

The Impact of General Education Curriculum in Application-Oriented Universities on Students' Global Perspective Development: The Moderating Role of AI-Empowered Teaching

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ABSTRACT

In the digital era, general education in application-oriented universities faces new opportunities and challenges in developing students' global perspective. With the rapid advancement of artificial intelligence (AI), the deep integration of AI technologies and education provides new pathways for cultivating global perspectives. This study employs multiple hierarchical regression analysis to examine the impact of general education curriculum content design on global perspective development, with a focus on the moderating role of AI-empowered teaching. Key findings reveal that: (1) all three dimensions of curriculum content design significantly enhance students' intercultural competence and learning satisfaction; (2) AI-empowered teaching positively moderates these relationships, demonstrating that effective AI application amplifies the curriculum's impact. The study uncovers the mechanism linking general education curriculum, AI-empowered teaching, and global perspective development, while offering theoretical and practical guidance for application-oriented universities to optimize general education system through AI integration. Recommendations include strengthening internationalized curriculum content and elevating faculty's AI-augmented pedagogical competencies to digitally empower global perspective cultivation.

Keywords: General education curriculum, students' global perspective, AI-empowered teaching, moderating effect.

INTRODUCTION

Amidst the dual transformations of globalization and digitalization, higher education confronts unprecedented opportunities and challenges. China's Education Modernization 2035 explicitly states that it is necessary to cultivate "talents with humanistic literacy, innovative spirit, practical competence, and global perspective," providing strategic direction for educational reform. General education, as a pivotal vehicle for this mission, has seen its internationalization become a focal academic concern (Wit & Altbach, 2021).

Application-oriented universities occupy a distinctive position within the higher education ecosystem. According to the massification theory of higher education, application-oriented universities bear the critical mission of cultivating high-quality applied talents (Xu, 2021). In today's hypercompetitive global landscape, fostering global perspective through general education emerges as a paramount task (Kjellgren & Richter, 2021). Research confirms that global perspective encompasses not only intercultural communication skills but also multidimensional attributes like global awareness and international understanding, all requiring systematic general education curricula (Gee *et al.*, 2024).

Concurrently, artificial intelligence (AI) is profoundly reshaping educational paradigms (Manprasio *et al.*, 2024). The Technology Acceptance Model (TAM) posits that instructors' AI adoption willingness and capability directly determine pedagogical outcomes (Ververthi *et al.*, 2024). Particularly in general education, AI enables innovative cross-cultural teaching approaches (Huo, 2025), yet existing studies lack in-depth exploration of AI-empowered teaching's mechanistic role in global perspective development.

This study addresses three core questions: First, how does general education curriculum systematically influence global perspective cultivation? Second, what moderating effects does AI-empowered teaching exert? Third, how to construct an AI-empowered internationalization model for general education? These inquiries contribute to refining the theoretical framework of internationalization in higher education while offering practical guidance for application-oriented universities' transformation.

THEORETICAL FOUNDATION

General Education Theory

General education, as a core component of higher education, traces its philosophical roots to Newman's concept of "liberal education" in *The Idea of a University*, which emphasizes cultivating rational thinking, moral judgment, and cultural literacy beyond practical skills training (Kambor, 2024). This humanistic tradition asserts that education should not only impart specialized knowledge but also foster critical thinking and global citizenship through interdisciplinary integration.

The Harvard Redbook systematized this paradigm by advocating the cultivation of "the whole man" through cross-disciplinary curricula that integrate scientific, humanistic, and social knowledge (Schneider, 2021). Such integrative learning constitutes the foundation for developing global perspective—only by transcending disciplinary boundaries can students construct a holistic understanding of diverse cultural knowledge systems.

Globalization has further expanded general education's purview. Contemporary practice prioritizes "interdisciplinary synthesis," employing boundary-crossing course designs to cultivate multi-perspectival analysis (Mansurjonovich & Davronovich, 2023). This approach broadens intellectual horizons while enhancing intercultural understanding.

Thus, general education serves as the bedrock for global perspective development through three mechanisms: character formation, knowledge synthesis, and critical thinking cultivation. In our globalized era, narrowly specialized training risks producing professionals with technocentric myopia, whereas general education that bridges STEM and humanities, local and global perspectives, empowers students to overcome cultural parochialism. For application-oriented universities, this necessitates curricula balancing professional training with global citizenship development—equipping students with both technical competencies for international labor markets and the soft skills of globally-minded citizens. This theoretical framework informs our investigation into how application-oriented universities' general education programs drive global perspective development.

Global Perspective Theory

As a core dimension of talent cultivation in the globalization era, global perspective theory primarily develops around the concept of intercultural competence. The Intercultural Competence Pyramid Model establishes fundamental theoretical foundations for this field (Deardorff, 2023). This model emphasizes that authentic global perspective cannot remain at the cognitive level but must be translated into practical abilities through intercultural engagement, providing crucial implications for general education pedagogy in higher education.

The Intercultural Communication Competence Model further enriches global perspective theory from a communicative perspective by proposing critical cultural awareness (Aririguzoh, 2022). This model demonstrates that globally competent individuals must not only acquire cultural knowledge and communication skills but, more importantly, develop reflective thinking ability to critically understand cultural differences. This emphasis on cultural positionality proves particularly vital for overcoming cultural biases in the current AI era.

Overall, it can be concluded that global perspective essentially integrates cognition, skills, and values in three dimensions. Students' cross-cultural literacy, as the central pillar of global perspective, not only determines individual adaptability in globalized environments but also constitutes indispensable soft power for building a community with a shared future for mankind. As highlighted in UNESCO's Education 2030 Framework for Action, cultivating globally competent citizens has become a critical educational mission for addressing 21st-century challenges. Consequently, this study conceptualizes the enhancement of global perspective development as fundamentally rooted in advancing cross-cultural literacy.

AI-Empowered General Education Theory

AI technologies are driving comprehensive innovation in general education, from conceptual frameworks to pedagogical practices. Theoretically, traditional general education theories have gained renewed vitality through integration with intelligent technologies. The global citizenship education theory achieves intelligent reorganization of interdisciplinary knowledge via knowledge graph technology (Leite, 2022). The intercultural competence model acquires immersive practice pathways through virtual reality technology (Holmes & O'Neill, 2012). Mastery learning theory evolves into personalized adaptive systems powered by big data analytics (Winget & Persky, 2022). This theoretical innovation represents not merely technological additions but the emergence of an "Intelligent-TPACK" paradigm, which reconstructs the technological-pedagogical-content knowledge framework in the AI era (Zhang, 2021).

Practically, AI technologies have created unprecedented implementation spaces for general education. Multimodal learning analytics systems integrate behavioral trajectories, physiological signals, and affective states to generate precise learning

profiles. Intelligent knowledge graphs construct dynamically evolving knowledge networks based on meaningful learning theory (Agra *et al.*, 2019). Pedagogical agent systems transform the zone of proximal development theory into real-time interactive tutoring through natural language processing and machine learning. Notably, blended smart teaching models combine algorithmic recommendations with humanistic guidance, preserving the humanistic essence while enhancing technological precision (Anwar *et al.*, 2022).

In this era of AI-empowered education, faculty's adoption of AI-empowered teaching has become imperative for general education reform. Confronting trends like widespread adoption of educational large language models and metaverse learning environments, teachers must proactively develop AI-augmented pedagogical competencies to transform intelligent technologies into tools for cultivating global perspective. This transition not only enhances teaching efficacy but, more crucially, safeguards the transmission of humanistic values in technological applications. Therefore, advancing faculty's AI-augmented pedagogical competencies and constructing human-AI collaborative teaching models constitute the core pathway to realizing the "techno-humanism" ideal in general education, as well as essential conditions for nurturing globally competent talents with both digital literacy and humanistic sensibility. Accordingly, this study focuses on examining the role of AI-empowered teaching in mediating general education's impact on global perspective development.

RESEARCH HYPOTHESES AND DESIGN

Research Hypotheses

General education and global perspective development

The core of general education fundamentally lies in curriculum content design, whose quality directly determines educational outcomes (Hockett & Brighton, 2021). The essence of global perspective development consists in cultivating cross-cultural literacy, while learner satisfaction serves as a critical metric for assessing teaching effectiveness and should be incorporated into global perspective evaluation frameworks (Wilkinson, 2012).

(1) General education curriculum content design and students' cross-cultural literacy

Regarding the content design of general education curriculum, general education focuses on the teaching of humanities courses, with more abundant spiritual and ideological content. Therefore, in the content design, more attention will be paid to the teaching and transmission of global knowledge and internationalized content (Roberts, 2007). In addition, the knowledge type of professional education tends to be practical, which requires that general education courses can achieve interdisciplinary integration (Carmichael *et al.*, 2017).

General education is the breakthrough point for China to implement cultural literacy education, and cross-cultural literacy is a reflection of the comprehensive cultural literacy ability that contemporary national talents must possess (Saravia & Arvizu, 2017). A general education course with global knowledge and internationalized content, while strengthening interdisciplinary integration, can provide students with a broader understanding and appreciation of culture from a cross-cultural perspective, and enhance national self-esteem. That is to say, the global knowledge, international content, and interdisciplinary integration of general education courses are beneficial for improving students' cross-cultural literacy. Based on the above analysis, the following hypothesis is proposed:

H1: There is a positive correlation between the content design of general education curriculum and students' cross-cultural literacy.

(2) General education curriculum content design and student satisfaction

On the one hand, general education has been continuously recognized and become an important field of academic research, but on the other hand, it is in a marginal and subordinate position in practice. "Water courses" (referred to as low-quality courses in China) have become synonymous with general education courses, which is partly due to the content of general education courses. In curriculum content design, emphasizing the cultivation of students' knowledge acquisition, competency development, emotional growth, and value formation is essential to achieving the educational objectives and concepts of general education, and such an integrated approach further enhances student recognition and satisfaction (Zhoc *et al.*, 2018). Based on the above analysis, the following hypothesis is proposed:

H2: There is a positive correlation between the content design of general education curriculum and student satisfaction.

The positive regulatory effect of ai-empowered teaching

Under the new trend of digital education, teacher teaching reform based on artificial intelligence technology has become an inevitable requirement (Han, 2020). With the support of key artificial intelligence technologies such as machine learning, natural language processing, knowledge graph, virtual reality (VR), and augmented reality (AR), the collaborative teaching method has been formed to assist and support teacher intelligent teaching (Rani *et al.*, 2021). With the support of artificial intelligence data analysis and teaching management advantages, teachers have become organizers of teaching, gradually weakening their dominant position. On the student side, AI-empowered teaching of general education courses is conducive to cultivating students' information literacy and intelligent concepts, and strengthening the improvement of intercultural competence. On the other hand, AI-empowered teaching is beneficial for attracting students' attention and improving student satisfaction. Based on the above analysis, the following hypotheses are proposed:

H3: After teachers use AI technologies in teaching, the positive relationship between general education courses and students' cross-cultural literacy becomes stronger. In other words, AI-empowered teaching positively regulates the positive correlation between general education courses and students' cross-cultural literacy.

H4: After teachers use AI technologies in teaching, the positive relationship between general education courses and student satisfaction becomes stronger. In other words, AI-empowered teaching positively regulates the positive correlation between general education courses and student satisfaction.

The theoretical framework of this study is shown in Figure 1.

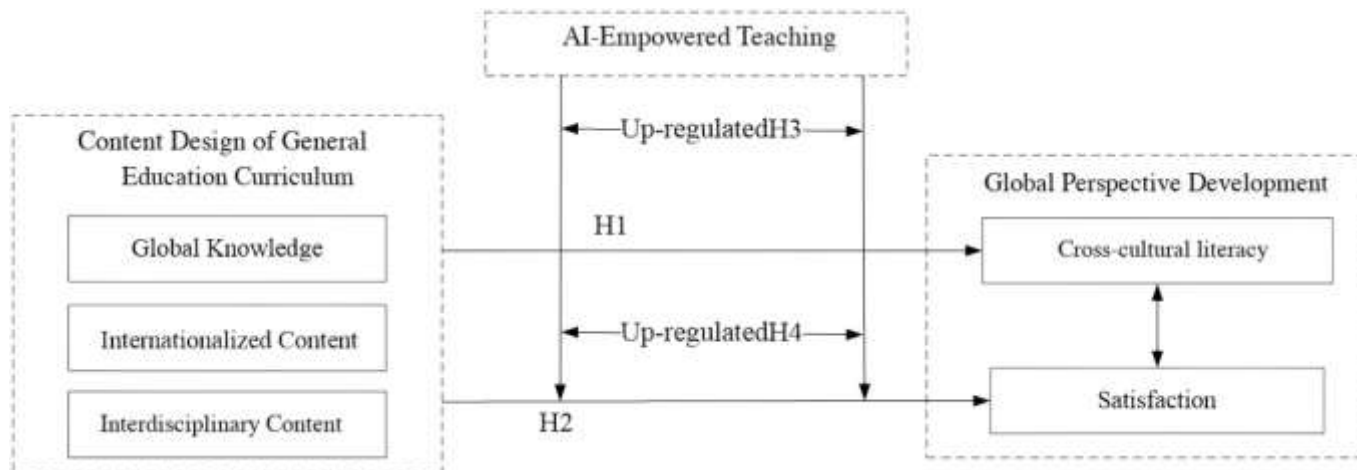


Figure 1: The theoretical framework.

Research Design

Data collection

Due to the difficulty in obtaining data on graduate general education curriculum content design, teaching methods, and teaching effectiveness through public sources, this study adopts a questionnaire survey to collect data. The questionnaire covers 11 questions, including students' basic information, general education curriculum content, AI-empowered teaching, students' cross-cultural literacy and satisfaction. The questionnaire is submitted in electronic form on Questionnaire Star and is distributed to students from application-oriented universities. The maximum weekly collection of valid questionnaires is 379. This study adopts a stratified random sampling method to select research subjects. The core characteristics of the sample universities are highly consistent with the universal characteristics of application-oriented universities: in terms of training objectives, all 12 universities take practical ability as their core orientation; in terms of geographical distribution, there are 4 universities in the eastern region, 6 in the central region, and 2 in the western region, covering the main regions where application-oriented universities in China are concentrated. These characteristics indicate that the sample of this study can represent the basic situation of most application-oriented universities in China, and the research results can provide references for similar institutions.

Variable measurement

The measurement tool used in this study was revised based on existing relevant scales. Although there are mature scales for variables such as satisfaction and general education courses, there is no fully corresponding measurement scale for curriculum content design and cross-cultural literacy. Therefore, this study needs to modify the measurement items based on these mature scales and combined with the positioning of talent cultivation in higher education institutions, in order to conform to the theme and context of this study. The definition of variables and specific measurement items are detailed in Table 1.

Table 1: Variable definition

Variable Type	Name	Indicator
Dependent variable	Cultivation of global perspective for Students	Cross-cultural literacy
		Satisfaction
		Global Knowledge
Independent variable	Content Design of General Education Curriculum	Internationalized Content
		Interdisciplinary Content
Moderating variable	Teaching methods for teachers	AI-empowered teaching
Control variable	Grade	Grade

Dependent Variable: global perspective development. This variable measures the efficacy of general education in cultivating students' global perspective. Building upon intercultural competence models and global perspective frameworks and incorporating characteristics of application-oriented universities, the measurement instrument comprises two dimensions: (1) cross-cultural literacy and (2) learner satisfaction.

Independent Variable: Content design of general education curriculum. This variable assesses the internationalization features of general education content. Grounded in Harvard's "whole person" education philosophy and global citizenship theory, and adapted for application-oriented universities, the measurement includes three dimensions: (1) global knowledge, (2) internationalized content, and (3) interdisciplinary content.

Moderating Variable: AI-empowered teaching. This variable evaluates the extent of artificial intelligence application in general education pedagogy. Based on the TPACK framework and educational AI theories, the measurement employs a 5-point Likert scale: very dissatisfied, somewhat dissatisfied, neutral, somewhat satisfied, and very satisfied.

EMPIRICAL ANALYSIS

Reliability and Validity Testing

The study conducts reliability and validity tests using SPSSAU to ensure measurement quality. Table 2 presents the detailed results.

Table 2: Reliability and validity testing

Variable	Item	Factor Loading	Cronbach's Alpha Coefficients
General education curriculum content design	To what extent do these general education courses help you acquire global knowledge and understand global issues and cross-cultural communication?	0.826	0.824
	Please evaluate the internationalized content covered in these general education courses.	0.859	
	Please assess your experience of interdisciplinary integration in these general education courses.	0.745	
Global Perspective Development	Rate your perceived improvement in global perspective through these courses.	0.820	0.882
	Evaluate your satisfaction with how these general education courses expand global perspectives.	0.874	
AI-empowered teaching	To what extent do instructors utilize artificial intelligence to facilitate discussions on global issues and cross-cultural exchange in these courses?	0.856	0.853
	KMO measure	0.827	
	Bartlett's test of sphericity	421.675	
	Degrees of Freedom (df)	21	

For reliability analysis, Cronbach's alpha coefficients serve as the evaluation criterion. The results show that all three variables achieve alpha coefficients above 0.8, demonstrating strong internal consistency of the measurement scales. The validity analysis reveals a KMO value of 0.827, indicating appropriate sampling adequacy for factor analysis. All variables maintain minimum factor loading of 0.745, confirming satisfactory convergent validity.

Descriptive Statistics

379 samples are all from application-oriented universities, including 267 freshmen, 74 sophomores, 35 juniors, and 3 seniors. The descriptive results are shown in Table 3.

Table 3: Descriptive statistics

Indicator	Ave.	Std.
Global Knowledge	2.00	0.90
Internationalized Content	1.93	0.96
Interdisciplinary Content	2.06	0.76
AI-empowered teaching	2.02	0.86

Indicator	Ave.	Std.
Cross-culture literacy	2.07	0.71
Satisfaction	2.10	0.90

Testing the Direct Effects of General Education Curriculum

The direct effect of general education curriculum content design on students' cross-cultural literacy

This paper uses a multiple linear regression model to examine the impact of curriculum content design in general education on students' cross-cultural literacy. Firstly, the variables are centralized, and then a multiple linear regression analysis is conducted. Table 4 reports the estimated results of the impact of general education curriculum content design on students' cross-cultural literacy.

Table 4: The impact of general education curriculum content design on students' cross-cultural literacy

Model	β	Std.	T	Sig.	R ²	Adj R ²	D-W	Tolerance	VIF	
1	Constant	-2.899E-15	.051	.000	1.000	.010	.007			
	Grade	.099	.051	1.940	.053			1.000	1.000	
	Constant	-3.027E-15	.037	.000	1.000					
	Grade	-.008	.038	-.226	.821			.974	1.027	
2	Global Knowledge	.286	.053	5.428	.000	.486	.481	2.175	.494	2.025
	Internationalized Content	.147	.054	2.724	.007				.475	2.106
	Interdisciplinary Content	.405	.043	9.394	.000				.740	1.352

According to the estimated results, R² is 0.486, indicating that the explanatory power of interdisciplinary integration, global knowledge, and internationalized content reaches 48.6% for the variable of students' cross-cultural literacy, which is within an acceptable range. The test result of the Debin-Watson test is 2.175, which is within an acceptable range, indicating that the hypothesis of independence between sample variables is basically passed. Meanwhile, the VIF values of the predicted variables are all less than 5, indicating that there is no multicollinearity between the variables.

According to the estimated results, the estimated coefficient of the impact of global knowledge content on students' cross-cultural literacy is 0.286, which is positively significant at the 1% significance level. This indicates that the inclusion of global knowledge in general education courses significantly enhances students' cross-cultural literacy. The estimated coefficient of the impact of internationalized content on students' cross-cultural literacy is 0.147, which is positively significant at the 1% significance level. This indicates that the inclusion of internationalized content in general education courses significantly improves students' cross-cultural literacy. The estimated coefficient of the impact of interdisciplinary integration on students' cross-cultural literacy is 0.405, which is positively significant at the 1% significance level. This indicates that the inclusion of interdisciplinary content in general education courses significantly promotes students' cross-cultural literacy.

The direct effect of general education curriculum content design on student satisfaction

This paper uses a multiple linear regression model to examine the impact of curriculum content design in general education on student satisfaction. Firstly, the variables are centralized, and then a multiple linear regression analysis is conducted. Table 5 reports the estimated results of the impact of general education curriculum content design on student satisfaction. From the estimated results, it can be seen that R² is 0.524, indicating that the explanatory power of interdisciplinary integration, global knowledge, and internationalized content reaches 52.4% for the variable of student satisfaction, which is within an acceptable range. The test result of the Debin Watson test is 2.019, indicating that the assumption of independence between sample variables is fully passed. Meanwhile, the VIF values of the predicted variables are all less than 5, indicating that there is no multicollinearity between the variables.

Table 5: The impact of general education curriculum content design on students' satisfaction

Model	β	Std.	T	Sig.	R ²	Adj R ²	D-W	Tolerance	VIF
1	Constant	-6.277E-16	.051	.000	1.000	.019	.017		
	Grade	.139	.051	2.727	.007			1.000	1.000
2	Constant	-6.432E-16	.035	.000	1.000	.529	.524	2.019	

Model	β	Std.	T	Sig.	R ²	Adj R ²	D-W	Tolerance	VIF
Grade	.023	.036	.635	.526				.974	1.027
Global Knowledge	.286	.051	5.668	.000				.494	2.025
Internationalized Content	.328	.052	6.366	.000				.475	2.106
Interdisciplinary Content	.246	.041	5.958	.000				.740	1.352

According to the estimated results, the estimated coefficient of the impact of global knowledge on student satisfaction is 0.286, which is positively significant at the 1% significance level. This indicates that the inclusion of global knowledge in general education courses significantly enhances student satisfaction. The estimated coefficient of the impact of internationalized content on student satisfaction is 0.328, which is positively significant at the 1% significance level, indicating that the inclusion of internationalized knowledge content in general education courses significantly improves student satisfaction. The estimated coefficient of the impact of interdisciplinary integration on student satisfaction is 0.246, which is positively significant at the 1% significance level, indicating that the inclusion of interdisciplinary content in general education courses significantly promotes student satisfaction.

In summary, it is found that there is a positive correlation between the general education curriculum content design and students' cross-cultural literacy, which is significant at the 1% level. Hypothesis H1 is validated. There is a positive correlation between the general education curriculum content design and student satisfaction, both of which are significant at the 1% level. Assuming H2 is validated.

Testing the Moderating Effect of AI-Empowered Teaching

The moderating effect of AI-empowered teaching on general education curriculum content design and students' cross-cultural literacy

This paper uses a multiple linear hierarchical regression model to examine the moderating effect of AI-empowered teaching on the content design of general education curriculum and students' cross-cultural literacy. Among them, the first layer is the age control variable, the second layer is the independent variable global knowledge, internationalized content, and interdisciplinary integration, the third layer is the moderating variable AI-empowered teaching, and the fourth layer is the interaction term between AI-empowered teaching and the independent variable. Table 6 reports the moderating effect of AI-empowered teaching on the curriculum content design of general education and students' cross-cultural literacy. Among them, Model 1 corresponds to the third layer, and Model 2 corresponds to the fourth layer.

According to Table 6, the estimated coefficient of the impact of AI-empowered teaching on students' cross-cultural literacy is 0.263, which is positively significant at the 1% significance level, indicating that AI-empowered teaching methods are beneficial for improving students' cross-cultural literacy. The interaction term between AI-empowered teaching and global knowledge is 0.214, which is positively significant at the 1% significance level, indicating that AI-empowered teaching will strengthen the positive impact of global knowledge on students' cross-cultural literacy. In addition, from the estimated results, it can be seen that the interaction term between AI-empowered teaching and internationalized content, as well as the one between AI-empowered teaching and interdisciplinary content, is positively significant, indicating that AI-empowered teaching can strengthen the impact of internationalized content and interdisciplinary content on students' cross-cultural literacy.

Table 6: The estimated results of the impact of AI-empowered teaching on general education curriculum content design and students' cross-cultural literacy

Model	Not standardized β	Std.	Standardized β	T	Sig.	Lower Limit	Upper Limit	Tolerance	VIF
Constant	-2.976E-15	.036		.000	1.000	-.070	.070		
Grade	-.009	.036	-.009	-.246	.806	-.080	.063	.974	1.027
Global Knowledge	.214	.053	.214	4.033	.000	.109	.318	.459	2.180
1 Internationalized Content	.080	.054	.080	1.497	.135	-.025	.186	.447	2.235
Interdisciplinary Content	.318	.045	.318	7.057	.000	.229	.406	.635	1.576
AI-empowered teaching	.263	.051	.263	5.138	.000	.162	.364	.490	2.040

Model	Not standardized β	Std.	Standardized β	T	Sig.	Lower Limit	Upper Limit	Tolerance	VIF
Constant	.067	.041		1.645	.101	-.013	.147		
Grade	-.024	.036	-.024	-.661	.509	-.095	.047	.958	1.044
Global Knowledge	.198	.056	.198	3.509	.001	.087	.308	.392	2.551
Internationalized Content	.080	.057	.080	1.393	.164	-.033	.193	.377	2.654
Interdisciplinary Content	.319	.045	.319	7.155	.000	.231	.407	.625	1.600
2 AI-empowered teaching	.319	.052	.319	6.091	.000	.216	.421	.454	2.201
AI-empowered teaching & Global Knowledge	.214	.053	.214	4.033	.000	.109	.318	.459	2.180
AI-empowered teaching & Internationalized Content	.147	.054	.147	2.724	.008	.041	.252	.475	2.106
AI-empowered teaching & Interdisciplinary Content	.318	.045	.318	7.057	.000	.229	.406	.635	1.576

According to the estimated results in Table 7, the R^2 values of the two models are 0.520 and 0.540, indicating that the explanatory power of the moderating variable (teachers' AI-empowered teaching) and its interaction terms with independent variables (global knowledge, internationalized content, and interdisciplinary integration) reaches over 50% for the variable of students' cross-cultural literacy, which is within an acceptable range. Meanwhile, the VIF values of the predicted variables are all less than 5, indicating that there is no multicollinearity between the variables.

Table 7: Test results of the impact of AI-empowered teaching on general education curriculum content design and students' cross-cultural literacy

Model	R	R ²	Adj R ²	Std.	Variation R ²	Variation F	Freedom 1	Freedom 2	Sig. F change
1	.721	.520	.514	.69727355	.034	26.403	1	373	.000
2	.735	.540	.530	.68538039	.020	5.352	3	370	.000

The moderating effect of AI-empowered teaching on general education curriculum content design and student satisfaction

Table 8 reports the moderating effect of AI-empowered teaching on the curriculum content design of general education and student satisfaction. According to Table 8, the estimated coefficient of the impact of AI-empowered teaching on student satisfaction is 0.522, which is positively significant at the 1% significance level, indicating that AI-empowered teaching methods are beneficial for improving student satisfaction with general education courses. The interaction term between AI-empowered teaching and global knowledge content is 0.142, which is positively significant at the 1% significance level, indicating that AI-empowered teaching will strengthen the positive impact of global knowledge on student satisfaction. In addition, from the estimated results, it can be seen that the interaction term between AI-empowered teaching and internationalized content, as well as the one between AI-empowered teaching and interdisciplinary content, is positively significant, indicating that AI-empowered teaching can strengthen the impact of internationalized content and interdisciplinary content on student satisfaction.

Table 8: The estimated results of the impact of AI-empowered teaching on general education curriculum content design and students' satisfaction

Model	Not standardized β	Std.	Standardized β	T	Sig.	Lower Limit	Upper Limit	Tolerance	VIF
Constant	-5.424E-16	.030		.000	1.000	-.059	.059		
1 Grade	.022	.030	.022	.721	.471	-.038	.082	.974	1.027
Global Knowledge	.142	.044	.142	3.198	.001	.055	.229	.459	2.180

Model	Not standardized β	Std.	Standardized β	T	Sig.	Lower Limit	Upper Limit	Tolerance	VIF
Internationalized Content	.197	.045	.197	4.369	.000	.108	.285	.447	2.235
Interdisciplinary Content	.073	.038	.073	1.934	.054	-.001	.147	.635	1.576
AI-empowered teaching	.522	.043	.522	12.150	.000	.438	.607	.490	2.040
Constant	.032	.035		.936	.350	-.036	.101		
Grade	.018	.031	.018	.572	.568	-.043	.078	.958	1.044
Global Knowledge	.120	.048	.120	2.498	.013	.025	.214	.392	2.551
Internationalized Content	.221	.049	.221	4.513	.000	.125	.317	.377	2.654
Interdisciplinary Content	.073	.038	.073	1.930	.054	-.001	.148	.625	1.600
AI-empowered teaching	.540	.045	.540	12.138	.000	.453	.628	.454	2.201
2 AI-empowered teaching & Global Knowledge	.142	.044	.142	3.198	.001	.055	.229	.459	2.180
AI-empowered teaching & Internationalized Content	.197	.045	.197	4.369	.000	.108	.285	.447	2.235
AI-empowered teaching & Interdisciplinary Content	.073	.038	.073	1.930	.054	-.001	.148	.625	1.600

According to the estimated results in Table 9, the R^2 values of the two models are 0.662 and 0.667, indicating that the explanatory power of the moderating variable (teachers' AI-empowered teaching) and its interaction terms with independent variables (global knowledge, internationalized content, and interdisciplinary integration) reaches over 60% for the variable of student satisfaction, which is within an acceptable range. Meanwhile, the VIF values of the predicted variables are all less than 5, indicating that there is no multicollinearity between the variables.

Table 9: Test results of the impact of AI-empowered teaching on general education curriculum content design and student satisfaction

Model	R	R^2	Adj R^2	Std.	Variation R^2	Variation F	Freedom 1	Freedom 2	Sig. F change
1	.814	.662	.658	.58499916	.134	147.622	1	373	.000
2	.816	.667	.659	.58356393	.004	1.612	3	370	.186

In summary, it was found that AI-empowered teaching methods positively regulate the positive correlation between the curriculum content of general education and students' cross-cultural literacy, both showing positive significance at the level of significance. Hypothesis H3 is verified. AI-empowered teaching method positively regulates the positive correlation between the general education curriculum content design and student satisfaction, both showing positive significance at the level of significance. Hypothesis H4 is verified.

CONCLUSION

The general education curriculum in application-oriented universities shoulders the important mission of expanding students' global perspectives, and at the same time, the empowerment role of artificial intelligence should be strengthened. Based on this, this study introduces variables such as the content design of general education courses, students' cross-cultural literacy,

satisfaction, and AI-empowered teaching, and constructs a mechanism model for the interaction between general education courses in universities and students' international perspective development. Using questionnaire survey data from 379 students in application-oriented universities, this mechanism model is empirically tested, and the empirical results are summarized. The following conclusions can be drawn:

Firstly, the three dimensions of general education curriculum content play a promoting role in enhancing students' cross-cultural literacy. Specifically, the global knowledge of course content has a positive impact on students' cross-cultural literacy, international content has a positive impact on students' cross-cultural literacy, and interdisciplinary integration has a positive impact on students' cross-cultural literacy.

Secondly, the three dimensions of general education curriculum content play a promoting role in student satisfaction. Specifically, the global knowledge of course content has a positive impact on student satisfaction, internationalized content has a positive impact on student satisfaction, and interdisciplinary integration has a positive impact on student satisfaction.

Thirdly, AI-empowered teaching plays a moderating role in the relationship between general education curriculum content design and students' global perspective development. In the era of artificial intelligence, teachers are carrying out teaching mode reforms based on key artificial intelligence technologies such as machine learning, natural language processing, knowledge graph, virtual reality (VR), and augmented reality (AR), exploring the collaborative teaching path of "artificial intelligence+teachers". On the one hand, it not only enhances teachers' digital capability, but also attracts students' attention to the curriculum and elevate their concentration on it, thereby improving student satisfaction and achieving the goal of expanding students' global perspectives in general education curriculum.

Therefore, as the main body of general education curriculum design, universities should strengthen the content design, including the design and teaching of modules such as global knowledge, internationalized content and interdisciplinary knowledge, while enhancing teachers' skills in using AI technologies in teaching.

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