

The Relationship between International Students' and Cross-Cultural Adaptation and Dominant Language in Taiwan

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Abstract

Higher education institutions of various countries have perceived the importance of international student recruitment, have studied the problems these students encounter when they study abroad, and have searched for methods and strategies to assist them in adapting to local culture and lifestyles. As current studies on international students have mainly focused on life adjustment, this study focused on the issue of cross-cultural adaptation. This study analyzed the relationship between international students' cross-cultural adaptation and the dominant language as Chinese of Taiwan, and put emphasis on the relationship between the linguistic competence acquired from studying abroad and the level of cross-cultural adaptation, as well as how they affect each other. It was found that international students' cross-cultural adaptation concerning the dimension of "studying and researching" was closely related to their Chinese proficiency, and that the level Chinese ability would affect the amount of cross-cultural adaptation.

Keyword: International student, cross-cultural adaptation, Chinese proficiency, Taiwan

I. Introduction

1. Research Motives, Purposes, and Expected Contributions

Ever since Taiwan joined the World Trade Organization (WTO) in 2002, in compliance with the WTO's General Agreement of Trade in Services (GATS), higher education in Taiwan has to face the impact of foreign higher education institutions being allowed to recruit students in Taiwan. Therefore, at present, the highest priority is to increase the international competitiveness of higher education in Taiwan.

"The Protocol for the Preliminary Work of Important Social Development" developed by the Ministry of Education in Taiwan in 2007 aggressively promotes and enhances academic exchanges between Taiwan and various countries in the world, in the hope that more international students will be attracted to study in Taiwan. International students can bring huge economic benefits to local regions and create business and trade opportunities. In addition, international student recruitment can further increase cultural exchanges, as well as stimulate and promote international interaction and reciprocity (Ministry of Education, 2007). Therefore, the higher education institutions and scholars in Taiwan both have perceived the importance of international student recruitment, and have studied the problems and challenge that are encountered by these students studying in Taiwan. In addition, they have sought methods to assist international students in adapting to local culture and lifestyles, which are also beneficial to international students' learning. Therefore, this study aimed to investigate international students' cross-cultural adaptation.

Language learning and cultural learning mutually support each other. Under the premise of language teaching, the purpose of cultural teaching is to increase the learners' understanding of the target language and to reduce cross-cultural conflicts in language and life. The key factor affecting cross-cultural adaptation is linguistic and cultural adaptation (Furnham & Erdmann, 1995). At present, the teaching materials for Chinese in Taiwan are mainly serial teaching materials, whereas short-term, practicable ones closely related to life and cultural in Taiwan have not been developed. To learners of Chinese, appropriate teaching materials can easily increase learning motivation and further trigger spontaneous learning to enable students to learn the language pleasantly and freely (Chang, 2007).

On the other hand, Chien (2008) suggested that in a cross-cultural environment, the teaching strategies of Chinese language teachers should take cross-cultural differences, which may affect international students' learning, into consideration. Huang (2007) indicated that the causes for international students' anxiety over learning Chinese are mainly from the teaching activities, the learning contents and the teaching materials. Moreover, because there are few studies on international students' cross-cultural adaptation and Chinese proficiency, the purposes of this study is to investigate the relationship between Chinese proficiency and international students' cross-cultural adaptation, and to further analyze the difference in the influence of various Chinese abilities on international students' cross-cultural adaptation in Taiwan. This study intended to clarify the relationship between international students' cross-cultural adaptation and Chinese proficiency, and to provide practical strategies and suggestions on international students' cross-cultural adaptation in order to assist them in facing the problems of cross-cultural adaptation more effectively. Moreover, the research results obtained from the analysis on the influence of Chinese proficiency on international students' cross-cultural adaptation can be used as a reference to the compilation and planning of Chinese teaching materials, and concrete suggestions can be proposed for both the training of Chinese language teachers and the policies for the instruction of international student affairs. The research results also address the current lack of studies on international students' Chinese learning and cross-cultural adaptation.

2. Definitions

2.1 International students: refers to students of other nationalities who are formally studying at colleges and universities in Taiwan.

2.2 Chinese proficiency: refers to the comprehensive abilities composed of the Chinese phonetic system usage ability, Chinese listening ability, Chinese speaking ability, Chinese literacy, Chinese character writing ability, Chinese language reading ability and Chinese composition ability.

2.3 Cross-cultural adaption: refers to the reconsideration and adjustment of behavior and ideological criteria to better match another culture. During the course of cross-cultural adaptation, individuals will experience various feelings or physical and psychological changes (Ward & Kennedy, 1996).

3. Literature Review

3.1 Studies on language learning and cross-cultural adaption

Schumann (1978) proposed the Acculturation Theory and viewed the learning process of a second language as the gradual adaptation to the culture of target language from the perspective of the relationship between culture and language. In addition, Schumann also viewed the learning of an entire second language as a part of cross-cultural adaptation and suggested that a second language learner's level of adaptation to the culture of the target language can determine the level of understanding of the target language. Church (1982) indicated that the development of cross-cultural adaptation is triggered by individuals' sense of similarities and differences caused by exposure to strange environments, different languages, behaviors, regulations, eating habits and educational systems. Yeh (1999) mentioned that cross-cultural adaptation is the social and psychological combination between learners and the target language. Therefore, the social and psychological distances between learners and the culture of the target language become the main factors affecting the complete learning of the second language. Social distance refers to the equivalent social status shared by second language learners and members of the target language.

In addition, both second language learners and members of the target language hope that the second language can be assimilated into the society of the target language. Psychological distance refers to the influence of the factors affecting the learning of the second language on the learner's emotional state, including fear, intensesness, anxiety and culture shock caused by language barriers. The huge social and psychological distances impede language learning at the initial stage, and even when learners stay in the natural environment of the target language, they may not necessarily be able to learn the target language. Constantine (2004) suggested that cross-cultural adaptation is an adjustment process in which individuals intend to start to understand and integrate another new culture from their original cultural context. When individuals face the conflicts of different cultural standards, they will start to understand their cultural orientation. In general, people will expand their existing behaviors and habits to include more than two cultural orientations, and the larger the scope of the openness is, the higher the tolerability to their thinking being changed by external information will be.

3.2 Relevant dimensions of studies on international students' cross-cultural adaptation

Uehara (1988) investigated international students' cross-cultural adaptation in Japan using Baker's (1981) Freshmen Student Adjustment Scale.

The scale focuses on social and cultural aspects, and the dimensions of the scale include “studying and researching”, “mind-body wellness”, “interpersonal relationships”, “culture and economics of the living environment”. Sandhu and Asrabadi (1994) developed the Acculturative Stress Scale for International Students, which has been widely used in studies concerning international students. Sezrle and Ward (1990) indicated that cross-cultural adaptation includes two major dimensions, “psychological adjustment” and “socio-cultural adjustment”. Psychological adjustment refers to the perceived levels of happiness and satisfaction. However, factors such as “pressure”, “social support”, “partners of the same nationality”, “local friends”, “life changes”, “attitude towards interactions with local friends”, and “other individual factors”, will affect psychological adjustment. Moreover, the factors affecting socio-cultural adjustment are mainly based on social learning theory and thus include assessments on the bases and models of interactions, such as “cross-cultural contact”, “cultural distance”, “cross-cultural training”, “previous cross-cultural experiences” and “length of residence”. This study used the amended Cross-Cultural Scale adopted by Uehara (1988), as it is based on the socio-cultural model. This study mainly investigated the difficulties encountered by international students during their learning adaptation, and expanded the dimensions of cross-cultural adaptation from a psychological aspect to the interactions and relationships with local society. As a result, the scale comprehensively included all the factors that affect cross-cultural adaptation.

II Research Method

1. Research scope and subjects

This study treated the international students of three universities, with Mandarin Chinese courses in the Tainan metropolitan area as subjects. According to the Ministry of Education in Taiwan (2009), international students in universities totaled to 459 of the Tainan metropolitan area. A total of 285 questionnaires were distributed, and 215 were returned. There were 204 valid questionnaires, for a return rate of 72%.

2. Research instruments

This study adopted a questionnaire survey, with analysis based on SPSS. Analytical approaches included descriptive statistics (mean, frequency distribution and standard deviation), and inferential statistics refer to t-test and one-way ANOVA. The questionnaire used in this quantitative study included two parts. Part one was the Scale of Cross-Cultural Adaptation for International Students, and the questions were developed based on amendments made to the questions concerning five dimensions in the Cross-Cultural Scale adopted by Uehara (1988). Therefore, the cross-cultural adaptation related problems encountered by international students could be analyzed based on these questions. A total of 39 items were used to measure international students' responses, upon a 5-point Likert Scale, ranging from 5, meaning “strongly agree” to 1, meaning “strongly disagree”. The dimensions and contents of the scale are shown in Table 1. The Cronbach's α of the Scale of Cross-Cultural Adaptation for International Students was 0.929, and that of the questions ranged from 0.691 to 0.904. Therefore, the internal consistency of the scale was high, representing a high reliability of the scale. In order to test the appropriateness and representativeness of the contents and questions in the scale, it was important to conduct a content validity analysis.

The value of the Kaiser-Meyer Olkin Measure of Sampling Adequacy (KMO), ranging from 0 to 1, can be used to determine the appropriateness. When the KMO value is greater than 0.50, the content validity is high and the scale is representative. The KMO value of the scale was 0.841, and that of the questions ranged from 0.770 to 0.910. Therefore, the content validity of the scale was high and the scale was representative. Part two of the questionnaire was the Chinese Proficiency Self-Assessed Scale. The questions were developed based on the Test of Chinese as a Foreign Language (TOCFL, 2009), which is a foreign language proficiency test for non-native speakers of Chinese those who wish to know about their level of Chinese proficiency, or those who want to study, work or do business in Chinese speaking countries (Steering Committee for the Test of Proficiency-Huayu, 2010). This test provides assessment on various Chinese abilities, including phonetic system usage ability, Chinese listening ability, Mandarin speaking skills, Chinese literacy, the ability to write Chinese characters, Chinese language reading ability and Chinese composition ability.

A 5-point Likert Scale, ranging from 5, meaning “very poor” to 1, meaning “excellent”, was used to measure international students' responses. The lower the point score, the higher the ability is. A most of the subjects in this study did not take the TOCEL, therefore a self-assessed scale was used and international students were requested to check the boxes of the points for themselves in order to comprehensively assess their own Chinese proficiency. The Cronbach's α coefficient was used to test each factor and dimension to measure the internal consistency among all the questions. The Cronbach's α value of the Chinese Proficiency Self-Assessed Scale was 0.879, suggesting that the correlation among questions was high, as was the internal consistency of the scale. The validity of the scale could be determined by the value of the Kaiser-Meyer Olkin measure of sampling adequacy (KMO).

The KMO value of the Self-Assessed Scale was 0.880, which was greater than 0.50, suggesting that the content validity of the Self-Assessed Scale was high and the scale was representative.

III Research Results

1. Analysis on the difference in international students' phonetic system usage ability and cross-cultural adaptation

As shown in Table 2, international students' phonetic system usage ability in three dimensions of cross-cultural adaptation "studying and researching", "interpersonal relationship", and "living environment and financial conditions" showed significantly difference. The results ($F = 3.338, p = .011 < .05$) indicated that there is significantly difference between international students' phonetic system usage ability and the dimension of cross-cultural adaptation "studying and researching." According to the Scheffé method posteriori comparisons, regarding "studying and researching", the cross-cultural adaptation of international students whose phonetic system usage ability was "poor" was better than those whose phonetic system usage ability was "very poor." The ANOVA analysis ($F = 3.314, p = .012 < .05$) indicated there is significantly difference between international students' phonetic system usage ability and the dimension of cross-cultural adaptation "living environment and financial conditions". According to the Scheffé method posteriori comparisons, international students' phonetic system usage ability had a negative effect on "living environment and financial conditions". In other words, international students whose capability related to phonetic system usage is poorer can better adapt to life in Taiwan.

2. Analysis on the difference in international students' Chinese listening ability and cross-cultural adaptation.

As shown in Table 3, the ANOVA analysis indicated that international students' Chinese listening ability in two dimensions of cross-cultural adaptation "studying and researching" ($F = 4.097, p = .003 < .05$) and "living environment and financial conditions" ($F = 3.412, p = .010 < .05$) showed significantly difference. Regarding "studying and researching", the cross-cultural adaptation of international students whose Chinese listening ability was "excellent" and "not bad" was better than those whose Chinese listening ability was "very poor." Regarding "living environment and financial conditions", the cross-cultural adaptation of international students whose Chinese listening ability was "excellent" was better than those whose Chinese listening ability was "good" in accordance with the Scheffé method posteriori comparisons.

3. Analysis on the difference in international students' Mandarin speaking skills and cross-cultural adaptation.

As shown in Table 4, the ANOVA analysis indicated that international students' Mandarin speaking skills in two dimensions of cross-cultural adaptation "studying and researching" ($F = 3.402, p = .010 < .05$) and "living environment and financial conditions" ($F = 2.708, p = .031 < .05$) showed significantly difference. Regarding "studying and researching", the cross-cultural adaptation of international students whose Mandarin speaking skills was "excellent" was better than those whose Mandarin speaking skills was "very poor" in accordance with the Scheffé method posteriori comparisons.

4. Analysis on the difference in international students' Chinese literacy ability and cross-cultural adaptation.

As shown in Table 5, the ANOVA analysis indicated that international students' Chinese literacy ability in the dimension of cross-cultural adaptation "studying and researching" ($F = 5.473, p = .000 < .05$) showed significantly difference. Regarding "studying and researching", the cross-cultural adaptation of international students whose Chinese literacy ability was "excellent" and "poor" was better than those whose Chinese literacy ability was "very poor" in accordance with the Scheffé method posteriori comparisons.

5. Analysis on the difference in international students' ability to write Chinese characters and cross-cultural adaptation.

As shown in Table 6, the ANOVA analysis indicated that international students' ability to write Chinese characters in two dimensions of cross-cultural adaptation "studying and researching" ($F = 7.743, p = .000 < .05$) and "interpersonal relationship" ($F = 4.682, p = .001 < .05$) showed significantly difference. Regarding "studying and researching", the cross-cultural adaptation of international students whose ability to write Chinese characters was "good" and "poor" was better than those whose ability to write Chinese characters was "very poor" in accordance with the Scheffé's method posteriori comparisons. However, according to the Scheffé method posteriori comparisons, international students' ability to write Chinese characters had a negative effect on "interpersonal relationship."

6. Analysis on the difference in international students' Chinese language reading ability and cross-cultural adaptation.

As shown in Table 7, the ANOVA analysis indicated that international students' Chinese language reading ability in two dimensions of cross-cultural adaptation "studying and researching" ($F = 6.874, p = .000 < .05$) and "interpersonal relationship" ($F = 2.726, p = .031 < .05$) showed significantly difference. Regarding "studying and researching", the cross-cultural adaptation of international students whose Chinese language reading ability was "good" and "not bad" was better than those whose Chinese language reading ability was "very poor" in accordance with the Scheffé method posteriori comparisons.

7. Analysis on the difference in international students' Chinese composition ability and cross-cultural adaptation.

As shown in Table 8, the ANOVA analysis indicated that international students' Chinese composition ability in two dimensions of cross-cultural adaptation "studying and researching" ($F = 5.787, p = .000 < .05$) and "interpersonal relationship" ($F = 2.886, p = .024 < .05$) showed significantly difference. Regarding "studying and researching", the cross-cultural adaptation of international students whose Chinese composition ability was "good", "not bad" and "poor" was better than those whose Chinese composition ability was "very poor" in accordance with the Scheffé method posteriori comparisons.

IV Conclusions

In terms of the relationship between international students' Chinese proficiency and cross-cultural adaptation, international students' phonetic system usage ability had a negative effect on the "living environment and financial condition" dimension of cross-cultural adaptation. And Chinese characters writing ability also had a negative effect on the "interpersonal relationship" dimension of cross-cultural adaptation. In other words, international students' Chinese proficiency related to phonetic system usage and Chinese characters writing will neither affect their level of adaptation to social and interpersonal interactions in Taiwan nor their adaptation to local life in Taiwan. Therefore, international students' cross-cultural adaptation to "interpersonal relationships" and "living environments and financial conditions" is irrelevant to their Chinese phonetic apply and characters writing ability.

International students' phonetic system usage ability has a significant influence in the aspects of study and research of cross-cultural adaptation. However, the cultivation of international students' Chinese listening abilities and speaking skills, as well as the use of the Mandarin Phonetic Symbol or Hanyu Pinyin, does not initially rely on familiarity with the use of Mandarin Phonetic Symbol, but is based upon natural learning through imitation in environments and interpersonal interaction. In fact, the cultivation of the phonetic system usage ability relies on formal courses, which first requires students to memorize the Mandarin Phonetic Symbol, and then combine them with actual pronunciation. Some Chinese pronunciations are difficult, strange or had never been pronounced by international students. In other words, some international students cannot use phonetic symbols to speak more Chinese terms and sentences until they have memorized the symbols and constantly practiced. Although phonetic system usage ability is the foundation of Chinese learning, it is not required in daily life. Therefore, it has a negative influence in the aspect of the "living environments and financial conditions" of cross-cultural adaptation for international students. It is difficult to predict the actual pronunciation of words based on the Mandarin Phonetic Symbol used in Taiwan.

Therefore, while many international students enjoy the learning environment in Taiwan, they intend to learn the Hanyu Pinyin and reject learning the Mandarin Phonetic Symbol. In terms of the basic teaching materials, which mainly focus on Chinese listening and speaking, teaching of the Mandarin Phonetic Symbol only has already failed to meet international students' needs. Additionally, even though the Hanyu Pinyin learning system is adopted, it is preferable to integrate local life-related teaching materials into teaching curriculums. The result suggest that, in order to effectively improve and assist international students' cross-cultural adaptation, the actual difficulties in phonetic learning, the needs, and interests of international students learning in Taiwan, and their diversified cultural backgrounds, should be considered in the compilation of contents of Chinese phonetic teaching materials and the phonetic teaching strategies of Mandarin Chinese teachers. International students' Chinese ability in character writing has a significant influence regarding the aspect of "study and researching" of cross-cultural adaptation. Therefore, even though international students suggested that it is very difficult to write and learn Chinese characters, the Chinese characters writing ability remains an important factor affecting cross-cultural adaptation in Taiwan. The learning of Chinese character writing may enable international students to perceive, identify, and respect Chinese language and Chinese culture more profoundly, while further increasing their motivation and interests in continuous learning and studying Chinese. Chinese characters are the only ancient characters remaining from human history that are still in existence and continuously used.

They are a unique type of characters due to their historical value and unique characteristics. Moreover, Chinese characters writing ability is closely related to advanced Chinese language reading and Chinese composing abilities. Therefore, although international students suggested that it is difficult to learn writing Chinese characters, they must overcome the challenge and complete it. At present, traditional Chinese character is still the mainstream in Chinese characters teaching in Taiwan. However, in response to the global trend of use of simplified Chinese character, relevant educational authorities should carefully consider providing teaching resources and faculties for both traditional and simplified Chinese character systems in order to develop coping strategies that meet the needs of the competitive international market. Moreover, at present, it is important for Chinese teachers, scholars, and experts to determine the key factors affecting the success or failure of international students' learning of Chinese characters. The reason why international students' Chinese characters writing ability is negatively correlated to the aspect of "interpersonal relationship" of their cross-cultural adaptation may be that, most international students are poor in Chinese characters writing abilities. As a result, they seldom communicate or interact with others by writing Chinese characters, as only a small proportion of international students are proficient in Chinese characters writing ability.

However, they may not necessarily use Chinese characters as the only language for communication in the aspect of "interpersonal relationships" for cross-cultural adaptation. Moreover, international students' cross-cultural adaptation to "studying and researching" is closely related to their Chinese proficiency, and each of the Chinese abilities has a significant influence on it. In terms of the level of cross-cultural adaptation, the cross-cultural adaptation of international students with higher Chinese proficiency was better than that of those with lower proficiency. In other words, Chinese proficiency affects international students' status of cross-cultural adaptation. Furthermore, in terms of the cross-cultural adaptation to the "living environment and financial conditions", the level of adaptation of international students with excellent Chinese listening abilities and Chinese literacy was higher than that of students with good abilities. It could be inferred that the better the Chinese listening ability and Chinese literacy are, the higher the level of cross-cultural adaptation to the environment of the host country will be. Only when international students' language proficiency meets the basic threshold can they effectively increase their level of cross-cultural adaptation abroad.

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Tables

Table 1 Dimensions and items of scale of cross-cultural adaptation

Dimensions	Numbers of items, and items
Studying and researching	1. I feel happy in my studies recently.
	2. I have been very happy since I began to study at the university.
	3. My study attitude has been positive recently.
	4. I have a clear goal in studying at the university.
	5. I feel positive on the value of research or study at the university.
	6. My research project or study has progressed very smoothly.
	7. I have benefited from the curricula I am studying at the university.
	8. I am satisfied with the courses of this semester.
	9. I understand my chosen courses very well.
	10. I feel easy reading books in the Chinese language for my chosen specific course.
	11. Overall, I am satisfied with my study at the university.
Physical and mental health & emotions	1. I have had a good health recently.
	2. I have sleep very well recently.
	3. I have felt homesick recently.
	4. I have often felt pleasure recently.
	5. My recent emotional ups and downs very smooth.
	6. I am very active in the relationships recently.
	7. I own psychological or spiritual satisfaction.
Interpersonal relationship	1. I have good Taiwanese friends at my university.
	2. I have good international student friends.
	3. I have good Taiwanese friends from outside the university.
	4. I can communicate well with the professors or lecturers of my course.
	5. I have had fairly good interpersonal relationship recently.
	6. I have ample opportunities and Interactive for group activities with Taiwanese students at the university.
	7. Overall, I have good relationships at the university.
Local culture	1. I understand and can integrate into Taiwanese culture in my daily life.
	2. Although I am a foreigner, I feel I have integrated into the local life.
Living environment and financial conditions	3. People in Taiwan do not discriminate strongly against foreigners; I can easily take part in group their group activities.
	4. People in Taiwan are friendly, so communicating with them is easy.
	5. I can understand the cultural identity of the Taiwan people.
	6. I obtained a lot of information about Taiwan before I came.
	1. My current living environment is comfortable and satisfactory.
	2. The living environment and hygienic conditions are good in Taiwan.
	3. The neighborhood is very safe around my residence.
	4. I get along very well with the neighbors around my residence.
5. I can adapt to the local weather.	
6. The rent charge of my residence is reasonable.	
7. My current financial state is very good.	
8. Overall, I am satisfied with the local life.	

Table 2 Difference analysis of international students' phonetic system usage ability and cross-cultural adaptation (sd: standard deviation)

Variable	Mean	sd	F value	P value	Scheffé method
Studying and researching	42.57	7.10	3.338	0.011*	poor > very poor
Physical mental health & emotions	25.11	4.24	1.691	0.154	
Interpersonal relationships	26.56	4.78	3.307	0.018*	
Local culture	22.02	3.77	0.238	0.916	
Living environment and financial conditions	29.95	4.64	3.314	0.012*	poor > good

$p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 3 Difference analysis of international students' Chinese listening ability and cross-cultural adaptation (sd: standard deviation)

Variable	Mean	sd	F value	P value	Scheffé method
Studying and researching	42.57	7.10	4.097	0.003**	excellent 、 not bad > very poor
Physical mental health & emotions	25.11	4.24	0.681	0.606	
Interpersonal relationship	26.56	4.78	1.669	0.159	
Local culture	22.02	3.77	1.038	0.389	
Living environment and financial conditions	29.95	4.64	3.412	0.010*	excellent > good

$p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 4: Difference analysis of international students' Mandarin speaking skills and cross-cultural adaptation (sd: standard deviation)

Variable	Mean	sd	F value	P value	Scheffé method
Studying and researching	42.57	7.10	3.402	0.010*	excellent > very poor
Physical mental health & emotions	25.11	4.24	1.365	0.247	
Interpersonal relationship	26.56	4.78	1.392	0.238	
Local culture	22.02	3.77	0.168	0.955	
Living environment and financial conditions	29.95	4.64	2.708	0.031*	

$p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 5 Difference analysis of international students' Chinese literacy ability and cross-cultural adaptation (sd: standard deviation)

Variable	Mean	sd	F value	P value	Scheffé method
Studying and researching	42.57	7.10	5.473	0.000***	excellent 、 poor > very poor
Physical mental health & emotions	25.11	4.24	0.967	0.427	
Interpersonal relationship	26.56	4.78	1.290	0.275	
Local culture	22.02	3.77	0.570	0.685	
Living environment and financial conditions	29.95	4.64	0.274	0.894	

$p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 6 Difference analysis of international students' ability to write Chinese characters and cross-cultural adaptation (sd: standard deviation)

Variable	Mean	sd	F value	P value	Scheffé method
Studying and researching	42.57	7.10	7.743	0.000***	good 、 poor > very poor
Physical mental health & emotions	25.11	4.24	0.972	0.424	
Interpersonal relationship	26.56	4.78	4.628	0.001*	poor > excellent
Local culture	22.02	3.77	1.244	0.293	
Living environment and financial conditions	29.95	4.64	1.473	0.212	

$p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 7 Difference analysis of international students' Chinese language reading ability and cross-cultural adaptation (sd: standard deviation)

Variable	Mean	sd	F value	P value	Scheffé method
Studying and researching	42.57	7.10	6.874	0.000***	good 、 not bad > very poor
Physical mental health & emotions	25.11	4.24	1.660	0.161	
Interpersonal relationship	26.56	4.78	2.726	0.031*	
Local culture	22.02	3.77	1.828	0.125	
Living environment and financial conditions	29.95	4.64	0.906	0.461	

$p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 8 Difference analysis of international students' Chinese composing ability and cross-cultural adaptation (sd: standard deviation)

Variable	Mean	sd	F value	P value	Scheffé method
Studying and researching	42.57	7.10	5.787	0.000***	good 、 not bad 、 poor > poor
Physical mental health & emotions	25.11	4.24	2.195	0.071	
Interpersonal relationship	26.56	4.78	2.886	0.024*	
Local culture	22.02	3.77	1.665	0.160	
Living environment and financial conditions	29.95	4.64	0.543	0.704	

$p < .05^*$ $p < .01^{**}$ $p < .001^{***}$