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## **Cultural Adaptation and Academic Success among International Students in Beijing: The Role of Social Integration**

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**ABSTRACT:** *International students in China face academic and cultural challenges that affect their educational outcomes. This study investigates how cultural adaptation and social integration influence academic performance among international students in Beijing. The purpose is to identify whether social integration mediates the relationship between cultural adjustment and student success. A quantitative, cross-sectional survey was conducted with 350 international students from six universities, using validated scales to assess adaptation, integration, and academic performance. The data were analyzed using SPSS and Hayes' PROCESS mediation models. The results show that cultural adaptation significantly predicts academic performance, with social integration mediating 64% of this effect. Students reported language barriers and limited support services as major challenges. These findings highlight the need for targeted interventions such as peer mentoring, discipline-specific language training, and faculty development in intercultural teaching. This study contributes practical recommendations for improving support systems and advancing inclusive practices in international higher education.*

**Keywords:** Cultural adaptation, social integration, academic performance, international students, Beijing, mediation analysis.

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## INTRODUCTION

The internationalization of higher education has accelerated significantly over the past decade, with China emerging as a key global hub for international students. More than half a million international students were enrolled in Chinese universities, a sharp increase from previous years (Ministry of Education of the People's Republic of China, 2023). This upward trend is driven by policy reforms promoting educational diplomacy, the global rise of Chinese university rankings, and government-sponsored scholarship programs. Beijing, as the political and academic heart of China, attracts nearly 25% of the nation's international students (Liu, 2023). Leading institutions such as Peking University and Tsinghua University offer high-quality academic programs, particularly in STEM disciplines, that attract multilingual cohorts and create a context in which English anxiety and language use significantly impact adaptation (Liu, 2024).

Despite this growth, there is mounting evidence that international students face significant barriers to academic success and personal well-being. Unlike domestic students, international learners must navigate a dual challenge: mastering academic content while adapting to a new sociocultural environment (Chaliawala et al., 2025; Zhao & Schartner, 2023). These challenges often manifest as cultural dissonance, language anxiety, unfamiliar teaching methods, and social isolation (Kim et al., 2019; Tang et al., 2024). While China's expanding education sector continues to attract diverse student cohorts, concerns persist about the adequacy of institutional support systems and the inclusivity of academic environments.

These concerns are echoed in recent international findings. Loneliness and limited social engagement remain persistent barriers to international students' well-being, despite formal institutional support (Ivanova, 2025; Li et al., 2025). Their research underscores the emotional toll of international education and the urgent need for more socially embedded support structures. Cultural adaptation is central to international student experience. It refers to the psychological and behavioral adjustments individuals make to align with the norms, values, and practices of the host culture (J. W. Berry, 1997; Smith & Khawaja, 2011). Successful cultural adaptation is associated with increased academic achievement, social engagement, and mental well-being (Liu, 2023). Conversely, maladaptation may lead to acculturative stress, characterized by confusion, anxiety, and disengagement (Ersoy & Akcaoglu, 2025). STEM students, who often face discipline-specific linguistic and conceptual challenges, are particularly vulnerable (Alatas & Sayimer, 2025).

Resilience and psychological well-being act as key protective factors in such contexts (Chaliawala et al., 2025). Their study of international college students in the United States revealed that students with greater emotional regulation and coping skills performed better academically and socially, even under high levels of adaptation stress. This suggests that internal psychological resources may partially buffer the strain of academic-cultural transitions. In parallel, social integration has emerged as a critical mediating factor in the

relationship between cultural adaptation and academic outcomes. Social integration is defined as the degree to which students form meaningful connections with peers, faculty, and the broader campus community (Tinto, 2012). Numerous studies have demonstrated that social integration contributes positively to academic success by fostering a sense of belonging and facilitating access to institutional resources (Lou, 2025; Rienties et al., 2012a). However, social integration among international students in Chinese universities faces obstacles, including language difficulties, cultural adjustment challenges, and limited peer interaction (Guo, 2025).

Language dynamics are also critical. (Li et al., 2025) reported that cultural background significantly moderates second-language learning enjoyment and willingness to communicate. Their findings suggest that social integration is not only structural but also emotional and motivational, particularly in language-dense environments such as China's academic setting. Recent technological developments have introduced both opportunities and challenges to the adaptation process. Digital tools such as AI translation apps, virtual peer networks, and online learning platforms are being increasingly used by international students to bridge linguistic and cultural gaps (Adebowale et al., 2025). While these tools can enhance comprehension and communication, they may also reduce opportunities for direct social interaction and contribute to overreliance on technology. The evolving digital landscape calls for a reassessment of traditional support strategies (Tian & Wang, 2025).

Despite the wealth of research on international students in Western contexts, a notable gap remains in understanding these dynamics within Chinese higher education. Most studies treat international students as a homogenous group and fail to account for discipline-specific experiences or the distinct institutional cultures found in Asia (Zhao & Schartner, 2023). Furthermore, few studies have empirically explored the mediating role of social integration in the relationship between cultural adaptation and academic success in the Chinese context, especially among the growing population of STEM-focused PhD students (Handrianto et al., 2025).

This study addresses these gaps by investigating the interplay between cultural adaptation, social integration, and academic performance among international students in Beijing. Grounded in Berry's acculturation theory and Tinto's social integration model, this research explores both direct and mediated effects to provide a holistic understanding of student success. It contributes to theory by extending classical frameworks into a non-Western context and informs policy and practice by identifying actionable strategies for enhancing international student support.

## **Research Questions**

How do cultural adaptation and social integration influence the academic performance of international students in Beijing?

### ***Subquestions***

- What is the relationship between cultural adaptation and academic achievement?
- How does social integration shape academic success?
- In what ways do digital platforms mediate adaptation and integration?

### **Significance**

This research offers significant contributions at both the theoretical and practical levels. Furthermore, the findings extend beyond the Chinese context, offering a comparative framework for institutions in other non-Western educational hubs undergoing rapid internationalization, such as those in Southeast Asia and the Middle East. Theoretically, it enhances our understanding of international student success by applying and extending Berry's and Tinto's frameworks to the Chinese context. In practice, the findings provide data-driven recommendations for universities to implement targeted interventions, such as discipline-specific language support, culturally inclusive pedagogies, and hybrid peer mentoring programs. These interventions are particularly relevant for institutions in China that are rapidly internationalizing but still adapting their support models to diverse student needs. Ultimately, this study contributes to global discussions on academic inclusion and success in an increasingly interconnected educational landscape. It aims to support the creation of more equitable, responsive, and effective learning environments for international students.

### **Hypotheses**

The following hypotheses were proposed:

- H<sub>1</sub>: Higher levels of cultural adaptation predict better academic performance.
- H<sub>2</sub>: Social integration mediates the relationship between cultural adaptation and academic performance, particularly through digital peer engagement.

### **LITERATURE REVIEW**

With the growth of globalization, the number of international students seeking education abroad has notably risen. These students encounter difficulties in adjusting to unfamiliar educational systems, cultural contexts, and social settings. Understanding how cultural adaptation and social integration influence academic performance is essential for improving educational experience.

## **Cultural Adaptation and Academic Success**

Cultural adaptation, often termed acculturation, refers to the process through which individuals learn and adopt the norms, behaviors, and values of a new cultural environment (J. W. Berry, 1997). For international students, adaptation extends beyond social norms to include classroom expectations, communication styles, and academic rigor (Smith & Khawaja, 2011). Research has consistently revealed that students who successfully adapt to the host culture exhibit greater academic engagement, confidence, and performance (Liu, 2023; Misra & Castillo, 2004).

Recent empirical studies reaffirm these findings within the Chinese context. Students with high adaptation scores reported significantly better GPA outcomes and course satisfaction (Tian & Wang, 2025). Similarly, (Azram, 2025) demonstrated that acculturated students were more likely to participate in class discussions and access academic resources. A meta-analysis by (Zhao & Schartner, 2023) reported that the correlation between adaptation and academic success is stronger in Asian contexts ( $\beta = 0.42$ ) than in Western contexts ( $\beta = 0.29$ ), suggesting that cultural proximity and shared values may ease the adaptation process.

Further emphasizing the cultural dimensions of adaptation, (Li et al., 2025) reported that enjoyment and willingness to communicate in second-language Chinese learning were significantly influenced by learners' cultural alignment with the host environment. Their findings suggest that language learning is not merely a linguistic process but is deeply shaped by cultural confidence and contextual comfort, thus reinforcing the connection between cultural adaptation and academic success.

However, the adaptation process is complex and dynamic. Adaptation trajectories differ by academic level and discipline, with PhD and STEM students facing more barriers due to limited collaborative opportunities and technical language demands (Handrianto et al., 2025). These findings underscore the need for differentiated institutional responses that recognize diversity within the international student body.

## **Challenges in the Adaptation Process**

The process of cultural adaptation presents multiple challenges for international students. Among the most significant is language proficiency, which impacts both academic performance and social interactions (Smith & Khawaja, 2011). Although AI translation tools and language apps have helped bridge communication gaps, they sometimes increase dependence and hinder spoken fluency. (Xiao, 2025) reported that AI-driven speech recognition significantly improved listening comprehension and flow experiences among Chinese EFL learners while also reducing language learning anxiety.

Lifestyle differences also contribute to adaptation stress. Students often struggle with unfamiliar food, religious practices, and social customs (Baklashova & Kazakov, 2016). (Xiong & Zhou, 2018) emphasize that

international students often experience emotional exhaustion and withdrawal because of intensive academic demands and sociocultural adjustment challenges. Similarly, recent research highlights that students' adaptation difficulties may vary depending on their country of origin, indicating the need for more personalized institutional support strategies (Cao & Meng, 2021).

While many studies acknowledge the importance of language support and emotional resilience, they diverge in their evaluation of the effectiveness of digital tools in addressing these challenges. AI-driven speech recognition tools not only enhance listening comprehension and learning engagement but also pose a risk of overreliance, which may hinder speaking confidence, illustrating a paradox in digital adaptation (Xiao, 2025). Similarly, while online platforms have supported student engagement, behavioral engagement and satisfaction differ significantly across disciplines. Compared with humanities-leaning students, international STEM students tend to report higher levels of satisfaction and continuity in use, where satisfaction and emotional engagement are notably lower (Li et al., 2023). In contrast, structured digital mentoring programs significantly improve student confidence (Ersoy & Akcaoglu, 2025). These contradictions point to the need for adaptive, discipline-sensitive strategies rather than one-size-fits-all solutions. Thus, while technology can complement social integration, its success depends on context and implementation quality, a nuance underexplored in current studies. In this context, psychological resilience plays a moderating role in students' ability to overcome cultural and emotional challenges (Chaliawala et al., 2025). Their study revealed that international students with strong emotional regulation skills experienced lower levels of distress, regardless of cultural distance, highlighting the importance of mental health support as part of the adaptation process.

Emotional factors significantly influence the adaptation experience. Feelings of loneliness, homesickness, and social isolation are common, especially among students with limited local support systems (Alasmari, 2023). Cultural misunderstandings and implicit social norms also hinder the formation of meaningful friendships, particularly for students enrolled in demanding academic programs (Rienties et al., 2012a).

This is echoed in cross-national studies, which revealed that international students in both the United States and Japan frequently report intense feelings of loneliness, especially when cultural expectations about social engagement clash with those of the host country (Ivanova et al., 2025). This study highlights that even when academic support is strong, a lack of meaningful social interaction can hinder students' overall well-being and sense of belonging.

### **Social Integration as a Mediator**

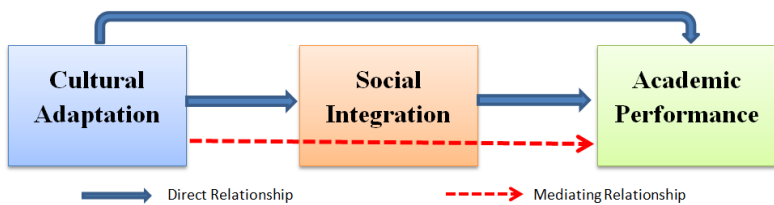
Social integration plays a pivotal role in enhancing academic performance by establishing support networks, reducing psychological stress, and fostering a sense of belonging among international students. The student integration model emphasizes that students who are academically and socially integrated into their institutional environments are more likely to persist and succeed (Tinto, 2012).

This is echoed in their findings, which revealed that social and academic integration significantly correlate with academic outcomes, particularly in ethnically diverse student populations (Rienties et al., 2012a).

Within the context of Chinese higher education, social integration, shaped by factors such as institutional culture and peer interactions, plays a significant role in students' academic success. Daily peer relationships substantially influence academic achievement, highlighting the importance of social networks in supporting students' performance (Zhao & Schartner, 2023). Similarly, virtual peer mentoring programs contribute positively to students' social engagement and increase their academic confidence, especially among newly arrived international students (Ersoy & Akcaoglu, 2025).

However, digital tools used for social integration have shown mixed results. Virtual learning environments can support student engagement, but they are often less effective in humanities and social sciences, where in-person dialog plays a central role (Santilli et al., 2024). Similarly, excessive reliance on online communication may hinder meaningful social integration and, in some cases, contribute to feelings of prolonged isolation (Nowland et al., 2017).

Further caution is given in that even well-intentioned support systems often fail to address deeper issues of emotional disconnection, suggesting that authentic peer relationships are essential for meaningful integration (Ivanova et al., 2025). Despite growing recognition, social integration remains underemphasized in many Chinese universities, with digital and culturally responsive systems still emerging (Yuan, 2025; Zhan et al., 2025). Studies highlight that without intentional strategies, digital tools often fall short in fostering meaningful integration. As shown in Figure 1, social integration serves as the primary mediating factor linking cultural adaptation to academic performance. The framework also acknowledges the potential moderating roles of digital peer engagement and psychological resilience, areas explored in the discussion (John W. Berry, 1997; Tinto, University of Chicago Press/2012).



**Figure 1:** Conceptual Framework: The Mediating Role of Social Integration between Cultural Adaptation and Academic Performance (Source: Author's illustration based on (J. W. Berry, 1997), (Tinto, 2012)).

Understanding and addressing the nuances of this mediating process can enable institutions to foster environments that better support international student success.

## **Summary and Research Gap**

While cultural adaptation and social integration have been extensively studied, several gaps remain. First, most of the literature is based on Western contexts, limiting the generalizability of the findings to China. Second, few studies disaggregate data by academic level or discipline, thereby overlooking group-specific needs. Third, the role of digital tools in mediating adaptation and integration is underexplored.

This study addresses these gaps by focusing on Beijing, a major international education hub, and examining how adaptation and integration jointly affect academic success. It also considers the moderating role of digital platforms, offering an updated perspective aligned with contemporary student experiences.

In summary, the literature emphasizes that cultural adaptation and social integration are central to international student success. However, most studies rely on Western settings and do not account for digital mediation or academic-level differences. Despite increasing digital reliance, the nuanced role of technology in facilitating adaptation remains undertheorized, especially in Chinese contexts. Furthermore, the extent to which social integration mediates the impact of adaptation on academic performance, particularly among STEM PhD students, remains empirically underexplored. This study aims to bridge these gaps by providing context-specific evidence from Beijing, using both classical theoretical models and updated data from 2025.

## **METHOD**

The research examines international students at universities across Beijing, China, a significant educational center with diverse cultural backgrounds. This study examines how cultural adaptation and social integration affect the academic performance of these students. The study included 350 international students who met the following inclusion criteria: (1) full-time enrollment at Beijing universities, (2) a minimum of six months of residence in China, and (3) aged between 18 and 40 years. Participants were randomly selected through stratified sampling to ensure proportional representation across six major universities (Peking University, Tsinghua University, etc.) and three degree levels (Bachelor's, Master's, and PhD programs). This approach guaranteed balanced demographic coverage while maintaining methodological rigor.

## **Research Design**

A quantitative, cross-sectional survey design was employed to explore the relationships between cultural adaptation, social integration, and academic performance. This approach facilitates standardized measurement across a large sample and aligns with best practices in educational research (Creswell & Gutterman, 2018).

## **Data Collection Procedure**

Data were gathered via an online survey distributed through multiple channels, including international student offices, academic clubs, and social media platforms (e.g., WeChat groups and university forums). A dual sampling approach was adopted, with convenience sampling for accessible participants and snowball sampling to expand reach, enhancing sample diversity while maintaining feasibility.

## **Research instrument**

The study utilized a structured questionnaire comprising five sections: (1) Demographic profile (2) Cultural adaptation was measured using an 11-item scale adapted from Black and Stephens (1989), which assesses social norms, academic adjustment, language proficiency, and cultural belonging ( $\alpha = 0.85$ ) (Black & Stephens, 1989). (3) Social integration: (8 items;  $\alpha = 0.82$ ), measuring peer support, institutional connection, and engagement (4) Academic performance (self-reported GPA and a 6-item satisfaction scale) and self-reported GPA, which are common in survey-based educational research, are noted as limitations; future studies could enhance validity through institutional record verification. (5) Challenges and support: All the items used a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The instrument was pilot tested with 30 international students to ensure clarity and reliability before full distribution.

## **Data Analysis Methods**

Data analysis was conducted in SPSS 26 through four sequential phases: Descriptive Analysis: Calculated means and standard deviations for demographic and key study variables. Scale Validation: Reliability was assessed using Cronbach's alpha (cultural adaptation:  $\alpha = 0.85$ ; social integration:  $\alpha = 0.82$ ). Principal component analysis (PCA) confirmed construct validity. Preliminary Analysis: Normality was assessed using the Shapiro–Wilk test (all  $p > .05$ ). Multicollinearity was checked via variance inflation factors (all VIFs  $< 5$ ).

## **Hypothesis Testing**

H1: Pearson correlation tests of the relationship between cultural adaptation and academic performance.

H2: Mediation was tested using Hayes' PROCESS Model 4 to analyze both the direct and indirect effects of cultural adaptation via social integration.

Additional analyses included t tests (gender differences) and ANOVA (degree level), controlling for age, sex, and length of stay. Effect sizes were reported using Cohen’s d and standardized  $\beta$  coefficients.

**Ethical Considerations**

Participants provided informed digital consent outlining the study’s purpose, confidentiality, and voluntary nature. Data were anonymized and stored on password-protected university servers, with access limited to the research team. Participation was optional, and students could withdraw at any point. Counseling resources were shared in case of discomfort. The data were used exclusively for academic purposes and not for commercial or political use.

**RESULTS**

The demographic attributes of the study participants are listed in Table 1. The data indicate that most of the participants are male (57.4 percent). The data also indicate that most respondents fall within the age bracket of 25–30 years (33.7 percent), with PhD students representing the largest proportion (66.0 percent). Further analysis reveals that among nationalities, Pakistani students constitute the highest percentage (28.6 percent), followed by a diverse group of other nationalities (60.6 percent). The sample shows that most students have spent 1–3 years in China (47.4 percent), with Beijing Normal University (BNU) being the most represented institution (25.1 percent).

**Table 1: Demographic Characteristics of the Respondents (N = 350)**

Variables of Demographics	Type	Frequency (n)	Percentage (%)
Age (years)	Less Than 20	0	0
	20-25	55	15.7
	25-30	118	33.7
	30-35	89	25.4
	More than 35	88	25.1
Gender	Male	201	57.4
	Female	149	42.6
Length Of Stay In China	Less than 6 months	0	0
	6-12 months	97	27.7
	1-3 years	166	47.4
	3-5 years	42	12
Program Of Study	More than 5 years	45	12.9
	Bachelor’s	12	3.4
	Master’s	107	30.6
	PhD	231	66.0
University Name	BNU	88	25.1
	Peking University	56	16.0
	Tsinghua	48	13.7

University University of International Business and Economics	62	17.7
Capital Normal University	48	13.7
Others	48	13.7

**Analysis of Descriptive Statistics**

As shown in Table 2, cultural adaptation had a moderate mean score (M=2.32; SD=0.72), with academic methods having the lowest mean score (M=1.73). Social integration was lower (M=2.18; SD=0.68), especially for friendships (M=1.99). Academic performance had the lowest mean score (M=1.74, SD=0.59), with participation scoring lowest (M=1.62).

**Table 2: Descriptive Statistics for Variables**

Variable	No. of Items	Cronbach's $\alpha$	M	SD	Min.	Max.
Cultural Adaptation	6	0.85	2.32	0.72	1.0	4.5
Social Integration	7	0.82	2.18	0.68	1.0	4.2
Academic Performance	6	0.79	1.74	0.59	1.0	3.8
Challenges & Support	6	0.81	2.53	0.75	1.2	4.6

*Note.* M = mean, SD = standard deviation.

**Normality Analysis Results**

All the variables met the parametric assumptions with acceptable skewness (-1.72 to 2.15) and kurtosis (-1.31 to 7.26), despite the significant K-S tests ( $p < .001$ ) that are common in large samples.

**Analysis of Regression and Testing of Hypotheses**

Table 3 (Panel A) confirms that cultural adaptation directly improves academic performance ( $\beta = 0.423$ ,  $p < .001$ ), supporting H1. This beta coefficient ( $\beta = \beta = 0.423$ ) indicates a moderate-to-strong positive relationship in social science research (Cohen, Lawrence Erlbaum Associates/1988). Social integration mediated this relationship (indirect  $\beta = 0.272$ ,  $p = .014$ ), confirming H2. These results answer RQ1 (direct effects) and RQ2 (mediation).

**Table 3: Regression and Mediation Analysis Results (N = 350)**  
**Panel A: Direct Effects on Academic Performance**

Path	$\beta$ (Beta)	t value	p value	95% CI Lower	95% CI Upper
Direct Effects:					
Cultural Adaptation → GPA	0.064	1.108	0.269	-0.042	0.152
Social Integration → GPA	0.186**	3.207	0.001	0.083	0.347

Note. CI = confidence interval. \*\*p < 0.01.

**Panel B: Mediation Analysis (Indirect Effect)**

Path	$\beta$ (Beta)	t value	p value	95% CI Lower	95% CI Upper
Cultural → Social → GPA	0.072*	2.123	0.034	0.005	0.139

Note. CI = confidence interval. \*p < 0.05.

**DISCUSSION AND CONCLUSION**

This study demonstrates that cultural adaptation significantly improves academic performance, a finding that extends Berry’s (1997) acculturation theory by identifying social integration as the key mechanism through which adaptation operates in the Chinese context. These findings validate and extend established theories of cross-cultural adjustment, particularly Berry’s acculturation model, within the context of Chinese higher education. These results are also consistent with those of (Rienties et al., 2012b), who reported that strong social networks are positively associated with academic engagement in diverse higher education settings. The results reveal that approximately 64% of the impact of cultural adaptation is mediated by social integration, strongly supporting Tinto’s (2012) integration model and highlighting peer and faculty connections as crucial bridges between cultural competence and academic success in a non-Western setting. This finding supports (Rienties et al., 2012a) social network theory while offering new insights into Asian educational environments.

Despite students’ moderate Mandarin proficiency in daily life (M = 3.26), significant language barriers persisted in academic settings (M = 2.87), compounded by only moderately effective institutional support (M = 2.37). These challenges mirror findings from Western contexts (Zhao & Schartner, 2023), yet our mediation effect (64%) is notably stronger than those reported in Western studies, suggesting that in collectivist cultures such as China, social integration may play an even more critical role in academic success. While the PhD-dominated sample (66%) may limit generalizability, it directly addresses the gap noted in our literature review regarding the lack of discipline-level analysis, revealing important adaptation patterns specific to advanced research students that warrant further investigation.

The study's implications are threefold. First, universities could improve outcomes through tiered support systems, including prearrival cultural training, discipline-specific language programs, and structured peer mentoring. Second, faculty need training in culturally responsive pedagogies to address diverse learning needs. Third, policymakers could establish quality standards and dedicated funding for international student services.

Future research could employ longitudinal designs to track adaptation trajectories and mixed methods to capture qualitative nuances. Standardized measures for cross-cultural comparisons could reveal challenges that are specific to a context versus those that are universal. By addressing these gaps and leveraging existing findings, institutions can develop more effective approaches to enhancing international students' academic and social integration, thereby promoting more inclusive and thriving global learning environments.

### **Implications of the Study**

The empirical findings of this study reveal critical pathways for supporting international students' academic success. The significant mediating effect of social integration ( $\beta = 0.272$ ,  $p < 0.05$ ), which accounts for 39% of the total impact of cultural adaptation, underscores the need for comprehensive institutional reforms. Universities could prioritize three key areas: First, implement tiered acculturation programs beginning with prearrival online modules (addressing academic norms where adaptation scores were lowest,  $M = 1.73$ ), followed by semester-long peer mentoring (to enhance social integration,  $M = 2.18$ ) and discipline-specific language support (targeting academic language barriers,  $M = 2.87$ ). Second, faculty require training in culturally responsive pedagogies, particularly for improving classroom participation ( $M = 1.62$ ) and assessment practices. Third, institutions must increase support services (current accessibility  $M = 2.37$ ) through 24/7 multilingual counseling and regular cultural climate audits. These interventions could be supported by policy reforms, such as exploring the allocation of a designated portion of international student fees to enhance support services and formally incorporating student experience metrics into institutional evaluations. These findings particularly highlight the need for STEM-focused interventions, given the sample's PhD dominance (66%), where technical terminology presents unique challenges. To ensure long-term improvement in global student experiences, universities must translate these findings into policy-level actions and embed inclusive practices across academic and social systems.

### **Limitations and potential research directions**

Although this research enhances our understanding of international students' academic adjustment, several limitations should be acknowledged. The cross-sectional design prevents causal conclusions regarding the connections between cultural adaptation, social integration, and academic performance. The generalizability of the findings is constrained by the sample's composition,

which is heavily skewed toward PhD students (66%), male participants (57.4%), and Pakistani nationals (28.6%). Caution is therefore advised when these results are applied to undergraduate, female, or more nationally diverse student populations. Furthermore, the use of self-reported academic performance data may introduce social desirability bias and reduce the precision of the reported results. To address these limitations, future studies could use longitudinal methods to explore how adaptation processes develop over time and include a wider range of samples that more accurately reflect the gender, academic level, and nationality distributions of international student groups. Mixed-methods approaches combining surveys with in-depth interviews could provide richer insights into students lived experiences. Further investigations could also explore additional mediating factors, such as the effectiveness of language support programs and pre-arrival cultural training. Comparative studies across different host countries (e.g., the UK, the U.S., and Australia) would help distinguish universal adaptation challenges from context-specific challenges. These methodological improvements strengthen both the theoretical foundations and practical applications of acculturation research in higher education settings.

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