

# 在日中国本土の留学生における異文化適応に及ぼす内集団態度および外集団態度の影響

## The Effects of In-Group and Out-Group Attitude on Cross-Cultural Adaptation Among Mainland Chinese Students Studying and Living in Japan

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### ABSTRACT

本研究の目的は、在日中国人留学生の心理的適応と社会文化的適応を含む異文化適応に、内集団態度と外集団態度がどのように影響するかを検討することにある。本研究は、211名の在日中国人留学生をサンプルとして実施された。その内訳は、学部生が193名、大学院生が18名であった。平均年齢は22.03歳 ( $SD=2.05$ , 範囲: 20-29), 女性39.8%, 男性60.2%であった。本研究では、参加者の心理的・社会文化的適応、内集団態度と外集団態度を測定するために、質問紙を用いた。二元配置分散分析の結果は以下のことが示された。(a) 内集団態度は抑うつ症状を負に予測した；(b) 内集団態度と外集団態度ともに社会文化的適応ストレスを負に予測した；(c) 内集団態度レベルが低下すると、外集団態度は社会文化的適応ストレスをより強く負に予測した；(d) 平均点を用いて内集団、外集団態度ともに高群と低群に分けて検討した。内集団態度が高く、外集団態度が低い参加者は、抑うつが少なく、他の参加者より心理的適応が良好であることを意味し、内集団態度が低く、外集団態度が高い参加者は、社会文化的適応ストレスが少なく、他の参加者よりも社会文化的適応が良好であることを意味した。

The objective of the study is to examine how the in-group and out-group attitudes affect psychological and socio-cultural adaptation among Chinese students studying and living in Japan. This research was conducted with a sample of 211 Chinese students studying and living in Japan. The total mean age was 22.03 ( $SD=2.05$ , Range: 20-29), with 39.8% of participants being female and 60.2% male. A survey questionnaire was used in the current research to measure depressive symptoms to represent psychological adaptation and socio-cultural adaptation stress to represent socio-cultural adaptation, in-group, and out-

group attitudes of the participants. The results indicated that: (a) in-group attitudes negatively predict psychological depressive symptoms; (b) both in-group and out-group attitudes negatively predict socio-cultural adaptation stress; (c) as the level of in-group attitude decreases, the out-group attitude negatively predicts socio-cultural adaptation stress more strongly; (d) both in-group and out-group attitudes were divided into high and low groups using the mean scores. Participants with high in-group attitudes and low out-group attitudes showed less depression symptoms than others, while participants with low in-group attitudes and high out-group attitudes showed less socio-cultural adaptation stress adaptation than others.

## 1. Introduction

In recent decades, cross-cultural adaptation is an increasingly important area in social psychology as the number of international students around the world has increased rapidly with the acceleration of globalization. Searle and Ward (1990) suggested cross-cultural adaptation should include both psychological and socio-cultural adaptation outcomes based on the previous studies' summary and expansion of the concept.

With China's policy of strongly encouraging study abroad after the reform and opening of China (Deng, 1994) and the Japanese government's policy of "100,000 International Students Plan" and "300,000 International Students Plan", coupled with geographical and cultural factors, the number of international students in Japan has become more and more numerous while the number of Chinese students in Japan has also increased. Chinese students studying in Japan, who account for nearly 15% of the total number of overseas students from China (Ministry of Education, 2020), also account for about 47.13% of international students in Japan (Ministry of Education, Culture, Sports, Science and Technology, 2022).

Most international students are in their adolescence, and they are at a disadvantage in many aspects such as financial ability and living ability. It is pointed out that, compared to people living abroad for work and family relocation, international students who have financial difficulties and do not possess any skills in living

in Japan are the most maladaptive group compared with immigrant families, and people who work abroad, etc. (Inamura, 1980). The cross-cultural adaptation process of Chinese students in Japan not only has an important impact on their physical and mental development, but also affects the safety and stability of Japanese society. The study of the factors affecting the cross-cultural adaptation of Chinese students in Japan should be considered a topic that cannot be overlooked.

From previous studies, personal factors and environmental factors are the main factors considered affecting international students' cross-cultural adaptation. Personal factors have been examined mainly in terms of language ability (Iwasaki, 1998; Sato, 1996; Uehara, 1988), gender (Güngör & Bornstein, 2009; Hu & Cheung, 2021), personality (Ge, 2003), the purpose of study (Ge, 1999); environmental factors have been studied mainly in terms of social support (Naidoo, 1985), social networks (Inoue & Ana, 2007), cultural distance (Kuo et al., 1976), interpersonal relationships (Iwao & Hagiwara, 1997), and acceptance attitudes in the host country (Hagiwara & Iwao, 1997).

Based on the above research results, scholars have conducted relatively comprehensive studies on the cross-cultural adaptation of international students. However, few studies have examined the impact of intergroup attitudes of international students on cross-cultural adaptation. Acculturation is a dynamic process of mutual understanding and integration of different cultures, and individuals are

influenced by both their in-group and out-group cultures (Berry, 2003). The process of acculturation for Chinese students in Japan is not only influenced by Japanese culture or socializing with Japanese people but is also influenced by Chinese culture and people due to the big community of Chinese people in Japan. Although some studies have investigated the influence of international students' attitudes toward their host countries on acculturation, however, far too little attention has been paid to the attitude toward international students' host culture and people. Most studies have ignored the role of in-group attitudes and the interaction of in-group and out-group attitudes.

The objectives of the current study are to determine how in-group and out-group attitudes affect cross-cultural adaptation among Chinese students studying and living in Japan. As this study is based on the definition of cross-cultural adaptation defined by Ward and Kedney (1999), two dimensions of psychological and socio-cultural adaptation are investigated.

This research is meaningful for several reasons: (a) Most Chinese students in Japan are in the stage of adolescence and will establish an identity, world view, and study to become an adult in this stage. Therefore, the research about them is meaningful and important (Inoue, 1996); (b) Because China and Japan have had more and more exchanges in these few years, clarifying which would affect difficulties Chinese students have in adapting to Japanese culture and society and schools is meaningful and necessary; (c) Many studies are from more than a decade ago (Tang, 2006; Yamazaki, 1993; Zhou, 1995). As China has been developing rapidly in the past 20 years, it is necessary to conduct some new research to obtain new findings compared to previous studies. (d) Although previous studies (Berry, 2005; Hayashi, 1997; Yamazaki, 1993) have found the positive effects of attitude toward the host country on cross-

cultural adaptation, the direct effects of attitude toward self-culture have not been identified. Thus, it is necessary to measure the impact of in-group, and out-group attitudes and the interaction on cross-cultural adaptation.

## 2. Literature Review

### 2.1 Cross-Cultural Adaptation

Human beings started to cross the boundaries of culture a long time ago (Tylor, 1871). Cross-culture has always been existing and growing with unprecedented speed and magnitude. There are millions of immigrants, government dispatchers, business travelers, researchers, professors, and students who visit and study in academic institutions abroad and so on.

With the development of cross-cultural phenomena, the topic of cross-cultural adaptation has become impossible to ignore. In recent decades, cross-cultural adaptation is an increasingly important area in social psychology. Cross-cultural adaptation has been defined in a wide variety of ways up till now. Redfield et al.'s (1936) initial definition of acculturation was as follows:

Acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original cultural patterns of either or both groups. (p. 149)

Most psychologists' contributions in this field have come from their recent work, which has tended to be more individualized and emphasizes how cultural adaptation affects different psychological processes. Berry (1997) has defined cross-cultural adaptation as a process of cultural and psychological change that follows intercultural contact. Zhou (1995) considered cross-cultural adaptation as a harmonious and satisfying relationship between individuals and people from

other cultures, societies, or nations. Nakane (1972) states that the best indicator of an individual's level of adaptation is whether the individual enjoys interacting with the local people. Tanaka (2000) made a demonstration that cross-cultural adaptation is being mentally and physically healthy, socially in a good state, achieving challenges and overcoming difficulties based on cross-culture, and achieving cross-cultural understanding. In summary, there is a consensus among these social psychological scientists that the process of acculturation includes social and psychological acculturation of various environments.

Several studies thus far have linked mental health with the process of acculturation, such as depression, anxiety, and mental well-being (Adler, 1975; Furham & Bochner, 1986; James & Ruth, 2002; Oberg, 1960). These studies attempted to explain that mental health is one of the key indicators of cross-cultural adaptation. After adapting and extending previous concepts, Searle and Ward (1990) identified two adaptive outcomes in cross-cultural transitions, namely psychological adaptation as the internal process of mental health and emotional satisfaction measured by depression, anxiety, stress e.g., and sociocultural adaptation as referring to the individual's social skills and cultural learning during the intercultural setting. Because the Zung Self-Rating Depression Scale (Zung, 1965) is most frequently used due to its widely documented cross-cultural reliability and validity (Ward et al., 1998), the depression scale was also used in the current study to measure psychological adaptation.

## 2.2 Factors Influencing Cross-cultural Adaptation

Since cross-cultural adaptation is such an important process for people coming to a new society and culture, it is essential to consider what affects the process of acculturation. There is a large

volume of published studies describing the factors influencing cross-cultural adaptation. In the initial research, the issue of language and financial difficulties being a relatively large barrier for international students has been highlighted (Uehara, 1988). However, previous research findings on Japanese language ability have been inconsistent. Sato (1996) stated the improvement of Japanese language ability could result in a higher sense of adaptation, while Iwasaki (1998) found that the level of Japanese language ability was negatively associated with cultural adaptation due to perceived discrimination. Inconsistent results have also been found between gender, age, and cultural adaptation. Some studies suggest that women face more cultural adjustment problems than men, for example, perceived cultural distance is different between women and men, which could lead to a different academic performance (Hu & Cheung, 2021). But some studies have shown the opposite for adolescents, in which girls performed better adaptation than boys (Güngör & Bornstein, 2009). Thus, when we focus on the relationship between Japanese language ability, gender, and acculturation, we must consider other factors. The relationship between age and acculturation is also complicated. Hwang et al. (2005) have found that young immigrants have more problems and pressure due to their identification and development during the acculturation process, while older immigrants have more difficulty studying the new culture and life skills in acculturation. Education occupation and income were also considered to be the influencing factors of acculturation. The researchers argue that people with higher levels of education are more culturally adaptive because education is tied to other resources, such as culture-related knowledge and skills, and socioeconomic wealth (Inamura, 1980). Hayashi (1997) stated that social life skills would increase as the length of stay become longer, which could lead to a better

cross-cultural adaptation.

In Berry's (2005) model of cross-cultural adaptation, we can know that conflicts and stress could be led by negative attitudes toward the dominant groups which result in separated problems. Yamazaki (1993) conducted a study with Chinese students in Japanese language schools and found the following results. For Chinese students in Japanese language schools, as far as friendship with Japanese people is concerned, the richer and more diverse the relationship, the better the attitude and impression towards Japanese culture Chinese students will have. Therefore, Chinese students will gain a deeper understanding of Japanese culture, which could lead to a better cultural adaptation process. Hayashi (1997) also found that a positive attitude towards Japanese culture could strongly explain cross-cultural adaptability for both Chinese and Korean students studying and living in Japan. According to the multiple regression results of this study, positive attitude towards Japanese culture and self-efficacy are significantly correlated to cross-cultural adaptation for the participants. In summary, it could be understood that international students who have a better attitude towards the host country will have a better cross-cultural adaptation. Moreover, although Hayashi (1997) didn't find the direct effects of attitudes and feelings toward self-culture on cross-cultural adaptation, but an indirect effect via self-efficacy was indicated. The regression results illustrate the positive relationship not only between attitude towards self-culture and self-efficacy, but also between self-efficacy and cross-cultural adaptation. Li (2022) also suggested that cultural confidence and cultural identity reinforce people's sense of psychological security and pride, which could play a role in maintaining mental well-being in cross-cultural adaptation. In summary, we suggested that both in-group and out-group attitudes are worth to be viewed as major factors affecting cross-cultural adaptation.

Social psychology defines an in-group as a group that an individual is a part of or identifies with genetically, culturally, or ideologically. By contrast, an out-group is a group individual do not identify as being a part of or aren't a part of genetically, culturally, or ideologically. Tajfel (1978) proposed social identity theory that social identity refers to the ways that people's self-concepts are based on their membership in social groups. The social identity theory also could explain that people may find it psychologically meaningful to view themselves according to their race, gender, age, culture, or religion, and groups to which people belonged to be an important source of pride and self-esteem (Tajfel & Turner, 1979). Likewise, Mossakowski (2003)'s study examined that ethnic identity is linked to mental health and reduces the stress of discrimination, which means that having a sense of ethnic pride, involvement in ethnic practices, and cultural commitment to one's racial/ethnic group may protect mental health.

Considering that there is a positive association between positive in-group attitudes and ethnic identity (Bennett et al., 2004; Corenblum, 2014; Inguglia & Muso, 2013), we can predict that having a good attitude towards groups individuals belong to could lead to good mental health, which also could be understood as psychological adaptation in the current study.

### 3. Methodology

#### 3.1 The Current Study

The purpose of this study was to clarify how the in-group and out-group attitudes affect psychological and socio-cultural adaptation among Chinese students studying and living in Japan. Psychological adaptation refers to personal good mental health, and socio-cultural adaptation refers to the individuals' social competence in managing their daily life in the intercultural setting. Besides,

in-group attitudes are the perspectives of Chinese students' attitudes and feelings toward Chinese culture and people, and out-group attitudes are the perspectives of Chinese students' attitudes and feelings toward Japanese culture and people. Several previous studies were focus on the effects of out-group attitudes (Berry, 2005; Hayashi, 1997; Yamazaki, 1993), while this research argued that in-group attitudes also effectively predict cross-cultural adaptation which has just not been identified in previous studies.

We hypothesized that (a) in-group attitudes positively predict psychological adaptation; (b) out-group attitudes positively predict socio-cultural adaptation; (c) there is an interaction effect between in-group and out-group attitudes on both psychological and socio-cultural adaptation.

### 3.2 Participants

Two hundred and eleven Chinese mainland students living and studying in Japan were recruited to participate in this research through social media such as WeChat and email. There were 193 undergraduate students and 18 graduate students. The total mean age was 22.03 ( $SD=2.05$ , Range: 20–29), with 39.8% of participants being female and 60.2% male. No statistically significant differences emerged for age with respect to participant gender  $t(209) = 1.85, p = .07$ .

The students were recruited from different colleges and universities across Japan with about 95% of the participants from colleges and universities in Tokyo. All the participants categorized themselves as never married. 74.4% of the participants have passed the Japanese Language Proficiency Test level 1, and 25.6% of the participants have passed the Japanese Language Proficiency Test level 2.

### 3.3 Measures

Participants in the previous studies on cross-

cultural adaptation of international students were from different universities. This study also collected data from different universities in Japan. For reasons of efficiency and feasibility, we opted for an online survey instead of a face-to-face paper survey. WeChat and email were utilized to spread the link of the survey questionnaire due to the widespread use of WeChat among Chinese people.

The questionnaire was administered in an online format using Google Form. The questionnaire consisted of 95 items from three existing measures and a face sheet. All the questions were presented in both Chinese and English.

#### 3.3.1 Face Sheet

The face sheet contained personal information such as age, gender, educational background (specialized school, undergraduate school, or graduate school), level of Japanese Language Proficiency Test (from level 1 to 4, and no language ability).

#### 3.3.2 Psychological Adaptation

The Self-Rating Depression Scale (Zung, 1965) with high validity (Biggs et al., 2018) is used for measuring psychological adaptation. The Chinese version of this scale was developed by Wang et al. (1986). This measure consists of 20 items, with response options using a 4-point Likert-type scale ranging from (1) a little of the time to (4) most of the time. This measure has a score range of 20 – 80. A high score of SDS indicates high depression, which means the performance of psychological adaptation is not good. A low score of SDS indicates good psychological adaptation. Cronbach's alphas for Self-Rating Depression Scale was .79.

#### 3.3.3 Socio-Cultural Adaptation

The Socio-Cultural Adaptation Scale (SCAS) that shows acceptable validity and reliability in



multiple cross-cultural samples (Ward & Kennedy, 1999) was conducted to measure socio-cultural stress by adapting to a different culture. The Chinese version of this scale was revised by Zhong et al. (2013). This measure consists of 28 items with response options using a 5-point Likert scale from (1) no difficulty to (5) extreme difficulty. A high score of SCAS indicates high socio-cultural stress, which means the performance of socio-cultural adaptation is poor. A low score of SCAS indicates good socio-cultural adaptation. Cronbach's alphas for the Socio-cultural Adaptation Scale was .91.

### 3.3.4 In-Group Attitude and Out-Group Attitude

As the Allophilia scale was used to provide a way to measure positive intergroup attitudes (Alfieri & Marta, 2001), this scale could be considered to measure both in-group and out-group attitudes. As the Chinese version was not developed, after several discussions, we translated the scale based on Chinese culture. In the current study, this scale consists of 31 items, which includes 17 items for out-group attitudes and 14 items for in-group attitudes. Both in-group and out-group attitudes items were used response options of a 6-point Likert scale from (1) strongly disagree to (6) strongly agree. A high score of in-group attitudes indicates positive attitudes towards Chinese people and the culture of Chinese students studying and living in Japan. A high score of out-group attitudes indicates positive attitudes towards Japanese people and the culture of Chinese students studying and living in Japan. Cronbach's alphas for

in-group and out-group attitude measures were .84 and .89 respectively.

## 3.4 Procedures

Participants for this study were recruited through email and WeChat which is the most popular social media for Chinese users. Participants were offered the link to take the survey on their smartphone or computer. On the first page of the survey questionnaire in the google form, we provided the participants with informed consent for the survey. All data collection was conducted after the participants agreed to the informed consent form. Participants were informed that the survey would take approximately 15–20 minutes to complete. Participants were instructed to complete the entire survey but there was no penalty for not completing the survey in its entirety. No incentives were offered to participants. After surveys were collected, data were then coded and entered into statistical software. Data coding and entry were verified to minimize error. All the data were then imported into SPSS statistical software.

## 4. Results

### 4.1 Pre-Processing

The 211 participants who took part in the survey completed the questionnaire quite well. Thus, no data were excluded from the current study.

### 4.2 Descriptive Statistics

The range, means, and standard deviations for each primary variable are reported in Table 1.

**Table 1**  
*Descriptive Statistics for the Variables*

	Range	<i>M</i>	<i>SD</i>
Depression	22-60	37.40	6.12
Socio-Cultural Adaptation Stress	31-77	45.64	12.10
In-Group Attitudes	40-83	66.04	8.73
Out-Group Attitudes	28-98	70.85	15.04

### 4.3 Zero-Order Correlations

Zero-order correlations (see Table 2) were used to examine the strength and direction of the bivariate relationships between each independent variable and each dependent variable in the study. As anticipated, in-group attitudes were significantly and negatively correlated with depression. Out-group attitudes were significantly and negatively correlated with socio-cultural adaptation stress. In-group attitudes were significantly and positively correlated with psychological adaptation, and out-group attitudes were significantly and positively correlated with socio-cultural adaptation.

### 4.4 The Effects of In-Group and Out-Group Attitudes on Psychological Adaptation

To examine hypothesis 1, a multiple linear regression was conducted to assess whether in-group and out-group attitude negatively significantly predicts depression. The two predictors and personal factors were entered into a simultaneous regression

model. The overall regression was statistically significant,  $R^2=.49$ ,  $F(7, 203) = 34.76$ ,  $p<.001$ . In-group attitude negatively significantly predicts depression,  $B=-0.48$ ,  $SE=0.03$ ,  $\beta=-.70$ ,  $t=-14.08$ ,  $p<.001$ . Out-group attitude did not significantly predict depression ( $B=0.012$ ,  $SE=0.02$ ,  $\beta=.03$ ,  $t=0.60$ ,  $p=.55$ ) (See Table 3). Educational status is the only factor significantly affect depression among personal factors. The results showed that graduate students performed better than undergraduate students on psychological adaptation.

To examine hypothesis 3, a multiple regression model was tested to investigate the interaction between in-group and out-group attitude on depression after centering in-group attitude, out-group attitude, and computing the in-group \* out-group interaction term. The two predictors and the interaction were entered into a simultaneous regression model. The overall regression was statistically significant,  $R^2=.50$ ,  $F(3, 207)=68.35$ ,  $p<.001$ . Results also indicated only in-group

**Table 2**  
*Zero-Order Correlations for the Variables*

	Depression	Socio-cultural Stress	In-group Attitudes	Out-group Attitudes
Depression	—	—	—	—
Socio-Cultural Stress	.20*	—	—	—
In-Group Attitudes	-.70***	-.01	—	—
Out-Group Attitudes	.11	-.79***	-.12	—

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

**Table 3**  
*The Result of Multiple Linear Regression Analysis for the Prediction of Depression*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>
Explanatory Variables				
In-Group Attitude	-0.48	0.03	-.69***	-14.05
Out-Group Attitude	0.01	0.02	.03	0.60
Age	-0.16	0.18	-.06	-0.93
Gender(Femal = 0; Male = 1)	-0.42	0.61	-.03	-0.70
Educational Status (Undergraduate = 0, Graduate = 1)	3.22	1.21	.16**	2.67
Japanese Language Ability	-0.85	0.82	-.06	-1.05
Length of Stay	0.23	0.22	.06	1.05
$R^2 = .55$				

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$



attitude positively associated with depression ( $B=-0.49$ ,  $SE=0.04$ ,  $\beta=-.69$ ,  $t=-13.84$ ,  $p<.001$ ). The interaction between in-group and out-group attitude was not significant  $B=-0.003$ ,  $SE=0.003$ ,  $\beta=-.05$ ,  $t=-1.10$ ,  $p=.27$ .

We also conducted a two-factor analysis of variance was conducted to evaluate the effects of the in-group and out-group attitudes on depression. The two independent variables in this study are in-group and out-group attitudes. The dependent variable is the score of depression, with higher score indicating lower psychological adaptation. Both in-group and out-group attitudes were divided into high and low groups using the mean scores. The general pattern of participants' depression score (psychological adaptation) was examined by operating  $2 \times 2$ , in-group attitudes (high and low)  $\times$  out-group attitudes (high and low). The means and standard deviations for the psychological adaptation measure as a function of the two factors are presented in Table 4.

The result of two-way ANOVA test revealed a significant main effect of in-group attitudes,  $F(1, 207)=153.99$ ,  $p<.001$ ,  $\eta^2=.43$ , no significant main effect of out-group attitudes,  $F(1, 207)=2.52$ ,  $p=n.s.$ ,  $\eta^2=.01$ , and a significant interaction between in-group attitudes and out-group attitudes,  $F(1, 207)=22.99$ ,  $p<.001$ ,  $\eta^2=.10$ .

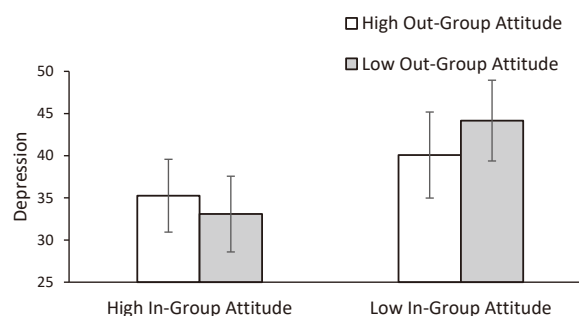
In the high in-group attitudes domain, the mean value for depression rating of low out-group attitudes was significantly lower than the mean value for depression rating of high out-group attitudes ( $p<.01$ ). In the low in-group attitudes domain, the mean value for depression rating of low out-group attitudes was significantly higher than the mean value for depression rating of high out-group attitudes ( $p<.001$ ) (See Figure 1).

In the high out-group attitudes domain, the mean value for depression rating of low in-group attitudes was significantly higher than that of high in-group attitudes ( $p<.001$ ). Also, in the low out-group attitudes domain, the mean value for

**Table 4**  
*Means and Standard Deviations of Depression by In-Group and Out-Group Attitudes*

	Out-Group High			Out-Group Low		
	N	M	SD	N	M	SD
In-Group High	54	35.25	4.32	66	33.08	4.49
In-Group Low	53	40.08	5.10	38	44.16	4.79

**Figure 1**  
*Depression Scores Performed by In-Group Attitudes and Out-Group Attitudes*



depression rating of low in-group attitudes was significantly higher than that of high in-group attitudes ( $p<.001$ ). It means that, no matter how out-group attitudes change, participants with high in-group attitudes always have better psychological adaptation than participants with low in-group attitudes.

#### 4.5 The Effects of In-Group and Out-Group Attitudes on Socio-Cultural Adaptation

To examine hypothesis 2, a multiple linear regression was conducted to assess whether in-group and out-group attitude negatively significantly predicts socio-cultural adaptation stress. The two predictors and personal factors were entered into a simultaneous regression model. The overall regression was statistically significant,  $R^2=.67$ ,  $F(7, 203)=57.86$ ,  $p<.001$ . In-group attitude negatively significantly predicts socio-cultural adaptation stress,  $B=-0.15$ ,  $SE=0.06$ ,  $\beta=-.11$ ,  $t=-2.55$ ,  $p<.05$ . Out-group attitude negatively significantly predict socio-cultural adaptation stress ( $B=-0.65$ ,  $SE=0.03$ ,  $\beta=-.81$ ,  $t=-19.72$ ,  $p<.001$  (See Table 5). The results also showed age negatively predict socio-cultural adaptation stress, and female have less socio-cultural adaptation stress than male.

To examine hypothesis 3, a multiple regression

model was tested to investigate the interaction between in-group and out-group attitude on cross-cultural adaptation stress after centering in-group attitude, out-group attitude, and computing the in-group \* out-group interaction term. The two predictors and the interaction were entered into a simultaneous regression model. The overall regression was statistically significant,  $R^2=.66$ ,  $F(3, 207)=131.90$ ,  $p<.001$ . Results also indicated both in-group ( $B=-0.14$ ,  $SE=0.06$ ,  $\beta=-.10$ ,  $t=-2.38$ ,  $p<.05$ ) and out-group attitude positively associated with socio-cultural adaptation stress ( $B=-0.65$ ,  $SE=0.03$ ,  $\beta=-.81$ ,  $t=-19.70$ ,  $p<.001$ ). The interaction between in-group and out-group attitude was significant ( $B=0.01$ ,  $SE=0.004$ ,  $\beta=.11$ ,  $t=-2.64$ ,  $p<.01$ ).

Simple slopes for the association between out-group attitude and socio-cultural adaptation stress were tested for low ( $-1SD$  below the mean), moderate (mean)m and high ( $+1SD$  above the mean) levels of in-group attitude. Each of the simple slope tests revealed a significant negative association between out-group attitude and socio-cultural adaptation stress, but the out-group attitude was more strongly related to socio-cultural adaptation stress for lower levels of in-group attitude ( $B=-0.81$ ,  $SE=0.10$ ,  $\beta=-.84$ ,  $t=-8.63$ ,  $p<.001$ ) than for moderate ( $B=-0.60$ ,  $SE=0.04$ ,

**Table 5**  
*The Result of Multiple Linear Regression Analysis for the Prediction of Socio-Cultural Adaptation Stress*

Explanatory Variables	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>
In-Group Attitude	-0.15	0.06	-.11*	-2.55
Out-Group Attitude	-0.65	0.03	-.81***	-19.72
Age	-0.6	0.3	-.11*	-2.01
Gender (Femal = 0; Male = 1)	-2.32	1.03	-.09*	-2.26
Educational Status (Undergraduate = 0, Graduate = 1)	-0.05	2.04	.01	-0.03
Japanese Language Ability	0.72	1.38	.03	0.52
Length of Stay	-0.09	0.36	-.01	-0.25
$R^2 = .67$				

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

$\beta = -.80$ ,  $t = -16.60$ ,  $p < .001$ ), or higher levels ( $B = -0.56$ ,  $SE = 0.14$ ,  $\beta = -.66$ ,  $t = -4.01$ ,  $p < .001$ ) of in-group attitude. Figure 2 plots the simple slopes for the interaction.

We also conducted a two-factor analysis of variance was conducted to evaluate the effects of the in-group and out-group attitudes on socio-cultural adaptation stress. The two independent variables in this study are in-group and out-group attitudes. The dependent variable is the score on socio-cultural adaptation stress, with higher score indicating lower socio-cultural adaptation. Both in-group and out-group attitudes were divided into high and low groups using the mean scores. The general pattern of participants' socio-cultural adaptation stress score (socio-cultural adaptation) was examined by operating  $2 \times 2$ , in-group attitudes (high and low)  $\times$  out-group attitudes (high and low). The means and standard deviations for the socio-

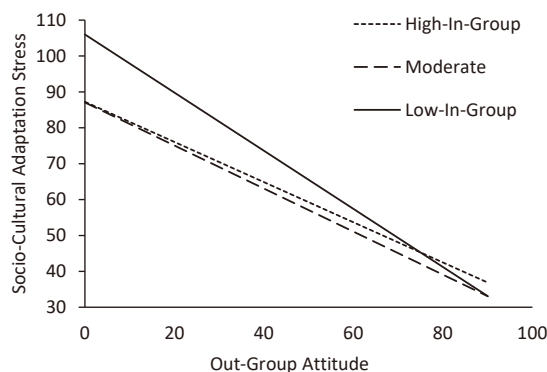
cultural adaptation measure as a function of the two factors are presented in Table 6.

The result of two-way ANOVA revealed that, there is a significant main effect of in-group attitudes,  $F(1, 207) = 14.6$ ,  $p < .001$ ,  $\eta^2 = .07$ , a significant main effect of out-group attitudes,  $F(1, 207) = 448.6$ ,  $p < .001$ ,  $\eta^2 = .34$ , a significant interaction between in-group attitudes and out-group attitudes,  $F(1, 207) = 22.79$ ,  $p < .001$ ,  $\eta^2 = .10$ .

In high in-group attitudes domain, the mean value for socio-cultural adaptation stress rating of high out-group attitudes was significantly lower than the mean value for socio-cultural adaptation stress rating of low out-group attitudes ( $p < .001$ ). In low in-group attitudes domain, the mean value for socio-cultural adaptation stress rating of high out-group attitudes was significantly lower than the mean value for socio-cultural adaptation stress rating of low out-group attitudes ( $p < .001$ ). It

**Figure 2**

*The Interaction Between In-Group and Out-Group Attitudes on Socio-Cultural Adaptation (Performed by Different Levels of In-Group Attitude)*



**Table 6**

*Means and Standard Deviations of Socio-Cultural Adaptation Stress*

	Out-Group High			Out-Group Low		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
In-Group High	54	36.63	4.28	66	52.36	8.63
In-Group Low	53	35.72	3.32	38	60.60	9.39

means that, no matter how in-group attitudes change, participants with high out-group attitudes always have better socio-cultural adaptation than participants with low out-group attitudes (See Figure 3).

What's more, in low out-group attitudes domain, the mean value for socio-cultural adaptation stress rating of low in-group attitudes was significantly higher than that of high in-group attitudes ( $p<.001$ ), which means that in low out-group attitudes domain, participants with high in-group attitudes have better socio-cultural adaptation than participants with low in-group attitudes.

5. Discussion

5.1 In-Group/Out-Group Attitude and Psychological Adaptation

According to the results of two-way ANOVA and multiple linear regression, in-group attitudes have a significant positive effect on psychological adaptation. Thus, Hypotheses 1 is supported. To have a good psychological adaptation, Chinese students in Japan should improve their in-group attitudes, which is consistent with our assumptions. International students could maintain or enhance their ethnic attitudes by positive attitudes toward self-culture, which leads to good mental health

(Bennett et al., 2004; Mossakowski, 2003; Li, 2022).

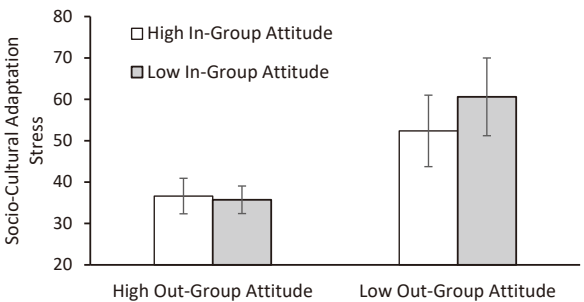
Although multiple linear regression didn't show a significant interaction between in-group and out-group attitude on psychological adaptation, the significant interaction between the effects of in-group and out-group attitudes on psychological adaptation has been found in the result of two-way ANOVA. Thus, Hypothesis 3 is supported.

The simple main effect analysis showed that participants who have high in-group attitudes and low out-group attitudes performed better than participants who have high in-group attitudes and high out-group attitudes. This is because that, compared to people with high in-group attitudes and high out-group attitudes, people with high in-group attitudes and low out-group attitudes tended to recognize themselves more excellent and greater than others belong to out-groups (Tajfel, 1981). People with high in-group attitudes and low out-group attitudes have a strong sense of self-evaluation to affirm themselves more which could lead to better mental health.

5.2 In-Group/Out-Group Attitude and Socio-Cultural Adaptation

According to the results of two-way ANOVA and multiple linear regression, both in-group and out-

Figure 3  
*Socio-Cultural Adaptation Stress Scores Performed by In-Group Attitudes and Out-Group Attitudes*



group attitudes have a significant effect on socio-cultural adaptation. Thus, Hypothesis 2 is supported, which is consistent with the results of previous studies (Hayashi, 1997; Yamazaki, 1993). The reason that in-group attitudes show significant effect on socio-cultural adaptation could be considered that positive in-group attitude of Chinese students could moderate socio-cultural adjustment stress by maintaining mental health. As mentioned in previous studies, although Hayashi (1997) didn't find the direct effects of attitudes and feelings toward self-culture on cross-cultural adaptation, but an indirect effect via self-efficacy was indicated. It can also be interpreted that in-group attitudes could facilitate learning social skills, increase motivation, or moderate adjustment stress to have better socio-cultural adaptation by influencing self-efficacy.

Result of both multiple linear regression and two-way ANOVA show that there is also a significant interaction between the effects of in-group and out-group attitudes on socio-cultural adaptation. Thus, Hypothesis 3 is supported.

Although the results show in-group and out-group attitude positively affect psychological and socio-cultural adaptation, however this does not mean that higher in-group and out-group attitudes are better in order to achieve successful psychological and socio-cultural adaptation. Simple slopes for the association between out-group attitude and socio-cultural adaptation stress indicated that the in-group attitude demonstrates a hindering effect on the association between out-group attitude and socio-cultural adaptation. Moreover, the results of two-way ANOVA show that only good out-group attitudes without good in-group attitudes would lead to a sense of inferiority to affect individuals' mental health. In contrast, only good in-group attitudes without good out-group attitudes would lead to a sense of socio-cultural stress to affect individuals' socio-cultural adaptation.

Obviously, the importance of linking in-group attitudes to psychological depression has implications for the social process of adapting to a new culture. International students who are often defined as having attitudes of national culture are likely weakened or lost during acculturation. In contrast, a good attitude toward both national culture and host countries' culture cannot only co-exist at the same time but can also lead to a good cross-cultural adaptation.

### 5.3 Personal Factors and Psychological/Socio-Cultural Adaptation

There is an interesting finding that although previous studies stated female reported more depressive symptoms and a more maladaptive attributional style than males (Boggiano & Barrett, 1991), but female performed better socio-cultural adaptation than male during the acculturation process. Güngör and Bornstein (2009) explained the similar phenomenon that, in the situation of cross-cultural adaptation, evidence from ethnographic, sociological, and psychological research alike suggests that girls in Turk migrant families in Western Europe are more open to intercultural contact, have greater aspirations for achievement, and possess less conservative gender role attitudes than do boys (Güngör & Bornstein, 2009).

Although graduate students had better psychological adaptation than undergraduate students did, the sample gap makes it uncertain whether this conclusion is highly statistically significant. Age, academic aptitude, and life skills differences between graduate and undergraduate students are also not insignificant influencing factors.

## 6. Conclusion

This study demonstrates the importance of

intergroup attitudes in the process of cross-cultural adaptation. As Redfield et al. (1936) stated, the process of interculturality is a process in which two groups are in constant contact. Not only minority groups but also the majority group are experiencing the cross-cultural contact and cross-cultural adaptation. Establishing a link between intergroup attitudes and the process of cross-cultural adaptation has significant implications both for minority groups and majority groups.

One of the new findings of this study is that ingroup attitudes positively affect both psychological and socio-cultural acculturation. We have a bold prediction that positive in-group attitude of Chinese students could moderate socio-cultural adjustment stress by maintaining mental health, which could be explored in future research.

This study has some limitations in terms of sampling. Top universities like the University of Tokyo, International Christian University, Hitotsubashi University, and Waseda University were represented by more than half of the participants. Specialized schools or Japanese language schools had no pupils enrolled. All participants have strong Japanese language abilities. Such bias may affect the outcomes of cultural adaptation. We will avoid such problems in the future research. There are also some limitations in terms of measurement. Psychological adaptation is the internal process of mental health and emotional satisfaction measured by depression, anxiety, stress. Depression is only one aspect of mental health. Depressive symptoms is only one dimension of psychological adaptation. Some causality (such as depressive symptoms might also drive poorer in-group attitudes) need to be explored on more levels and rigorously proven.

Cross-cultural adaptation is a dynamic process. It would be beneficial and important to conduct a longitudinal survey that could track changes in intergroup attitudes and cross-cultural adaptation

before and after the acculturation process. However, it was not possible to conduct one for this study due to time limitations. A follow-up study might involve a longitudinal investigation of intergroup attitudes and cross-cultural adaptation while taking other contributing factors into account. We believe that additional in-depth and extensive research will help this study be improved and developed in the future, and future research on this subject is quite promising.

The study of how intergroup attitudes affect cross-cultural adaptation is a relatively new topic that requires more in-depth investigation. Whether the findings of this study are applicable to international students in all regions needs more discussion and data support due to the socio-cultural and psychological adaptation of international students varies from different countries. Therefore, a comprehensive analysis of the impact of intergroup attitudes on cross-cultural adaptation is a process that needs to be undertaken.

This study is a preliminary, small-scale attempt to investigate and analyze only three hypotheses. Although the scope and depth of this study are constrained, it shows how intergroup attitudes and interactions affect cross-cultural adaptation and offers a research angle and proposal for future investigations.

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