

Cross-Cultural Identity and Online Social Support Are More Effective Predictors of Cross-Cultural Adaptation Among International Students in China

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Abstract: The internationalization of higher education is rapidly growing worldwide, with China emerging as the top destination for studying abroad in Asia. The growing global interest in Chinese medicine has made it essential for China to educate foreign students in this field as part of its internationalization efforts in education. Since the 1950s, when Traditional Chinese Medicine (TCM) universities first began admitting international students, there has been a notable rise in those specializing in TCM, underscoring the need for effective educational strategies. Despite these advancements, challenges persist, particularly in the area of cross-cultural adaptation. As international student enrollment rises at JXUCM, addressing the challenges they face in adapting to different cultures is essential. This study examines the cross-cultural adjustment of international students at JXUCM, employing cross-cultural adjustment theory as its foundational framework. It highlights the roles of online social support and cross-cultural identity factors in their adjustment process. Quantitative data were collected from 421 international students at JXUCM through random sampling. The findings from multiple regression analysis reveal that both online social support (including information, emotional, instrumental, and companionship support) and cross-cultural identity (comprising language, cultural, ethnic identity, and value recognition) positively influence cross-cultural adaptation. Notably, cross-cultural identity emerges as a more significant predictor of adaptation than online social support, emphasizing its crucial role for international students.

Keywords: Cross-Cultural Identity, Online Social Support Serves, Cross-Cultural Adaptation

1. Introduction

International students studying Chinese medicine face significant demands for proficiency in the Chinese language. They actively engage in using Chinese to improve their language abilities and achieve greater academic success. Regular communication in Chinese facilitates a deeper understanding of the theories and practices of Chinese medicine, aiding their integration into the broader cultural context. This assimilation, in turn, enhances their educational outcomes and clinical competencies, highlighting the importance of language identity and underscoring that language proficiency is closely tied to the adaptability and cultural integration of international students. International students, like many short-term immigrants, often find it challenging to adapt to a new cultural environment within a short period. The effects of language and cultural identity are especially significant. Proficiency in the language is vital for these students' daily interactions, and their sense of language identity greatly influences their communication skills. Although international students may possess strong language skills, transitioning to a new cultural context can still prove challenging without a deep understanding and connection to the local culture. Cultural identity plays a crucial role in helping international students adapt, build social networks, and feel psychologically at home. Spiegler et al. (2018) highlighted the importance of merging two identities for successful cross-cultural adaptation. This facet of cross-cultural identity pertains to how individuals navigate and integrate their cultural identity within a multicultural setting. The two-way expanding cultural

identity theory posits that individuals must constantly recalibrate and find harmony between their original culture and the new one when engaging socially with people from diverse backgrounds, fostering a mutual desire for growth. Developing and strengthening a cross-cultural identity is critical to the integration strategy. This method enables international students to preserve their original culture while embracing and integrating with the new culture, resulting in enhanced cross-cultural adaptation. Though online social support provides international students with a platform to express their emotions and share information, its effectiveness is limited. The process of cross-cultural identity encompasses profound psychological changes that influence cognitive, emotional, and behavioral dimensions, making it crucial for successful cross-cultural adaptation. In comparison, online support tends to operate at a more superficial level, prioritizing the exchange of information and emotional interaction. In addition, cross-cultural identity encompasses merging personal beliefs and values within a different cultural framework. This complex and continual process compels international students to learn and adapt to their new cultural environments. The extent of their cultural adaptation underscores the significance of cross-cultural identity as a fundamental factor affecting the overall cultural adjustment of international students. Ultimately, cross-cultural identity proves to be a more significant predictor than online social support, greatly impacting the psychology, behavior, and long-term cultural assimilation of these students. Consequently, fostering their cross-cultural identity is vital for enhancing their adaptability to new settings. Yushan & Boon (2023) conducted a mixed-methods study with an explanatory sequential design at a Chinese university. The research aimed to explore the integration of cultural identity into English courses and evaluate its influence on the proficiency of EFL learners in their English language skills.

2. Literature Review

2.1 Theories Related to the Study

Acculturation Theory explores the cultural and psychological changes that occur when individuals and groups from different cultural backgrounds come together. It is an essential framework for understanding how international students adjust to new cultural environments and serves as the foundational theory for studying cross-cultural adaptation. Social Support Theory emphasizes the role of social support in alleviating stress and facilitating adjustment to new environments, making it a crucial resource for coping. In the realm of acculturation theory, social support plays a key role in influencing a person's acculturation outcomes. Therefore, there is a significant overlap between social support theory and acculturation theory, emphasizing their connections within the context of cross-cultural adaptation. Cultural identity theory focuses on how individuals form and maintain their identity in the context of cross-cultural communication. Like acculturation theory, it examines the influence of culture on individuals and their psychological adaptation to cultural changes. However, cultural identity theory further explores how individuals adapt to and integrate into new cultures, emphasizing the crucial role of maintaining and fostering one's cultural identity throughout the process of cross-cultural adaptation. Acculturation theory provides a comprehensive framework, while social support theory and cultural identity theory explore the cross-cultural adjustment of international students through the perspectives of social support and cultural identity, respectively. Collectively, these three theories form the theoretical foundation of this study, illuminating the adaptation process of international students in China. This section will examine and clarify the historical context and key concepts of these theories, establishing a solid theoretical basis for the current research.

2.2 Cross-cultural Adaptation

Cross-cultural adaptation, often referred to as acculturation, was first introduced by American anthropologist Robert Redfield in 1936. He characterized acculturation as the direct cultural exchange between two groups with distinct cultures, leading to changes in the cultural patterns of one or both groups. This concept has undergone significant evolution, reflecting the rise in global cross-cultural interactions (Redfield et al., 1936). Within the field of cross-cultural psychology, research has explored individual-level cross-cultural adaptation, emphasizing sociocultural and ethnic identities alongside values, attitudes, and behaviors. Ryou et al. (2019) also defined cross-cultural adaptation. They argue that communicators gradually evolve and adjust when faced with the pressures of unfamiliar cultural environments and differing cultural influences. During moments of significant disparity or even conflict between host and home cultures, individuals can gain an accurate understanding of these differences or conflicts, ultimately embracing and adapting with tolerance. This process is defined as "cross-cultural adaptation." Cross-cultural adaptation involves the behavioral adjustments individuals undergo when transitioning from their home culture to a distinctly different cultural environment. This concept is often associated with expatriates residing in foreign countries for a limited duration. In this study, the focus is on international students, making it a perfect fit for this idea. Liu (2016) found that the closer the emotional communication between teachers and students in a purposeful language environment, the more positive the students were. Liu (2017) suggested that a harmonious teacher-student relationship is based on mutual respect, rapport, democracy, and positivity. A teacher-student relationship built on respect, tolerance, humility, and confidence can alleviate the discomfort of international students due to cultural differences and enhance students' learning outcomes.

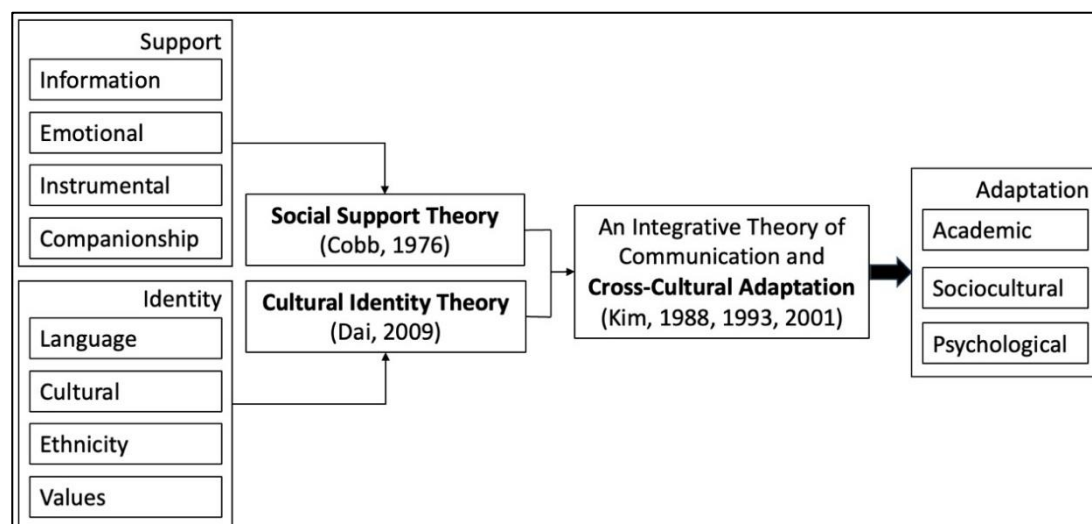


Fig. 1: Theoretical Framework of The Cross-Cultural Adaptation

Jackson & Trochim (2002) used an open-ended survey method to investigate the social and cultural adaptation items of 88 international students coming to China in seven aspects, including life adaptation, public morality awareness, interaction, social support, service mode, social environment, and residential lifestyle and developed a social and cultural adaptation scale for international students coming to China. Gu & Benson (2015) took African international students coming to China as the research object and found that African international students coming to China had problems of cultural conflict, environmental discomfort, and language barriers; the survey and complex language background, lack of identity, and prominent cultural antagonism were the main reasons for the formation of African international students coming to China's cultural nationalism psychology. Luo and Huang (2020) employed a documentary research approach to conduct interviews with international students and their managers in South Asia. Their research identified key factors influencing the cross-cultural adaptation of these students, including language communication barriers, academic objectives and expectations, alterations in their living environment, cultural distance, and experiences of prejudice. Guo & Li (2024) focused on the challenges faced by international students from Fujian universities as they adjusted to life in China. Finding that these students faced increased psychological stress during their adaptation.

The study also investigated stress-related behaviors among these students. For example, researchers used a depression self-assessment scale to assess the psychological adaptation of international students in China (Liu et al., 2022). Additionally, Bai et al. (2023) explored the cross-cultural adaptation challenges faced by international students in Xiamen, China. Zeng (2024). Chinese international students in the United States have demonstrated diverse perspectives on returning to their home country. Their varying intentions for sojourning are closely linked to their attitudes toward acculturation and the acculturative stressors they encounter. An empirical study was conducted to investigate the factors that influence the mental stress experienced by international students upon arrival in China. For example, Liu & Hung (2019) surveyed 120 international students from 50 different countries who relocated to China. The results demonstrated that as the length of their studies abroad increased, the signs of depression intensified. Additionally, students at higher educational levels tended to maintain smaller social circles, which was linked to increased levels of depression. Zheng & Ishii (2023) identified that international students with a stronger connection to their home culture sought support from a greater distance, while those more oriented towards the host culture looked for support closer to them. Furthermore, a higher orientation toward Chinese culture was associated with more distant emotional support-seeking, which adversely impacted psychological adaptation and amplified feelings of loneliness. Additionally, Hou & Abu (2024) demonstrated that the analysis results indicate factors such as the level of interpersonal interaction, Chinese language proficiency, cultural distance, time spent in China, and satisfaction that all significantly impact international students' cross-cultural adaptation.

2.3 Studies on the Cross-Cultural Adaptation of International Students in China

With increasing openness to the world, China has become a top choice for many international students, resulting in a rise in their numbers. As more international students arrive, research on their cross-cultural experiences in China is also increasing. Chinese scholar Yew & Tan (2022) was the first to research the cross-cultural adaptation of international students in China. He classified the factors affecting international students' cross-cultural adjustment in China into three categories: macro factors include factors in the host country as well as in the home society; micro factors include individual characteristics (personality, purpose of going abroad, language proficiency, preparation for going abroad, experience of cross-cultural training) and demographic variables (age, gender, and marital status); and the status of the individual's interactions with the local society includes factors such as the degree of contact with the residents, the

duration of the contact, and the social support factors (Yang, 2022). Zhang & Ting (2024) noted that while social self-efficacy, social interaction, and WeChat usage influence cross-cultural adaptation, there is limited understanding of how these three factors interact to affect this process. International students face cross-cultural adaptation as their primary challenge upon arriving to study and live in China. Wang (2022) found that key elements affecting the cross-cultural adaptation of international students in China include their linguistic, psychological, learning, and communicative adaptations, as well as their acclimatization to the survival environment and sociocultural differences within a diverse context.

Liu (2016) explored the cross-cultural adaptation of students from Central Asia studying in China, focusing on dietary adaptation, natural environment, daily life, learning conditions, and language barriers. The study revealed that personal factors, traditional culture, language challenges, and psychological adaptation significantly influenced the experiences of these students. Wang (2022) researched the experiences of Malaysian students across eight universities in Tianjin, analyzing strategies in three critical areas: psychological adaptation, social and cultural integration, and academic adaptation, aimed at enhancing management capabilities for international students in Tianjin's institutions. Wang et al. (2015) explored how online social support influences cross-cultural adaptation and the role of gender in this process. They gathered data from 454 international students in China. The findings revealed that (a) online social support had a positive effect on the psychological and sociocultural adaptation of international students, and (b) the effect of online social support on psychological adaptation was more pronounced for women than for men, suggesting that gender plays a moderating role in this relationship.

3. Methodology

3.1 Research Design

A random sample of four hundred twenty-one international students from JXUCM participated in a survey involving five scales: the Sociocultural Adaptation Scale (SCAS), the Zung Self-rating Depression Scale (ZSDS), the Academic Adaptation Scale (AAS), the Cross-Cultural Identity Scale (CCIS), and the Online Social Support Scale (OSSS). This study targets the international students at Jiangxi University of Chinese Medicine (JXUCM) in Jiangxi province, China. JXUCM is among the first public universities in China authorized by the Ministry of Education to enroll international students. It functions as a higher education institution specializing in Chinese medicine, while also serving as a comprehensive university. This study selected instruments commonly used in cross-cultural adaptation research, all of which demonstrated good reliability and validity. The instruments were adjusted in accordance with both the research objectives and expert recommendations. It includes three categories of variables: Cross-cultural adaptation variables, online social support variables (informational, emotional, instrumental, and companion support), and Cross-cultural identity variables (language, cultural, ethnic, and values identity).

3.2 Sample

JXUCM has 643 international students, allowing for sampling since the total population is known. According to the sampling table by Krejcie & Morgan (1970), a minimum sample size of 242 is adequate for a population of 643. However, this study opted for a larger sample size to account for potential invalid responses and other specific factors. The researcher randomly selected 460 international students from a list in order using the Wuwenzhong Random Generator. This approach ensures that every international student has an equal opportunity to participate, following the principles of simple random sampling. After excluding 39 invalid questionnaires (due to incomplete responses) and those who declined to participate, 421 valid questionnaires were retained. The questionnaire was conducted using a simple random sampling technique. As stated by Creswell & Clark (2017), this method enables researchers to make generalizations from a sample to an entire population, making it the preferred sampling design. Simple random sampling, being a probabilistic approach, offers the advantages of minimal human interference and straightforward execution, which makes it ideal for this study. Consequently, simple random sampling or non-probability methods were utilized to select the sample for the initial phase of this research.

3.3 Measurement Instrument

A literature review was performed to examine the tools utilized for measuring the variables identified in this study. The selected instruments are commonly used in research on cross-cultural adaptation, demonstrating strong reliability and validity. Modifications were made to these instruments in accordance with the research aims and expert recommendations. This study focuses on three categories of variables: cross-cultural adaptation variables (sociocultural adaptation, psychological adaptation, and academic adaptation), online social support variables (informational, emotional, instrumental, and companion support), and cross-cultural identity variables (language, cultural, ethnic, and values identity). The questionnaires consist of six sections, which include basic information and four different scales, as follows:

3.4 Data Analysis Methods

Part A of the questionnaire collects respondents' basic information. They are required to provide details on seven items: gender, nationality, age, education, duration of stay in China, HSK level, and familiarity with China. This section is self-developed. Part B of the questionnaire examines cross-cultural adaptation. It includes 45 items designed to assess the level of cross-cultural adaptation among international students at JXUCM across three dimensions: sociocultural adaptation, psychological adaptation, and academic adaptation. Part C of the questionnaire examines "cross-cultural identity" and is based on the Test of Cross-Cultural Identity for Chinese Second Language Learners. Zhu's (2016) study examined the cross-cultural identity of 468 Chinese second-language learners from diverse native backgrounds across four dimensions: language, culture, ethnicity, and values. The Cross-Cultural Identity Scale (CCIS) demonstrates high reliability (above 0.75 for subscales and total scales) and strong construct validity. This scale includes 32 items, with scores derived from a six-point Likert scale ranging from "strongly disagree" to "strongly agree." Higher scores reflect greater levels of cross-cultural identification.

Part C seeks to explore the cross-cultural identity of international students at JXUCM by concentrating on the four subscales: language identity, cultural identity, ethnic identity, and values identity. Therefore, this study utilizes the CCIS to evaluate cross-cultural identity (Zhu, 2016). The scale items were modified based on the research goals and expert recommendations, resulting in an adjusted scale consisting of 15 items. Part D of the questionnaire addresses "online social support" and is adapted from the Test of Online Social Support for International Students (Chen & Choi, 2012). The OSSS is derived from the Social Support Questionnaire, created by Sherbourne and Stewart (1991), which has demonstrated high reliability and validity. Initially, the scale included 19 items; however, after removing those unsuitable for an online context, 12 items remained. This scale utilizes a 5-point Likert scale (1= Never, 2= Seldom, 3= Sometimes, 4= Most of the time, 5= All of the time), where a higher score indicates greater perceived online social support. Part D seeks to assess the extent of online social support experienced by international students at JXUCM, focusing on four subscales: informational, emotional, instrumental, and companionship support.

3.5 Data Analysis

This section describes the data analysis methods used to address the research questions of this study. For analyzing quantitative data, SPSS 26.0 was utilized. The analysis methods include descriptive statistics, correlation statistics, and multiple linear regression modeling. Multiple linear regression was employed to examine and clarify the impact of variables, particularly online social support and cross-cultural identity, on cross-cultural adaptation. A regression model was developed for the variables that showed correlation. Validity is a key measure of testing results, showing how well the questionnaire evaluates the intended variables. In research, validity indicates the degree to which conclusions can be considered accurate and broadly applicable. Quantitative research designs encounter risks to both internal and external validity. Managing or addressing these risks is crucial to avoid errors that could undermine the validity and accuracy of research findings and conclusions. According to Mertler (2019), validity is more of a goal than an outcome it cannot be definitively proven or assumed.

The Cronbach's alpha coefficient was a vital indicator of internal consistency reliability for the scales (SCAS, SDS, AAS, CCIS, OSSS) examined in this study. It was also used to assess the reliability of both the pilot and formal studies. Hair et al. (2021) state that a Cronbach's alpha coefficient greater than 0.6 demonstrates acceptable reliability for the survey, whereas a coefficient exceeding 0.7 reflects strong reliability. Multiple regression (MR) is a statistical technique that examines the relationship between one dependent variable and several independent variables (Marx & Eilers, 1999). This method typically serves two main research purposes: making precise predictions about individual outcomes or understanding a phenomenon by analyzing the relationships among variables at a group level (Osborne & Waters, 2002). Unlike linear regression, which considers only one independent variable impacting the slope of the relationship, multiple regression incorporates multiple independent variables. Each independent variable in the model receives a coefficient that accurately reflects its influence. Multicollinearity arises when several predictors in a regression model evaluate similar factors. Consequently, each variable fails to offer distinct information. This overlap complicates the regression model's ability to identify the effect of any specific predictor on the outcome. If predictors share commonalities, how can we determine which one is associated with the response? Additionally, if both are tied to the reaction, how can we quantify each relationship separately? This study aims to determine if cross-cultural identity or online social support serves as a more effective predictor of cross-cultural adaptation. This section utilizes multiple linear regression to pinpoint the stronger predictor for adaptation. The null hypothesis is defined as follows: In the presence of multicollinearity, it indicates that a variable's coefficient is zero, reflecting limited impact on the model.

4. Results and Discussion

In a multiple regression model, multicollinearity refers to a scenario where an explanatory variable closely resembles another independent variable, resulting in a high correlation coefficient (Senthilnathan, 2019). Hair et al. (2021) explain that multicollinearity arises when one variable is correlated with two or more other variables. This issue can significantly *impact multiple regression* analyses, making it essential to perform a multicollinearity test before conducting any regression analysis. Tolerance and VIF values are utilized to detect the presence of multicollinearity in multiple regression analysis. A value approaching zero signals greater multicollinearity among the variables. A Variance Inflation Factor (VIF) exceeding 10 indicates the presence of multicollinearity (Hair et al., 2021). The calculation of the VIF is based on

R values (≥ 0.9 or ≤ -0.9 , denoting a high level of multicollinearity), which is also reflected in the correlation coefficients of the predictors (Senthilnathan, 2019). According to Wu et al. (2018), the Durbin-Watson (D-W) statistic typically ranges from 0 to 4, where a value of 2 indicates no autocorrelation, suggesting that the data are independent and fulfil the prerequisites for regression independence.

Table 1 shows VIF values under 5, which suggests no multicollinearity among the variables. The Durbin-Watson (D-W) value is approximately 2, indicating that the model is free from autocorrelation. This demonstrates that there is no correlation in the sample data, allowing for an acceptable interpretation of the model. Consequently, the data gathered in this study fulfill the criteria for normality and linearity. Table 1 presents the partial regression coefficient (B) with its standard error (Std. Error), the standardized partial regression coefficient (Beta), the t-statistic for evaluating the regression coefficient, the associated p-value (Sig.), tolerance, and the VIF. The significant linear correlation coefficient validates the crucial relationship between the dependent and independent variables (Senthilnathan, 2019). Table 1 indicates that the regression coefficient for *language identity* is -0.139 ($t = -5.143$, $p < 0.01$). For *cultural identity*, the coefficient is -0.121 ($t = -4.297$, $p < 0.01$), while for *ethnic group identity*, the coefficient is -0.118 ($t = -4.299$, $p < 0.01$). The *values identity* shows a regression coefficient of -0.162 ($t = -5.968$, $p < 0.01$). *Information support* has a regression coefficient of -0.106 ($t = -3.915$, $p = 0.000 < 0.01$), *emotional support* has a coefficient of -0.080 ($t = -3.218$, $p = 0.001 < 0.01$), and *instrumental support* follows with -0.084 ($t = -3.232$, $p = 0.001 < 0.01$). The coefficient for *companion support* was -0.086 ($t = -3.313$, $p = 0.001 < 0.01$). All these coefficients were statistically significant, indicating that each variable makes a significant contribution to predicting cross-cultural adaptation. Multiple regression (MR) typically applies a linear equation to predict the CV based on a set of predictor variables (PVs). When developing the most effective model with the highest explanatory power—indicated by the proportion of variance in the CV accounted for by the PVs set (R^2)—it is also possible to assess the relative significance or impact of each PV on the overall effect (R^2) by examining the standardized beta (b^*) coefficients (Mizumoto, 2023). Table 1 presents the regression equation: cross-cultural adaptation = $5.256 - 0.139 * \text{Language identity} - 0.121 * \text{Cultural identity} - 0.118 * \text{Ethnic group identity} - 0.162 * \text{Values identity} - 0.106 * \text{Information support} - 0.080 * \text{Emotional support} - 0.084 * \text{Instrumental support} - 0.086 * \text{Companionship support}$. The model's R-squared value is 0.587, indicating that factors such as linguistic identity, cultural identity, ethnic identity, values identity, information support, emotional support, instrumental support, and peer support collectively account for 58.7% of the variation in cross-cultural adaptation. The model successfully passed the F-test ($F = 73.096$, $p < 0.05$), indicating that at least one of the following categories significantly influences cross-cultural adaptation: language identity, cultural identity, ethnic group identity, value identity, information support, emotional support, instrumental support, or companionship support. Wu et. al (2018) assert that as the value of B increases, the effect of the independent variable on the dependent variable also increases.

Table 1: Results of Multiple Regression (MR) Analysis – Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	P Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	5.256	0.122	-	43.16	0.000**	-	-
Language identity	-0.139	0.027	-0.191	-5.143	0.000**	0.730	1.370
Cultural identity	-0.121	0.028	-0.161	-4.297	0.000**	0.719	1.390
Ethnic identity	-0.118	0.028	-0.159	-4.299	0.000**	0.736	1.358
Value recognition	-0.162	0.027	-0.219	-5.968	0.000**	0.746	1.341
Information support	-0.106	0.027	-0.149	-3.915	0.0001**	0.688	1.453
Emotional support	-0.080	0.025	-0.111	-3.218	0.0014**	0.836	1.196
Instrumental support	-0.084	0.026	-0.110	-3.232	0.0013**	0.863	1.158
Companion support	-0.086	0.026	-0.117	-3.313	0.0010**	0.811	1.232
R 2	0.587						
Adj R 2	0.579						
F	F (8, 412) = 73.096, p=0.000						

Dependent Variable: Cross-cultural adaptation

* $p < 0.05$ ** $p < 0.01$

Source: Researcher with SPSS

The Beta values indicate which variable significantly and uniquely contributes to explaining the dependent variable while controlling for the variance accounted for by all other variables in the model. Table 1 shows that the B value for cross-cultural identity factors (language identity, cultural identity, ethnic group identity, values identity) is greater than that for online social support factors (information support, emotional support, instrumental support, social companion support). This suggests that cross-cultural identity factors have a greater influence on cross-cultural adaptation than online

social support factors. The constant value of 5.256 indicates that the cross-cultural adaptation variable is not significantly influenced by other variables, particularly online social support *and* cross-cultural identity. How should we understand the implications of multicollinearity? High multicollinearity is indicated when the variable inflation factor (VIF) exceeds five. A VIF between 1 and 5 reflects a moderate correlation among variables, while a VIF of 1 indicates no correlation. Therefore, very low VIF values could imply redundancy in a predictor, especially those below 0.10, which are particularly alarming. Additionally, significant overlap among independent variables may result in a strong correlation. The variance inflation factor (VIF) is calculated as $(1/\text{tolerance})$. Generally, a variable with a VIF value that exceeds 10 is considered problematic.

In simpler terms: 1) VIF equal to 1 = variables are not correlated; 2) VIF between 1 and 5 = variables are moderately correlated; 3) VIF greater than 5 = variables are highly correlated; and 4) A way to identify multicollinearity is by calculating the variance inflation factor (VIF) for each independent variable. A VIF value exceeding 1.5 suggests the presence of multicollinearity. Typically, a VIF greater than four or a tolerance below 0.25 suggests potential multicollinearity, necessitating further examination. A VIF exceeding 10 or a tolerance below 0.1 indicates serious multicollinearity that requires correction.

Multicollinearity is a statistical phenomenon in which multiple independent variables within a model exhibit correlation. If two variables have a correlation coefficient of ± 1.0 , they are termed perfectly collinear. When independent variables exhibit multicollinearity, it leads to less reliable statistical inferences. The likelihood of multicollinearity increases as the VIF value rises; in fact, values exceeding ten in the VIF test are deemed critical. Thus, the VIF value increases with higher levels of multicollinearity. The analysis conducted using SPSS, as presented in Table 1, above, indicates that the tolerance values for the Online Social Support (OSS) variables are as follows: information support ($0.688 > 0.100$), emotional support ($0.836 > 0.100$), instrumental support ($0.863 > 0.100$), and companionship support ($0.811 > 0.100$). The VIF values are as follows: information support is 1.453 (< 10), emotional support is 1.196 (< 10), instrumental support is 1.158 (< 10), and companionship support is 1.232 (< 10). When examining the tolerance for all independent variables, we see that the tolerance value exceeds 0.100, and the VIF values for all independent variables in OSS remain under 10. Therefore, we conclude that there is no multicollinearity among the independent variables, suggesting a moderate correlation between these variables.

The SPSS analysis presented in Table 1 shows that the tolerance values for the Cross-cultural identity (CCI) variable are as follows: language identity ($0.730 > 0.100$), cultural identity ($0.719 > 0.100$), ethnic identity ($0.736 > 0.100$), and value recognition ($0.746 > 0.100$). The VIF values for the language identity variable ($1.370 < 10$), cultural identity ($1.390 < 10$), ethnic identity ($1.358 < 10$), and value recognition ($1.341 < 10$) are presented. Based on the tolerance of all independent variables, the tolerance values are greater than 0.100, and the VIF values for all independent variables in CCI are less than 10. Therefore, it can be concluded that none of the independent variables exhibit multicollinearity, indicating that the variables are moderately correlated.

5. Conclusion

Considering the tolerance levels of all independent variables, both Online Social Support and Cross-Cultural Identity show tolerance values exceeding 0.100, with the VIF values for all independent variables remaining below 10. Therefore, it can be concluded that there is no multicollinearity among these moderately correlated variables. This suggests that Online Social Support (which includes information support, emotional support, instrumental support, and companionship support) and Cross-Cultural Identity (which encompasses language identity, cultural identity, ethnic identity, and value recognition) play significant roles as predictor variables in cross-cultural adaptation. Additionally, both Cross-Cultural Identity and Social Support are crucial predictors of cross-cultural adaptation.

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Conflict of Interest

The authors declare no conflicts of interest.

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