

AI, Education, and International Student Engagement in Chinese Universities: Implications for Policy and Learning Equity

Jingyi Sun

Faculty of Educational Studies Universiti Putra Malaysia, at Serdang, Selangor, Malaysia,
Section Director in Office of Enrollment and Employment of Jinzhou Medical University, at
Jinzhou, Liaoning Province, China.
ORCID iD: <https://orcid.org/0009-0009-1285-9203>, Email: gs72157@student.upm.edu.my

Tajularipin Bin Sulaiman*

Pedagogy and Cognitive Development in Department of Foundations of Education at
Faculty of Educational Studies in Universiti Putra Malaysia.
Postgraduate Program Coordinator in Curriculum and Instructions of Faculty of Educational
Studies in Universiti Putra Malaysia.
Secretary of Pertubuhan Penyelidikan dan Pendidikan Pendidik Malaysia of Malaysia
Association of Research and Education for Educators (MAsREE).
Email: tajulas@upm.edu.my

Fazilah Binti Razali

Head of Department in Department of Foundations of Education at Faculty of Educational
Studies, Universiti Putra Malaysia.
(Curriculum & Instruction, STEM Education, Pedagogy) in Department of Foundations of
Education, Faculty of Educational Studies, Universiti Putra Malaysia.
Email: fazilahrazali@upm.edu.my

Recibido / Received: 14/11/2025
Aceptado / Accepted: 02/04/2026

Abstract: This study investigates the roles of Anxiety, Teacher Support, and Academic Self-Efficacy in shaping foreign university students' engagement in Chinese language learning. Specifically, it examines the mediating role of AI-Acceptance in this dynamic. Drawing on Social Cognitive Theory (SCT) and the Technology Acceptance Model (TAM), a quantitative survey was conducted with 528 foreign students across eight universities in Liaoning Province, China. The study found that Teacher Support and Academic Self-Efficacy positively influence Learning Engagement, whereas Anxiety has a significant negative impact. Most notably, AI-Acceptance was identified as a mediating factor, which mitigates the negative impact of Anxiety and enhances the relationships between Teacher Support and Learning Engagement, as well as Academic Self-Efficacy and Learning Engagement. The findings underscore the importance of AI in fostering student engagement, particularly when coupled with strong pedagogical support and attention to students' emotional well-being. From a policy perspective, these results suggest the need for inclusive AI policies in higher education, promoting equity for international students and integrating AI tools in a manner that supports learning engagement and reduces barriers. This research provides policy and institutional recommendations for enhancing AI integration in educational settings to improve learning outcomes for international students.

Keywords: AI Governance, International Students, Learning Engagement, Educational Equity, Smart Education Policy, China Higher Education.

1. Introduction

Over the past few years, China has become a top destination for foreign students

in the world, especially those who are interested in learning the Chinese language. As the educational status of China has been increasing, the Ministry of Education has gone a long way in improving the quality of education and ensuring that the foreign students are given a fair learning experience. Some of these measures include the introduction of the policies of AI + Education and Smart Education. Such policies are meant to integrate artificial intelligence (AI) into the educational ecosystem that influences adaptive learning technologies and student-based pedagogy (Huang, Spector & Yang, 2019). As AI-powered platforms may have improved outcomes caused by novel methods, they, at the same time, give rise to serious problems of student engagement, inclusion, and equity, especially in the case of international students. By introducing the problems of technological availability, anxiety caused by AI, and the perceived justice of AI in education, the introduction of AI into the classroom can further hinder the current challenges of these students, particularly non-Chinese ones.

The transformation to smart education will be associated with the desire of China to develop the global educational impact and improve the learning of international students using the latest technological tools. The issue, however, is whether these policies actually contribute to fair educational processes amongst students, more so the students that represent a variety of cultures and languages. Due to the growing presence of AI technologies in learning settings, the effects of novel educational methods on the performance and inclusion of international students who prioritise engagement and inclusion due to the existing language barrier, cultural disparities, and various educational requirements should be examined further (Pei, 2019). In addition, one should speculate whether these policies are aimed to provide equity, autonomy, and linguistic justice or rather are designed to support educational inequities unintentionally.

The foreign language learners and the international students of the Chinese language are especially susceptible to the complications that AI brings to the classroom. Although AI tools can improve the learning process via personalised learning and real-time feedback, the adoption of the tools can also cause new issues, including anxiety associated with the AI and the isolation of students who do not manage to find an appropriate balance with the technology (Akgun & Greenhow, 2022; Kohnke, Moorhouse & Zou, 2023). Therefore, the study of the impact of AI on the learning process of international students, especially on their readiness to embrace AI tools, is a very important policy matter. The case study involving the experiences of international students in Chinese universities, in the Chinese Province of Liaoning, is also a valuable case study to realise the international implications of AI in education as a whole.

The topic of the current research will be the intersection of AI acceptance, teacher support, academic self-efficacy, and anxiety as they pertain to learning engagement among international students in Chinese language classes. By beginning with the example of Liaoning Province, the work will be useful in understanding the broader project of the relationship between AI and education policy by examining the effects of smart education tool integration on student engagement, inclusion, and equity at the global level.

1.1. Research Gap and Problem Statement

Though the significance of technological acceptance of AI can already be thoroughly researched, the particular use of AI policies on the educational experiences of international students has not been investigated to a significant extent yet. Little has been done to

show how smart-education policy interventions, like the implementation of AI-latent language learning, affect the engagement, inclusion, and equity of international students, yet existing research has concentrated on the individual aspects of AI acceptance, including anxiety or self-efficacy (Fredricks, Blumenfeld & Paris, 2004; Ouyang & Jiao, 2021). Also, a large part of the current AI research, especially on AI in education, is more local or domestic in its application, making no efforts to govern and ethically consider the issue of AI adoption at a global scale and especially in the context of cross-cultural education.

With AI being involved as a component in the education strategy of the Chinese, it is important to comprehend the effect of the innovation on the international students in terms of their participation in education, performance in the face of challenges, and eventual achievement success in their learning exercises. To be more precise, it is necessary to investigate whether AI instruments, with teacher assistance, can be introduced as a means of alleviating the educational disparities that the international students experience in Chinese universities. This gap indicates the necessity of the research that will not only present the technological aspects of AI acceptance but also the policy and ethical aspects of the arrival of AI in the educational domain.

The purpose of the research is to address this gap by examining where the role of AI acceptance drives the relationship between academic self-efficacy, anxiety, teacher support, and learning engagement among learners with the Chinese language in the classroom. The results will present useful information about the policy implications/or consequences of AI integration, as it might lead to or discourage student engagement, inclusion and equity. Moreover, the research will cover the ethical aspects of the AI application in teaching, including the aspects of autonomy, fairness, and surveillance, which will play a vital role in assuring that AI tools are used in a way that will not violate the rights and needs of international students.

1.2. Research Aims and Hypothesis

The main objective of the research is the study of the correlation of anxiety and teacher support variables with the academic self-efficacy and learning engagement variable among international learners in Chinese language classes, with the AI acceptance variable as the mediator. The study will address the question of whether teacher support and academic self-efficacy are capable of increasing learning engagement, the question of whether it is possible to reduce the adverse impact of anxiety on the educational experiences of students with the assistance of AI acceptance or not. The study is guided by the following objectives:

- To explore the relationship between anxiety and learning engagement among international students in Chinese language classrooms.
- To investigate the impact of teacher support on students' learning engagement, with a focus on how AI tools can enhance or diminish this effect.
- To examine how academic self-efficacy influences learning engagement and how AI acceptance can mediate this relationship.
- To evaluate the role of AI acceptance in mediating the relationships between anxiety, teacher support, academic self-efficacy, and learning engagement.
- To provide policy recommendations for improving the AI-powered learning experience of international students, with an emphasis on inclusivity, equity, and fairness.

Additionally, the study will explore whether AI acceptance serves as a barrier or facilitator for engagement, particularly for students who are new to both the Chinese language and AI-driven learning environments.

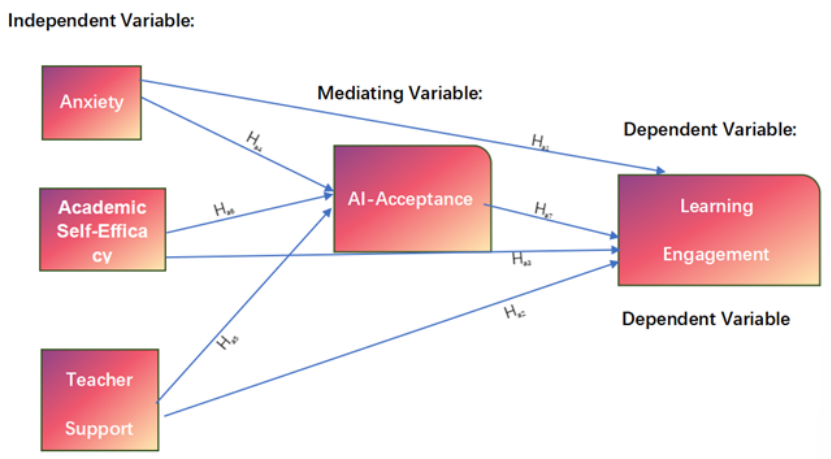
1.2.1. Research Questions

The research questions guiding this study are as follows:

- What are the levels of anxiety, teacher support, academic self-efficacy, AI acceptance, and learning engagement among foreign students in Chinese language classrooms?
- How do anxiety, teacher support, and academic self-efficacy influence learning engagement in the context of international students studying Chinese in Liaoning Province, China?
- How does AI acceptance mediate the relationships between anxiety, teacher support, academic self-efficacy, and learning engagement in AI-integrated classrooms?

The main aim of the proposed research is to explore the connections between: Anxiety, Teacher Support, Academic Self-Efficacy, respectively, and Learning Engagement in Chinese language classrooms in universities in the Liaoning Province, China, and to confirm or refute the mediation between the three variables associated with artificial intelligence AI- Acceptance. In this direction, the research questions that will be put forward in this study are as follows: What are the levels of Anxiety, Teacher Support, Academic Self-efficacy, AI-Acceptance and Learning engagement? Moreover, among foreign students in the classroom of the international Chinese language education in higher learning institutions in Liaoning Province, China, what is the relationship between anxiety, teacher support and academic self-efficacy, respectively, with learning engagement? How is AI Acceptance the mediating variable in the above three relationships? The mediated chain model of relationships between the variables and the research hypotheses is shown in Figure 1:

Figure 1: The Conceptual Framework of The Variables.



The hypotheses of the study are given below:

Table 1: Hypothesis.

Hypothesis Code	Statement
H _{a1}	There is a significant positive relationship between Anxiety towards Learning Engagement among foreign students in the Chinese Language at the University for Foreign Students in Liaoning, China.
H _{a2}	There is a significant positive relationship between Teacher Support towards Learning Engagement among foreign students in the Chinese Language among University Foreign Students in Liaoning, China.
H _{a3}	There is a significant positive relationship between Academic Self-Efficacy towards Learning Engagement among foreign students in the Chinese Language at the University of Foreign Students in Liaoning, China.
H _{a4}	There is a significant positive relationship between Anxiety towards AI-acceptance among foreign students in Chinese Language among University Foreign Students in Liaoning, China.
H _{a5}	There is a significant positive relationship between Teacher Support towards AI-Acceptance among foreign students in Chinese Language among University Foreign Students in Liaoning, China.
H _{a6}	There is a significant positive relationship between Academic Self-Efficacy towards AI-Acceptance among foreign students in the Chinese Language among University Foreign Students in Liaoning, China.
H _{a7}	There is a significant positive relationship between AI-Acceptance towards Learning Engagement among foreign students in the Chinese Language among University Foreign Students in Liaoning, China.
H _{a8}	AI-Acceptance mediates the relationship between Anxiety towards Learning Engagement among foreign students in the Chinese Language at the University for Foreign Students in Liaoning, China.
H _{a9}	AI-Acceptance mediates the relationship between Teacher Support towards Learning Engagement among foreign students in the Chinese Language among University Foreign Students in Liaoning, China.
H _{a10}	AI-Acceptance mediates the relationship between Academic Self-Efficacy towards Learning Engagement among foreign students in Chinese Language among University Foreign Students in Liaoning, China.

1.3. Significance of the Study

This research is noteworthy in a number of aspects. First, it offers a delicate insight into the role of AI uptake in altering the learning activities within learning institutions that involve foreign students. Since the use of AI technologies in classrooms is growing along with their acceptance worldwide, the implications of the research will be used in educational policy and specifically in the case of the implementation of the program of AI + Education in China. Second, concentrating on the experiences of international students, the study will add to the existing research on educational equity and inclusion to show the specifics of the challenges of students of different cultural and linguistic backgrounds obtained with the help of AI-assisted learning. Lastly, the research will also provide practical suggestions to teachers, policymakers and curriculum developers on ways that can be adopted to improve the learning process of international students by considering the wise usage of AI technologies.

1.4. Layout of the Study

The study is structured as follows:

- Chapter 1: Introduction: This chapter provides the background of the study, research gap, problem statement, objectives, research questions, and the significance of the study.
- Chapter 2: Literature Review: This chapter reviews existing literature on AI in education, teacher support, academic self-efficacy, anxiety, and learning engagement, with a focus on studies related to international students in China.
- Chapter 3: Methodology: This chapter outlines the research design, population and sampling, data collection methods, and data analysis techniques employed in the study.
- Chapter 4: Results and Discussion: This chapter presents the findings of the study, including the statistical analysis of the relationships between the variables, and

- discusses the implications of these findings for educational policy and practice.
- Chapter 5: Conclusion and Recommendations: This chapter summarises the main findings of the study, discusses its limitations, and offers recommendations for future research and educational practice.

2. Literature Review

This literature review seeks to address theoretical and empirical research applicable to the topic of AI in education and the role of AI in the engagement and inclusion of international students in Chinese language classrooms. Three major strands are placed in the framework of the review, which are (1) AI-in-education policy and governance, (2) comparative/international education and international student inclusion, and (3) philosophical and ethical issues in AI integration. Each of the strands will cover the influence of AI acceptance on the learning experience and engagement of the international students, and it will place the frameworks of Social Cognitive Theory (SCT) and the Technology Acceptance Model (TAM) as the aiding lenses of investigating these greater themes.

2.1. AI-in-Education Policy and Governance

AI as an educational system has attracted big policy concerns on whether it can influence how education is practised and the outcomes. Artificial intelligence-based learning platforms and applications have come into the limelight of the Chinese educational policy, which encompasses the policies of AI + Education and Smart Education. These initiatives belong to the general Chinese vision to modernise education with the use of technology and make the education system more flexible, personalised, and inclusive (The State Council, 2017; Zawacki-Richter et al., 2019). Nonetheless, there are also policy changes that come with issues about governance, equity and access, especially in the case of international learners who might encounter obstacles with regard to adjusting to AI-enhanced classrooms. The policies of AI, specifically in relation to foreign language learning, are meant to offer adaptive learning facilities that are attuned to the needs of individual students, encompassing intelligent feedback kits and real-time evaluation (Huang et al., 2019). However, there has been a concern about the fairness and inclusiveness of the systems despite the promising potential. As an example, Akgun and Greenhow (2022) pointed out that as much as AI tools can give students a personalised learning experience, there exists a risk of disadvantaging students who are less acquainted with the technology or have language barriers, i.e. international students studying Chinese. Such students could develop the anxiety caused by AI, preventing their desires to use AI-driven tools, thus perpetuating educational injustices (Akgun & Greenhow, 2022).

Governance-wise it comes as policy frameworks that are not only aimed to regulate the applications of AI tools but are also topped up so that they are applied in a manner that enhances equity and inclusion. To illustrate this, research by Kohnke et al. (2023) suggests that it is essential to have policy guidelines that will compel teachers to deliver human support in addition to AI intervention and, therefore, make sure that the human aspect of teaching is not overshadowed by technological devices. This makes it clear why the policies between technological innovation and pedagogical responsibility that ensure that AI is used as an assistive technology to promote human interactions

within the classroom and not to substitute them are needed.

2.2. Comparative/International Education and International Student Inclusion

International education (especially focused on the learning of foreign languages) introduces some distinct challenges and opportunities for AI technologies. Although the literature on AI used in education has been widespread among domestic students, there is also a period of increased research about the implications of AI on the educational experiences of international students. These learners can experience special needs, including language obstacles, cultural gaps and lack of familiarity with novel technologies, all of which may influence their participation and integration into the AI-based classrooms (Pei, 2019). Comparatively, education-wise, there were a number of studies which have underlined the significance of treating the international picture within the general context of AI implementation in educational settings. As an example, Tian et al. (2020) discovered that students associated with other cultural backgrounds feel different degrees of anxiety using AI-assisted learning tools, which may serve as an obstacle to their participation in the learning process. The above differences create the necessity of the establishment of policies that can address the various needs of international students, given the globalising nature of the educational environment, where international student mobility is becoming very fast.

The role of language policy as a factor that defines the experiences of international students is very important, especially in such countries as China, where learning a foreign language is the focus of the curriculum. The language policies, which encourage the use of AI in language education, should also be concerned with the linguistic issues of international students. The efficient incorporation of AI in the process of language learning, as Zhao (2025) remarks, relies on the possibility to adjust to students' level of language proficiency and support non-native students. The use of AI should be done in a manner that is sensitive to different student linguistic abilities, such that the tools do not unintentionally impede the learning process of the international students by assuming that they are of a specific level of linguistic capabilities. Furthermore, the comparative point of view on international student inclusion focuses on how such challenges can be reduced through institutional support. According to Cho, Levesque-Bristol and Yough (2023), as well as Caplan (1974) and Cobb (1976), the emotional and academic support provided to the teachers is one of the key factors that will enable the international students to overcome the obstacles posed by using AI-integrated classes. Here, AI tools may be viewed as the add-ons to the traditional assistance provided by teachers, yet they can work efficiently only provided that the latter is willing to work with the technology and to make sure that the human factor of the teaching process is not neglected by it.

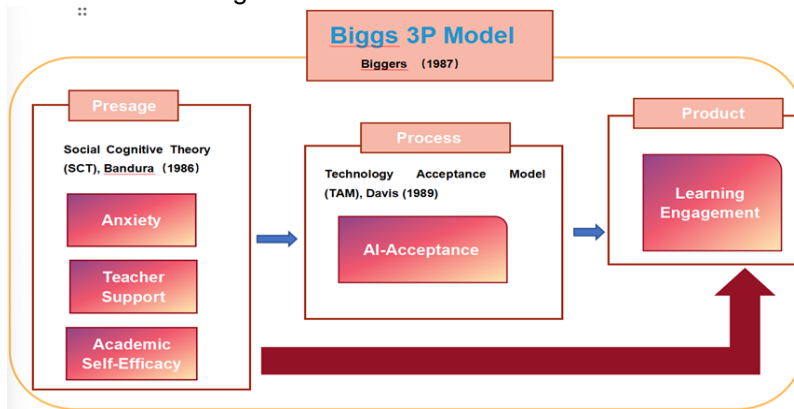
2.3. Philosophical and Ethical Issues in AI Integration

Even the introduction of AI in the educational setting poses some serious philosophical and ethical questions that have a lot in common with the policy and practice. Among the main issues, the problem of autonomy should be mentioned. AI applications are commonly personalised and tailored to the needs of students by giving feedback in real-time and personalising the learning material. But this brings up

the debate about the degree of freedom that students have in their learning process. According to Bandura (1977, 1986), Schunk and DiBenedetto (2020), and Manjarres-Posada, Onofre-Rodríguez and Benavides-Torres (2020), self-efficacy is vital in the engagement and motivation of students. In case the learning process is overrun by AI tools, the latter would remove student autonomy and undermine their feelings of self-regulation and therefore cause disengagement. Equity and fairness are also important ethical concerns regarding the AI-integrated classroom. The only way AI systems work is based on how the data they are trained on, biased or incomplete data, can enforce the educational imbalance that already exists. As an example, AI systems can be more effective with students who are already conversant with the learning environment or technology but less with new students who are not conversant with the system or have a language barrier (Ouyang & Jiao, 2021). It questions the ability of AI tools to indeed enable all students to receive equal learning opportunities, or if the phenomenon may also cost some groups of people, such as international students, who lack technological literacy and familiarity with certain cultural aspects.

The other ethical issue is the privacy issue. Any application of AI in classrooms may include gathering and evaluation of the personal information of students, including their learning habits, his/her performance, and interactions with the system. This leaves relevant concerns regarding the storage of such data, who gets access to it and its usage. According to Akgun and Greenhow (2022), clear guidelines and regulations on data privacy are required to implement measures that would guarantee that the personal information of students is preserved and utilised in a manner that can enhance their academic performance, and not allow it to be misused to make money.

Figure 2: Theoretical Framework.



The Biggs 3P Model (Biggs, 1987) is also used in this study to determine the mediatory role of the AI- Acceptance in the relationship between Anxiety, Teacher Support and Academic Self-Efficacy vis-a-vis Learning Engagement. The model has a theoretical basis which is aligned with the concern of defining the variable indirect pathways and that segments the learning process into the three elements: Presage variables, Process variables, and Product. The parentheses of Presage and Process are normally the student features and the factors in the teaching environment, respectively, the learning strategies and motivation in students, as well as their tolerance toward

new technologies. Product, in its turn, presupposes learning outcomes, including language performance and engagement in learning. The 3P model has been widely applied in the research area of education, and it highlights that Presage have an indirect impact not only on Learning outcome but also Process. Therefore, in this context, processes are often the mediators of Presage and Product. Subsequently, due to the close correspondence between the stage division and the theoretical assumptions of The Biggs 3P Model and the variable structure and the objectives of the research in this paper, the latter uses the Mediation Model (Baron & Kenny, 1986) to achieve the subsequent theoretical framework as presented in Figure 2.

2.4. Literature Gap

Though the artificial intelligence in the education field has gained a lot of literature, there exists a huge literature gap regarding the policy and ethical views of AI integration as far as international students are concerned. A large part of the available literature on AI in education paid attention to the technological and psychologically based aspects of AI acceptance, including anxiety, self-efficacy, and teacher support. Although such studies have brought informative information regarding the impact of AI on students in terms of engagement, they have greatly failed to address the bigger policy and governance concerns of providing equitable and inclusive use of AI in education. Moreover, whereas the research on AI in domestic educational environments is quite substantial, not much information is availed on the role that AI plays among international students, specifically those in the non-Western setting such as China. Comparative education literature on the inclusion of international students is limited, in particular concerning the ethical and governance-related issues of AI. In accordance with the focus of this paper, AI in education should be viewed not only as a technological solution but also as a policy and ethical challenge that has the potential to inform the education of international students. It is this research gap that highlights the importance of further studies on the impacts of AI acceptance policies on the engagement and inclusion of international students, especially in those nations that are majorly adopting AI-powered education, such as China. Through the results of the study, this gap will be filled as the researchers will investigate how AI can facilitate or impair the learning engagement of the international students and address the policy implications of using AI in the educational processes.

3. Methodology

This section adopted a quantitative research design based on a survey to investigate how anxiety, teacher support, academic self-efficacy, AI acceptance and learning engagement are related in international students in classrooms on a language of instruction, which in this case is Chinese. Data analysis is conducted through Structural Equation Modelling (SEM), which determines both direct and indirect associations among the constructs and tests the hypothesis of AI acceptance mediating variables.

3.1. Research Design

It is a quantitative research design with a cross-sectional survey of the international students studying the Chinese language programs at the universities in Liaoning

Province of China. A questionnaire was used to collect information about the students' anxiety, teacher support, academic self-efficacy, AI acceptance and learning engagement. Since the rationale of the study is to analyse the direct and indirect correlation between these variables, Structural Equation Modelling (SEM) has been adopted as the major data analysis instrument. SEM provides a possibility to concurrently estimate various relationships across observed and latent variables and is the right tool to test a complex mediation model and evaluate the fit of the hypothesis. SEM was selected, as it can work with a variety of relationships and latent constructs and examine the overall fit of the model. It also allows the study of the effects of mediation, which is the focus of the research. Specifically, the conceptualisation of AI acceptance is that of a mediating variable, which mediates the effect of anxiety on teacher support on academic self-efficacy and learning engagement.

3.2. Population and Sampling

The research was focused on international students undertaking courses in the Chinese language in the state universities of Liaoning Province in China. The population was chosen as it represents direct relevance to the research questions in the study, especially because of the growing adoption of AI in the learning of the Chinese language and the special problems faced by foreign students in dealing with the technologies. Multi-stage random sampling was used as the sampling technique. The initial step was to determine universities that have a great supply of international students, such as Liaoning University, Dalian University of Foreign Languages, Shenyang Aerospace University, and others. The second stage involved picking up on two second-year Chinese language classes in every university in a random manner. This provided the sample with a diversity of students who have different language proficiency and experience with AI tools. There was a total of 536 questionnaires that were to be distributed online through the Wenjuanxing survey site. Upon removal of incompleteness or inconsistencies in the responses, 528 valid responses were obtained, and the response rate was 98.51. The sample size is large enough to meet the minimum requirement of the SEM (N=300) to guarantee the reliability and applicability of the results.

3.3. Instrumentation

The data were measured by a structured, self-report questionnaire that was created to assess the study's key constructs: anxiety, teacher support, academic self-efficacy, AI acceptance, and engagement in learning. Measures were made using the already established scales employing each construct, and items were rated on a five-point Likert scale between 1 (strongly disagree) and 5 (strongly agree). The measurement scales used in this study were as follows:

- Anxiety: Measured using the Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz, Horwitz & Cope, 1986) and the AI Anxiety Scale (Ge, Lu & Li, 2025). The scale consists of 31 items measuring both language-related and AI-induced anxiety.
- Teacher Support: Measured using the Perceived Teacher Support Scale for Undergraduates (Chi, 2017), comprising 13 items across three dimensions: autonomy support, emotional support, and ability support.
- Academic Self-Efficacy: Measured using a 22-item scale adapted from Pintrich and

De Groot (1990) and localised by Liang (2000). It assesses students' confidence in their academic abilities and behaviours.

- AI Acceptance: Measured using a 12-item scale adapted from the Handheld Technology Acceptance Scale (Huang, 2025), which includes dimensions of perceived usefulness, perceived ease of use, and perceived ease of learning.
- Learning Engagement: Measured using the Learning Engagement Scale (Luo et al., 2017), which consists of 13 items capturing vigour, dedication, and absorption in academic settings.

Items of every construct were modified and changed to suit the context of Chinese language learning. Cronbach's alpha was used to determine the reliability of every scale, and Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were used to estimate validity.

3.4. Ethical Considerations

The Ethics Review Committee of Liaoning University approved this study and met the requirements of conducting human research as per the institution's rules and regulations. The informed consent of all participants was obtained electronically, which signified that they participated in the study voluntarily and they knew that their answers were anonymous and confidential. No personally identifiable information was collected during the survey, and the participants were assured that their information would only be used for academic research purposes. The research followed the ethical standards of the Declaration of Helsinki, whereby it was ensured that the rights of the subjects were not compromised.

3.5. Measurement Model Reporting

Confirmatory Factor Analysis (CFA) was used to determine whether the measurement model was justified. Fit measures of the model were measured based on some important measures that included Chi-Square/df, RMSEA (Root Mean Square Error of Approximation), CFI (Comparative Fit Index), and TLI (Tucker-Lewis Index). The model fit was deemed acceptable based on the following thresholds:

- Chi-Square/df < 3.0
- RMSEA < 0.08
- CFI > 0.90
- TLI > 0.90

At the same time, the discriminant validity was evaluated based on the Fornell-Larcker criterion and the HTMT (Heterotrait-Monotrait ratio), which proved that the constructs were distinct enough from each other. Harman's single-factor test determined Common Method Bias (CMB), and no significant bias was found.

3.6. Reliability and Validity

The measurement of reliability was performed with Cronbach's alpha in every construct. The Cronbach alpha values of the individual variables were found to be extremely high.

Table 2: Cronbach's Alpha and Omega Values.

Construct	Cronbach's Alpha	McDonald's Omega
Anxiety	0.993	0.995
Teacher Support	0.984	0.987
Academic Self-Efficacy	0.991	0.992
AI Acceptance	0.921	0.923
Learning Engagement	0.987	0.989

The values of reliability are generally regarded as excellent, but unusually high scores on Anxiety, Teacher Support and Academic Self-Efficacy can indicate the redundancy of the item or artefact of response pattern. To deal with this possible problem, McDonald's Omega was calculated in each scale as an alternative to a reliability measure.

- Anxiety: $\omega = 0.995$
- Teacher Support: $\omega = 0.987$
- Academic Self-Efficacy: $\omega = 0.992$

The Omega values were also high, meaning that the scales were internally consistent, but additional diagnostic tests (e.g. factor loadings or item shortening) can be introduced to future research.

3.7. Data Analysis

Analysis of data was done in SPSS and AMOS version 26.0 and version 24.0, respectively. First, the descriptive statistics (mean, standard deviation, etc.) of each construct were obtained to get the idea of the distribution of the variables. Discussing the relationships between the constructs, Pearson correlation was used.

Structural Equation Modelling (SEM) was applied in testing the hypothesised model. The SEM analysis has tested both the direct and the indirect relationship among the variables with the added influence of AI Acceptance as well as the mediating relationships. The chi-square /df, RMSEA, CFI and TLI indices were used to determine the model fit, with the results showing good model fit. The significance level of the mediation effects was tested using the bootstrap procedure of 5,000 resamples, and the 95% confidence interval was applied to test the significance of the indirect effects. The findings of the SEM analysis and hypothesis testing are contained in the Results section.

4. Findings and Results

In this section, the results of the analysis of the correlation between different variables, anxiety, teacher support, academic self-efficacy, AI acceptance, and learning engagement, were provided with the help of descriptive statistics, correlation analysis, regression models, and structural equation modelling (SEM). The findings are discussed through the implications of the AI-integrated policies in educational institutions and their implications towards international students in China, with emphasis on increasing engagement, inclusion and equity.

4.2. Descriptive Analysis

The descriptive statistics of the main variables of the study include anxiety, teacher support, academic self-efficacy, AI acceptance, and learning engagement in Table

1. The average values of these variables represent moderate scores regarding the use of the learning environment that the AI can support, but the differences in the scores are significant between the respondents.

Table 3: Basic Indicators of Descriptive Analysis.

Name	N	Mini	Max	Mean	SD	Median
Anxiety	528	1.000	5.000	2.876	0.999	3.000
Teacher Support	528	1.000	5.000	3.209	0.982	3.000
Academic Self-Efficacy	528	1.000	5.000	3.096	1.051	3.000
AI-Acceptance	528	1.000	5.000	2.874	0.928	2.670
Learning Engagement	528	1.000	5.000	3.003	1.228	3.000

The mean of anxiety is 2.876, which shows that foreign university students are moderately anxious about the process of learning the Chinese language as a foreign language. This finding indicates that anxiety can be one of the obstacles to engagement and the need to consider student well-being as a policy in AI-integration. The lack of AI acceptance can be associated with anxiety among students, especially when they are not familiar with AI technology in learning institutions. Thus, the policies must be aimed at alleviating anxiety through incorporating supportive mechanisms that guide students through AI-assisted learning settings.

Teacher Support (mean = 3.209) was also reported to be at a moderately high level, meaning that students tend to feel that their instructors are supportive. The increased degrees of teacher support could be useful in curbing anxiety and enhancing learning engagement, which is consistent with the results shown in Table 2. This is one of the reasons why teachers play such a crucial part in AI-assisted education and why it is crucial to train teachers to be able to utilise AI tools and offer emotional and academic support to international students.

Academic Self-Efficacy (mean = 3.096) represents the expression of moderate confidence in the academic abilities of students. Students tended to believe that they were able to accomplish assignments, and self-confidence and acceptance of AI could be improved. It has been demonstrated that self-efficacy positively correlates with both the acceptance of AI and its engagement, which means that self-belief can be improved among students to enhance their use of AI in the classroom.

The AI Acceptance (mean = 2.874) was below the middle of the scale, which indicated that students were reluctant or had no experience with the use of AI in their learning experiences. This result implies that an area of concern can be a policy concern, and the adoption strategies towards AI should be based on training students, positive teaching conditions, and effective communication of AI advantages.

The average Student Engagement (mean = 3.003) was moderate, as it represented a range of student engagement. Although some of the students were found to have a high degree of involvement, others had a lower degree of involvement and those who had increased anxiety or reduced AI acceptance. This indicates the necessity of the engagement strategies that would cover the emotional (anxiety) and the technological (AI acceptance) components of the learning process.

4.3. Correlation Analysis

Table 2, given below, shows the results of Pearson correlation, and it shows us the relations between the variables studied.

Table 4: Pearson Correlation of Correlation Analysis.

Pearson Correlation							
	Mean	SD	Anxiety	Teacher Support	Academic Self-Efficacy	AI-Acceptance	Learning Engagement
Anxiety	2.876	0.999	1				
Teacher Support	3.209	0.982	-0.328	1			
Academic Self-Efficacy	3.096	1.051	-0.278	0.299	1		
AI-Acceptance	2.874	0.928	-0.214	0.248	0.350	1	
Learning Engagement	3.003	1.228	-0.554	0.267	0.245	0.405	1
p<0.05 p<0.01							

Anxiety was also negatively correlated with academic self-efficacy ($r = -0.278$) and AI acceptance ($r = -0.214$), indicating that a student with an increased level of anxiety tends to be less willing to use AI tools and could be less sure in their academic capabilities. The implications of these findings are significant to the policies because the high anxiety can act as a barrier to the use of an AI learning environment by students, and anxiety mitigation should receive an imperative focus in the implementation planning of AI.

The teacher Support had a strong positive correlation to academic self-efficacy ($r = 0.299$) and AI acceptance ($r = 0.248$), which means that the positive teacher support conditions increase student confidence in their academic skills and make them more accepting of AI tools. This highlights the necessity of training teachers in AI-assisted teaching and points out that student-teacher interactions play a pivotal role in helping students' self-efficacy as well as the adoption of AI.

There was a significant and positive relationship between AI Acceptance and learning engagement ($r = 0.405$), which supports the notion that AI tools are important in promoting student engagement. The higher the students embrace AI, the higher the chances of them being involved in classroom activities; thus, the policy factor is vital in making students accept AI.

4.4. The Impact of Anxiety, Teacher Support, and Academic Self-Efficacy on Learning Engagement

In the present research, the independent variables (Learning Engagement) will be investigated using the multiple linear regression analysis technique, where the dependent variable will be Learning Engagement and the 3 independent variables will be Anxiety, Teacher Support and Academic Self-Efficacy to further examine the respective effect of external support (Teacher Support), internal psychological factors (Academic Self-Efficacy) and negative affect (Anxiety) on learning engagement. Regarding the overall model-fit, the regression equation F-value is 82.419 ($P < 0.001$), which shows a very significant value. Therefore, the model as a whole is statistically significant, and the general predictive influence of the three independent variables on the learning engagement is apparent (Table 5).

The coefficient of determination of the model equals 0.321, and the adjusted coefficient of determination is equal to 0.317, indicating that the learning engagement can be attributed by the model to anxiety, teacher support, and academic self-efficacy, having a joint coefficient of determination equal to 32.1%. This degree of explanation is high, meaning that the model has a great ability to explain and is a good fit in the area of social sciences. The value of Durbin-Watson measures 1.929, which is not far away the

theoretical value of 2, and this means that there are no major autocorrelation problems in the residuals. The estimated values of the model are independent of each other and quite valid. All its variables have a variance inflation factor of less than 2 and tolerance values exceeding 0.8, which means that there is no multicollinearity problem. Thus, statistically, the model is stable, and it can be applied in explaining the linearity between the dependent variable of Learning Engagement and the 3 independent variables.

Table 5: Regression Analysis of Impacts of Anxiety, Teacher Support, and Academic Self-Efficacy on Learning Engagement.

Results of linear regression analysis (n=528)							
	Non-standardized Coefficients		Standardized Coefficients	t	p	Collinearity Diagnostics	
	B	SE	Beta			VIF	Tolerance
Constant	4.188	0.272	-	15.387	0.000	-	-
Anxiety	-0.622	0.048	-0.506	-13.003	0.000	1.167	0.857
Teacher Support	0.096	0.049	0.077	1.965	0.050	1.182	0.846
Academic Self-Efficacy	0.095	0.045	0.081	2.116	0.035	1.144	0.874
R²	0.321						
AdjustR²	0.317						
F	F (3,524)=82.419,p=0.000						
D-W	1.929						
Note: The dependent variable is = Learning Engagement							
p<0.05 p<0.01							

The multiple linear regression (Table 3) tested the effect of the following variables on learning engagement: anxiety, teacher support, and academic self-efficacy. Results indicated that the effect of anxiety on the learning engagement was the greatest in magnitude ($B = -0.622$, $b = -0.506$, $p < 0.001$). This validates the fact that the higher the anxiety, the less the students would be interested in the learning process, and thus, there is a necessity to implement policies that would focus on the emotional health of students and, at the same time, integrate AI in the classroom. Thus, it is possible to conclude that the negative significant relationship between the Anxiety toward Learning Engagement among foreign students in Chinese Language among University Foreign Students in Liaoning, China exists. Ha1 was not supported.

Learning engagement was positively associated with Teacher Support ($B = 0.096$, $b = 0.077$, $p = 0.050$), which was statistically significant, indicating that positive teacher support practices are critical in creating student engagement. This highlights that the AI policies must promote teacher engagement in AI-supported classrooms. Thus, it can be concluded that there is a significant positive correlation between Teacher Support towards Learning Engagement among foreign students in the Chinese Language among University Foreign Students in Liaoning, China. Therefore, Ha2 was supported.

Academic Self-Efficacy ($B = 0.095$, $b = 0.081$, $p = 0.035$) also had a significant positive correlation with learning engagement, which means that students who had more confidence in their abilities were more likely to participate in AI-driven learning processes. Thus, it is possible to make a conclusion that Academic Self-Efficacy towards Learning Engagement and Academic Self-Efficacy towards Learning Engagement between foreign students on Chinese Language, on the one hand, has a positive significant relationship between the variables on the other hand. Therefore, Ha3 was supported.

4.5. The Impact of Anxiety, Teacher Support, and Academic Self-Efficacy on AI-Acceptance

The research determined that Anxiety, Teacher Support and Academic Self-Efficacy are predictors of AI- Acceptance. Adjusted R² is 0.147, and even after including sample error, this figure can explain 14.7% variance in AI- Acceptance (Table 6). Thus, the effects of Anxiety, Teacher Support, and Academic Self-Efficacy on AI-Acceptance of foreign students in Chinese language classes illustrate that there is a particular level of mediation on the model, and the model fits well. Durbin-Watson 2.086, which is near 2, signifying that the art of autocorrelation among the residual terms is not problematic, and this implies that the model regression findings are consistent. The multicollinearity analysis results reveal that the Variance Inflation Factors (VIFs) of all the variables are below 2, namely 1.167, 1.182, and 1.144, and the tolerances are greater than 0.8. This implies that there are no problems of multicollinearity between these variables, hence the validity of the estimated regression coefficients.

Table 6: Regression Analysis of Impacts of Anxiety, Teacher Support, and Academic Self-Efficacy on AI-Acceptance.

Results of Linear Regression Analysis (n=528)							
	Non-standardized Coefficients		Standardized Coefficients	t	p	Collinearity Diagnostics	
	B	SE	Beta			VIF	Tolerance
Constant	1.938	0.23	-	8.427	0	-	-
Anxiety	-0.085	0.04	-0.092	-2.106	0.036	1.167	0.857
Teacher Support	0.126	0.041	0.133	3.038	0.003	1.182	0.846
Academic Self-Efficacy	0.251	0.038	0.285	6.613	0	1.144	0.874
R ²	0.152						
AdjustR ²	0.147						
F	F (3,524)=31.311,p=0.000						
D-W	2.086						
Note: The dependent variable is = AI-Acceptance							
p<0.05 p<0.01							

Anxiety produced a great negative impact on AI acceptance ($B = -0.085$, $b = -0.092$, $p = 0.036$), which supports the previous result that the more one is anxious, the less likely he or she is to accept AI. This is why AI policy efforts to minimise anxiety among students, especially international ones who can be overloaded with new technologies, should be valued. Thus, we can conclude that there exists a significantly negative relationship between Anxiety towards AI Acceptance among foreign students in the Chinese Language at the University for Foreign Students in Liaoning, China. Ha4 was not supported.

There was a positive effect of Teacher Support on AI acceptance ($B = 0.126$, $b = 0.133$, $p = 0.003$), implying that teacher encouragement is of paramount importance to instil higher levels of acceptance of AI among students. This observation implies that policy-makers should concentrate on training teachers to work in AI-assisted teaching settings in order to enhance student participation and tolerance. As such, it can be concluded that Teacher Support towards AI- AI-Acceptance among foreign students in the Chinese Language has a significant positive relationship among University Foreign Students in Liaoning in China. Therefore, Ha5 was supported.

The strongest positive effect on AI acceptance was produced by Academic Self-Efficacy ($B = 0.251$, $b = 0.285$, $p < 0.001$), which means that the more the students were confident in their abilities, the more likely they were to adopt and use AI tools. AI acceptance in education can be greatly promoted by interventions that will improve self-efficacy. It is concluded that there is a significant positive relationship between Academic Self-Efficacy towards AI-Acceptance among foreign students in Chinese Language among University Foreign Students in Liaoning, China. Therefore, Ha6 was supported.

4.6. Impacts of AI-Acceptance on Learning Engagement

The regression analysis indicates that AI acceptance has a strong predictive value of learning engagement, with the coefficient of determination (R^2) of the model being 0.164, and the adjusted R^2 is 0.162. This implies that AI-Acceptance can predict 16.4% of the variance in Learning Engagement, which is higher than the joint effect of teacher support and Academic Self-Efficacy ($R^2 = 0.101$). Besides, studies indicate that technological acceptance has a better predictive index in the education aspect of foreign study students than the traditional external support or internal thoughts. F-test shows that $F(1,526) = 102.970$, $p < 0.001$, which indicates that the overall model of regression is significant (Table 7). Moreover, AI-Acceptance has a great role to play in forecasting Learning Engagement among the students. The Durbin-Watson test value is equal to 2.065, which is close to the theoretical expected value of 2 and indicates that there are no autocorrelation types of data that are especially important in the residual sequence. This also makes the model more rational and increases the credibility of the conclusions made.

Table 7: Regression Analysis of the Impact of AI-Acceptance towards Learning Engagement.

Results of Linear Regression Analysis (n=528)							
	Non-standardized Coefficients		Standardized Coefficients	t	p	Collinearity Diagnostics	
	B	SE	Beta			VIF	Tolerance
Constant	1.465	0.159	-	9.202	0.000	-	-
AI-Acceptance	0.535	0.053	0.405	10.147	0.000	1.000	1.000
R ²	0.164						
AdjustR ²	0.162						
F	F (1,526)=102.970,p=0.000						
D-W	2.065						
Note: The dependent variable is = Learning Engagement							
p<0.05 p<0.01							

Using the statistical results of actual examples, we find that the unstandardized value of the regression coefficient of AI- Acceptance is $B = 0.535$ with a standard error of 0.053. Following the standardisation, the regression coefficient obtains $Beta = 0.405$, and the t-value is quite significant, 10.147 ($p < 0.01$). This means that a rise in AI Acceptance results in a great upsurge in Learning Engagement of about 0.535 units in the actual learning process. It has been demonstrated that the more students accept the use of AI, the more they will be engaged in the process of learning the Chinese language. The standardised regression coefficient, $Beta =$

0.405, is average, which implies that AI-Acceptance has a great explanatory power of Learning Engagement. Among the other influencing factors, its significance is more significant, even more than the old-fashioned core variables, like Teacher Support and Academic Self-Efficacy. Thus, Ha7 was justified.

4.7. Analysis of Mediating Effects

As can be observed in the table, the correlational impact of Anxiety on AI- Acceptance is significant ($a = -0.085$, $p < 0.05$), and the impact of AI- Acceptance on Learning Engagement is significant ($b = 0.388$, $p < 0.01$) (Table 8).

Table 8: Analysis of Mediation Role Results.

Analysis of Mediation Role Results (n=528)															
	Learning Engagement					AI-Acceptance					Learning Engagement				
	B	SE	t	p	β	B	SE	t	p	β	B	SE	t	p	β
Constant	4.188	0.272	15.387	0.000	-	1.938	0.230	8.427	0.000	-	3.437	0.274	12.528	0.000	-
Anxiety	-0.622	0.048	-13.003	0.000	-0.506	-0.085	0.040	-2.106	0.036	-0.092	-0.589	0.045	-12.965	0.000	-0.479
Teacher Support	0.096	0.049	1.965	0.050	0.077	0.126**	0.041	3.038	0.003	0.133	0.047	0.047	1.017	0.310	0.038
Academic Self-Efficacy	0.095	0.045	2.116	0.035	0.081	0.251**	0.038	6.613	0.000	0.285	-0.002	0.044	-0.051	0.959	-0.002
AI-Acceptance											0.388**	0.049	7.930	0.000	0.293
R²	0.321					0.152					0.394				
AdjustR²	0.317					0.147					0.389				
F	F (3,524)=82.419,p=0.000					F (3,524)=31.311,p=0.000					F (4,523)=84.837,p=0.000				
n<0.05 p<0.01															

The regression coefficient of Teacher Support on AI- Acceptance is $a = 0.126$ ($p < 0.01$), and the regression coefficient of AI- Acceptance on Learning Engagement is $b = 0.388$ ($p < 0.01$). The coefficient of the indirect effect ($ab = 0.049$) has a Bootstrap standard error equal to 0.015, z-value equal to 3.245 and a p-value equal to 0.001 (< 0.01). The confidence interval range of [0.011, 0.071] excludes 0, meaning that there is a significant indirect effect. The c' between Learning Engagement and Teacher Support is $= 0.047$, which is assumed to be 0.047, meaning that AI-Acceptance completely mediates between Teacher Support and Learning Engagement (Table 8).

Table 9: Summary of Mediation Effect Test Result.

Summary of Mediation Effect Test Results										
Item	c Ensemble	a	b	a*b Intermediary Effect Value	a*b (Boot SE)	a*b (z)	a*b (p)	a*b (95% BootCI)	c' Direct Effect	Inspect the Conclusion
Anxiety=>AI-Acceptance =>Learning Engagement	-0.622	-0.085	0.388	-0.033	0.014	-2.357	0.018	-0.057 ~ -0.002	-0.589	Some inter-mediation
Teacher Support => AI-Acceptance => Learning Engagement	0.096	0.126	0.388	0.049	0.015	3.245	0.001	0.011 ~ 0.071	0.047	Full inter-mediation
Academic Self-Efficacy=>AI-Acceptance=> Learning Engagement	0.095	0.251	0.388	0.097	0.016	6.053	0.000	0.054 ~ 0.115	-0.002	Full inter-mediation
Note:p<0.05 p<0.01										
Bootstrap Type = percentile bootstrap method										

The product of both is the indirect effect, which equals -0.033, which has a standard error of bootstrap of 0.014, a z-value of -2.357 and a p-value of 0.018 (less than 0.05) (Table 9). The 95% Bootstrap confidence interval(95% BootCI) is -0.057 -0.002, not containing 0, meaning that the mediation effect is significant. The direct

impact of anxiety on learning engagement is $c' = -0.589$ ($p < 0.01$), which means that AI-Acceptance is a partial mediator between Anxiety and Learning Engagement.

Academic Self-Efficacy as the independent variable and AI-Acceptance / Learning Engagement as the dependent variable have regression coefficient values: $a = 0.251$ ($p < 0.001$) / $b = 0.388$ ($p < 0.001$). The indirect effect $a \cdot b = 0.097$ has a bootstrap standard error of 0.016, a z-value of 6.053, and a p-value of 0.000. The 95% interval is [0.054, 0.115], and this does not cover 0, implying that c steadfast is not significant, meaning that the connection between Academic Self-Efficacy and Learning Engagement is entirely mediated by AI-Acceptance (Table 9).

4.8. Structural Equation Modelling (SEM)

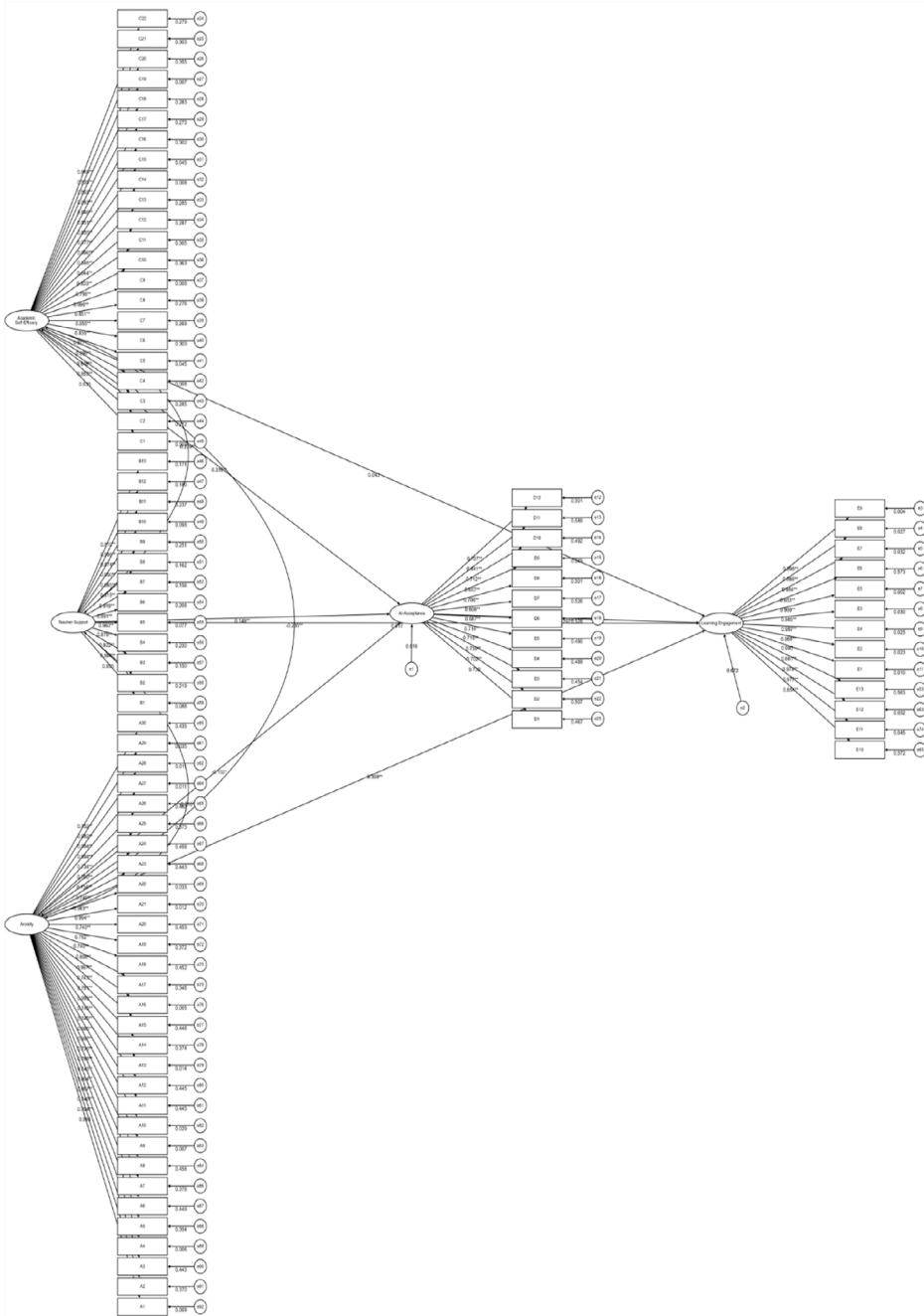
Table 8 reveals the findings of the structural equation modelling (SEM) that indicate the direct and indirect correlations among the variables of anxiety, teacher support, academic self-efficacy, AI acceptance, and learning engagement. The SEM analysis regression coefficients are consistent with the prior regression coefficients, and the regression coefficients are standardised, giving the strength of each relationship. The table provided above shows the regression outcomes of the model paths addressing the relationships between Anxiety, Teacher Support, Academic Self-Efficacy, AI-Acceptance, and Learning Engagement. The standardised coefficients and level of significance are indicated to yield information on the strength and direction of such relationships.

Table 10: Structural Equation Models.

Summary Table of model Regression Coefficients							
X	→	Y	Nonstandard Regression Coefficients	SE	z	p	Standard Regression Coefficients
Anxiety	→	AI-Acceptance	-0.093	0.040	-2.301	0.021	-0.102
Anxiety	→	Learning Engagement	-0.486	0.047	-10.300	0.000	-0.399
Teacher Support	→	AI-Acceptance	0.146	0.045	3.285	0.001	0.149
Teacher Support	→	Learning Engagement	0.022	0.052	0.433	0.665	0.017
Academic Self-Efficacy	→	AI-Acceptance	0.323	0.047	6.811	0.000	0.316
Academic Self-Efficacy	→	Learning Engagement	0.059	0.055	1.074	0.283	0.043
AI-Acceptance	→	Learning Engagement	0.398	0.058	6.832	0.000	0.297
Note: The sign indicates a regression effect relationship or a measurement relationship							
The horizontal bar "-" indicates that the item is a reference item.							

The influence of Anxiety on AI-Acceptance is depicted by a standardised coefficient (b) -0.102, which means there is a high negative effect. This implies that the higher the Anxiety levels of the students, the less the acceptance of AI tools. There is a significant negative impact of anxiety on the willingness of students to work with AI, especially when it comes to learning Chinese. The feeling of anxiety can make foreign students feel that AI tools can be unfriendly, hard to comprehend, or less independent, which decreases their willingness to learn them in the classroom. Anxiety also plays an important negative role in Learning Engagement, and the standardised coefficient of $b = -0.399$. This negative correlation is also very strong, such that the higher the anxiety, the lower the levels of student participation in the learning process. In the case of foreign students studying Chinese, the anxiety level can become a stumbling block, and it may challenge their motivation and interest in studying the course of knowledge, which in turn is enhanced by the language barrier, lack of familiarity with the learning setting, and technological issues.

Figure 3: Regression Results of The Model Pathways.



On the contrary, both AI- AI-Acceptance and Learning Engagement are positively influenced by Teacher Support. The regression coefficient b of Teacher Support on AI- Acceptance is $= 0.149$, and it is statistically significant. It shows that the

greater the perceived support of teachers by students, the more likely it is that students tend to welcome AI tools in their learning process. When implementing technology within language learning, in one way or another, teacher support, be it in the form of guidance, emotional support and academic support, is very instrumental in facilitating trust that could be built by students' confidence in AI. The positive correlation is indicative of the fact that the positive teaching environment has the potential to alleviate anxiety and contribute to developing a positive attitude toward AI. Nevertheless, in the case of the control of either Teacher Support on Learning Engagement, the correlation is statistically non-significant ($b = 0.017$, $p = 0.665$). This is an indication that Teacher Support does not have a direct effect on improving the engagement of students in learning. Rather, it affects its influence cascading through AI-Acceptance. This result highlights the reason why AI should be incorporated in the classroom because the effects of Teacher Support on Learning Engagement are boosted significantly when students are better motivated in using AI resources. Learning Engagement Teacher support has a major impact; however, on AI Acceptance, and therefore, AI tools are between teacher encouragement and student participation.

On the same note, Academic Self-Efficacy positively influences AI- AI-Acceptance, and a non-significant standardised coefficient of $b = 0.316$ indicates this. This shows that students with greater confidence in their academic skills will accept AI tools more in learning the Chinese language. Students who have a high academic self-efficacy will perceive AI as a useful tool to improve their learning process because they are sure they will be able to incorporate AI into their studies. In the case of the direct influence of Academic Self-Efficacy on Learning Engagement, the implication of both is weaker ($b = 0.043$, $p = 0.283$). It means that Academic Self-Efficacy mediates between Learning Engagement via AI-Acceptance. Highly confident academic students are more likely to use AI tools, which, in turn, has a positive impact on their Learning Engagement. This result indicates that AI-Acceptance is a critical factor in transforming the internal belief of the students to a level of more classroom engagement, demonstrating the mediator role of AI tools in the engagement of students.

Lastly, the effect of AI Acceptance on Learning Engagement is significant and positive, and the standardised coefficient is $b = 0.297$. This shows that those students who embrace AI tools during the education process are more likely to be active in the learning process. Incorporation of AI tools seems to enhance student motivation and engagement in their language learning, which by itself is a suggestion that education with the help of AI can increase the engagement among the students by making the process of learning more efficient and adapted to students. Altogether, the outcomes of the regression result support the concept of the role of AI-Acceptance as the mediating factor in the relationship between anxiety, teacher support, academic self-efficacy, and learning engagement. The results underscore the necessity of institutions to place a strong emphasis on AI integration in learning institutions, especially regarding the development of a supportive environment that will provide students with an incentive to adopt and utilise AI tools. This may be done by ensuring teacher training is adequate and emotional, and instilling a sense of self-efficacy on the part of the students. The findings indicate that effective usage of AI applications in the classroom may help to increase student engagement and overall classroom performance.

5. Discussion

The results of this research give a vital perspective on the relations of AI integration in the field of education among international students in China, in the learning of the Chinese language. On one hand, the outcomes show considerable correlations between anxiety, teacher support, academic self-efficacy, AI acceptance, and learning engagement, although on the other hand, they have implications that differ and expand the study of educational practice in relation to policy, comparative education, and ethical aspects. This discussion further explains the policy implications and comparative perspective, and what can be termed as philosophical reflections that arise out of the same findings, and provides a conceptual model to provide an answer to the future application of AI in higher education.

5.1. Policy Implications

There are several issues that have to be taken into account when it comes to the implementation of AI in the educational process, especially in the case of international students. The results of this paper highlight the significance of the policy, which can fill the gaps in both governance and support systems of AI in education. A negative correlation between anxiety and AI acceptance indicates a sense of urgency in terms of policies to favour the emotional and technological adjustments of the students. Schools should focus on educating teachers and AI-assistance systems to make sure that learners feel comfortable in their learning spaces, and AI technologies are valuable and available to them, but not scary.

Moreover, AI use was identified to strongly predict the level of engagement in learning, due to the importance of inclusive design. The AI tools should be tailored in such a way as it allows not only to facilitate the learning process but to make them available to all students, especially to international students who have to contend with other difficulties, including language barriers and cultural changes. The development of inclusive design and reasonable access to AI tools needs to be supported by the policies, which are necessary to prevent the continuation of the existing inequalities in education (Akgun & Greenhow, 2022; Ouyang & Jiao, 2021). Moreover, the role of teacher support in AI acceptance also implies that the teacher training policy ought to be created with reference to the dual consideration of the technology integration and interaction with students. Not only should the teachers be trained on the use of AI tools, but also on how to offer emotional and academic support to the students to alleviate anxiety that students might have against AI, hence creating a favourable learning environment.

5.2. Comparative/International Perspectives

The results of this research are not general; the researchers targeted international students at Chinese language classes in Liaoning, China. Nevertheless, they can also perform well in global education situations. The effects of the teacher support and academic self-efficacy on AI acceptance are likely to be positive in other nations where there are international students, but the context difference might also take place. As an example, the barriers to accepting AI may be reduced in the countries where AI is more integrated and its usage is more digitalised, and the levels of

anxiety that come with the new technology may vary. The results here may imply a comparative prism on the impediments to AI adoption in education in countries where there is limited or extensive reliance on institutional infrastructure in AI integration efforts. The differences in culture, including the attitude towards the teacher authority or technology, might affect the way international students will see AI, as well as the effectiveness of AI tools in promoting learning interest. Future studies may investigate such differences by province or country, especially in Asia and Europe, to determine how the acceptance of AI differs between regions and in different cultural backgrounds.

5.3. Ethical and Philosophical Reflections

As the presentation of AI tools into the education sector is promising, it is accompanied by serious ethical and philosophical issues. Among them is the problem of AI acceptance being viewed as a gatekeeping; less confident students when using AI tools or with greater anxiety might be at a disadvantage in the learning environment that has adopted AI integration. The given gatekeeping effect may further widen existing educational inequity and disparity (Akgun & Greenhow, 2022; Ouyang & Jiao, 2021). Furthermore, the findings of the study point to the issues of autonomy and justice. The autonomy might be undermined in case AI tools are created in such a manner that they restrict students in their options or compel them to follow conventional learning paths. Educational policies ought to provide that the AI systems facilitate student agency, in that students can utilise AI as an instrument to complement their learning and not to determine it. Moreover, to deploy AI justly, there must be clarity of AI tools development and application, especially in areas where data of students may be gathered and utilised to provide feedback or evaluation of students (Akgun & Greenhow, 2022; Kohnke et al., 2023). And, lastly, the risk of anxious and low-efficacy learners cannot be overestimated. The fact that anxiety and AI acceptance have a negative relationship implies that students having high anxiety levels are less likely to use AI tools, which, in turn, may further deteriorate their engagement in learning. They should develop policies that will help in managing mental health and learning anxiety, as it should not be another hindrance to learning, but an enabler of engagement, provided the adoption of AI.

5.4. Conceptual Model and Propositions

Based on the findings and subsequent discussion, the following conceptual model is proposed to guide future policy and research on AI integration in education for international students:

- Teacher support and academic self-efficacy are key determinants of AI acceptance. As AI acceptance increases, learning engagement improves.
- Anxiety negatively impacts both AI acceptance and learning engagement, suggesting that policy interventions should address emotional and psychological barriers to AI adoption.
- Inclusive design and teacher training are essential to ensuring that AI tools enhance learning without alienating students, particularly those with higher anxiety or lower self-efficacy.
- Ethical frameworks for AI implementation should focus on ensuring autonomy, fairness, and data privacy, protecting students from the risks of AI gatekeeping.

5.4.1. Policy Proposition

To facilitate AI acceptance at educational institutions, education decision-making policy should focus on building an AI integration policy where teaching assistance and student health are adopted as the primary determinants of successful AI integration strategies. The results of this paper indicate that AI applications may play a major role in stimulating learning, especially when academic self-efficacy and teacher support are considered in AI implementation plans. The morality of the idea and the possible anxiety linked to the acceptance of AI, however, raises the necessity of non-discriminatory policies that will facilitate the work of international students. The suggested conceptual model offers a balance in AI integration by making sure that student support, technology adoption, and ethical concerns are balanced to make the AI tools facilitators of learning, but not obstacles.

6. Conclusion

The given work can be considered an addition to the existing body of research on the integration of AI in the education field, with a focus on the implications for international students in Liaoning, China. Although the results present an analytical report of the relationship between anxiety and teacher support, academic self-efficacy, AI acceptance, and learning engagement, there are also greater policy and comparative educational impacts to take into account. Its findings underscore their policy implications of the adoption of AI in learning contexts and the necessity of inclusivity in the design and training of teachers. In addition, they emphasise the need to create an environment in which the psychological well-being of students, especially mental health-related issues, such as anxiety, is given precedence in the implementation strategies of AI. This study, by concentrating on the effects of AI adoption on the interaction of learning, also requires more detailed educational policies that can coordinate the integration of AI and the support policy of students. The study adds value to the field by delivering a conceptual model integrating the use of AI with student engagement and teacher assistance into the education frameworks, which would form a preliminary ground to existing research and policy towards AI use in education. The implications of the study are not limited to the particular scenario of Liaoning, but they provide insight into more general comparative and international education discussions, particularly in those countries or regions where AI is already starting to assume a more prominent role in the international student learning process.

6.1. Recommendations for Policy and Practice

Based on the findings, the study provides the following actionable recommendations for institutions and educational systems:

- **Support Services:** Establish robust services addressing student anxiety, particularly for international students, offering emotional, academic, and technological support, including mental health resources, AI-related workshops, and peer mentoring systems.
- **Instructional Design:** Ensure AI tools are designed inclusively with language support and culturally sensitive materials, catering to diverse learning needs and varying levels of digital literacy and language proficiency.
- **AI Governance and Safeguards:** Implement AI governance safeguards to ensure

data privacy, fairness, and equity, with clear ethical guidelines protecting students' autonomy and preventing potential gatekeeping.

- **Teacher Training:** Equip teachers with technical and pedagogical skills to integrate AI tools effectively, focusing on student engagement, technology adoption, and addressing the emotional and academic needs of international students.
- **Cultural Sensitivity and Inclusivity:** Ensure AI tools and policies are culturally responsive, promoting diversity, equity, and inclusion for international students in AI-enhanced learning environments.

6.2. Limitations and Future Directions

While this study contributes to understanding AI adoption in educational contexts, it has several limitations that should be addressed in future research.

- **Single-province context:** The study was limited to Liaoning Province, which restricts the generalizability of the findings. Future research should explore multi-province or cross-country studies to determine whether the observed relationships hold in diverse educational settings.
- **Cross-sectional design:** The study's cross-sectional nature limits the ability to infer causality. Longitudinal studies are necessary to understand the long-term effects of AI adoption on student engagement and learning outcomes, particularly among international students.
- **Self-reporting bias:** Data collected through self-reports may be subject to social desirability or response bias. Future studies could integrate qualitative methods like interviews or focus groups to provide deeper insights and validate the survey findings.
- **Heterogeneity of AI tools:** The study assumed a generalised approach to AI tools, yet there is significant variation in AI systems used across institutions. Future research should examine how different AI platforms and technologies affect student engagement and AI acceptance.
- **Diversity of international students:** The sample primarily consisted of foreign students in China, yet this group is not homogeneous in terms of language, culture, or technological experience. Future studies should explore how these factors influence AI acceptance and engagement in more diverse international student populations.

Altogether, this study offers a significant amount of information on the integration of AI in an educational setting in relation to international students. It highlights that inclusive policies, teacher assistance, and governance of AI are necessary in order to make the adoption of AI beneficial to all students. The results and recommendations provide a conceptual framework that can be used to shape the policies regarding AI-enhanced education and encourage the equitable provision of learning opportunities in the global education system. The above limitation should be tackled in future research and the area of investigation to give more comprehensive policy recommendations.

References

- Akgun, S. & Greenhow, C. (2022). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI and Ethics*, 2(3), pp. 431–440. doi: <https://doi.org/10.1007/s43681-021-00096-7>

- Bandura, A. (1977). Self-Efficacy: Toward a Unifying Theory of Behavioral Change. *Psychological Review*, 84(2), pp. 191–215. doi: <https://doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Prentice-Hall.
- Baron, R. M. & Kenny, D. A. (1986). The Moderator–Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6), pp. 1173–1182. doi: <https://doi.org/10.1037/0022-3514.51.6.1173>
- Biggs, J. B. (1987). *Student Approaches to Learning and Studying*. ACER.
- Caplan, G. (1974). *Support Systems and Community Mental Health: Lectures on Concept Development*. Behavioural Publications.
- Chi, X. (2017). *A Study on the Influence Mechanism of Teacher Support on College Students' Learning Engagement Based on Self-Determination Motivation Theory* (Doctoral Dissertation, Tianjin University). doi: <http://doi.org/10.7666/d.D01769270>
- Cho, H. J., Levesque-Bristol, C. & Yough, M. (2023). How autonomy-supportive learning environments promote Asian international students' academic adjustment: a self-determination theory perspective. *Learning Environments Research*, 26(1), pp. 51–76. doi: <https://doi.org/10.1007/s10984-021-09401-x>
- Cobb, S. (1976). Social Support as a Moderator of Life Stress. *Biopsychosocial Science and Medicine*, 38(5), pp. 300–314. doi: <https://doi.org/10.1097/00006842-197609000-00003>
- Fredricks, J. A., Blumenfeld, P. C. & Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*, 74(1), pp. 59–109. doi: <https://doi.org/10.3102/00346543074001059>
- Ge, Z., Lu, K. & Li, G. (2025). A Study on Generative Artificial Intelligence Anxiety and Its Influencing Factors Among Information Resource Management Students. *Library and Information Service*, 69(6), pp. 72–84. doi: <https://doi.org/10.13266/j.issn.0252-3116.2025.06.006>
- Horwitz, E. K., Horwitz, M. B. & Cope, J. (1986). Foreign Language Classroom Anxiety. *The Modern Language Journal*, 70(2), pp. 125–132. doi: <https://doi.org/10.1111/j.1540-4781.1986.tb05256.x>
- Huang, M. (2025). Student engagement and speaking performance in AI-assisted learning environments: A mixed-methods study from Chinese middle schools. *Education and Information Technologies*, 30(6), pp. 7143–7165. doi: <https://doi.org/10.1007/s10639-024-12989-1>
- Huang, R., Spector, J. M. & Yang, J. (2019). *Educational Technology: A Primer for the 21st Century*. Springer. doi: <https://doi.org/10.1007/978-981-13-6643-7>
- Kohnke, L., Moorhouse, B. L. & Zou, D. (2023). ChatGPT for language teaching and learning. *RELC Journal*, 54(2), pp. 537–550. doi: <https://doi.org/10.1177/00336882231162868>

- Liang, Y. (2000). *Research on College Students' Achievement Goals, Attribution Styles and Academic Self-Efficacy* (Doctoral Dissertation, Wuhan: Central China Normal University).
- Luo, J., Shi, W., Zhang, P. & Hou, G. (2017). A Study on the Learning Engagement of Physical Education Students and Its Influencing Factors. *Journal of Nanjing Sport Institute (Natural Science Edition)*, 16(5), pp. 99–105. doi: <https://doi.org/10.15877/j.cnki.nsin.2017.05.021>
- Manjarres-Posada, N., Onofre-Rodríguez, D. J. & Benavides-Torres, R. A. (2020). Social Cognitive Theory and Health Care: Analysis and Evaluation. *International Journal of Social Science Studies*, 8(4), pp. 132–141. doi: <https://doi.org/10.11114/ijsss.v8i4.4870>
- Ouyang, F. & Jiao, P. (2021). Artificial intelligence in education: The three paradigms. *Computers and Education: Artificial Intelligence*, 2, pp. 100020. doi: <https://doi.org/10.1016/j.caeai.2021.100020>
- Pei, D. (2019). On the Chinese Characteristics of Curriculum and Teaching Theory Development. *Chinese Teacher*, (10), pp. 5–8. doi: <https://doi.org/10.3969/j.issn.1672-2051.2019.10.002>
- Pintrich, P. R. & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82(1), pp. 33–40. doi: <https://doi.org/10.1037/0022-0663.82.1.33>
- Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M. & Bakker, A. B. (2002). Burnout and Engagement in University Students: A Cross-National Study. *Journal of Cross-Cultural Psychology*, 33(5), pp. 464–481. doi: <https://doi.org/10.1177/0022022102033005003>
- Schunk, D. H. & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology*, 60, pp. 101832. doi: <https://doi.org/10.1016/j.cedpsych.2019.101832>
- The State Council. (2017). *New Generation Artificial Intelligence Development Plan*. Retrieved from http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm
- Tian, M., Lu, G., Yin, H. & Li, L. (2020). Student Engagement for Sustainability of Chinese International Education: The Case of International Undergraduate Students in China. *Sustainability*, 12(17), pp. 6831. doi: <https://doi.org/10.3390/su12176831>
- Zawacki-Richter, O., Marín, V. I., Bond, M. & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), pp. 39. doi: <https://doi.org/10.1186/s41239-019-0171-0>
- Zhao, J. (2025). Advancing english language education: A mixed-methods analysis of AI-driven tools' impact on engagement, personalization, and learning outcomes. *Education and Information Technologies*, 30(15), pp. 21773–21813. doi: <https://doi.org/10.1007/s10639-025-13560-2>

Appendices

Table 11: Measurement and Scale Sources.

Part	Aspect	Variables	Items	Dimensions	Scale Sources	Authors	Reliability and Validity of Sources.
A	Demographic Profile		-98	-	-	-	-
B	Independent Variable	Anxiety	7	2	Foreign Language Classroom Anxiety Scale (FLCAS);	Horwitz et al. (1986)	Cronbach's alpha coefficients= 0.960.
			25	-	AI Anxiety Scale for Information Resources Management Undergraduates	Ge et al. (2025)	EFA(structural validity): KMO value =0.974 (exceeding 0.6), Bartlett's test of sphericity yielded statistical significance ($p < 0.05$) When constructing the GAI anxiety model, the "learning anxiety" factor extracted through factor analysis accounted for 28.047% of variance after rotation, with cumulative variance explanation reaching 73.865%
		Teacher Support	13	3	Perceived Teacher Support Scale for Undergraduates	Chi (2017)	Cronbach's alpha coefficients=0.95 CFA(structural validity): $\chi^2/df=3.90$, RMSEA=0.058, SRMR=0.024, GFI=0.96, NFI=0.97, CFI=0.98, IFI=0.98
		Academic Self-Efficacy	22	2	Academic Self-Efficacy Scale for Undergraduates	Liang (2000) adapted from Pintrich and De Groot (1990)	Cronbach's alpha coefficients=0.88 CFA (structural validity): $\chi^2/df=2.36$, RMSEA=0.06, SRMR=0.063, GFI=0.90, NFI=0.90, CFI=0.91
C	Mediating Variable	AI-Acceptance	12	3	Handheld Technology Acceptance Scale	Huang (2025)	Cronbach's alpha coefficients=0.925 CFA (structural validity): $\chi^2/df=1.938$, RMSEA=0.065, SRMR=0.045, GFI=0.901, IFI=0.965, CFI=0.965, PNFI=0.776, PGFI=0.662
D	Dependent Variable	Learning Engagement	13	3	Learning Engagement Scale for Undergraduates	Luo et al. (2017) adapted from Schaufeli et al. (2002)	Cronbach's alpha coefficients=0.914 CFA(structural validity): $\chi^2/df=2.966$, RMSEA=0.043, SRMR=0.063, GFI=0.938, NFI=0.916, CFI=0.942

Table 12: Cronbach's Alpha Result.

Part	Variable under Investigation	Items (98)	Cronbach's Alpha Coefficients
Personal Profile	Demographic Profile	7	0.913
Independent Variable	Anxiety	31	0.993
Independent Variable	Teacher Support	13	0.984
Independent Variable	Academic Self-Efficacy	22	0.991
Mediating Variable	AI-Acceptance	12	0.921
Dependent Variable	Learning Engagement	13	0.987

Table 13: KMO and Bartlett's Test.

KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.852	>0.8, excellent
Bartlett's Test of Sphericity	Approx.	58221.6	
	Chi-Square		
	df	4095	<0.5, significant, suit EFA
	Sig.	0	

Table 14: Total Variance Explained.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
8	38.191	41.969	41.969	38.191	41.969	41.969	26.194	28.785	28.785
9	14.412	15.837	57.805	14.412	15.837	57.805	18.608	20.449	49.234
10	8.807	9.678	67.484	8.807	9.678	67.484	11.041	12.133	61.367
11	7.297	8.019	75.502	7.297	8.019	75.502	10.4	11.428	72.795
12	4.508	4.954	80.456	4.508	4.954	80.456	6.972	7.661	80.456
13	2.659	2.922	83.378						
14	2.054	2.258	85.635						
15	1.649	1.812	87.448						
16	1.535	1.687	89.135						
17	1.202	1.321	90.456						
18	1.04	1.142	91.598						
19	0.846	0.93	92.528						
20	0.74	0.813	93.341						
21	0.691	0.76	94.101						
22	0.6	0.659	94.76						
23	0.56	0.615	95.375						
24	0.507	0.557	95.933						
25	0.472	0.519	96.452						
26	0.439	0.483	96.935						
27	0.407	0.447	97.382						
28	0.34	0.374	97.755						
29	0.324	0.356	98.111						
30	0.266	0.293	98.404						
31	0.227	0.249	98.653						
32	0.193	0.212	98.865						
33	0.167	0.183	99.048						
34	0.113	0.124	99.173						
35	0.083	0.091	99.264						
36	0.068	0.074	99.338						
37	0.06	0.066	99.404						
38	0.053	0.059	99.463						
39	0.047	0.052	99.515						
40	0.04	0.044	99.559						
41	0.034	0.037	99.596						

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
42	0.032	0.035	99.631						
43	0.027	0.029	99.66						
44	0.022	0.024	99.684						
45	0.02	0.022	99.706						
46	0.019	0.021	99.727						
47	0.016	0.017	99.744						
48	0.015	0.016	99.761						
49	0.014	0.015	99.775						
50	0.013	0.015	99.79						
51	0.013	0.014	99.804						
52	0.012	0.013	99.817						
53	0.011	0.012	99.828						
54	0.01	0.011	99.84						
55	0.01	0.011	99.851						
56	0.009	0.01	99.861						
57	0.009	0.009	99.87						
58	0.008	0.009	99.879						
59	0.007	0.008	99.887						
60	0.007	0.008	99.894						
61	0.007	0.007	99.902						
62	0.006	0.007	99.909						
63	0.006	0.007	99.916						
64	0.005	0.006	99.921						
65	0.005	0.006	99.927						
66	0.005	0.005	99.933						
67	0.005	0.005	99.938						
68	0.004	0.005	99.943						
69	0.004	0.005	99.947						
70	0.004	0.004	99.952						
71	0.004	0.004	99.956						
72	0.004	0.004	99.96						
73	0.003	0.004	99.963						
74	0.003	0.003	99.967						
75	0.003	0.003	99.97						
76	0.003	0.003	99.973						
77	0.003	0.003	99.976						
78	0.003	0.003	99.979						
79	0.002	0.002	99.981						
80	0.002	0.002	99.984						
81	0.002	0.002	99.986						
82	0.002	0.002	99.988						
83	0.002	0.002	99.99						
84	0.001	0.001	99.991						
85	0.001	0.001	99.993						
86	0.001	0.001	99.994						
87	0.001	0.001	99.995						
88	0.001	0.001	99.996						
89	0.001	0.001	99.997						
90	0.001	0.001	99.997						
91	0.001	0.001	99.998						
92	0.001	0.001	99.998						
93	0	0	99.999						
94	0	0	99.999						
95	0	0	100						
96	0	0	100						
97	0	0	100						
98	0	0	100						
Extraction Method: Principal Component Analysis.									

Table 15: Rotated Component Matrix.

Rotated Component Matrix ^a					
	Component				
	1	2	3	4	5
Anxiety16	0.892				
Anxiety1	0.889				
Anxiety4	0.888				
Anxiety9	0.886				
Anxiety27	0.884				
Anxiety13	0.883				
Anxiety17	0.882				
Anxiety5	0.881				
Anxiety28	0.879				
Anxiety2	0.877				
Anxiety14	0.877				
Anxiety21	0.874				
Anxiety19	0.873				
Anxiety25	0.87				
Anxiety29	0.87				
Anxiety7	0.869				
Anxiety10	0.867				
Anxiety12	0.867				
Anxiety30	0.866				
Anxiety22	0.866				
Anxiety6	0.866				
Anxiety3	0.866				
Anxiety23	0.865				
Anxiety31	0.863				
Anxiety15	0.862				
Anxiety11	0.862				
Anxiety18	0.861				
Anxiety24	0.861				
Anxiety8	0.86				
Anxiety26	0.86				
Anxiety20	0.859				
Academic Self-Efficacy7		0.903			
Academic Self-Efficacy2		0.902			
Academic Self-Efficacy17		0.899			
Academic Self-Efficacy12		0.897			
Academic Self-Efficacy22		0.897			
Academic Self-Efficacy6		0.896			
Academic Self-Efficacy11		0.896			
Academic Self-Efficacy16		0.896			
Academic Self-Efficacy1		0.895			
Academic Self-Efficacy21		0.894			
Academic Self-Efficacy14		0.893			
Academic Self-Efficacy4		0.892			
Academic Self-Efficacy9		0.891			
Academic Self-Efficacy8		0.89			
Academic Self-Efficacy13		0.889			
Academic Self-Efficacy3		0.889			
Academic Self-Efficacy19		0.887			
Academic Self-Efficacy18		0.883			
Academic Self-Efficacy5		0.874			
Academic Self-Efficacy15		0.87			
Academic Self-Efficacy20		0.868			
Academic Self-Efficacy10		0.864			
Teacher Support5			0.899		
Teacher Support3			0.894		
Teacher Support8			0.888		
Teacher Support7			0.888		

Rotated Component Matrix ^a					
	Component				
	1	2	3	4	5
Teacher Support10			0.887		
Teacher Support6			0.886		
Teacher Support1			0.884		
Teacher Support13			0.88		
Teacher Support12			0.879		
Teacher Support2			0.878		
Teacher Support11			0.867		
Teacher Support4			0.859		
Teacher Support9			0.849		
Learning Engagement 8				0.903	
Learning Engagement 4				0.903	
Learning Engagement 9				0.902	
Learning Engagement 3				0.902	
Learning Engagement 11				0.9	
Learning Engagement 5				0.9	
Learning Engagement 1				0.898	
Learning Engagement 7				0.896	
Learning Engagement 2				0.895	
Learning Engagement 12				0.883	
Learning Engagement 6				0.576	
Learning Engagement 13				0.574	
Learning Engagement 10				0.573	
AI-Acceptance 1					0.751
AI-Acceptance 8					0.746
AI-Acceptance 5					0.74
AI-Acceptance 4					0.733
AI-Acceptance 3					0.721
AI-Acceptance 10					0.72
AI-Acceptance 12					0.716
AI-Acceptance 2					0.696
AI-Acceptance 6					0.683
AI-Acceptance 7					0.68
AI-Acceptance 9					0.667
AI-Acceptance 11					0.647
Extraction Method: Principal Component Analysis.					
Rotation Method: Varimax with Kaiser Normalisation.					
a. Rotation converged in 6 iterations.					

Table 16: Model AVE and CR Indicator Results.

Model AVE and CR Indicator Results		
Factor	AVE	CR
Anxiety	0.733	0.988
Teacher Support	0.784	0.979
Academic Self-Efficacy	0.827	0.991
AI-Acceptance	0.511	0.921
Learning Engagement	0.849	0.986

Table 17: Confidence Intervals.

Confidence Intervals		
	Pearson Correlation	Sig. (2-tailed)
Anxiety - Teacher Support	-0.339	0
Anxiety - Academic Self-Efficacy	-0.355	0
Anxiety - AI-Acceptance	-0.236	0.001
Anxiety - Learning Engagement	-0.579	0