

Does Participating in Sports Activities Alleviate The Impact of Perceived Social Support on Cross-Cultural Adaptation?

Yuqing Wang

¹ Joint Master's Program in International Development and Peace through Sport, Tokyo, University of Tsukuba, Japan

² Joint Master's Program in International Development and Peace through Sport, Kagoshima, National Institute of Fitness and Sports in Kanoya, Japan

Abstract. With the deepening of the Internationalising academic programmes, The issue of how to better support international students through cultural adaptation is gradually becoming the focus of educational discussions. This study investigated the relationship between Perceived Social Support (PSS), Sports Participation (SP), Cultural Distance (CD) and Cross-Cultural Adaptation (CCA) among 503 international students from Japanese universities. Using the cross-sectional survey method, a verified scale is used to evaluate the subjects' views on social support, social and cultural adaptation, sports participation and perceived cultural distance. Through structural equation model and hierarchical regression analysis, the direct effect, intermediary effect and regulatory effect are discussed. Perceived social support has become an important factor in promoting cross-cultural adaptation. Sports participation not only helps to adapt independently, but also acts as a part of the way for social support to play a role. In addition, cultural distance has a negative regulatory effect on the relationship between sports participation and adaptation, that is, as the perceived cultural distance increases, the positive effect of sports participation gradually weakens, although its impact is still significant. These findings show that sports participation is an important behavioural path for social support to promote social and cultural adaptation of international students, and cultural distance acts as a contextual constring factor.

Keywords: Perceived Social Support; Sports Participation; Cross-Cultural Adaptation; Cultural Distance; International Students.

1. Introduction

The internationalisation of higher education has prompted more and more students to choose to study abroad. The OECD [15] says that the number of students studying outside their home country reached more than 4.6 million in recent years. Japan is a popular place to study in Asia. Japan has a strong economy, good universities, and policies that help international students. The Japan Student Services Organization reported 336,708 international students in Japan as of May 1, 2024. Japan's total dropped during the COVID pandemic. Since 2019 the number fell then started to rise again after the pandemic. The rise shows we need more services for international students. It highlights the growing need for more attention to be paid to supporting the social, psychological and cultural adaptation of international students.

The reason why it is extremely difficult to adapt to foreign life is not only because of the lag in language learning and academic competition, but also because of facing completely unfamiliar social rules and cultural expectations. For those students from countries with large cultural differences from Japan, the huge gap in communication methods and value systems makes it more difficult to adapt.

Cross-cultural adaptation [18, 16] is the psychological and socio-cultural adjustment process experienced by individuals in a new cultural environment. Any environmental transition will be accompanied by an adaptation period, but cross-cultural migration involves a higher degree of strangeness, so it is often more complex and stressful [2]. Students who lack coping resources or integration channels are prone to loneliness, academic alienation or psychological distress [20].

Against this background, perceived social support has become a key variable. It refers to the individual's subjective belief that "he/her can get help when needed", rather than supporting the objective existence of itself [22, 10]. This sense of support can cushion the negative psychological impact of stress [4, 14], enhance the sense of belonging and security of international students, and thus promote cultural adaptation. Sports participation is considered to be an important behavioural channel for social support [5, 8] - sports provide a structured communication space, which helps to build friendship and reduce loneliness [17], but its adaptation value depends on whether it can really promote cross-cultural contact. If it is limited to the circle of compatriots, it may deepen and The distance between the local society. In addition, cultural distance (i.e. the difference in perception between the home country and the host country in behaviour, language and norms [7]) will weaken the effectiveness of social support and sports participation: the greater the distance, the lower the trust of students in local people, and even if there are supporting resources, it is difficult to translate into actual communication.

Although the respective roles of the three have been discussed, existing studies rarely include them in a unified framework to examine their interaction, especially in a high-context environment society like Japan, the linkage mechanism of the three is not yet clear. For this reason, this study focusses on two questions: how does Perceived Social Support affect the Cross-Cultural Adaptation of international students in Japan? What mediating and regulating roles do Sports Participation and Cultural Distance play respectively?

2. Research Hypotheses

Based on the above theoretical perspective and empirical evidence, this study manipulates the following assumptions through the structural equation model (SEM) for testing:

Direct Effect Hypothesis

H1: Among international students in Japan, those who think they have a higher degree of social support are usually more effective in dealing with cross-cultural challenges than students with less support.

H2: Students who regularly participate in physical activities will have a more smooth CCA process.

H3: PSS positively influences SP.

H3a: PSS from host-national friends strengthens the effect of SP on CCA.

H3b: PSS from co-national friends weakens the effect of SP on CCA.

Moderation Hypotheses

H4a: CD moderates the relationship between SP and CCA.

H4b: CD moderates the indirect effect of PSS on CCA via SP.

3. Methods

This study adopts a cross-sectional survey design. The research subjects are international students studying in many universities in Japan, and a total of 503 valid questionnaires were collected and retained for final analysis. These respondents come from different countries, cultural backgrounds and educational backgrounds, and have lived in Japan for a different length of time and academic level.

Table 1. Sample Demographic Profile (n = 503)

Variable	Category	Frequency	Percentage (%)
Age	19 or under	119	23.658
	20 to 24	293	58.251
	25 to 29	73	14.513
	30 or older	18	3.579
	Total	503	100
Gender	Male	257	51.093
	Female	246	48.907
	Other	0	0
	Total	503	100
Year of study	1st-year student	119	23.658
	2nd-year student	91	18.091
	3rd-year student	101	20.080
	4th-year student	128	25.447
	5th+ year enrolled	64	12.724
	Total	503	100
Duration in Japan	1 year	106	21.074
	2 years	91	18.091
	3 years	121	24.056
	≥4 years	185	36.779
	Total	503	100

In order to evaluate perceived social support, this study adopts the widely used "Multidimensional Perceptual Social Support Scale" (MSPSS; [22]), which is used to measure perceived support from three different sources: family, friends and significant others. CCA was assessed using the Sociocultural Adaptation Scale (SCAS; [19]), focusing on behavioural competence and daily functioning in the host society. SP was measured using a nine-item scale adapted from Feltz et al. [8], assessing the centrality and psychological involvement of sports activities in participants' daily lives. CD was assessed using a subjective cultural distance scale based on perceived differences in values, norms, and social practices [7].

All questionnaires were administered in English and Japanese. Prior to analysis, reliability and validity of the scales were confirmed. SPSS and AMOS are used for data analysis. In order to test the direct and intermediary relationships in the hypothesis, this study adopts the structural equation model (SEM). Then, hierarchical regression analysis is carried out to explore whether the cultural distance regulates the observed effect. All analyses control age, gender, time of residence in Japan and previous international experience.

4. Results

Before testing the hypothesis, we first examined the bivariate relationship between the research variables (PSS, SP, CD and CCA) and its basic descriptive characteristics. These results are shown in Table 2.

Table 2. Descriptive Statistics and Correlations Among Key Variables (n = 503)

Variable	M	SD				
PSS	3.39	0.78	—			
SP	3.39	0.79	.507***	—		
CD	2.70	0.89	-.385***	-.362***	—	
CCA	3.38	0.77	.534***	.524***	-.441***	—

*Note: PSS = Perceived Social Support; SP = Sports Participation; CD = Cultural Distance; CCA = Cross-Cultural Adaptation. ** $p < .01$; *** $p < .001$.

The correlation matrix in Table 2 confirms the expected relationship between key concepts. PSS and SP ($r = 0.507$, $p < 0.001$) and CCA ($r = 0.534$, $p < 0.001$) are both moderate to strong positive correlations. SP is positively correlated with CCA results ($r = 0.524$, $p < 0.001$). In contrast, CD shows negative correlation in all three variables, and its coefficient range is -0.362 to -0.441 (all p values are < 0.001). These preliminary results generally support the hypothetical path and prompt us to further explore the indirect and interactive effects proposed in this study.

4.1. Testing Direct and Mediating Effects

The structural model yielded an excellent fit to the data, as indicated by the following indices: $\chi^2(766) = 892.91$, $p < .001$; CFI = .988; TLI = .987; RMSEA = .018; SRMR = .047. The corresponding standardized path coefficients are visually summarized in Figure 1.

Direct effect. As shown in Figure 1, PSS has a significant positive direct effect on CCA ($\beta = 0.46$, $p < .001$), H1 is established; SP also has a significant positive impact on CCA ($\beta = 0.40$, $p < .001$), H2 is established; PSS has a significant positive correlation with SP ($\beta = 0.71$, $p < .001$), H3 is established.

Indirect effect. Use AMOS to conduct 5,000 Bootstrap tests to investigate the intermediary role of SP in the relationship between PSS and CCA. As shown in Table 3, the intermediary effect of SP is significant (effect value = 0.28, 95% CI [0.14, 0.45], $p = .001$), and the direct effect of PSS on CCA after controlling the intermediary variable is still significant ($\beta = 0.46$, $p < .001$). It shows that SP plays a partial intermediary role. The intermediary effect accounts for 37.8% of the total effect, suggesting that about 40% of the PSS for the promotion of CCA is realised through SP. The above results support the intermediary hypothesis.

Table 3. Bootstrap Mediation Effects

Path	Indirect Effect	Boot SE	95% CI (Lower)	95% CI (Upper)	p
PSS → SP → CCA	0.28	0.08	0.14	0.45	.001

4.2. Testing Moderating Effects

Hierarchical regression analysis is used to test the regulatory role of CD in SP and CCA (H4a). Before creating interaction terms to reduce multiple collinearity [1], all continuous predictors are centred on the mean. The first step is to enter demographic variables (age, gender, school year, residence time, part-time job status) as a comparison, the second step is to enter SP and CD, and the third step is to enter the interactive item ($SP \times CD$).

Table 4. Cultural Distance as a Moderator: Hierarchical Regression Findings

Predictor	Model 1	Model 2	Model 3
Controls			
Age	-0.09	-0.08	-0.08
Gender	-0.02	-0.04	-0.04
Academic Year	0.06	0.06	0.05
Length of Residence	0.01	-0.01	0.01
Part-time Job	-0.06	-0.05	-0.05
Main Effects			
SP		0.41***	0.38***
CD		-0.31***	-0.29***
Interaction			
$SP \times CD$			-0.20***
R^2	.02	.38	.42
ΔR^2		.36***	.04***

*Note: SP = Sports Participation; CD = Cultural Distance. Entries are standardized regression coefficients (β). * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4 reports the results of hierarchical regression. The benchmark model only contains demographic covariables, and the ability to explain the adaptive results is minimal ($R^2 = 0.02$, no significance). After adding SP and CD to model 2, the explanatory power is significantly improved to 38% ($\Delta R^2 = 0.36$, $p < 0.001$), in which SP becomes a positive predictor ($\beta = 0.41$, $p < 0.001$), and the CD is a negative predictor ($B = -0.31$, $p < 0.001$). The final model (model 3) introduces the $SP \times CD$ interaction term, which further increases the interpretation variance by 4% ($\Delta R^2 = 0.04$, $p < 0.001$), and the interaction coefficient has statistical significance ($\beta = -0.20$, $p < 0.001$). This model clearly supports the H4a hypothesis and confirms that CD can regulate the positive relationship between SP and CCA.

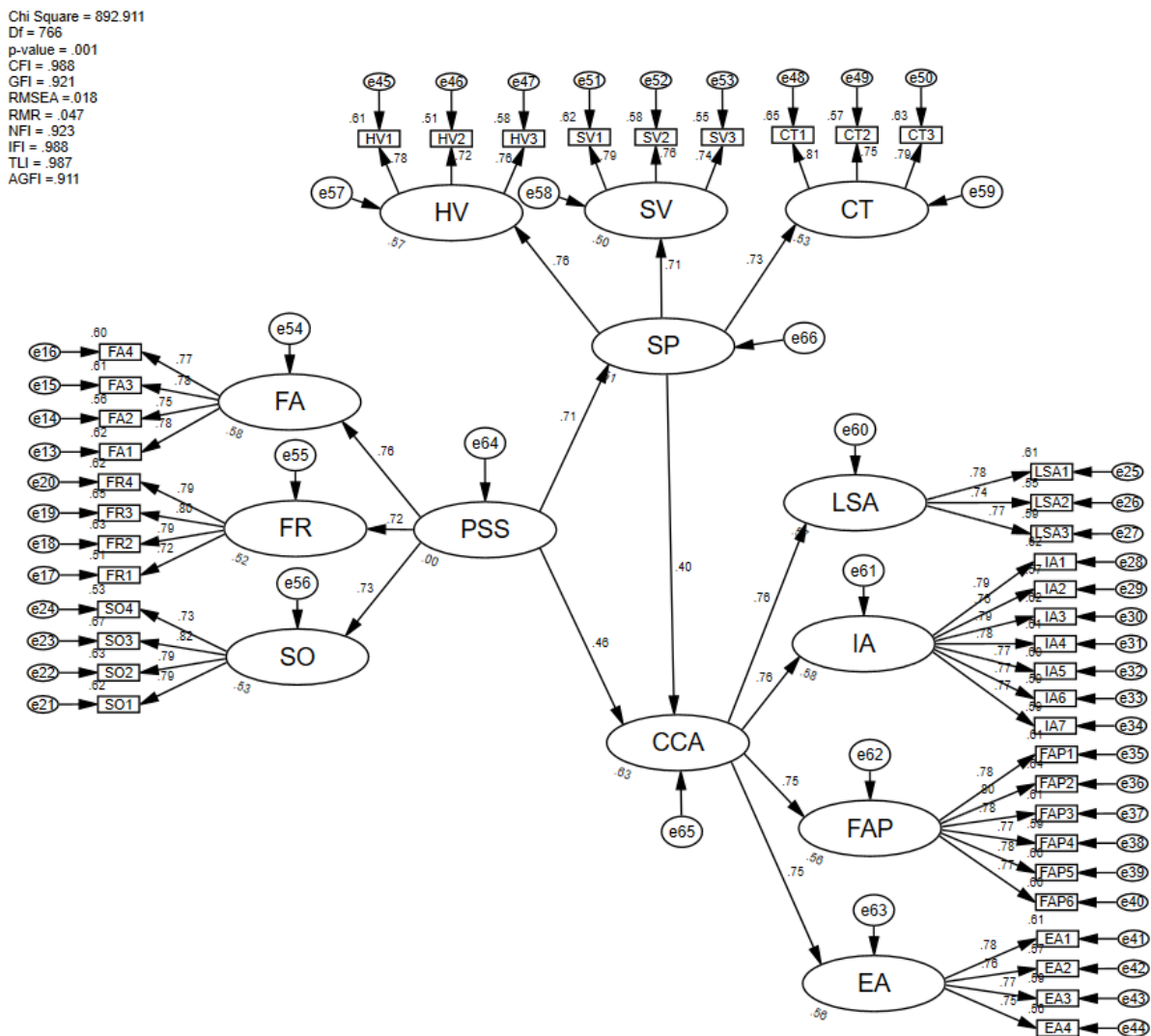


Figure 1. Structural Equation Model

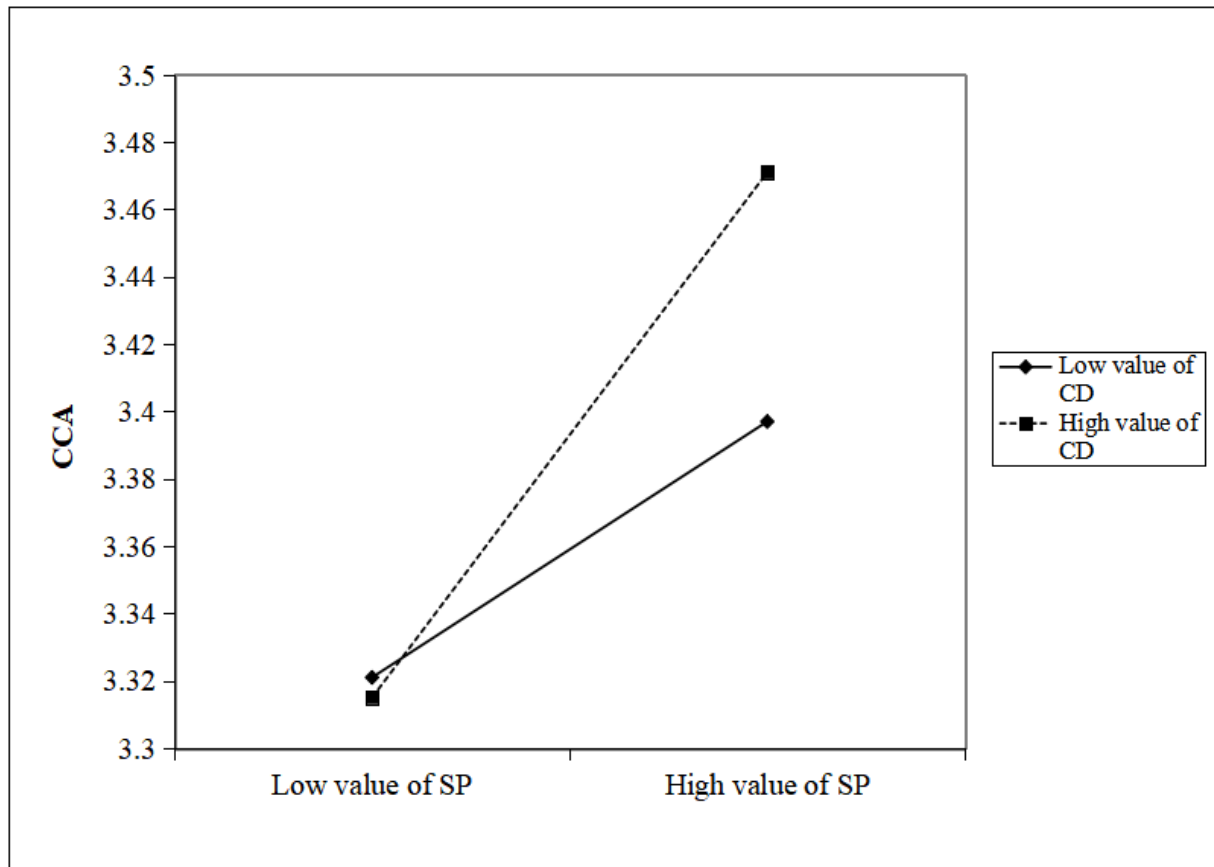
As illustrated in Figure 2, when CD was low (-1 SD), the positive effect of SP on CCA was strong ($\beta = 0.57$, $p < .001$). At mean levels of CD, the effect remained significant but weaker ($\beta = 0.37$, $p < .001$). However, when CD was high ($+1$ SD), the positive effect of SP on CCA was substantially reduced, although it still remained significant ($\beta = 0.17$, $p < .01$).

Table 5. Simple Slope Analysis of the Moderating Effect

Moderator Level	Regression Coefficient (β)	Standard Error (SE)	t	p	LLCI [95%]	ULCI [95%]
High Level (+1 SD)	0.166	0.055	3.031	0.003	0.059	0.274
Mean Level	0.369	0.038	9.773	<0.001	0.295	0.444
Low Level (-1 SD)	0.572	0.049	11.656	<0.001	0.476	0.669

In view of the statistical significance of the interaction (all simple slopes reach $p < 0.05$), we conducted a simple slope analysis to explore the form of the regulatory effect. Table 5 reports the conditional effects of SP on CCA at three levels of CD. The results show that the relationship between SP and CCA is significant at all three regulatory levels, although the intensity of this association varies significantly at different CD.

At high levels of the moderator (+1 SD), X exerted a modest positive influence on Y ($\beta = 0.166$, $SE = 0.055$, $t = 3.031$, $p = .003$; 95% CI [0.059, 0.274]). At the mean level of the moderator, the relationship strengthened significantly ($\beta = 0.369$, $SE = 0.038$, $t = 9.773$, $p < .001$; 95% CI [0.295, 0.444]). The strongest effect emerged at low levels of the moderator (-1 SD), where X had a pronounced positive impact on Y ($\beta = 0.572$, $SE = 0.049$, $t = 11.656$, $p < .001$; 95% CI [0.476, 0.669]).

**Figure 2.** Simple Slope Plot

The interaction mode shown in Figure 2 clearly shows that the intensity of the relationship between SP and CCA will change with the increase of cultural distance. At low CD (-1 SD), the influence of X on Y is stronger ($\beta = 0.572$, $p < 0.001$); at high CD (+1 SD), the effect is significantly weakened ($\beta = 0.166$, $p = 0.003$). The slope difference proves that CD plays a buffering role, that is, the greater the cultural difference, the weaker the positive effect of sports participation. The result of this graph is exactly the same as the simple slope analysis (Table 5).

The above results provide clear support for H4a and H4b. The interaction between sports participation and cultural distance is significantly negative, indicating that cultural distance weakens the positive impact of sports participation on CCA and acts as a boundary condition for the relationship.

Further adjustment intermediary analysis shows that when the cultural distance is at low, medium and high levels, the indirect effects are 0.22, 0.14 and 0.06 respectively, indicating that the intermediary effect of sports participation decreases with the increase of cultural distance.

5. Discussion

This study expands the existing knowledge of cross-cultural adaptation by revealing how psychological resources, behavioural input and cultural background jointly affect the adaptation trajectory of international students. Consistent with previous studies, PSS has been proven to be an important psychological resource for promoting social and cultural adaptation [4,20], and it is the subjective feeling of the individual about "being supported" that plays a decisive role, not the objective existence of the support itself.

The core contribution of this study is to identify sports participation as a behavioural path that perceives social support and transforms it into a behavioural path to adapt to the results. Some intermediary effects show that psychological resources alone are not enough to promote adaptation, and it is necessary to cooperate with active participation in different cultural environments. This discovery echos the understanding of cultural adaptation from the perspective of ecology and behaviour, that is, there is a dynamic interaction between individuals and their social environment [12].

In addition, the regulating effect of cultural distance reveals the boundary conditions of the effect of behavioural participation: the greater the cultural differences, the weaker the adaptive gain of sports participation, indicating that activity participation cannot equally promote adaptation in all cultural situations. However, sports participation has always been positively related to adaptation, and it still has a positive effect even in the case of a large cultural distance. In summary, we should not only pay attention to whether international students participate in activities, but also examine how cultural background affects the actual effect of participation.

6. Conclusion

This research has made three key contributions to the literature in the field of CCA of Japanese international students. First, SP is not only a parallel predictor of adaptation results, but also a behavioural path that social support is transformed into adaptability social support alone is not enough to promote adaptation, but also needs to be implemented through actual participation. Second, cultural distance limits the effectiveness of this path: with the expansion of cultural distance, the adaptive benefits of participating in sports activities have also weakened. This model may help explain the mixed results that have emerged in previous studies on the subject. Third, from the perspective of sports promoting international development and peace, sports are not an effective tool everywhere. Its integration depends on whether the environment is inclusive and sensitive to cultural differences. Designing sports environment that promote cross-cultural interaction and pay attention to students' aspects students' psychological readiness helps sports not only play an integrated role in an increasingly diversified educational environment, but also become a cultural bridge.

References

- [1] Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Sage Publications.
- [2] Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review*, 46(1), 5–34.

- [3] Berry, J. W. (2003). Conceptual approaches to acculturation. In K. M. Chun, P. B. Organista, & G. Marín (Eds.), *Acculturation: Advances in theory, measurement, and applied research* (pp. 17–37). American Psychological Association.
- [4] Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310–357.
- [5] Cosh, S., & Tully, P. J. (2015). Stressors, coping, and support mechanisms for student athletes combining elite sport and tertiary education: Implications for practice. *The Sport Psychologist*, 29(2), 120–133.
- [6] Cutrona, C. E., & Russell, D. W. (1990). Type of social support and specific stress: Toward a theory of optimal matching. In B. R. Sarason, I. G. Sarason, & G. R. Pierce (Eds.), *Social support: An interactional view* (pp. 319–366). Wiley.
- [7] Demes, K. A., & Geeraert, N. (2014). Measures matter: Scales for adaptation, cultural distance, and acculturation orientation revisited. *Journal of Cross-Cultural Psychology*, 45(1), 91–109.
- [8] Feltz, D. L., Short, S. E., & Sullivan, P. J. (2008). Self-efficacy in sport. *Human Kinetics*.
- [9] Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Press.
- [10] Helgeson, V. S. (1993). Two important distinctions in social support: Kind of support and perceived versus received. *Journal of Applied Social Psychology*, 23(10), 825–845.
- [11] Japan Student Services Organization. (2024). Result of international student survey in Japan, 2024 (enrollment as of May 1). <https://www.studyinjapan.go.jp/en/statistics/>
- [12] Kim, Y. Y. (2001). *Becoming intercultural: An integrative theory of communication and cross-cultural adaptation*. Sage Publications.
- [13] Miao, C., & Zhang, S. (2024). The cross-cultural adaptation of Chinese international students: An empirical study on sequential-mediated effects. *Frontiers in Psychology*, 15, 1386044.
- [14] Misra, R., Crist, M., & Burant, C. J. (2003). Relationships among life stress, social support, academic stressors, and reactions to stressors of international students in the United States. *International Journal of Stress Management*, 10(2), 137–157.
- [15] OECD. (2025). What are the key trends in international student mobility? *Education Indicators in Focus*. <https://www.oecd.org/education/>
- [16] Searle, W., & Ward, C. (1990). The prediction of psychological and sociocultural adjustment during cross-cultural transitions. *International Journal of Intercultural Relations*, 14(4), 449–464.
- [17] Smith, B., & Sparkes, A. C. (2009). Narrative inquiry in sport and exercise psychology: What can it mean, and why might we do it? *Psychology of Sport and Exercise*, 10(1), 1–11.
- [18] Ward, C., Bochner, S., & Furnham, A. (2001). *The psychology of culture shock* (2nd ed.). Routledge.
- [19] Ward, C., & Kennedy, A. (1999). The measurement of sociocultural adaptation. *International Journal of Intercultural Relations*, 23(4), 659–677.
- [20] Yeh, C. J., & Inose, M. (2003). International students' reported English fluency, social support satisfaction, and social connectedness as predictors of acculturative stress. *Counselling Psychology Quarterly*, 16(1), 15–28.
- [21] Zheng, S., & Ishii, K. (2023). Cross-cultural adaptation of Chinese international students: Effects of distant and close support-seeking. *Frontiers in Psychology*, 14, 1133487.
- [22] Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, 52(1), 30–41.