students think they have enough resources to use AI for study. Behavioral intention means students are likely to keep using AI to learn Chinese later.

Based on the Unified Theory of Acceptance and Use of Technology (UTAUT) and relevant theoretical frameworks, combined with the actual situation of international students in China adopting AI for Chinese learning, the following research hypotheses are proposed:

H1: Performance expectancy has a positive effect on international students' behavioral intention to use artificial intelligence for Chinese learning.

H2: Effort expectancy has a positive effect on international students' behavioral intention to use AI-

assisted Chinese learning.

H3: Social influence has a positive effect on international students' behavioral intention to use AI-assisted Chinese learning.

H4: Facilitating conditions have a positive effect on international students' behavioral intention to use AI-assisted Chinese learning.

4. Questionnaire design and distribution

4.1. Questionnaire pre-test and revision

Prior to the official distribution of the questionnaire, the authors conducted a pre-test to ensure the scientific validity and reliability of the instrument. The pre-test questionnaire was distributed via the Wenjuanxing platform (a professional online survey tool widely used in academic research in China), and altogether 111 responses were collected. After collection, each questionnaire was subjected to validity screening to exclude invalid ones—12 invalid questionnaires were identified, resulting in an effective response rate of 89.1%. After sorting out the data from the pre-test questionnaire, SPSS 26.0 was adopted to conduct the item analysis, reliability analysis, and validity analysis on the pre-test sample.

Item analysis showed that all independent-samples *t*-values reached the significance level ($P<0.05$). All items of the pre-test sample were statistically significant, indicating that each item possessed good discrimination power. Reliability analysis was conducted using Cronbach's α coefficient, inter-item correlation, and Corrected Item-Total Correlation (CITC). The results verified that all latent variables in the questionnaire achieved satisfactory reliability. In addition, exploratory factor analysis was performed on the pre-test questionnaire data via SPSS 26.0, with factors extracted by means of Maximum Likelihood Estimation.

To sum up, the data verification results demonstrate that the questionnaire of this study possesses good reliability and validity, which is suitable for official distribution and subsequent empirical analysis.

4.2. Distribution and collection of the formal questionnaire

Based on the results of the preliminary pre-test analysis, the questionnaire was optimized and revised in this study, ultimately forming a formal questionnaire consisting of three parts with a total of 39 items. During the questionnaire design, an automatic skip logic was configured on the Wenjuanxing platform. Specifically, Question 7 in the first part asks respondents whether they have ever used artificial intelligence for assisted learning. Respondents who select "No" will be automatically exited from the questionnaire. This design ensures that all valid participants are international students in China with practical experience of AI-assisted learning. The questionnaire was issued online. University Chinese teachers helped spread it widely. It ensures diverse sample sources. It also guarantees reliable research data.

A total of 310 questionnaires were collected in the study, including 112 samples that had not used artificial intelligence-assisted learning. The authors further excluded questionnaires that were incomplete or did not meet the requirements, and finally obtained 183 usable samples. This screening procedure ensures the validity of the collected data and the scientific nature of the research findings.

5. Data analysis and research results

This chapter systematically analyzes the valid sample data to verify the proposed research model and hypotheses. It first conducts a descriptive statistical analysis of the sample data, followed by reliability and validity tests of the measurement scale. Structural equation modeling is adopted to examine the path relationships among variables and test the research hypotheses.

5.1. Descriptive analysis

This study has 183 valid participants. 54.45% of them are female, and 45.55% are male, so there are slightly more females. Most participants are young international students: 45.03% are 18–22 years old, 30.89% are 23–27 years old, and these two groups make up 75.92% of all participants. In terms of education, 48.1% are undergraduates and 19.1% are postgraduates, totaling 67.2% of the sample. For their majors, 29.5% study Chinese Language and 11.5% study International Chinese Language Education, which add up to 41.0%. Most participants have good Chinese skills: 74.3% are at HSK 3 to HSK 5 levels. So the sample is mainly medium and advanced Chinese learners who have studied Chinese for a medium or long time.

As shown by the descriptive statistical results in **Table 1**, Performance Expectancy (PE) and Facilitating Conditions (FC) present relatively high mean values with small variances, both exceeding 3 points on the 5-point Likert scale. This indicates that the two dimensions exert a significant influence on international students' acceptance of artificial intelligence tools. However, the item SI1 mean value under Social Influence (SI) is merely 2.77 with a relatively large variance, which implies insufficient recommendation from teachers in this regard and inconsistent perceptions among students. Effort Expectancy (EE) and Behavioral Intention (BI) obtain moderate mean values accompanied by large variances. This suggests that although international students generally recognize the ease of use and their willingness to adopt AI tools, substantial differences exist across student groups.

Table 1. Descriptive analysis of major variables

	N (Sample Size)	Minimum Value	Maximum Value	Mean		Standard Deviation	Variance
PE1	183	1	5	3.84		0.945	0.892
PE2	183	1	5	4.03	3.8725	0.904	0.818
PE3	183	1	5	3.74		0.936	0.876
PE4	183	1	5	3.88		0.965	0.931
EE1	183	1	5	3.91		1.002	1.003
EE2	183	1	5	3.77	3.79	1.044	1.090
EE3	183	1	5	3.72		0.964	0.930
EE4	183	1	5	3.76		1.083	1.173
SI1	183	1	5	2.77		1.220	1.488
SI2	183	1	5	3.54	3.5	1.098	1.206
SI3	183	1	5	3.77		1.075	1.156
SI4	183	1	5	3.92		0.963	0.928
FC1	183	1	5	4.03		0.960	0.922
FC2	183	1	5	3.57	3.725	1.008	1.016
FC3	183	1	5	3.80		0.936	0.876
FC4	183	1	5	3.61		1.032	1.064

BI1	183	1	5	3.93		0.961	0.923
BI2	183	1	5	3.80		1.036	1.074
BI3	183	1	5	3.60	3.736	1.074	1.154
BI4	183	1	5	3.50		1.128	1.273
BI5	183	1	5	3.85		0.937	0.878

5.2. Reliability and validity analysis

Reliability and validity tests were conducted on the formal questionnaire data to ensure the consistency and reliability of the sample data. As shown in **Table 2**, SPSS 26.0 was used to re-examine the data of the formal questionnaire. The results indicated that the reliability coefficients of all variables in the formal questionnaire were above 0.7, demonstrating an acceptable overall reliability of the questionnaire and requiring no further revision.

For validity, the KMO value is 0.932, and the significance P value is 0.000, indicating that the formal questionnaire is highly suitable for exploratory factor analysis to verify its validity. By adopting principal component analysis combined with maximum variance rotation, five factors with eigenvalues greater than one were extracted, with a cumulative variance explanation rate of 70.038%. This result verifies that the scale possesses satisfactory construct validity.

Table 2. Questionnaire reliability analysis

Variables	Cronbach's α	Number of Items
Performance Expectancy (PE)	0.854	4
Effort Expectancy (EE)	0.856	4
Social Influence (SI)	0.750	4
Facilitating Conditions (FC)	0.798	4
Behavioral Intention (BI)	0.911	5
Total Variables	0.946	21

5.3. Validity test of the measurement model

This study adopted AMOS 26.0 to conduct confirmatory factor analysis (CFA) for further examining the convergent validity of the measurement model. As presented in **Table 3**, a standardized factor loading above 0.5 indicates a strong correlation between each observed indicator and its corresponding latent variable. Meanwhile, an Average Variance Extracted (AVE) value greater than 0.5 reflects that the latent variable has a strong explanatory power for its observed indicators. In addition, Composite Reliability (CR) exceeding 0.7 suggests satisfactory internal consistency. The AVE values of Social Influence (AVE = 0.4325) and Facilitating Conditions (AVE = 0.4825) failed to reach the threshold of 0.5. The overall goodness-of-fit indices of the structural equation model are as follows: the core indices, including x^2/df=1.934 (<3), CFI = 0.928 (0.90), and RMSEA = 0.072 (<0.08), all met the excellent standard, which validates the feasibility of subsequent path analysis.

Table 3. Factor loadings (Convergent Validity)

PE1	<---	Performance Expectancy	0.805			0.8551	0.5964
PE2	<---	Performance Expectancy	0.766	0.082	***		
PE3	<---	Performance Expectancy	0.788	0.084	***		
PE4	<---	Performance Expectancy	0.728	0.088	***		
EE1	<---	Effort Expectancy	0.697			0.8606	0.6092
EE2	<---	Effort Expectancy	0.843	0.121	***		
EE3	<---	Effort Expectancy	0.863	0.112	***		
EE4	<---	Effort Expectancy	0.704	0.124	***		
SI1	<---	Social Influence	0.565			0.7513	0.4325
SI2	<---	Social Influence	0.678	0.159	***		
SI3	<---	Social Influence	0.641	0.152	***		
SI4	<---	Social Influence	0.735	0.144	***		
FC1	<---	Social Influence	0.633			0.7868	0.4825
FC2	<---	Social Influence	0.63	0.145	***		
FC3	<---	Social Influence	0.696	0.137	***		
FC4	<---	Social Influence	0.805	0.157	***		
BI1	<---	Social Influence	0.802			0.9128	0.677
BI2	<---	Social Influence	0.834	0.087	***		
BI3	<---	Social Influence	0.809	0.091	***		
BI4	<---	Social Influence	0.8	0.096	***		
BI5	<---	Social Influence	0.867	0.078	***		

5.4. Hypothesis testing analysis

5.4.1. Path analysis

AMOS 26.0 was employed to construct the structural equation model for this study. The collected data were imported into the established research model, and the standardized path coefficient diagram of the initial research model (**Figure 2**) was obtained to test the research hypotheses.

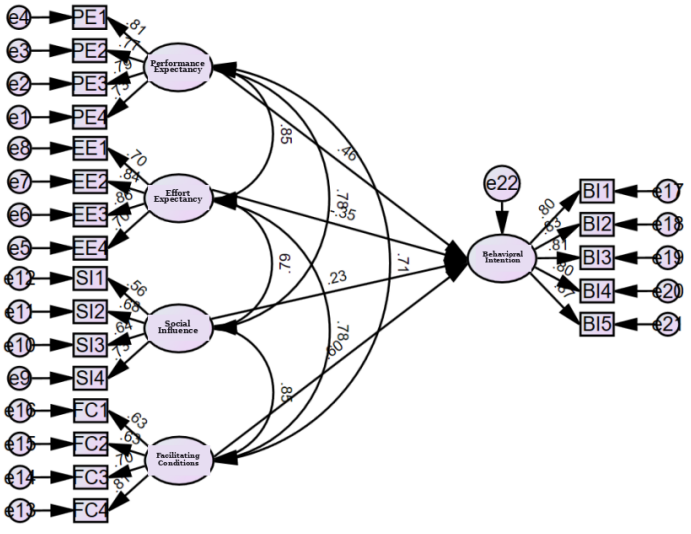


Figure 2. Path coefficient diagram of the structural equation model

5.4.2. Results of hypothesis testing

The detailed results of path analysis and the conclusions of hypothesis testing are presented in **Tables 4** and **5**.

Table 4. Summary of hypothesis testing results for H1–H4

Path	Standardized Regression Coefficient	*P*-value	Corresponding Hypothesis	Hypothesis Supported or Not
Performance Expectancy → Behavioral Intention	0.457	0.002	H1	Supported
Effort Expectancy → Behavioral Intention	-0.346	0.003	H2	Oppositely Supported
Social Influence → Behavioral Intention	0.233	0.216	H3	Not Supported
Facilitating Conditions → Behavioral Intention	0.603	***	H4	Supported

Note: *** indicates $P<0.001$, representing an extremely significant level

Table 5. Hypothesis testing results

No	Hypothesis	Testing result
H1	Performance expectancy has a positive effect on international students' behavioral intention to use artificial intelligence for learning Chinese in China.	Supported
H2	Effort expectancy has a positive effect on international students' behavioral intention to use artificial intelligence for auxiliary Chinese learning in China.	Not Supported (Negative Correlation)
H3	Social influence exerts a positive impact on international students' behavioral intention to use AI-assisted Chinese learning.	Not Supported
H4	Facilitating conditions exert a positive impact on international students' behavioral intention to use AI-assisted Chinese learning.	Supported

In summary, among the four hypotheses proposed in this study, H1 and H4 are statistically supported by the data, while H2 and H3 are not supported.

6. Research conclusions and implications

6.1. Research conclusions

Based on the UTAUT model, this study focuses on four core variables: performance expectancy, effort expectancy, social influence, and facilitating conditions, and explores the decisive factors influencing international students' behavioral intention to adopt artificial intelligence for assisted Chinese learning. The main conclusions are summarized in **Table 6** as follows:

The results show that the standardized regression coefficient of performance expectancy is 0.457 and the P value is 0.002, indicating that performance expectancy has a significant positive effect on behavioral intention. That is, the higher international students' performance expectancy of AI-assisted Chinese learning, the stronger their behavioral intention to use such learning tools. However, some students have concerns over the information accuracy and data security of AI tools, suggesting that there is still room for improvement in technical credibility.

The standardized regression coefficient of effort expectancy is -0.346 with a *P* value of 0.003, indicating that effort expectancy exerts a significant negative effect on behavioral intention, which is inconsistent with

the conventional assumption of the UTAUT model. It reveals that some technically proficient or advanced-level learners may reduce their willingness to use AI tools when the tools are perceived as overly user-friendly. Accordingly, tool design should strike a proper balance between ease of use and functionality and avoid excessive simplification.

The standardized regression coefficient of social influence is 0.233, and the *P* value is 0.216, indicating that its direct effect on behavioral intention is not statistically significant. According to Straub et al., the validity of social influence is highly dependent on whether the measurement items can accurately capture multidimensional social pressure (including subjective norms, group identity, and social image). Therefore, the insignificant statistical results may be attributed to the cultural diversity of international students, their strong tendency toward autonomous learning, or the inability of the measurement items to fully reflect the multidimensional attributes of social pressure. Social influence may exert an indirect effect on behavioral intention via variables such as performance expectancy and facilitating conditions.

The standardized regression coefficient of facilitating conditions is 0.603 ($P<0.001$), demonstrating that facilitating conditions exert a significant positive impact on behavioral intention. This indicates that the convenience of technical resources and supportive services perceived by international students plays an important role in promoting their willingness to use AI tools. Particularly, facilitating conditions are remarkably effective in lowering usage barriers and enhancing user trust.

Table 6. Survey on international students' acceptance of AI-assisted Chinese learning

Independent Variable	Mean Score of Independent Variables (5-point Scale)	Path	Standardized Regression Coefficient	*P*-value	Core Viewpoints	Overall Attitude Tendency
Performance Expectancy	3.89	Performance Expectancy→ Behavioral Intention	0.457	0.002	Highly recognized. Around 69% of students believe AI can improve learning efficiency and speed up task completion.	Positive
Effort Expectancy	3.815	Effort Expectancy→ Behavioral Intention	-0.346	0.003	Easy to use. Nearly 70% of students think it is effortless to learn and use AI.	Divergence
Social Influence	3.535	Social Influence→ Behavioral Intention	0.233	0.216	Weak environmental influence. Only 29% of students have received recommendations from teachers, while 72% are strongly influenced by friends' positive experience with AI.	Insensitive
Facilitating Conditions	3.7775	Facilitating Conditions→ Behavioral Intention	0.603	***(The strongest influencing factor)	No device access barriers. The convenience score of device availability reaches as high as 4.05.	Positive

Note: *** denotes $P<0.001$, indicating an extremely significant difference

6.2. Recommendations

Based on the above research findings, this study puts forward the following recommendations:

6.2.1. Enhance the practicality and efficiency

Optimizing natural language processing algorithms is the key to enhancing the practicality of AI tools, which enables artificial intelligence to understand and respond to learners' needs more accurately. Personalized learning paths can be developed according to the individual characteristics of different learners to realize tailored teaching. Meanwhile, the introduction of a real-time feedback mechanism helps correct learning errors in a timely manner and thereby improve learning efficiency.

6.2.2. Reduce users' learning costs and optimize interactive design

Starting from users' practical needs, providing clear multilingual user guidance and real-time help functions can effectively lower the usage barriers for non-native users. A well-designed and user-friendly interface can significantly improve operational simplicity. In addition, multi-modal learning support can be offered to precisely match the learning preferences of diverse users.

6.2.3. Strengthen the positive guidance of social norms and cultural background

Diversified and effective approaches can be adopted. Positive recommendations from authoritative figures such as teachers and language experts, together with the sharing of successful application cases in education, can enhance users' trust in AI tools. As an effective communication channel, social media platforms can release tool introductions, learning experiences, and user stories to attract potential users, encourage users to share their learning outcomes, and further form positive feedback. The coordination of the above two approaches helps improve the social recognition of AI tools and promotes them to exert greater practical value.

6.2.4. Improve technical support and infrastructure

Sound technical support and infrastructure serve as the guarantee for the widespread popularization of artificial intelligence tools. Optimizing compatibility with various devices can effectively improve user experience, while a stable network environment and offline functional support are equally essential. Reducing access costs can greatly expand user coverage. Furthermore, providing multilingual support and professional technical assistance enables users without a technical background to use AI tools with ease. These measures highlight usage barriers from multiple dimensions, including hardware adaptation, application scenarios, and cost thresholds, enabling AI tools to effectively serve diverse user groups.

6.3. Conclusion

This study's sample consists of medium- and long-term Chinese learners as well as students at intermediate and advanced HSK levels. Future research can further expand the sampling scope to cover users at more diverse learning stages and language proficiency levels, so as to verify the applicability of the research model. For instance, future research could be extended to overseas online learners, short-term exchange students, and ethnic Chinese learners whose native language is not Chinese. By comparing learners from diverse cultural backgrounds and linguistic environments, the differential impacts on the acceptance of AI-assisted Chinese learning can be explored. Furthermore, future studies may subdivide learners based on their Chinese proficiency levels (e.g., HSK grades), learning objectives (academic needs vs. professional needs), and technical usage experience, to investigate how these factors moderate the effectiveness and acceptance of AI tools. By doing so, this will promote the intelligent and personalized development of international

Chinese education.

Disclosure statement

The authors declare no conflict of interest.

References

[1] China.com, 2026, In-depth Analysis of Musk's Interview: Stunning Predictions on AI and Future Society. https://news.china.com/socialgd/10000169/20260120/49179867.html

[2] People's Education, 2025, Expert Advisory Committee for Teacher Development, Ministry of Education. Guidelines for Teachers' Application of Generative Artificial Intelligence (1st Edition). https://mp.weixin.qq.com/s/cvQOYRSXn2DnRVYGwebDiA

[3] Ministry of Education, National Development and Reform Commission, Ministry of Science and Technology, et al., 2025, Opinions on Accelerating the Digitalization of Education. http://www.moe.gov.cn/srcsite/A01/s7048/202504/t20250416_1187476.html

[4] The President of the CPC, 2025, Explanation on the Recommendations of the Central Committee of the Communist Party of China for Formulating the 15th Five-Year Plan for National Economic and Social Development. Qiushi Journal, 2025(21): 4–10.

[5] Ministry of Education of the People's Republic of China, 2025, Basic Education Teaching Steering Committee of the Ministry of Education. General Artificial Intelligence Education Guide for Primary and Secondary Schools (2025 Edition). https://mp.weixin.qq.com/s/o67cEFaf4QgtykB2smWz8Q

[6] Ministry of Education of the People's Republic of China, CCTV News Client, 2025, What Will the Future Classroom Be Like? Find Answers at the 2025 World Digital Education Conference. http://www.moe.gov.cn/jyb_xwfb/xw_zt/moe_357/2025/2025_zt06/mtbd/202505/t20250515_1190632.html

[7] Shen Y, Ji HL, Ye XY, et al., 2023, Research on Human-Computer Interaction Technology in Virtual Reality Immersive Learning: Taking K12 Physics Experiment Teaching as an Example. E-education Research, 44(10): 87–94 + 120.

[8] Chinese Alliance, 2025, Notice on Holding the Workshop on Innovation in International Chinese Language Teaching Driven by AI Agents. https://mp.weixin.qq.com/s/U1Kwk4WWJlAFZL-qFjO3Dg

[9] Xu S, Tian XX, 2020, Research on Influencing Factors of Users' Willingness to Use Online Learning Platforms Based on TAM. China Education Informatization, 2020(8): 78–85.

[10] Wu HJ, Ge WS, He JH, 2020, A Study on the Influence of Teacher Support on Learners' Continuous Learning Intention in MOOCs: From the Perspective of S-O-R and TAM. Modern Distance Education, 2020(3): 89–96.

[11] Cai Y, Wang Z, 2022, A Study on Chinese Learners' Willingness to Learn in Live Streaming Courses Based on Technology Acceptance Model. Language Teaching and Linguistic Studies, 2022(5): 35–46.

[12] Xu JF, Deng QL, 2024, College English Learners' Acceptance of Live Streaming Teaching Platforms: A Study Based on the Technology Acceptance Model. Foreign Language Teaching and Research, 56(2): 262–273 + 320–321.

[13] Wei W, Xu Y, Wang Z, 2026, CSL Learners' Acceptance and Use of ChatGPT: An Extended Technology Readiness and Technology Acceptance Model. Humanities and Social Sciences Communications, 13(1): 1–13. https://doi.org/10.1057/s41599-025-06452-w

[14] Venkatesh V, Thong JYL, Xu X, 2012, Consumer Acceptance and Use of Technology: Extending the Unified Theory of Acceptance and Use of Technology. MIS Quarterly, 36(1): 157–178.

[15] Venkatesh V, Morris M, Davis GB et al., 1997, User Acceptance of Information Technology: Toward a Unified View. MIS Quarterly, 27(3): 425–478.

[16] Straub DW, Keil M, Brenner W, 1997, Testing the Technology Acceptance Model Across Cultures: A Three Country Study. Information & Management, 33(1): 1–11.

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