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Institutional and Faculty Predictors of Medical Education Internationalization: Evidence from Qilu Medical University

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ABSTRACT

This study employed an explanatory sequential mixed-methods design to examine the factors that shape medical education internationalization and to propose evidence-based institutional management strategies. Internationalization effectiveness was defined as institutional performance in international academic exchange, English-medium instruction, faculty and student mobility, and international research productivity. Quantitative data were collected from 126 faculty members through a structured questionnaire, while qualitative data were obtained from 12 semi-structured interviews with university administrators and teaching staff. Descriptive statistics, Pearson correlation analysis, and multiple regression were used to analyze the quantitative data, and thematic analysis was applied to the interview data. Results showed that institutional policy support, international academic cooperation, curriculum internationalization, and faculty international development were all significant positive predictors of internationalization effectiveness. Faculty international development emerged as the strongest predictor, followed by international academic cooperation. Interview findings supported the quantitative results and revealed key implementation barriers, including limited funding for long-term overseas engagement, shallow international partnerships, and the low proportion of English-medium instruction. By incorporating recent post-pandemic literature on virtual mobility and digital internationalization, the study extends existing internationalization frameworks to the context of Chinese medical education. The findings suggest that medical universities should prioritize systematic faculty international training, develop hybrid academic partnerships, and advance curriculum internationalization to strengthen global competitiveness. The findings should be interpreted in light of the study's limitation to a single institutional context; future research should include multiple medical universities and student perspectives to improve generalizability.

INTRODUCTION

The internationalization of higher education has become a major strategic priority for universities worldwide. It is widely understood as the process of integrating international, intercultural, and global dimensions into the teaching, research, and service functions of higher education institutions (de Wit & Altbach, 2021; Knight, 2003). In medical education, internationalization is especially significant because future health professionals are increasingly expected to work in multicultural environments, participate in global health initiatives, and respond to transnational healthcare challenges (Frenk *et al.*, 2010).

The development of global health systems and the expansion of international medical cooperation have intensified the need for medical institutions to cultivate graduates with cross-cultural communication skills, global perspectives, and familiarity with international standards of healthcare practice. In China, higher education internationalization has also received strong policy attention, with universities increasingly promoting international partnerships, faculty exchange programs, English-medium instruction, and curriculum reform (Yang, 2020).

Despite this progress, empirical evidence remains

limited regarding the factors that most strongly influence the internationalization effectiveness of Chinese medical universities. Existing studies often focus on general higher education internationalization, while fewer studies examine the combined influence of institutional policy, international academic cooperation, curriculum internationalization, and faculty international development in medical education. This gap is especially relevant for regional and private medical universities, where resources for long-term international mobility and English-medium curriculum development may be limited. In this study, internationalization effectiveness refers to institutional performance in international academic exchanges, English-medium instruction, faculty and student mobility, and international research outputs. These indicators were assessed through faculty perceptions using a five-point Likert scale. By combining survey and interview data, this study seeks to identify the strongest predictors of internationalization effectiveness and to clarify the practical barriers that affect implementation at Qilu Medical University.

Research Questions

- Which factors significantly predict the internationalization effectiveness of medical education at

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Qilu Medical University?

- Among the identified factors, which has the strongest predictive effect on medical education internationalization effectiveness?
- What practical barriers restrict the implementation of medical education internationalization initiatives in local medical universities?
- How do full-time faculty and institutional administrators evaluate current internationalization policies and practices within their medical school?

LITERATURE REVIEW

Higher Education Internationalization and Medical Education

Internationalization has become a central theme in higher education research. Knight's (2003) widely cited definition emphasizes the integration of international and intercultural dimensions into teaching, research, and service. This definition remains useful because it captures both outward-facing activities, such as mobility and partnerships, and internal reforms, such as curriculum development and institutional policy support. de Wit and Altbach (2021) further emphasize that internationalization should not be treated merely as a set of external exchanges, but as a broader institutional transformation that connects global engagement with local educational purposes.

In medical education, internationalization carries particular importance. Global health issues, transnational disease management, cross-border research collaboration, and multicultural patient care all require medical graduates to develop international perspectives. Wu *et al.* (2020) noted that internationalization in medical education includes curriculum reform, faculty development, international partnerships, and global health integration. These dimensions provide a useful basis for examining how medical universities build international capacity.

Institutional Support, Curriculum Internationalization, and Faculty Development

From the perspective of institutional theory, university policies provide the formal structures that enable and regulate internationalization. Funding, workload arrangements, academic leave policies, and incentive systems shape whether faculty members are able to participate in overseas training, international conferences, joint research, and collaborative teaching. Organizational change theory further suggests that internationalization requires sustained transformation in institutional routines, curriculum systems, faculty roles, and administrative practices.

Curriculum internationalization is another central component. By integrating global health issues, international case studies, and cross-cultural perspectives into medical courses, universities can prepare students for healthcare practice in increasingly interconnected contexts (Green & Whitsed, 2015). However, curriculum reform depends heavily on faculty members who are

able to design and deliver globally oriented content. Faculty international development therefore serves as a bridge between institutional policy and classroom-level implementation. Faculty members who participate in international academic activities can introduce global perspectives, research networks, and international pedagogical practices into local teaching (Masoumi & Noroozi, 2023).

Post-Pandemic Internationalization and Virtual Mobility

The post-pandemic higher education landscape has renewed attention to virtual mobility and digital forms of internationalization. Travel restrictions, funding constraints, and health risks during and after the COVID-19 pandemic have encouraged universities to explore online joint lectures, virtual exchange, collaborative online international learning, and hybrid research partnerships. These developments are particularly relevant for medical universities with limited resources for large-scale physical mobility.

Tran *et al.* (2023) emphasized that post-pandemic internationalization requires more flexible and inclusive models that combine traditional mobility with digital collaboration. O'Dowd and O'Rourke (2023) similarly highlighted virtual exchange as a cost-effective pathway for institutions seeking broader international engagement despite financial and logistical constraints. Leask and Green (2022) further argued that digital internationalization cannot fully replace long-term overseas faculty training, but it can complement physical mobility and support wider participation. These recent perspectives provide an updated context for examining medical education internationalization in local university settings.

Conceptual Framework and Hypotheses

Drawing from internationalization theory, institutional theory, organizational change theory, and post-pandemic virtual mobility literature, this study proposes a four-factor framework for medical education internationalization. Institutional policy support, international academic cooperation, curriculum internationalization, and faculty international development are treated as independent variables, while internationalization effectiveness is treated as the dependent variable.

The study hypothesizes that all four factors positively predict internationalization effectiveness. It further assumes that faculty international development will exert the strongest predictive effect because faculty members are the direct implementers of internationalized curricula, academic partnerships, and global teaching practices.

MATERIALS AND METHODS

Research Design

This study employed an explanatory sequential mixed-methods design to achieve data triangulation. Quantitative data were first collected through a structured faculty

questionnaire, followed by qualitative semi-structured interviews designed to explain and enrich the survey findings. This design was appropriate because the study aimed not only to identify statistical predictors of internationalization effectiveness but also to understand the implementation barriers behind the numerical results.

Participants and Sampling

Quantitative data were collected from full-time faculty members engaged in teaching, research, and international exchange activities at Qilu Medical University. Purposive sampling was used to ensure representation across gender, academic rank, and job responsibility. A total of 150 questionnaires were distributed, and 126 valid responses were returned, yielding an effective response rate of 84.0%. Although the sample was institutionally bounded, it provided sufficient data for the planned multiple regression analysis and reflected the perceptions of faculty members involved in medical education internationalization.

Qualitative data were collected through semi-structured interviews with 12 purposively selected participants, including administrators responsible for international affairs and frontline faculty members with experience in international education or exchange. Each interview lasted approximately 30 to 45 minutes and followed a common interview protocol aligned with the four research dimensions. Participants provided informed consent, and interviews were recorded and transcribed for analysis.

Instrument and Measures

The questionnaire was organized around five constructs: institutional policy support, international academic cooperation, curriculum internationalization, faculty international development, and internationalization effectiveness. All items were rated using a five-point Likert scale. Internationalization effectiveness was measured through items related to international academic exchanges, English-medium instruction, faculty and student mobility, and international research outputs. Internal consistency reliability was assessed using Cronbach's alpha for each construct and for the overall scale.

Data Analysis

Quantitative data were analyzed using SPSS. Descriptive statistics summarized respondents' profiles and variable means. Pearson correlation analysis examined relationships among the variables, and multiple regression analysis tested the predictive effects of the four independent variables on internationalization effectiveness. Regression assumptions, including linearity, independence, normality, homoscedasticity, and multicollinearity, were examined before interpretation. Qualitative data were analyzed using inductive thematic analysis through open coding, axial coding, and selective coding. The qualitative findings were used to complement and explain the quantitative results.

RESULTS AND DISCUSSIONS

This section presents the quantitative results and

Table 1: Demographic Characteristics of Participants

Characteristic	Category	Frequency	Percentage
Gender	Male	52	41.3%
	Female	74	58.7%
Academic rank	Lecturer	29	23.0%
	Associate Professor	61	48.4%
	Professor	36	28.6%

qualitative thematic findings. Interpretation of the findings is reserved for the Discussion section.

Table 1 presents the demographic characteristics of the

126 valid respondents. Female faculty members accounted for 58.7% of the sample, while male faculty members accounted for 41.3%. Associate professors constituted

Table 2: Reliability Analysis

Variable	Cronbach's alpha
Institutional policy support	0.88
International academic cooperation	0.86
Curriculum internationalization	0.84
Faculty international development	0.87
Overall scale	0.92

the largest group by academic rank

As shown in Table 2, Cronbach's alpha values for all constructs ranged from 0.84 to 0.88, while the overall

scale achieved an alpha of 0.92. These coefficients indicate acceptable to excellent internal consistency.

Table 3: Descriptive Statistics

Variable	Mean	Standard deviation
Institutional policy support	4.12	0.63
International academic cooperation	3.98	0.71
Curriculum internationalization	3.85	0.68
Faculty international development	3.92	0.65
Internationalization effectiveness	4.05	0.66

Table 3 shows the mean scores and standard deviations for the major study variables. Institutional policy support obtained the highest mean score, followed by internationalization effectiveness and international academic cooperation.

Table 4: Correlation Analysis

Variable	1	2	3	4	5
1. Institutional policy support	1				
2. International academic cooperation	.61**	1			
3. Curriculum internationalization	.58**	.64**	1		
4. Faculty international development	.55**	.60**	.63**	1	
5. Internationalization effectiveness	.62**	.67**	.65**	.70**	1

Note. ** $p < .01$.

As shown in Table 4, all variables were positively and significantly correlated. Faculty international development showed the strongest correlation with internationalization effectiveness ($r = .70$, $p < .01$).

Table 5: Multiple Regression Analysis

Predictor	Standardized beta	t	p	95% CI
Institutional policy support	0.24	3.12	$< .01$	[0.09, 0.39]
International academic cooperation	0.31	3.95	$< .001$	[0.16, 0.46]
Curriculum internationalization	0.27	3.41	$< .01$	[0.12, 0.42]
Faculty international development	0.35	4.52	$< .001$	[0.20, 0.50]

Note: Model summary: $R^2 = .58$; adjusted $R^2 = .56$; $F = 42.37$; $p < .001$. VIF values ranged from 1.82 to 2.15, indicating no multicollinearity. Regression assumptions for linearity, independence, normality, and homoscedasticity were satisfied.

The regression model was statistically significant and explained 58% of the variance in internationalization effectiveness, indicating substantial explanatory power. All four predictors were positive and significant, with confidence intervals excluding zero.

Qualitative Findings from Interviews

The 12 interview transcripts were coded into four thematic categories corresponding to the quantitative dimensions. Interview participants generally evaluated institutional policy support positively, particularly in relation to funding and academic leave support. One associate professor in clinical medicine explained, “The school provides dedicated funding and paid academic leave for overseas conferences and short-term training; this policy removes many practical barriers that once stopped faculty from applying for international exchange opportunities.”

At the same time, administrators emphasized that long-term international engagement remained constrained by funding limits. An international affairs administrator noted, “The international office simplifies application

procedures for overseas visits, yet the annual funding quota per faculty member remains limited, which restricts long-term overseas research placements.”

Regarding cross-border academic cooperation, participants reported that existing partnerships had produced useful exchanges but had not yet developed into deeper forms of collaboration. A professor in public health stated, “We have signed memorandums with three overseas medical schools, but most cooperation only covers student short-term exchange; joint research projects and co-taught courses are extremely scarce.”

Participants also reported partial integration of global health cases into existing courses but emphasized that the proportion of English-medium instruction remained low. Across interviews, faculty overseas training and cross-border academic participation were consistently identified as the central drivers of institutional internationalization.

Discussion

Interpretation of Findings and Implementation Barriers

The findings indicate that faculty international

development and international academic cooperation were the strongest predictors of internationalization effectiveness. This result is consistent with recent higher education research emphasizing faculty capacity, global academic networks, and cross-border collaboration as central drivers of institutional internationalization (Altbach & de Wit, 2018; Tran *et al.*, 2023). Institutional policy support and curriculum internationalization also contributed significantly, suggesting that internationalization requires coordinated institutional, academic, and curricular strategies.

Faculty international development emerged as the strongest predictor because faculty members are the direct implementers of internationalization in teaching, research, and academic collaboration. Institutional policies and international agreements can create enabling conditions, but their impact depends on whether faculty members possess the international exposure, language ability, intercultural awareness, and research networks needed to translate policy into practice. In medical education, this role is especially important because faculty members shape curriculum delivery, clinical training, global health integration, and collaborative research engagement.

From an organizational change perspective, internationalization requires more than signing cooperation agreements or issuing policy documents. It requires sustained changes in institutional routines, faculty roles, curriculum content, and administrative support systems. The interview findings confirmed that limited annual funding quotas, rigid academic schedules, and insufficient administrative capacity restricted the implementation of long-term overseas training and deeper cross-border partnerships. These barriers help explain why faculty development and academic cooperation had strong predictive weight in the quantitative results.

Curriculum internationalization also functioned as a key mechanism through which faculty development could influence student learning. Embedding global health issues, international cases, and cross-cultural medical scenarios into daily teaching allows internationalization to move beyond mobility and into the regular educational experience of students. However, the low proportion of English-medium instruction suggests that curriculum internationalization remains incomplete and requires sustained investment in language support, teaching materials, and faculty training.

Theoretical Contributions and Strategic Implications

Theoretically, this study extends general higher education internationalization frameworks into the specialized context of medical education. By integrating internationalization theory, institutional theory, organizational change theory, and post-pandemic virtual mobility literature, the study offers a four-factor predictive model that is empirically supported by both survey and interview data. The inclusion of virtual and hybrid internationalization perspectives is particularly

relevant for regional medical universities operating under constrained mobility budgets.

Practically, the results suggest three strategic priorities for medical university administrators. First, universities should establish tiered and cyclical faculty international training systems. These systems may provide differentiated support for early-career lecturers, associate professors, and senior professors, balancing short-term exchanges with long-term joint research and teaching collaboration. Second, universities should develop hybrid international cooperation models that combine physical mobility with online joint courses, virtual seminars, collaborative research workshops, and co-teaching arrangements. Third, medical schools should pursue phased curriculum internationalization by increasing English-medium medical courses and integrating standardized global health modules into undergraduate and postgraduate programs.

Taken together, the findings suggest that internationalization effectiveness is strongest when institutional policy, international partnerships, curriculum reform, and faculty development are treated as mutually reinforcing components rather than isolated initiatives. Faculty development appears to be the central link among these components because it converts institutional policy and external cooperation into classroom practice, research collaboration, and sustainable academic culture.

CONCLUSION

This mixed-methods study identified four significant predictors of medical education internationalization effectiveness at Qilu Medical University: institutional policy support, international academic cooperation, curriculum internationalization, and faculty international development. Among these factors, faculty international development had the strongest predictive effect, followed by international academic cooperation. These findings support the proposed multidimensional framework and provide localized empirical evidence for medical education internationalization in China.

The study contributes to the literature by adapting higher education internationalization theory to the medical education context and by incorporating post-pandemic perspectives on virtual mobility and hybrid international cooperation. The results also offer practical guidance for institutional leaders. Sustainable medical education internationalization requires systematic faculty training, diversified international partnerships, globalized curriculum design, and supportive institutional policies. A coordinated approach is needed to ensure that internationalization becomes embedded in daily teaching, research, and institutional governance rather than remaining limited to occasional exchange activities. The study has two main limitations. First, the sample was drawn from a single regional medical university, which limits generalizability. Second, the participant pool included faculty and administrators but did not include students. Future studies should examine

multiple medical universities across different Chinese regions and incorporate student perspectives to achieve broader triangulation. Longitudinal research may also help clarify how faculty development, virtual mobility, and curriculum reform interact over time to strengthen internationalization effectiveness.

Overall, the findings provide an actionable framework for medical universities seeking to deepen global academic engagement and cultivate medical graduates with cross-cultural professional competencies.

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