EXAMINING INTERNATIONAL STUDENTS' PSYCHOSOCIAL ADJUSTMENT

TO LIFE IN THE UNITED STATES

A Dissertation

by

JING ZHANG

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2010

Major Subject: Health Education

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Approved by:

Chair of Committee,	Patricia Goodson
Committee Members,	James M. Eddy
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	Linda Castillo
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ABSTRACT

Examining International Students' Psychosocial Adjustment to

Life in the United States. (May 2010)

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Chair of Advisory Committee: Dr. Patricia Goodson

This dissertation, containing two journal-formatted manuscripts, examines

factors associated with international students' psychosocial adjustment to life in the

United States. In the first manuscript, I systematically reviewed 64 studies reporting

predictors of international student adjustment, which were published in English language

peer-reviewed journals from 1990 to 2008. I summarized predictors by adjustment

outcomes and assessed the methodological quality of individual studies. In the second

manuscript, I investigated mechanisms through which acculturation influenced

psychosocial adjustment of Chinese international students, by electronically surveying a

sample of 508 Chinese international students from four universities in Texas.

Specifically, the mechanisms investigated in this report refer to the mediating and

moderating effects of social interaction and social connectedness with host nationals

upon the acculturation-adjustment linkages.

Results portrayed in the first manuscript showed stress, social support, English

language proficiency, region/country of origin, length of residence in the United States,

acculturation, social interaction with Americans, self-efficacy, gender, and personality were among the most frequently reported predictors of international students' psychosocial adjustment. The mean methodological score of the reviewed studies was 6.25 (*SD*=1.8; maximum possible score=11). The reviewed studies overcame selected methodological limitations pointed out by Church in his review, but show room for continued improvement.

Results portrayed in the second manuscript showed social connectedness with Americans mediated the links between adherence to the host culture (acculturation dimension) and psychosocial adjustment. Social interaction with Americans moderated the association between adherence to the home culture (acculturation dimension) and depression.

Findings from this dissertation have implications for health promotion research and practice. First, this dissertation calls for a revision in the sojourner adjustment framework to address the shared elements underlying both adjustment domains (psychological and sociocultural). Second, more studies are needed to a) examine macro-level factors and currently under-investigated micro-level factors, b) test theories that integrate micro- and macro-level factors, c) examine mediation and moderation effects, and d) systematically employ longitudinal designs and comparison groups. Third, health promotion professionals would do well to address predictors and mechanisms found in this dissertation when developing evidence-based interventions for international students.

To my parents: Guiying and Liang

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Nelson Mandela said it always seems impossible until it's done. When I look back, I am still amazed that I have completed this dissertation. I thank the following individuals for their care, guidance, and support that have made the "impossible" possible.

I thank my advisor, Dr. Patricia Goodson, for mentoring me in becoming an independent researcher, critical thinker, persistent writer, and effective teacher. Her belief in and guidance for me has empowered me to attempt important things in my life. I hope I can be an outstanding mentor for my students, as she has been for me. I thank Dr. James Eddy for his constructive feedback and constant support, and for reminding me to visualize the big picture. I am grateful to Dr. Buzz Pruitt for his enthusiasm and all his dedicated help for my research. I thank Dr. Linda Castillo for providing me with invaluable insights on acculturation and psychosocial adjustment. I also owe a debt of gratitude to Dr. Bruce Thompson for statistical consultation; to Ms. Dinah Harriger for her help with inter-rater reliability tests; and to Ms. Xiaoxia Su for proof-reading my results.

I would also like to thank my family for their unconditional love. My mother's understandings and cheers have helped me put things in perspective. My father's keen insights have strengthened this dissertation.   Fan, my husband, has been unwavering in his support of me. I appreciate that he patiently listened to me and gently challenged me

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CHAPTER I

INTRODUCTION

This dissertation examines factors associated with international students'

psychosocial adjustment to life in the United States. In a journal article format, I present

two self-contained manuscripts, to be submitted for publication in peer-reviewed

journals. In the first manuscript, I systematically reviewed predictors of international

students' psychosocial adjustment to life in the United States as reported during a 19-

year period by empirical research on this topic. In the second manuscript, I investigated

mechanisms (i.e., mediation and moderation effects) through which acculturation

influences psychosocial adjustment in a sample of Chinese international students.

Although the United States is the world's leading destination for international

students seeking higher education abroad (Institute of International Education, 2008b),

by far, there has been limited research examining international students' psychosocial

adjustment to life in the United States. Existing research evidence, though modest,

shows intercultural living presents opportunities for personal development to

international students, but it also brings challenges, such as academic, acculturative and

life stress, lack of social support, and low identification with the host culture

(acculturation dimension). These challenges may put international students at risk for

depression and sociocultural adjustment difficulties (Ying & Liese, 1990, 1994; Leong,

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This dissertation follows the style of *Journal of Counseling Psychology*.

Mallinckrodt, & Kralj, 1990; Misra, Crist, & Burant, 2003; Constantine, Okazaki, &

Utsey, 2004; Wang & Mallinckrodt, 2006).

This dissertation attempts to add to the international student adjustment literature

by 1) synthesizing existing research on predictors of international student adjustment and

2) examining the role of acculturation in psychosocial adjustment (especially

mechanisms through which acculturation influences adjustment). It is hoped this

dissertation contributes to a better understanding of international students' intercultural

adaptation and informs interventions to promote the wellbeing of these students.

I have organized the dissertation into four chapters and 10 appendices. In Chapter

I, I present an overview of the dissertation, introducing the content that follows.

Chapter II provides the systematic literature review on predictors of international

students' psychosocial adjustment to life in the United States. To date, no systematic

literature reviews (i.e., one that simultaneously summarizes studies' findings and

evaluates their quality) has been conducted on the topic. To summarize and evaluate the

current state of the art of the international student adjustment literature, I a) summarized

predictors of international student adjustment reported by empirical studies conducted in

the United States since 1990; and b) assessed the methodological quality of each

reviewed study by employing an 11-point criteria. I also discussed whether and to what

extent reviewed studies overcame methodological limitations pointed out by Church in a

previous review of this literature, published in 1982. Nine electronic databases were

searched using terms such as *international students*, *stress, depression, mental health,*

psychological well being, well being, social support, adjustment and *adaptation.* The final number of studies included in the review was 64.

Chapter III reports the study examining the role of acculturation in psychosocial adjustment (especially mechanisms through which acculturation influences adjustment) in a sample of Chinese international students. I examined Chinese international students because international students from Asia (of whom Chinese international students are a part) are at a higher risk for psychosocial adjustment difficulties, as they tend to experience more psychological distress (e.g., depression) than U.S. domestic Caucasian students and more sociocultural difficulties or social stress than students from other parts of the world, as research evidence shows (Cheng, Leong, and Geist, 1993; Redmond & Bunyi, 1993; Poyrazli & Kavanaugh, 2006). I focused on acculturation because it has been associated with a variety of mental health outcomes among Chinese/Taiwanese international students and other non-mainstream populations (Chapter II; Yoon, Lee, & Goh, 2008; Matsudaira, 2006, Koneru, Mamani, Flynn, & Betancourt, 2007; Wang & Mallinckrodt, 2006; Dao, Lee, & Chang, 2007). Acculturation is also relevant for Chinese international students because some of its dimensions (i.e., identification with the host culture) may be difficult or take years to develop, considering the substantial differences in communication and social norms between U.S. and Chinese cultures (Yeh & Inose, 2003).

For the above mentioned study, a non-probability sample of 508 Chinese international students in Texas responded to a web-based survey. I utilized a bilinear acculturation instrument (Vancouver Index of Acculturation; Ryder, Alden, & Paulhus,

2000) to examine the relationship between acculturation and psychosocial adjustment, reflecting the shift in acculturation theory/measurement toward bilinear models. Furthermore, I examined the potential mediating and moderating roles of social interaction and social connectedness with host nationals in the acculturation-adjustment linkages, addressing the limitation in the international student adjustment literature which tends to focus mainly on direct associations between acculturation and adjustment outcomes (Rahman & Rollock, 2004; Cemalcilar, Falbo, & Stapleton, 2005; Atri, Sharma, & Cottrell, 2007).

Chapter IV presents the conclusion to this dissertation, based on discussions in Chapters II and III. Appendices A1 through A4 provide more details for Chapter II. Appendix A1 presents the criteria for assessing 64 reviewed studies' methodological quality and the distribution of reviewed studies meeting the criteria. Appendix A2 contains the matrix of the 64 studies examined in the systematic literature review (e.g., their major findings and methodological quality indicators/scores). Appendix A3 documents findings of the reviewed studies. Appendix A4 provides the references of the reviewed studies. Appendices B1 through B6 provide further details for Chapter III. Appendix B1 presents Chapter III's major conceptual model and hypothesis. Appendix B2 contains the sample's demographic profile. Appendix B3 presents psychometric properties (i.e., reliability and validity) of data as measured the instrument utilized in Chapter III. Appendix B4 provides the means, standard deviations, and zero-order correlations of variables. Appendix B5 presents results from simple and multiple

regression analyses of depression, whereas Appendix B6 presents results from simple

and multiple regression analyses of sociocultural adjustment difficulties.

CHAPTER II

PREDICTORS OF INTERNATIONAL STUDENTS' PSYCHOSOCIAL

ADJUSTMENT TO LIFE IN THE UNITED STATES: A SYSTEMATIC REVIEW

Introduction

In the 2007/2008 academic year, 623,805 international students were pursuing

higher education in the United States, representing 3.5% of the U.S. college population

(Institute of International Education, 2008a). Alongside enriching the campus

intellectual and cultural environment, international students provided $15.5 billion

revenue to the U.S. economy through tuition and living expenses in 2007/2008, making

higher education one of the country's largest service sector exports (Institute of

International Education, 2008b). After graduation, many international students continue

to contribute to the American society by entering its workforce. Nearly half of

international students who earned U.S. science and engineering doctorates during 2002

and 2005 accepted employment offers in the United States (National Science

Foundation, 2008).

Despite their presence and contributions, international students have received

very limited attention from U.S. college health researchers. Literature searches in

electronic databases (i.e., PsycINFO and EBSCOhost) using the keyword "international

students" generated 10 articles in the *Journal of Counseling Psychology* between 1954

and 2009 and eight articles in the *Journal of American College Health* between 1994

(earliest electronic bibliographic record) and 2009. Considering the double-edged nature

of intercultural adaptation—growth producing and problematic (Kim, 2001)—it is surprising that so little empirical reporting is available to understand and facilitate international students' psychosocial adjustment to life in the United States. Psychological adjustment refers to "psychological wellbeing or satisfaction" whereas sociocultural adjustment refers to "the ability to 'fit in', to acquire culturally appropriate skills and to negotiate interactive aspects of the host environment" (Ward & Kennedy, 1999, p.660).

Despite the small body of literature, a synthesis of available findings can assist the development of future studies and programs/services for international students. Systematic literature reviews can represent such a synthesis, because they simultaneously summarize results and evaluate the methodological quality of *each* reviewed studies reporting the results, by following well-defined steps to reduce reviewer bias (Forbes, 2003; Bennett, 2005; Bowman, 2007).

To date, no systematic literature reviews have been conducted on predictors of international students' psychosocial adjustment to life in the United States. A widely cited critical review by Church (1982) approximates a systematic review and offers invaluable insights. Church (1982) not only summarized predictors of international student adjustment from empirical evidence but also critiqued the *overall* methodological quality of research reporting these predictors. He pointed out limitations such as a) the underdeveloped concepts and theories utilized in the studies; b) the lack of longitudinal designs; and c) the absence of baseline data or adequate control groups (Church, 1982).

Given the current state of the art of the international student adjustment literature, the following questions, guide the systematic review presented here: Which factors have been most frequently identified as predictors of international students' psychosocial adjustment to life in the United States? What has been the methodological quality of the studies, especially whether, or to what extent, have studies conducted post-Church's-synthesis overcome the methodological limitations pointed out in that review (1982)?

Methods

Retrieval Procedures

Attempts were made to retrieve all English-language peer reviewed journal articles published between1990 and January 2009 that empirically examined predictors of psychosocial adjustments of international undergraduate and graduate students in the United States. We chose this time period to limit the scope of this review while capturing the majority of, and latest developments in, the U.S. international student adjustment literature published since 1982. We searched nine electronic databases: Communication Studies, Education, ERIC, Health Sciences, MEDLINE, PsycINFO, Social Services Abstracts, Sociological Abstracts, and Sociology. Search terms included *international students*, *stress, depression, mental health, psychological well being, well being, social support, adjustment* and *adaptation*. We also searched reference lists of included articles for additional studies. The final number of reviewed studies was 64.

Inclusion/Exclusion Criteria

Only quantitative studies reporting factors significantly associated with international undergraduate and graduate students' psychosocial adjustments in the

United States (at a probability level of $p<0.05$) were included in the review. For the purpose of this review, we operationalized psychosocial adjustment into two dimensions, based on Ward and Kennedy's (1999) distinction of intercultural adaptation: a) psychological adjustment (e.g., psychological wellbeing and depression) and b) sociocultural adjustment (e.g., functional adjustment and sociocultural adjustment difficulties). We excluded studies that employed qualitative methods or evaluated interventions, focusing the review on naturally-occurring statistical correlates of adjustment.

Data Abstraction and Inter-Rater Reliability

We abstracted the reviewed studies using the Matrix Method (Garrard, 1999), a method developed for conducting health sciences systematic literature reviews. Factors associated with psychosocial adjustment were extracted from each of the studies. A factor had to be accompanied by correlation coefficients (e.g., β or Pearson *r*) and their corresponding *p* values in order to qualify as a finding in this review. If the same factor was investigated both in a lower and higher level statistical analysis (e.g., correlations and regression), only the higher level analysis' significant result was counted as a finding. The first author and a colleague (both had graduate statistics training) extracted findings from 13 of the 64 reviewed studies (approximately 20%), independently, and agreed on 93.2% of the 13 studies' findings. Cohen's kappa was 0.86, indicating very high inter-rater reliability (Landis & Koch, 1977). Raters resolved differences for presentation of the final data here.

Methodological Quality Assessment

      We established nine criteria to assess each reviewed study's methodological quality (Appendix A1). Criteria evaluated theory use, longitudinal/cross sectional design, use of comparison groups, validity and reliability reporting, sample size, data analyses techniques, and reporting of effect sizes. Three criteria directly addressed Church's (1982) critique (i.e., criteria 1, 6, 7; Appendix A1). We rated each reviewed study using the criteria. Each study received a methodological quality score (MQS) as a result of this rating. The maximum MQS a study could receive was 11.

<div align="center">Findings</div>

Studies' Characteristics

      The 64 reviewed articles were published in 29 journals. Over half of the articles were published in journals of psychology and counseling psychology (*n*=30) and intercultural relations (*n*=15). Thirteen studies were published in journals focusing on college student populations (five of which focused on college counseling) and five, in communication journals. The journal in which articles were published most frequently was the *International Journal of Intercultural Relations* (*n*=15).

      Slightly over half of the studies (51.6%) examined students from Asia or individual Asian countries. Specifically, 14 studies (21.9%) were based on samples of students from the Chinese mainland or Taiwan. Thirteen other studies (20.3%) surveyed Asian international students as one group. Six additional studies examined students from Turkey (*n*=3), Korea, India, and Japan. The remaining 31 studies (48.4%) investigated international students from various countries and regions of the world as an

aggregate. Appendix A2 provides more details on studies' characteristics, findings, and methodological quality.

Predictors of International Students' Psychosocial Adjustments

Appendix A3 presents predictors of international student adjustment by outcome variables. As mentioned previously, we organized the outcome variables by adopting Ward and colleagues' conceptual distinction of psychological and sociocultural adjustment, the two inter-related yet distinct domains of intercultural adaptation (Ward & Kennedy, 1999). Because studies varied according to the specific outcomes measured when they claimed to assess psychological adjustment, for the present review we considered the following outcomes as measuring "psychological adjustment:" a) psychological symptoms: indicating negative psychological adjustment (e.g., depression, depressive symptoms, and psychological wellbeing); b) stress (negative adjustment); c) acculturative stress (negative adjustment; i.e., mental health concerns and adjustment problems of individuals in unfamiliar cultural environment); c) physical symptoms (negative adjustment); and d) satisfaction with life in the United States (positive adjustment). We combined functional adjustment and sociocultural adjustment difficulties into one outcome: "sociocultural adjustment" (positive adjustment).

Psychological symptoms. Thirty-three studies reported predictors of psychological symptoms (51.6%). The most frequently reported predictors were stress (*n*=18) and social support (*n*=13). The reviewed studies found international students with higher stress levels had more psychological symptoms, whereas those with greater social support had fewer such symptoms. Various forms of stress were investigated, such as

stress, academic stressors and problems, acculturative stress, perceived discrimination or prejudice (acculturative stress dimension), and cultural adjustment difficulties. Forms of social support included perceived social support and social support from interpersonal network, graduate program, or the campus international student office.

The third and fourth most frequently reported predictors were English proficiency (*n*=6) and length of residence in the United States (*n*=6). Most studies examining self-assessed English proficiency found greater self-assessed English proficiency was associated with fewer psychological symptoms. Regarding length of residence, generally, the longer students stayed in the United States, the fewer psychological symptoms they experienced.

The fifth and sixth most frequently reported predictors were acculturation (*n*=5) and personality (*n*=4). Studies based on bilinear acculturation models (which state identification with one culture does not necessarily lessen identification with the other culture; Miller, 2007) as advocated by current scholarship (B.S.K. Kim & Abreu, 2001)—found greater host identification (acculturation dimension) predicted fewer psychological symptoms. With regards to personality, maladaptive perfectionism (failure to meet one's performance expectations), the control dimension of hardiness (belief that one has control of the causes and solutions of life problems), feminine tendency (in males; greater emotionality and sensitivity) were positively associated with psychological symptoms, whereas the commitment dimension of hardiness (a clear sense of one's values, goals, and capabilities) was negatively associated with psychological

symptoms. Examples of other predictors included self efficacy, country/region, gender, social contact with Americans and Chinese, attachment patterns, coping, identity gap.

Stress. Seven studies reported predictors of stress (10.9%). Country/region was the most frequently reported predictor (*n*=4) and findings were not consistent. American students experienced more overall stress or academic stress than international or Asian students in some studies, whereas in another study East Asian students had higher stress levels than American students (Appendix A3). Regarding types of stress, life stress was positively associated with academic stressors and stress due to racism, while perceived prejudice was positively associated with overall stress. The anxiety attachment pattern (an excessive need for approval from others and fear of interpersonal rejection) and perfectionism predicted more stress. In contrast, the use of direct coping (solving problems by taking direct action, confronting others, or speaking up in one's own behalf), social support, number of new contacts in the host culture, the security attachment pattern (a sense of security developed by receiving consistent responsiveness from caregivers during childhood) predicted less stress.

Acculturative stress. Ten studies reported predictors of acculturative stress (15.6%). Length of stay in the United States (*n*=5), English proficiency (*n*=4), gender (*n*=4), and social support (*n*=3) were the most frequently reported predictors. The relationship between these predictors and acculturative stress was negative for all factors except gender. Most studies found women tended to have higher acculturative stress. Greater social connectedness (subjective awareness of being in close relationship with the social world), lower frequency of phone contact, and more diverse topics in emails

sent to, or received from family members in the home country predicted lower acculturative stress.

Physical symptoms. Five studies reported predictors of physical symptoms (7.8%). The most frequently reported predictors were gender ($n=3$) and stress ($n=3$). Female students and those with a higher stress level experienced more physical symptoms or stress-related behaviors (e.g., drinking and smoking). Compared with Asian students, Caucasian American students experienced more physical symptoms. American students also engaged in more stress-related behaviors than international students.

Satisfaction with life in the United States. Four studies reported predictors of satisfaction with life in the United States (6.3%). Each predictor was reported by one study ($n=1$). Students reporting greater satisfaction tend to be younger, more acculturated to the U.S. culture, and more proficient in English, having stayed in the United States longer, using feelings to guide behaviors, being sensitive to others during communication, and possessing higher intercultural adjustment potential.

Sociocultural adjustment. Thirty-seven studies reported predictors of sociocultural adjustment (57.8%). Its most frequently reported predictors were English proficiency ($n=11$) and social contact with Americans (e.g., friendship and frequency of conversations) ($n=8$). International students with greater self- assessed English proficiency or greater contact with Americans experienced better sociocultural adjustment.

The next most frequently reported predictors were acculturation (*n*=6), length of residence in the United States (*n*=6), and country/region (*n*=6). Greater host identification (acculturation dimension) predicted better sociocultural adjustment. The longer international students stayed in the United States, the better they adjusted socioculturally. U.S. domestic students (who moved out of their hometown to attend college) adjusted better than international students. European and South American students adjusted better than Asian students.

The sixth/seventh/eighth/ most frequently reported predictors were self efficacy (*n*=4), age (*n*=4), and stress (*n*=4), respectively. Self efficacy (e.g., cross-cultural, social, and academic) was positively associated with sociocultural adjustment. Younger students or those with lower stress levels experienced better sociocultural adjustment. Examples of other predictors included psychological wellbeing, learning goal orientation (belief that one's abilities are malleable and that increased efforts lead to success), various personality traits, social support, ethnic density (the amount of co-ethnics on campus), communication apprehension about speaking English, the anxiety and avoidance attachment patterns, and independent self construal (view of self as an individual whose behavior is organized primarily by reference to one's own internal repertoire of thoughts, feelings, and actions rather than by reference to those of others).

In addition to the direct associations/relationships presented above, 16 studies (25%) examined mediation and moderation effects, illuminating mechanisms through which predictors influence adjustment outcomes. As an instance of mediation, study 40 found personal enacted identity gap (difference between one's self-view and the self

expressed in communication) mediated the association between perceived discrimination and depression. This finding means: when detecting discrimination from Americans, international students are more likely to perceive discrepancies between their self-concept and their self as ascribed by Americans, and thus tend to feel more depressed. As an example of moderation, study 62 found suppressive coping ("tendency to avoid coping activities and deny problems," p.454) moderated the association between perceived discrimination and depression. This finding indicates "Asian international students who tend to use suppressive coping are vulnerable to depressive symptoms associated with perceived discrimination, whereas those who tend not to use suppressive coping are less negatively affected by perceived discrimination" (p. 457).

Methodological Quality of Reviewed Studies

Appendix A1 presents the 64 reviewed studies' methodological quality. The average methodological quality score (MQS) for the studies was 6.25 (*SD*=1.8; maximum possible score=11; mid-point of scale = 5.5). The majority of reviewed studies presented and discussed a theoretical framework (82.9%), reported their own independent variables' reliability or validity (87.5%), reported effect sizes (84.4%), and had sample sizes of 100 or more (75%; sample size range = [21 - 631]). Only a small percentage of the studies met one of the three other criteria: Fourteen studies reported their own dependent variable data's validity (21.9%). Twelve studies utilized a longitudinal design (18.8%) and 11 studies compared samples across countries/regions (17.2%). We address in further detail three of the methodological qualities Church critiqued and called for improvement in his review (1982).

Theoretical framework. Theories employed by the reviewed studies come predominantly from psychology; some from communication, and one from sociology (Appendix A2). In terms of psychological theories, most frequently, reviewed studies employed Ward and colleagues' sojourner adjustment framework, which distinguishes two domains of sojourner adjustment: psychological and sociocultural, each of which is said to be best explained by a separate set of theories (Ward and Kennedy, 1999).

Models of acculturation were the next most frequently utilized psychological frameworks. Five of the seven studies applying acculturation models utilized Berry and colleagues' theoretical work on acculturation, which conceptualizes individuals move along two acculturation dimensions (adherence to the *home* culture and adherence to the *host* culture) and adopt four acculturation strategies combining low and high levels on the two dimensions (Berry, Kim, Minde, & Mok, 1987; Berry, 2003).

Other psychological theories utilized by reviewed studies included a) theories of stress and coping, the minority stress model, racism-related stress model; b) attachment theory and theory of separation and individuation; c) social learning theory and self efficacy theory; c) psychology of the self and self identity theories (e.g., interdependent and independent self-construal; collectivism and individualism; cultural distance and intercultural conflict); and d) goal orientation theories. Communication theories included a) uses and gratification theory, b) the communication theory of identity; c) and the model of intercultural communication competence. The sociology theory utilized by reviewed studies was Intergroup Contact Theory.

Longitudinal designs. Six of the 12 longitudinal studies examined by this review deserve special mention. They sprang out of a 3-year project, led by Yu-Wen Ying, and focused on Taiwanese students pursuing graduate degrees in the United States. Tracking the same group of students between 1988 and 1990, Ying and colleagues speculated what might have caused the *change* in the students' emotional wellbeing (improvement or decline in depression scores over time). They found pre-arrival depression and preparation levels predicted participants' membership in the post-arrival "less depressed group" and speculated a more accurate understanding of the U.S. and the transition (e.g., hardships) may have buffered students from post-arrival depression (study 3).

Among the other six longitudinal studies, study 16 also deserves mention because it showed a) international students' adjustment *fluctuated* over time and b) factors salient at *one stage* of the sojourn may not be salient at *other stages*. Authors of study 16 found international students' psychological problems were highest at 3 months, around which exams took place, and explained students' psychological mood might revolve around academic calendars. When explaining the finding—relationships between self-efficacy and adjustments were stronger upon entry than after six months— the authors reasoned individual differences in self-efficacy might have become less salient after six months of stay during which students gained more understanding of their environment and expected behaviors.

Use of comparison groups. By using comparison groups, 11 reviewed studies showed differences/similarities in adjustments and their predictors across groups of students. For instance, study 11 found self construal and direct coping were the most

important predictors of perceived stress in international students, whereas for American students, the most important predictor was satisfaction with relationships.

Discussion

This manuscript presents the first systematic literature review on predictors of psychosocial adjustment of international students in the United States, by summarizing predictors by adjustment outcomes and evaluating the methodological quality of studies reporting the predictors. Regarding predictors, our review provides mixed evidence for Ward and colleagues' sojourner adjustment framework (Ward & Kennedy, 1999), the most frequently adopted theoretical work by the reviewed studies.

Ward and colleagues maintained psychological and sociocultural adjustments are affected by *different* types of predictors (Ward and Kennedy, 1999; Ward and Rana-Deuba, 1999). They theorized and found psychological adjustment to be broadly affected by personality, life changes [stress], coping styles and social support. Sociocultural adjustment, however, was postulated as being influenced by factors underpinning cultural learning and social skills acquisition, such as length of residence in the new culture, amount of interaction and identification with host nationals, language fluency, and acculturation strategies.

This review shows factors vary in their predictability for the two adjustment domains, generally in patterns Ward and colleagues contended. However, a number of factors—rather than predicting either one or the other adjustment domains as Ward and colleagues theorized—predicted *both domains*, at times with equal strength. For instance, we found English proficiency, length of residence in the United States, and

acculturation predicted sociocultural adjustment, as the sojourner framework posits. Nevertheless, these factors were also among the most frequently reported predictors for psychological adjustment. We speculate this was the case because psychological and sociocultural adjustments are inter-related domains, it is likely certain factors predicting one domain would predict a related domain.

Joining other scholars who have made similar suggestions for revising the sojourner adjustment framework, we call for a new conceptualization that addresses the shared elements underlying both adjustment domains (Furnham and Erdman, 1995; Oguri and Gudykunst, 2002). The new conceptualization would better reflect empirical evidence and open doors to re-integration of theories to explain sojourner adjustment (Goodson, 2010).

Alongside contribution to theory development, this review suggests factors for future research. First, more macro-level factors need to be addressed. This review shows the U.S. literature on international student adjustment, as currently reviewed, is micro-level-focused (i.e., intrapersonal and interpersonal), with only 12 studies (18.8%) reporting a macro or contextual factor—university setting (considering whether students were recruited from one or another university), ethnic density (size of co-ethnic population in the university), and perceived discrimination or prejudice (as distinct predictor or part of acculturative stress) (Table II.1). Since micro-and macro-level factors co-define international student adjustment, more research is needed to address macro-level factors, such as cultural and institutional patterns of the host environment

(e.g., host receptivity and conformity pressure) and of the ethnic community (e.g., ethnic group strength) (Kim, 2001).

Second, some currently under-investigated micro-level factors also hold promise for future research. One such factor is coping. Considering stress, social support, and coping are central components of the Theory of Stress and Coping (Lazarus & Folkman, 1984), it is surprising only two reviewed studies focused on coping (i.e., direct coping and suppressive coping), whereas 22 and 15 studies examined stress and social support respectively. Although social support can be seen as a coping resource, future research is needed to examine more coping strategies. Examples of other micro-level factors deserving attention in future research include self-construal, identity gaps, and social connectedness.

Third, future studies could benefit from examining more mediation and moderation processes. We applaud reviewed studies that went beyond direct associations to investigate indirect processes (i.e., mediation and moderation), because they show 1) through what mechanism a predictor influences adjustment outcomes and 2) in what situations or for whom the predictor has the strongest effect. Findings like these suggest more *points* of intervention and *tailored* interventions (based on students' characteristics) to facilitate adjustment.

In terms of methodological quality, the reviewed studies addressed most of our criteria well, but show much room for improvement in a few areas. First, less than one-fourth of the reviewed studied reported validity of the dependent variable (DV)'s scores. Ideally, validity needs to be tested every time an instrument is used on a new sample,

because it is a property of data as measured by an index, rather than a property of the index (Thompson, 2003). Studies can strengthen trustworthiness of their findings by evaluating psychometric properties of their own data, especially the validity of the DV, a study's central component.

Second, less than one-fifth of the reviewed studies employed longitudinal designs or comparison groups. Nevertheless, this still presents a reasonable improvement over research conducted pre-Church's (1982)-review, which rarely employed longitudinal designs or used comparison groups. More longitudinal studies are needed to capture the fluctuating nature of adjustment and the changing salience of predictors over time. Future research should also continue to explore differences between international and American students or among international students, and inform tailored interventions for specific student groups.

Regarding Church's (1982) critique on theory use—he contended there was minimal attempt to apply existing sociopsychological concepts to study the dynamics of sojourner adjustment—the reviewed studies overcame this limitation by employing a wide range of theories. On the other hand, most of these theories are intra-or inter-personal in nature, partially explaining why most reviewed studies centered on micro-rather than macro-level factors. Future studies may test theories that integrate both micro-and macro-level factors in the study of intercultural adaptation, such as Kim's (2001) Integral Theory of Communication and Intercultural Adaptation.

Implications for Health Promotion Professionals and for International Students

Findings from this review can inform health promotion services and programs for international students in U.S. college campuses. To improve a specific adjustment outcome (e.g., depressive symptoms), campus health professionals may select and intervene on relevant factors summarized in this review. In a joint effort, multiple campus entities—the student counseling service, health center, international student office, academic programs, and the university's diversity office—need to address micro- and macro-level factors (e.g., stress, social interaction with Americans, perceived discrimination). Similarly, this review informs international students of the various factors that may influence their psychosocial adjustment. Students may focus on relevant factors to improve a particular outcome.

Limitations

Despite its contributions, this review had several limitations. First, we did not link individual studies' quality to their findings. This precludes conclusions regarding the impact of methodological quality on the confidence we can have on individual studies' findings. Second, we used statistical significance as a proxy measure for predictors' importance, which might have been better captured by effect sizes and their confidence intervals (*CI*s). A meta-analysis can overcome these limitations but can not be conducted because reviewed studies vary in a) operationalization of predictors and outcome variables and b) report of necessary statistics (e.g., R^2, Cohen's *d*, *CI*s). Finally, we only reviewed studies conducted in the United States. More reviews are needed to show which factors might be salient in other countries. We believe it is more appropriate

to review predictors by host countries, because countries differ culturally, politically, and economically, collapsing predictors across host countries might be less meaningful.

CHAPTER III

ACCULURATION AND PSYCHOSOCIAL ADJUSTMENT OF CHINESE

INTERNATIONAL STUDENTS:

EXAMINING MEDIATION AND MODERATION EFFECTS

Introduction

More international students pursue higher education in the United States than in any other country (Institute of International Education, 2008c). Pursuing U.S. undergraduate or graduate degrees presents unprecedented opportunities for personal development to international students, but also brings challenges inherent in any cross-cultural educational experience, such as academic, acculturative, and life stress, lack of social support, and low identification with the host culture (acculturation). These challenges may put international students at risk for depression and sociocultural adjustment difficulties (Ying and Liese, 1990, 1994; Leong, Mallinckrodt, & Kralj, 1990; Misra, Crist, & Burant, 2003; Constantine, Okazaki, & Utsey, 2004; Wang & Mallinckrodt, 2006).

International students from Asia may be at a higher risk for psychosocial adjustment difficulties as they tend to experience more psychological distress (e.g., depression) than U.S. domestic Caucasian students and more sociocultural difficulties or social stress than students from other parts of the world, as research evidence shows (Cheng, Leong, and Geist, 1993; Redmond & Bunyi, 1993; Poyrazli & Kavanaugh, 2006). The higher risk for adjustment difficulties among Asian international students

demands research leading to a better understanding (and ultimately facilitation) of these students' intercultural adaptation.

This study focused on acculturation and attempted to illuminate a few mechanisms through which acculturation affects psychosocial adjustment in a sample of Asian (specifically, Chinese) international students. Acculturation refers to the changes an individual experiences in behavior, values, knowledge, and cultural identity as a result of being in contact with another culture (B.S.K. Kim & Abreu, 2001). We focused on acculturation because it has been associated with a variety of mental health outcomes among Chinese/Taiwanese international students and other non-mainstream populations (Yoon, Lee, & Goh, 2008; Matsudaira, 2006, Koneru, Mamani, Flynn, & Betancourt, 2007; Wang & Mallinckrodt, 2006; Dao, Lee, & Chang, 2007). Acculturation is also relevant for Chinese international students because some of its dimensions may be difficult or take years to develop, considering the substantial differences in communication and social norms between U.S. and Chinese cultures (Yeh & Inose, 2003). By illuminating acculturation-adjustment linkages, we intended to highlight more points of intervention to improve adjustment outcomes.

<div align="center">Theoretical Framework</div>

Acculturation and Psychosocial Adjustment

Definitions of acculturation have evolved over the past century. In the 1930s, researchers defined acculturation as "those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact [with each other], with subsequent changes in the original culture patterns of either or both groups"

(Redfield, Linton, & Herskovits, 1936, p.149). Graves (1967) distinguished between group and individual level acculturation, the latter of which he termed "psychological acculturation." Psychological acculturation is the changes in group members' world view when they engage in continuous first hand contact with another culturally distinct group (Graves, 1967). Later research has expanded *domains* of psychological acculturation to include behavior, values, knowledge, and cultural identity (B.S.K. Kim & Abreu, 2001).

Alongside modifications in the definitions of acculturation, research has centered on acculturation's *dimensionality*. Current acculturation theory states acculturation occurs along two dimensions—toward the home culture and toward the host culture (Berry, Kim, Minde, & Mok, 1987; B.S.K. Kim, 2007). Berry and colleagues' four mode acculturation model helps explain how the two dimensions influence mental health (Berry, Kim, Minde, & Mok, 1987). The four acculturation modes or strategies they propose—integration, assimilation, separation, and marginalization—are created by combining either high or low levels of the two acculturation dimensions (B.S.K. Kim, 2007). When individuals are proficient in, and adhere to both their home and host cultures, they are said to choose the integration strategy. When they absorb the host culture but reject the home culture, they use the assimilation strategy. When they maintain the home culture but do not absorb the host culture, they choose the separation strategy. Finally, marginalization occurs when one rejects both the home and host culture. Integration has been theorized and found to associate with the best mental health outcomes, possibly because it allows people to "hold cultural norms that are functional

in both the U.S. and Asian cultures while being able to reconcile any conflicts that arise between the two cultural systems" (B.S.K. Kim, 2007, p. 143).

To capture the two acculturation dimensions, recent scholarship advocates for the bilinear perspective, which proffers identification with one culture does not necessarily lessen identification with the other culture (Miller, 2007). Bilinear models represent an important shift in the measurement of acculturation, as most previous studies on acculturation and mental health of non-mainstream populations have been based on unilinear models (Koneru, Mamani, Flynn, & Betancourt, 2007). Unilinear models assume adherence to one culture lessens adherence to the other culture (Miller, 2007). Research has shown bilinear models outperform unilinear models when describing Asian Americans' cultural orientation and predicting Chinese Canadians' personality (Abe-Kim, Okazaki, & Goto, 2001; Ryder, Alden, Paulhus, 2000).

In the context of international student adjustment, theorists have distinguished two outcomes of acculturation—psychological and sociocultural adjustment (Ward & Kennedy, 1994; Berry, 1997). These outcomes are also the domains of intercultural adaptation utilized in the international student adjustment literature (Ward & Kennedy, 1999). The domains are inter-related yet distinguished by their definitions and explanatory frameworks (Ward & Kennedy, 1999). Defined as "feelings of wellbeing and satisfaction," psychological adjustment is often operationalized as depression, one of the major concerns of international students who utilize university counseling services (symptoms include depressed mood, feelings of worthlessness, loneliness, and unfriendliness from others, etc.) (Searle & Ward, 1990, p. 450; Yi, Lin, & Kishimoto,

2003; Radloff, 1977). Psychological adjustment may be best explained by the stress and coping framework (Ward & Kennedy, 1999). On the other hand, sociocultural adjustment refers to "the ability to 'fit in', to acquire culturally appropriate skills and to negotiate interactive aspects of the host environment" (Ward & Kennedy, 1999, pp. 660-661). Measured by difficulties experienced in daily tasks, sociocultural adjustment may be best understood using social skills or culture learning paradigms (Ward & Kennedy, 1999).

Despite the advancement of acculturation theory toward bilinear models, only a few U.S. studies of international student adjustment have adopted bilinear acculturation models. These studies (Cemalcilar, Falbo, & Stapleton, 2005; Wang & Mallinckrodt, 2006), utilizing the same measurement tool (Acculturation Index; Ward and Kennedy, 1994), show adherence to the host culture is positively associated with both psychological and sociocultural adjustment, whereas adherence to the home culture is unrelated to either adjustment outcomes. To reflect the shift in acculturation theory/measurement toward bilinear models, the first purpose of this study was to utilize a bilinear acculturation instrument (Vancouver Index of Acculturation; Ryder, Alden, & Paulhus, 2000) to examine the relationship between acculturation and psychosocial adjustment in a sample of Chinese international students in the United States.

Another gap in research on acculturation and adjustment of international students is that studies tend to focus on the direct association between the two constructs (Rahman & Rollock, 2004; Cemalcilar, Falbo, & Stapleton, 2005; Atri, Sharma, & Cottrell, 2007). Only a few studies have further examined the mechanisms or indirect

processes underlying the acculturation-adjustment relationship (i.e., mediation and moderation) (Jung, Hecht, & Wadsworth, 2007; Wang & Mallinckrodt, 2006; Dao, Lee, & Chang, 2007). More investigations into these mechanisms could advance our understanding by answering two questions, "To what extent is the relationship due to intrinsic properties of acculturation or instrumental values brought about by acculturation via another variable (i.e., mediation effect) (Yoon, Lee, & Goh, 2008)? Under what condition or for whom (i.e., level of another variable) acculturation has the strongest influence (i.e., moderation effect)? The second purpose of this study, therefore, was to address the gaps regarding mechanisms through which acculturation influence adjustment, by examining the potential mediating and moderating roles of social interaction and social connectedness with host nationals (see section below for elaboration on these constructs). Appendix B1 presents this study's major conceptual model.

Social Interaction and Social Connectedness with Host Nationals as Mediators

Social interaction with host nationals may include having conversations or doing activities with host nationals, such as having meals, playing sports, collaborating in class work or community activities. Research shows the more international students in the United States interact with Americans, the better they adjust socioculturally (Li & Gasser, 2005; Ying & Han, 2006). Both the Intergroup Contact Theory (Allport, 1954; Pettigrew, 2008) and the culture learning approach (Ward, Bochner, & Furnham, 2001) help explain the positive association.

Intergroup Contact Theory states direct contact between two distinct groups reduces mutual prejudice, when facilitated by optimal contact conditions—equal status within contact situations, pursuit of common goals, intergroup cooperation, support of authorities or law, and opportunities for participants in contact situations to become friends (Allport, 1954; Pettigrew, 2008; Pettigrew & Tropp, 2006). Such contact lays the ground for effective communication, which contributes to increased knowledge, a truer set of beliefs, respect for the other group and may ultimately reduce stereotypes and prejudice toward the other group (Allport, 1954).

The same mechanisms through which intergroup contact reduce prejudice may apply to international students' psychosocial adjustment. Through first hand social interactions with each other, both international students and Americans can gain more knowledge and sounder beliefs about each other, developing mutual respect and understanding. When international students understand Americans and the U.S. culture better and feel more understood, they may experience less emotional strain due to misunderstandings that occur when living in a new culture.

Additionally, cultures differ in communication patterns—polite usage (e.g., direct or indirect expression of opinions), conflict resolution (e.g., voicing disagreement), gaze and bodily contact, rules and conventions (e.g., punctuality), according to the culture learning approach (Ward, Bochner, & Furnham, 2001). Social interaction with host nationals provides opportunities for international students to learn these different communication patterns first hand (through observation, practice, receiving feedback), thus facilitating sociocultural adjustment.

Whereas social interaction with host nationals centers on the actual contact *situation*, characteristics of the *self* undergoing social interactions also plays a role in the consequences of intercultural contact (Allport, 1954). An attribute of the *self* related to social interaction is social connectedness (Lee & Robins, 2001). Lee and Robins (1998) posed social connectedness as the subjective awareness of being in close relationship with the social world and reflects an internal sense of belonging to that world (Lee & Robins, 1998). An individual develops the sense of connectedness by internalizing experiences of interpersonal closeness with family, friends, peers, acquaintances, strangers, communities, and society (Lee & Robbins, 1995). As a social lens with which people perceive the world, social connectedness guides feelings, thoughts, and behaviors, especially in social situations (Lee & Robbins, 1998). It allows people to feel comfortable and confident in the larger social context and identify with others who may be perceived as different from themselves (Kohut, 1984).

Research has shown individuals with high social connectedness are less likely to experience mental health and interpersonal behavioral problems, such as social avoidance and distress, depression, and dysfunctional interpersonal behavior (Lee & Robbins, 1998; Lee, Draper, & Robbins, 2001). Lee and Robbins (1995) reasoned people with high social connectedness can effectively manage their feelings and needs and are thus less prone to anxiety and depression. Individuals exhibiting high social connectedness also have a stronger sense of interpersonal trust, enabling them to participate with others in social opportunities, which might in turn strengthen connectedness.

These properties of social connectedness may also apply to international students as they adapt to life in the United States. International students with greater social connectedness with Americans may feel more comfortable during intercultural communication and more easily identify with Americans whose culture differs from their own. The greater sense of connectedness may make the students more open to learning American culture, perspectives, and appropriate social skills, facilitating sociocultural adjustment. It may also enable students to develop intercultural friendship or social support, which can contribute to psychological adjustment.

Previous research has shown both a) social interaction with host nationals and b) social connectedness with host nationals mediate the associations between various predictors and psychosocial adjustment among Asian international students and Asian Americans. Li and Gasser (2005) reported social interaction with host nationals mediated the relationship between cross-cultural self-efficacy and sociocultural adjustment among Asian international students. Yoon, Lee, and Goh (2008) found social connectedness with mainstream U.S. society partially mediated the association between adherence to the U.S. culture and subjective wellbeing among Korean Americans. Taking into account both a *situation*-based construct (social interaction with Americans) and a *self*-based construct (social connectedness with Americans), this study more comprehensively investigates the mediating roles of intercultural-contact-related constructs for international student adjustment.

We hypothesize social interaction and social connectedness with host nationals separately mediate linkages between adherence to the host culture (acculturation

dimension) and psychosocial adjustment among a sample of Chinese international students in the U.S. International students who adhere to the U.S. culture to a greater extent tend to enjoy social activities with Americans, feel comfortable working with Americans, believe in most American values, and recognize the importance of developing American cultural practices. The propensity toward U.S. culture may make the students experience greater social interactions with Americans and feel more connected to the U.S. society, which in turn, may improve psychosocial adjustment (See Appendix B1).

Social Interaction and Social Connectedness with Host Nationals as Moderators

Berry, Kim, Minde, and Mok (1987) proposed five classes of factors moderating the relationship between acculturation and mental health among minority populations (e.g., immigrants, Native peoples, and international students): 1) nature of the larger society; 2) type of acculturating group; 3) modes of acculturation; 4) demographic and social characteristics of individuals; and 5) individuals' psychological characteristics. Berry et al. (1987) categorized social interaction with host nationals under the fourth class. We believe social connectedness with host nationals—an attribute of the self, belongs to the fifth class. Although our theoretical reasoning presented so far supports the mediating rather than the moderating role of these two constructs, we would like to test whether the theorized moderation effects exists.

In summary, our theoretical framework generated the following hypothesis:

H1: Adherence to the *home culture* is negatively associated with depression.

H2: Adherence to the *host culture* is negatively associated with depression.

H3: Social interaction with Americans mediates the association between adherence to the *host culture* and depression.

H4: Social connectedness with Americans mediates the association between adherence to the *host culture* and depression. (Panel A in Appendix B1 presents H1-H4.)

H5: Adherence to the *home culture* is negatively associated with sociocultural adjustment difficulties.

H6: Adherence to the *host culture* is negatively associated with sociocultural adjustment difficulties.

H7: Social interaction with Americans mediates the association between adherence to the *host culture* and sociocultural adjustment difficulties.

H8: Social connectedness with Americans mediates the association between adherence to the *host culture* and sociocultural adjustment difficulties. (Panel B in Appendix B1 presents H5-H8.)

H9: Social interaction or social connectedness with Americans moderates the associations between acculturation (two dimensions) and psychosocial adjustment. (H9 is not presented in Appendix B1 for clarity purposes.)

<div align="center">Methods</div>

Sample

This study's sample design comprised a non-probability sample of 508 Chinese international students who responded to a web-based survey. Participants were pursuing undergraduate or graduate degrees in the Spring 2009 semester at four universities in Texas—Texas A&M University at College Station (TAMU), The University of Texas at

Austin (UT), University of Houston (UH), and Rice University (RICE). The mean age of the participants was 26.19 years (SD=3.75). The majority of participants were male (56.5%), single (61.8%), held an F-1 (i.e., student) visa (92.5%), were pursuing a doctorate (62.8%), had been in the United States between four months and two years (52.1%), and were receiving financial support from the U.S. university they were attending (72.8%). Appendix B2 presents participants' complete demographic profile.

Procedures

The first author recruited participants through emails (providing the link to survey)—one initial invitation (sent in week 1) and two reminders (sent to non-responders in weeks 2 and 3) (Dillman, Smyth, & Christian, 2009). Email address lists of all currently enrolled Chinese international students were requested from the four universities' Registrar's offices, although not all universities were able to provide the list, due to their regulations. Whenever the list was obtained, the first author sent personalized recruitment emails. Otherwise, the university's international student and scholar service offices sent the recruitment emails (blanket) to Chinese international students on their listservs on behalf of the first author.

As an incentive, we offered participants the option of entering into a drawing for one of four iPod Shuffles. Interested participants would leave their email addresses on a separate web page after submitting the survey. Prior to launching the survey, we pretested and refined all items, instructions, and survey layout through individual cognitive interviews with 10 Chinese international students (Dillman, Smyth, and Christian, 2009).

Measures

The following provides a brief description of each measure. Factorial validity of data in the present study is good and can be found in Appendix B3.

Acculturation. We adapted the Vancouver Index of Acculturation (VIA; Ryder, Alden, & Paulhus, 2000) to measure acculturation. We selected the VIA because it represents bilinear acculturation models (Berry et al., 1987) by independently assessing two dimensions of acculturation—identification with the home culture (labeled as "Acculturation dimension 1: adherence to the home culture" in Appendix B1) and identification with the host culture (labeled as "Acculturation dimension 2: adherence to the host culture" in Appendix B1). Each dimension, measured by 10 items, receives a total score. Items tap content areas such as values, social relationships, and adherence to traditions. We adapted the VIA by using a 6-point Likert scale (as opposed to the original 9-point scale) and fine-tuned the wording of certain items. The VIA performed adequately with Chinese and East Asian undergraduate students in Canada in previous research (Cronbach's α ranged from 0.85-0.92) (Ryder, Alden, & Paulhus, 2000). Cronbach's α was 0.86 for the home culture dimension and 0.80 for the host culture dimension in this study.

Social interaction with host nationals. We adapted items from the Intergroup Contact Scale (ICS; Islam & Hewstone, 1993) to measure social interaction with host nationals. We chose the ICS because it is based on Intergroup Contact Theory (Allport, 1954) and is one of the few multi-item instruments measuring intergroup social interactions for which data's psychometric properties have been reported (Islam &

Hewstone, 1993; Li & Gasser, 2005). The nine ICS items in this study measure two

dimensions of social interaction with host nationals: quantity and quality. We adapted

the ICS by fine-tuning items' wording and defining Likert scale levels for each item,

helping participants quantify their experience (e.g., *Very often* for the "how often did

you have informal conversations with Americans" item was defined as "averaging 4 or

more times everyday"). Previous research demonstrated high internal consistency of ICS

data among Asian international students in the United States (Cronbach's α was 0.91)

(Li & Gasser, 2005). Cronbach's α was 0.83 in the current study.

Social connectedness with host nationals. We modified items from the Social

Connectedness Scale—Revised (SCS-R; Lee, Draper, & Lee, 2001) to assess social

connectedness with Americans. The SCS-R measures a person's opinion of the

emotional distance or connectedness between the self and others, including friends and

society (i.e., Americans in this study). We selected eight items with high pattern

coefficients in Lee, Draper, and Lee's (2001) study and rephrased certain items to be

more understandable to our participants. Cronbach's α was 0.93 and 0.94 for

international students in previous U.S. studies (Yeh & Inose, 2003; Duru & Poyrazli,

2007). Cronbach's α was 0.87 in the current study.

Depression. To measure depression, we utilized the Center for Epidemiological

Studies Depression Scale (CES-D; Radloff, 1977). We chose the CES-D because 1) it is

one of the most frequently used depression instruments (non-diagnostic) that have

yielded reliable and valid data (Bieling, McCabe, & Antony, 2004) and 2) it has been

utilized in studies of Chinese, Taiwanese, and Asian international students in the United

States (Ying & Liese, 1990; Dao, Lee, & Chang, 2007; Wei, Heppner, Mallen, et al.,

2007; Wei, Ku, Russell, Mallinckrodt, & Liao, 2008). The CES-D asks respondents to

indicate how often they had experienced certain feelings during the past week. Our data

analysis used 19 of the 20 *CES-D* items because exploratory factor analysis revealed one

item performed poorly in our sample due to possible misinterpretation by participants.

Internal consistency (Cronbach's α) of CES-D data in previous studies of

Chinese/Taiwanese/Asian international students ranged from 0.82 to 0.92 (Ying & Liese,

1990; Dao, Lee, & Chang, 2007). Cronbach's α was 0.90 in this study.

  Sociocultural adjustment difficulties. To assess sociocultural adjustment

difficulties, we modified the Sociocultural Adaptation Scale *(*SCAS; Ward and Kennedy,

1999) by selecting and adapting items most relevant to our sample. We chose the SCAS

because it is theoretically grounded in the sojourner adjustment framework (Ward &

Kennedy, 1999) and has been used in U.S. studies of Chinese/Taiwanese/Asian

international students (Wang & Mallinckrodt, 2006; Oguri & Gudykunst, 2002; Li &

Gasser, 2005). SCAS (21 items in this study) asks respondents to indicate the amount of

difficulty they experience in a number of areas (e.g., social situations or food). Previous

studies of Chinese/Taiwanese/Asian international students reported high internal

consistency of SCAS data (Cronbach's α ranged from 0.87 to 0.95) (Wang &

Mallinckrodt, 2006; Oguri & Gudykunst, 2002; Li & Gasser, 2005). Cronbach's α was

0.90 in this study.

Results

Addressing Missing Data and Regression Assumptions

We determined the final sample size (*N*=508) after addressing missing data and multivariate normality. The amount of missingness in our data was small—not more than 1.5% of values were missing across all scaled variable items (Tabachnick and Fidell, 2007). To address missing data, we removed participants (*n*=17) who missed 30% or more of scaled variable items from the sample and used item-mean substitution (IMS) to impute the remaining missing values. We chose IMS because previous studies have shown when the amount of missing data is less than 10%, IMS reproduces datasets as accurately as other imputation methods (e.g., multiple imputation) across various missing patterns (Shrive, Stuart, Quan, & Ghali, 2006; Bono, Ried, Kimberlin, & Vogel, 2007; Downey and King, 1998).

After removing five additional participants (multivariate outliers), our data exhibited multivariate normality (Stevens, 1986; Thompson, 1990). The data also exhibited univariate normality, with skewness and kurtosis of all scaled variables ranging between -1 and 1.

Hypotheses Testing for Depression

To test hypothesis H1, we ran a simple and a multiple regression analyses (regressing depression on four predictors, i.e., adherence to the home culture, adherence to the host culture, social interaction, and social connectedness, the latter three of which served as control variables for they all had zero-order correlations with depression [*p*<0.001]; Appendix B4). We interpreted results by considering both standardized

regression coefficients (β) and the squared structure coefficients (r_s^2), following

Thompson's (2006) guidelines.[1] The hypothesis was supported by the simple regression

(β = r = -0.211, r_s= -1, p<0.001; Appendix B4) and the multiple regression analysis (β= -

0.222, p<0.001, r_s= -0.522; Appendix B5, Model 5).

To test hypothesis H2, we ran a simple regression and a multiple regression

analysis (regressing depression on four predictors, i.e., adherence to the host culture,

adherence to the home culture, social interaction, and social connectedness, the latter

three of which served as control variables for they all had zero-order correlations with

depression [p<0.001]; Appendix B4). The standardized regression coefficient was

statistically significant in the simple regression (β = r = -0.242, r_s= -1, p<0.001;

Appendix B5, Model 1); however, it reduced in size and was no longer significant in the

multivariate regression (β= -0.046, p= 0.362, r_s= -0.599; Appendix B5, Model 5). The

dramatic reduction in β for adherence to the host culture, from Model 1 to Model 5,

indicates potential mediators linking adherence to the host culture and depression.

Hypotheses tests for H3 and H4 would reveal the mediation effects in question here.

Considering both the standardized regression coefficient and the structure coefficient

(size was among the largest of the four predictors and the sign was negative; Appendix

B5, Model 5), we determined H2 was supported.

In addition, β and r_s^2 of the four predictors in Model 5 (Appendix B5) indicate all

four predictors were important for explaining the predicted depression scores, with

social connectedness with Americans accounting for the largest percent of *explained*

variance in depression (r_s^2 = 67.08%), followed by adherence to the host culture (r_s^2 =

35.88%), social interaction with Americans ($r_s^2 = 28.62\%$) and adherence to the home

culture ($r_s^2 = 27.25\%$).

To test hypothesis H3, we ran simple and multiple regressions to examine

whether our data met all four of Baron and Kenny's (1986) criteria (predictor is

associated with dependent variable; predictor is associated with mediator; mediator is

associated with dependent variable; when regressing the dependent variable on both the

predictor and mediator, the β for the predictor diminishes). Our data did not meet the

first criteria, as the standardized regression coefficient for adherence to the host culture

was not statistically significant and was very small (β = -0.040, p = 0.413, r_s = -0.599;

Appendix B5, Model 4), after controlling for the effects of adherence for the home

culture and social connectedness. The small and insignificant β showed there was no

direct association left for social interaction to mediate after the statistical control.

Therefore, our data did not support hypothesis H3.[2]

We followed the same procedure (in testing H3) to test hypothesis H4. Social

connectedness with Americans met all four criteria and fully mediated the association

between adherence to the host culture and depression—β for adherence to the host

culture nearly reduced to zero and was no longer statistically significant, reducing from -

0.143 (p= 0.004, r_s= -0.749) to -0.046 (p= 0.362, r_s= -0.599) (Appendix B5, Models 3

and 5), while we controlled for the effects of adherence to the home culture and social

interaction with Americans on depression. Sobel test (Preacher & Leonardelli, 2006)

verified the mediation effect (test statistic= -6.875, p <0.001). H4, therefore, was

supported.

Hypotheses Testing for Sociocultural Adjustment Difficulties

Results of a simple regression showed Chinese international students' adherence to their home culture was not associated with sociocultural adjustment difficulties ($\beta = r$ = -0.078, r_s =-1, p=0.079; Appendix B6). We did not further run a multiple regression because of the insignificant bivariate correlation and the small β and Pearson r. H5 did not receive support.

To test hypothesis H6, we ran simple and multiple regressions (regressing depression on three predictors: adherence to the host culture, social interaction with Americans, and social connectedness with Americans, all with zero-order correlations with the dependent variable [p<0.001]; Appendix B4). Both the simple regression ($\beta = r$ = -0.420, r_s= -1, p<0.001) and the multiple regression (β= -0.203, p<0.001, r_s= -0.794; Appendix B6, Model 4) supported H6. The more Chinese international students adhered to the American culture, the less sociocultural adjustment difficulties they experienced.

Further, β and r_s^2 in Model 4 (Appendix B6) indicated all three predictors were important for explaining sociocultural adjustment difficulties, with social connectedness with Americans accounting for the largest percentage of *explained* variance in sociocultural adjustment difficulties ($r_s^2 = 82.26\%$), followed by adherence to the host culture ($r_s^2 = 63.04\%$) and social interaction with Americans ($r_s^2 = 63.04\%$). The fact that β for adherence to the host culture reduced to half its size from Model 1 to Model 4 (Appendix B6) indicates other variables may have mediated adherence to the host culture's effect on sociocultural adjustment difficulties. The following hypothesis tests revealed more insights on the mediation effects in question here.

To test hypothesis H7, we repeated Baron and Kenny's (1986) procedures (i.e., criteria used in testing H3 and H4), while controlling for the effect of social connectedness with Americans. Social interaction partially mediated (i.e., β reduced in size but is still statistically significant from 0) the association between adherence to the host culture and sociocultural adjustment difficulties—β for adherence to the host culture reduced from -0.233 (p<0.001, r_s= -0.808) to -0.203 (p<0.001, r_s= -0.794) (Appendix B6, Models 3 and 4). Sobel test verified the mediation effect (test statistic= -8.113, p <0.001). H7 was, therefore, supported.

Following the same procedures, we found social connectedness partially mediated the association between adherence to the host culture and sociocultural adjustment difficulties—β for adherence to the host culture reduced from -0.280 (p<0.001; r_s= -0.866) to -0.203 (p<0.001; r_s= -0.794) (Appendix B6, Models 2 and 4), while the effect of social interaction with Americans on sociocultural adjustment difficulties was controlled. Sobel test verified the mediation effect (test statistic= -9.199, p <0.001). H8 was, therefore, also supported.

Moderation Effects

To test hypothesis H9, we followed Aiken and West's (1991) and Cohen, Cohen, West, and Aiken's (2003) recommendations. We first applied the centering technique to the raw scores of all predictors (i.e., two dimensions of acculturation, social interaction, and social connectedness), then created 4 two-way interaction terms using the centered scores. Only one interaction term had a statistically significant association with adjustment outcomes—"adherence to the home culture x social interaction with

Americans" correlated with depression ($r = 0.111$, $p=0.012$). Adding this interaction term to variables in the main effects model (Model 5; Appendix B5) (but running the regression with standardized scores as Cohen et al. recommended), we found the interaction effect was statistically significant at the $p<0.01$ level ($\beta= 0.118$, $p=0.002$, $r_s=$ 0.262) and represented an 8.28% increase in adjusted R^2 over the main effects model.

To probe the interaction, we plotted simple regressions of the dependent variable on the independent variable (i.e., adherence to the home culture) at two values of the moderator (i.e., social interaction with Americans): 1 standard deviation above and below the mean of the moderator. Only one simple slope (i.e., slope of a simple regression) was significantly different from zero: for Chinese international students with relatively low levels of social interaction with Americans (1 *SD* below the average level), the more they adhered to the Chinese culture, the less depressed they felt ($\beta= -0.313$, $r_s= -1$, $p<0.001$); however, for students who interacted with Americans at high levels, how much they adhered to the Chinese culture was not associated with their depression ($\beta = -0.100$, $r_s= -1$, $p=0.087$).

Discussion

This study was the first to illuminate mechanisms linking acculturation and psychosocial adjustment among Chinese international students in the United States by examining the mediating and moderating roles of social interaction and social connectedness with host nationals. Our first major finding was social connectedness with Americans mediated the links between adherence to the host culture and psychosocial adjustment—full mediation for depression and partial mediation for sociocultural

adjustment difficulties. It seems the more Chinese international students adhere to the U.S. culture, the more they are likely to feel connected with Americans and the U.S. society. A greater sense of social connectedness may facilitate the management of emotional strains and mastery of U.S. sociocultural skills.

The mediation finding related to depression is consistent with Yoon, Lee, and Goh's (2008) study on Korean Americans, whose social connectedness with the mainstream U.S. society partially mediated the link between adherence to the host culture and subjective wellbeing. Since we were the first to examine the mediating role of social connectedness for the adherence to the host culture-sociocultural adjustment linkage, future studies are needed to establish external validity of our results.

In addition to its mediating role, social connectedness with Americans also had a large independent association with both psychosocial adjustments, in our sample. In fact, it accounted for the largest portion of *explained* variance among all predictors in this study (r_s^2 was 67.08% for depression and 82.26% for sociocultural adjustment difficulties). Our results indicate social connectedness with Americans holds potential as an important factor in the psychosocial adjustment of Chinese international students and deserves further careful study.

The second major finding of this study speaks to the crucial role of adherence to the home culture for Chinese international students who do not interact with Americans frequently or intensively. Our moderation analysis shows students who simultaneously rejected the Chinese culture and had little social interaction with Americans had the highest depression level. Detached from both the home and host cultures, these

individuals may be in a state similar to "marginalization"—possibly the most problematic acculturation mode (Berry, Kim, Minde, & Mok, 1987; B.S.K. Kim, 2007). Therefore, it may be imperative for college health promotion professionals to encourage continued participation in, and adherence to, the home culture as a resource against depression among Chinese international students who have relatively low levels of social interaction with Americans.

Previous studies on international students in the U.S. did not find adherence to the home culture to be associated with depression (Wang & Mallinckrodt, 2006; Cemalcilar, Falbo, & Stapleton, 2005). We found an association possibly because our sample had less social interaction with host nationals than those in previous research. In other words, the difference in the amount and depth of social interaction with host nationals across samples may account for this inconsistent finding, considering the protective effect of the home culture dimension of acculturation manifested itself only in participants with low levels of intercultural interaction in our study. Our finding further supports the importance of examining moderation effects. Moreover, our use of a different acculturation measurement instrument may also have played a role in this inconsistency. More research in this direction is needed before a solid conclusion can be reached. Meanwhile, our results on the associations between the host culture dimension of acculturation and psychosocial adjustment is in line with previous studies (Wang & Mallinckrodt, 2006; Cemalcilar, Falbo, & Stapleton, 2005).

Implications for Theory

The aforementioned findings confirmed theories of acculturation and sojourner psychosocial adjustment. First, utilizing a bilinear acculturation model, we found the two acculturation dimensions differed in their associations with psychological and sociocultural adjustments. These differences would not have been captured had we adopted a unilinear model.

Second, our moderation and mediation investigations show the acculturation-psychosocial adjustment linkages fit within an interconnected set of relationships predicted by theory (Aneshensel, 2002). The mediation effects were explained by theories on social connectedness (Lee, Draper, & Lee, 2001) and the moderation effect was supported by theories on acculturation—the five classes of moderators and the four modes of acculturation (Berry, Kim, Minde, & Mok, 1987). These theoretical works supported our findings and we, in turn, confirmed theories by observing relationships they predicted.

Some other findings from this study, however, offered mixed-evidence for Ward and colleagues' sojourner adjustment framework (Ward & Kennedy, 1999), the most frequently cited theoretical work by U.S. studies of international student adjustment (Chapter II). Our findings show social connectedness with host nationals, adherence to the host culture, and social interaction with host nationals explained both adjustment domains (psychological and sociocultural), whereas by Ward and colleagues' categorization, they should be relevant only for one domain. The sojourner adjustment framework states psychological adjustment is predicted by factors such as personality,

life changes, and social support whereas sociocultural adjustment is affected by factors such as the amount of interactions with host nationals, acculturation strategies, and length of residence in the host culture (Ward & Kennedy, 1999).

Our finding is consistent, nonetheless, with a systematic literature review of 64 U.S. studies on international student adjustment that found a number of factors predicted both adjustment domains (e.g., English language proficiency, length of residence in the U.S., acculturation, self efficacy, attachment patterns, and self construal) (Chapter II). Therefore, we join other researchers (Furnham & Erdman, 1995; Oguri & Gudykunst, 2002) in calling for a revision of the sojourner adjustment framework to address the shared elements underlying both adjustment processes. We believe the revised framework would better reflect empirical evidence and open doors to re-integration of theories in explaining sojourner adjustment (Goodson, 2010).

Implications for Practice

To facilitate psychosocial adjustment of Chinese international students, efforts from both the Chinese international students and U.S. universities are essential. Chinese international students should actively participate in both their home and the U.S. cultures (Ying & Liese, 1991; Lin & Yi, 1994). Meanwhile, an open campus culture with an inclusive attitude toward cultural diversity is necessary for international students to successfully pursue the integration strategy (Berry, 1997). Collaborative efforts among various campus entities (e.g., academic programs, international student offices, counseling centers, health services) are needed to provide a receptive climate that reduces discrimination and increases awareness of the needs of the international students

on the part of the American students, faculty, and staff (Chapter II; Wei, Ku, Russell, Mallinckrodt, & Liao, 2008; Jacob & Greggo, 2001).

Research suggests programs that a) inform international students of the U.S. culture and of the intercultural adjustment process (Lin & Yi, 1994), b) pair international students with American peers (Abe, Talbot, & Geelhoed, 1998), or c) engage international students in enduring and meaningful social activities with Americans (Jacob & Greggo, 2001) might facilitate the intercultural adaptation of these students. We believe such programs also provide the medium for fostering social connectedness with Americans, which was shown in this study to carry the protective effect of adherence to the host culture to psychosocial wellbeing. Such programs are needed in more U.S. universities to promote international students' adaptation.

Limitations and Future Studies

Despite its significant contributions, this study suffered from several limitations. First, we utilized a non-probability sample. Our results cannot be generalized to all Chinese international students in the U.S. or to international students of other nationalities, before they are replicated in these populations. Second, we were not able to make causal statements based on our cross-sectional design. Future studies employing longitudinal designs are needed to show whether our focal predictors (and the mediation and moderation processes) were responsible for the *change* in psychosocial adjustment. The *change* in psychosocial adjustment over time is more informative for interventions than the absolute adjustment level at a given time (Ying & Liese, 1991). Finally, focusing exclusively on intrapersonal and interpersonal variables, we did not consider

macro-level factors. Factors at both the macro-level (e.g., ethnic group strength and host receptivity) and micro-level (e.g., attitude toward host country, personal relationships with hosts) need to be addressed to achieve a full understanding of the sojourner adjustment processes (Kim, 2001; Wang & Mallinckrodt, 2006). Ying and Han (2008) found the same construct (e.g., affiliation with Americans) predicting sociocultural adjustment on campuses of moderate co-ethnic density did not predict sociocultural adjustment on campuses of high co-ethnic density. Future studies are needed to provide a macro-level context of this study's focal relationships.

Notes

[1] Thompson (2006) asserts thoughtful interpretation of multiple regression results involves interpretation of both the standardized regression coefficient (β) and the squared structure coefficient (r_s^2). The interpretation of β alone is not sufficient to evaluate a predictor's role in the dependent variable, because β is context-specific to a particular set of predictors and is influenced by the correlations among the predictors. This "context specific" nature of β makes it "not useful" in evaluating the importance of a predictor for the dependent variable. Beta (β) represents the number of standard deviation units of change in the predicted dependent variable scores, given 1 standard deviation unit of change in the predictor, and given the context of a particular set of predictors. The squared structure coefficient (r_s^2), on the other hand, is not influenced by the correlations among predictors: $r_s^2 = (\text{Pearson } r/\text{Multiple } R)^2$. It indicates the proportion of *explained* variance in the dependent variable explained by a particular predictor. A predictor can account for a large percent of explained variance in the predicted dependent variable (r_s^2), showing high explanatory value, and yet have a near zero β. Therefore it is important to consider both the β and r_s^2 in interpreting results.

[2] The structure coefficient (β) for social interaction in Model 5 of Appendix B5 was positive, due to the moderate correlation among the predictors. However, we do not regard the reversed β sign as a problem because multicollinearity among predictors is only a problem when we base our interpretation exclusively on β (Thompson, 2006).

CHAPTER IV

CONCLUSIONS

The purpose of this dissertation was two-fold: a) to systematically review predictors of international students' psychosocial adjustment to life in the United States and b) to examine mechanisms through which acculturation influences psychosocial adjustment in a sample of Chinese international students. Specifically, the mechanisms being tested were the mediating and moderating effects of social interaction and social connectedness with host nationals upon the acculturation-adjustment linkages.

The two studies presented in this dissertation validate and support each other. Chapter II (the systematic literature review) informed Chapter III (the study on acculturation and psychosocial adjustment) in the selection of focal variables, examination of mediation and moderation effects, and methodological quality issues, such as the employment of theoretical frameworks and reporting of data's psychometric properties. Results from Chapter III, in turn, supported and validated those of Chapter II.

For instance, in Chapter II, I found a number of factors (e.g., acculturation and English proficiency) predicting both adjustment domains, at times with equal strength. Chapter III showed adherence to the host culture (acculturation dimension), social connectedness with host nationals, and social interaction with host nationals predicted both adjustment domains. These results fall in line with each other and jointly contribute to theory development by calling for a revision in the sojourner adjustment framework (Ward & Kennedy, 1999) to address the shared elements underlying both adjustment

domains (i.e., psychological and sociocultural). The revised framework would better reflect empirical evidence and open doors to re-integration of theories (Goodson, 2010) to explain sojourner adjustment.

Furthermore, by addressing several areas of future research pointed out by Chapter II, Chapter III confirmed and elaborated existing theories. More specifically, by utilizing a bilinear acculturation measurement model/tool and investigating mediating and moderating processes, Chapter III confirmed theories on acculturation, social connectedness, intergroup contact, and culture learning by observing relationships predicted by the theories (Berry, Kim, Minde, & Mok, 1987; Lee, Draper, & Lee, 2001; Pettigrew, 2008; Ward, Bochner, & Furnham, 2001). The mediation effect of social connectedness with Americans upon the acculturation-psychosocial adjustment found in Chapter III also elaborated parts of the acculturation and social connectedness theories which have not been fully examined before, contributing to theory development.

Future studies on international student adjustment can benefit from addressing the directions pointed out by this dissertation. More studies are needed to a) examine macro-level factors and currently under-investigated micro-level factors that deserve more careful study, b) test theories that integrate micro- and macro-level factors, and c) examine mediation and moderation effects. Future studies will also benefit by addressing methodological quality dimensions, such as the employment of longitudinal designs and use of comparison groups. Addressing these dimensions is crucial for achieving a clearer understanding of international student adjustment and for the development of evidence-based interventions that promote international students' psychosocial wellbeing.

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    246-255.

APPENDIX A1

Criteria for Assessing 64 Reviewed Studies' Methodological Quality and Distribution of Reviewed Studies Meeting the Criteria

	Criterion	Description	Score	Distribution of reviewed studies meeting criteria	
				Frequency (n)	Percent (%)
1	Theoretical framework	Presented explicit theoretical framework	2	25	39.1
		Presented implicit theoretical framework	1	28	43.8
		Did not present a theoretical framework	0	11	17.1
2	DV Validity	Reported validity coefficients for DV of own data	1	14	21.9
		Did not report any validity coefficients for DV	0	50	78.1
3	DV Reliability	Reported reliability coefficients for DV of own data	1	50	78.1
		Did not report any reliability coefficients for DV	0	14	21.9
4	IV validity or reliability	Reported validity or reliability coefficients for IV of own data	1	56	87.5
		Did not report any validity coefficients for IV	0	8	12.5
5	Sample size	Had fewer than 100 international students	1	48	75.0
		Had 100 or more international students	0	14	25.0
6	Design (1)	Longitudinal	1	12	18.8
		Cross sectional	0	52	81.2
7	Design (2)	Compared students of different countries/regions	1	11	17.2
		Did not compare students of different countries/regions	0	53	82.8
8	Data analysis (highest level)	Multivariate statistics(canonical correlation analysis, discriminant function analysis, path analysis, structural equation modeling, MANOVA, MANCOVA)	2	17	26.6
		Multiple regression, ANOVA, ANCOVA	1	43	67.2
		Bivariate statistics (Pearson r, t tests)	0	4	6.2
9	Effect size	Reported effect sizes (R^2, Cohen's d, eta^2, percent of variance accounted for)	1	54	84.4
		Did not report effect sizes	0	10	15.6
		Total possible score	11		

Note. IV = Independent Variable, DV = Dependent Variable. Explicit theoretical framework = Presented an explicit theoretical framework by using existing theories to guide the selection of IVs and DVs. Implicit theoretical framework = Although not utilizing existing theories as study's guiding principles, provided sufficient logical reasoning to explain why IVs and DVs should connect.

Matrix of 64 Reviewed Studies, Their Findings and Methodological Quality Indicators/Scores (MQS)

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
1	Leong, Mallinckrodt & Kralj (1990)	Asian grad stud. N=75 Caucasian stud. N=129	Physical health complaints: Proxy Measure of Health Status (Kisch, Kovner, Harris, & Kline, 1969) Psychological health: Bell Global Psychopathology Scale (Schwab, Bell, Warheit, & Schwab, 1979) Life stress: 48 items adapted from the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978)	NO	Cross sectional; Caucasian comparison group	ANOVA, MANOVA	Life stress, race (Caucasian vs. Asian)	4
2	Ying & Liese (1990)	Taiwanese grad stud. N=172	Depression: CES-D (Radloff, 1977) Adjustment: 3 author-constructed items	IM Authors developed own multidimensional adjustment model	Longitud.	Hierarch. and stepwise regression	Predicting depression: Pre-arrival depression level, TOEFL, anticipated interpersonal difficulty, pre-arrival self assessed English ability, feminine tendency of personality (in men), anticipated academic problems (in women) Predicting [sociocultural] adjustment: Pre-arrival self assessed English ability, anticipated size of social support network, anticipated interpersonal difficulty, age, post-arrival depression level, feminine tendency of personality (in men), internality in personality (in men)	7

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
3	Ying & Liese (1991)	Taiwanese grad stud. N=171	Depression: CES-D (Radloff, 1977)	IM Authors developed own multidimensional adjustment model	Longitud.	Hierarch. and stepwise regression; discriminant function analysis	Predicting improved emotional wellbeing: Pre-arrival depression level, friendship with Chinese Predicting declined emotional wellbeing: Pre-arrival depression, home sickness problem, financial resource adequacy, SES Discriminants (predicting emotional wellbeing improvement/decline group membership): Pre-arrival depression, interpersonal problems, social support network, preparation level, academic problems	7
4	Chen (1992)	Foreign college stud. N=142	Sociocultural adjustment: Social Situations Questionnaire (Furnham & Bochner, 1982)	NO	Cross Sectional	Stepwise regression	Communication adaptability, interaction involvement (both are aspects communication abilities)	5
5	Mallinckrodt & Leong (1992)	Intl grad stud. N=106	Depression: Depression subscale of the Bell Global Psychopathology Scale (Schwab, Bell, Warheit, & Schwab, 1979) Anxiety: Anxiety subscale of the Bell Global Psychopathology Scale (Schwab, Bell, Warheit, & Schwab, 1979). Physical health complaints: Proxy-A Measure of Health Status (Kisch, Kovner, Harris, & Kline, 1969)	IM Adequate logical reasoning	Cross sectional; Caucasian comparison group	Correlation Regression	Predicting depression and anxiety: overall graduate program social support (for men), facilities and curriculum flexibility (for women), problems in living conditions and inadequate financial resources (family social support dimensions) (for women), gender Predicting physical health complaints: Relationship with faculty and facilities and curriculum flexibility (graduate program social support dimensions) (for men), problems in living conditions and inadequate financial resources (family social support dimensions) (for women), gender	6

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
6	Redmond & Bunyi (1993)	Intl grad & undergrad stud. N=631	Stress: 3 items (authors did not describe) Ability to handle stress [regarded as sociocultural adjustment in current review]: 6 items (authors did not describe)	EX Conceptualizations of intercultural communication competencies, Theory of social decentering, Ward and colleagues' sojourner adjustment framework	Cross sectional	Stepwise regression ANOVA	Predicting stress: Intercultural communication competence (adaptation, social decentering), country/region Predicting the handling of stress: Intercultural communication competence (communication effectiveness, social integration), country/region	8
7	Olaniran (1993)	Intl undergrad and grad stud. N=102	Cultural stress-relational: Adapted the Social Situation questionnaire (Furnham & Bochner, 1982) Cultural stress-assertive: Adapted the Social Situation questionnaire (Furnham & Bochner, 1982)	IM Fine logical reasoning	Cross sectional	Regression	Length of stay in US	6
8	Yang & Clum (1994)	Asian undergrad and grad stud. N=101	Depression: Zung's self rating depression scale (Zung, 1965)	IM Authors developed own conceptual/path model	Cross sectional	Stepwise regression, path analysis	Stress, loneliness, hopelessness, problem solving confidence Mediating effects: Social support mediated the association between stress and depression; hopelessness mediated the associations between a) problem solving deficits and depression and b)social support and depression	8
9	Ying & Liese (1994)	Taiwanese grad stud. N=172	Adjustment: 3 authors developed items	IM Authors developed own multidimensional adjustment model	Longitud.	Regression	Age, homesickness problem, control differential (decline vs. improvement), friendship with Americans, pre-arrival preparation level	6
10	Zimmerman (1995)	Intl. undergrad and grad stud. N=101	Adjustment: 1 author constructed item Satisfaction: 1 author constructed item	EX Model of intercultural communication competence	Cross sectional	Stepwise regression	Frequency of talking with American students	6

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
11	Cross (1995)	East Asian grad stud. N=71 American comparison group N=79	Perceived stress: 10 items from the Perceived Stress Scale (PSS, Cohen, Kamarck, & Mermelstein, 1983)	EX Theory on psychology of the self (collectivism/ individualism; interdependent/independe-nt self construals), Theory on stress and coping	Cross sectional; American comparison group	Path analysis, regression	Direct coping, country/region, interdependent self construal Mediating effects: Direct coping mediated the association between independent self construal and stress	8
12	Yang & Clum (1995)	Asian undergrad and grad stud. N=101	Depression: Zung's self rating depression scale (Zung, 1965)	IM Adequate logical reasoning	Cross sectional	Correlation regression	Stress and social support	7
13	Poyrazli, Arbona, Bullinton, & Pisecco (2001)	Turkish undergrad. And grad stud N=79	Adjustment strain: Inventory of student adjustment strain (ISAS; Crano & Crano, 1993)	NO	Cross sectional	Regression	Age and writing/reading English proficiency	3
14	Dao, Lee, & Chang (2007)	Taiwanese undergrad and grad stud. N=121	Depression: CES-D (Radloff, 1977)	IM Adequate logical reasoning	Cross sectional	Regression	Gender Note: We did not include other findings of this study in our review because the authors did not report regression coefficients for other findings.	6
15	Poyrazli, Arbona, Nora, McPherson, & Pisecco (2002)	Intl grad stud. N=122	Adjustment strain: Inventory of student adjustment strain (ISAS; Crano & Crano, 1993)	IM Adequate logical reasoning	Cross sectional	Hierarch. regression	Academic self efficacy, understanding proficiency in English, and assertiveness	6

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
16	Hechanova-alampay, Beehr, Christiansen, & Van Horn (2002)	Intl undergrad and grad stud. N=106 American comparison group N=188	Adjustment [sociocultural]: Adapted Black and Stephens' (1989) adjustment scale Strain [psychological adjustment] 12 items from CESD (Radloff, 1977); 12 other items derived from the Cultural Adaptation Pain Scale (Sandhu, et al., 1996)	IM Excellent logical reasoning	Longitud. (arrival, 3m, 6m); American comparison group;	ANCOVA correlation	Predicting both adjustment and strain: Country/region, amount of interaction with host nationals, self efficacy, length of stay in US	9
17	Oguri & Gudykunst (2002)	Asian undergrad and grad stud. N=175	Satisfaction: Modified an adjustment scale developed by Gao and Gudykunst (1990) and added 5 items Sociocultural adjustment: SCAS (Ward & Kennedy, 1999)	EX Ward and colleagues' sojourner adjustment framework, the "culture fit" model, the construct of the self--interdependent and independent self construals	Cross sectional	Regression	Predicting satisfaction: Independent self construal, feelings and sensitivity types of communication styles, indirect communication style Predicting sociocultural adjustment: Independent self construal, silence and sensitivity types of communication styles, indirect communication style	7
18	Tomich, McWhirter, & Darcy (2003)	Asian grad stud N=21 European grad stud N=15	Adaptation [sociocultural adjustment]: Inventory of Student Adjustment Strain (ISAS; Crano & Crano, 1993)	IM Adequate logical reasoning	Cross sectional; other intl. stud as comparison group	t test correlation	Country/region, personality (wellbeing, social presence, empathy, sociability, good impression, psychological mindedness, tolerance, capacity for status, achievement via independence, independence, responsibility, intellectual efficiency)	3
19	Swagler & Ellis (2003)	Taiwanese grad stud. N=67	Adaptation: Culture Shock Adaptation Inventory (CSAI; Juffer, 1983)	IM Excellent logical reasoning	Cross sectional	Regression	Communication apprehension about speaking English, social contact balance (with host-and co-nationals)	5

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
20	Misra, Crist, & Burant (2003)	Int. undergrad and grad stud. N=143	Academic stressors (secondary stressor): Student-Life Stress Inventory (Gadzella, 1994) Response to stressors: Student-Life Stress Inventory (Gadzella, 1994)	EX Theoretical work on stress	Cross sectional	SEM	Predicting behavioral and physiological reactions to stressors: Gender Predicting overall reaction to stressors: academic stressors Predicting academic stressors: Life stress, social support Mediating effects: Social support and academic stressors both mediated the association between life stress and reactions to stressors. Academic stressors also mediated the association between social support and reaction to stressors.	9
21	Wilton & Constantine (2003)	Asian and Latin American intl. undergrad and grad stud. N=190	Symptoms of mental health: Adapted General Psychological Distress Checklist (GPDC). Stressors associated with acculturation: Cultural Adjustment Difficulties Checklist (CADC, Sodowsky & Lai, 1997).	NO	Cross sectional; other intl. stud as comparison group	Correlation Hierarch. regression	Predicting mental health symptoms: Country/region, acculturative stress, intercultural competence concerns Predicting acculturative stress: Length of stay in US	6
22	Yeh & Inose (2003)	Intl. undergrad and grad stud N=359	Acculturative stress: ASSIS (Sandhu & Asrabadi,1994)	IM Adequate logical reasoning	Cross sectional; other intl. stud as comparison	Stepwise regression	Country/region, English fluency, social connectedness, social support satisfaction	6
23	Poyrazli (2003)	Intl. undergrad and grad stud. N=118	Adjustment strain: Inventory of student adjustment strain (ISAS; Crano & Crano, 1993)	NO	Cross sectional	Hierarch. regression	Ethnic identity, English proficiency	6

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
24	Poyrazli, Kavanaugh, Baker, & Al-Timimi (2004)	Intl. undergrad and grad stud. N=141	Acculturative stress: ASSIS (Sandhu & Asrabadi,1994)	IM Adequate logical reasoning	Cross sectional	SEM ANOVA	English proficiency, social support, country/region, socialization with non-Americans (i.e., other intl. stud.) (vs. students who socialized primarily with Americans or students who socialized equally with Americans and non-Americans)	7
25	Constantine, Okazaki, & Utsey (2004)	Intl. undergrad and grad stud. N=320	Depression: CES-D (Radloff, 1977)	IM Adequate logical reasoning	Cross sectional	Hierarch. regression	Acculturative stress	7
26	Lee, Koeske, & Sales (2004)	Korean undergrad and grad stud. N=74	Mental health symptoms: Brief Symptom Inventory (BSI) (Derogatis & Melisartos, 1983)	IM Adequate logical reasoning	Cross sectional	Hierarch. regression	Stress Moderating effects: Social support moderated the effect of stress on depression. Further analysis revealed the buffering effect only existed for students who are at a higher acculturation level.	5
27	Misra & Castillo (2004)	Int. undergrad and grad stud. N=143 American stud. N=249	Response to stressors: Student-Life Stress Inventory (Gadzella, 1994)	IM Adequate logical reasoning	Cross sectional; American stud as comparison group	MANCOVA, hierarch. regression	Academic stressors, gender, country of origin Moderating effects: Country/region moderated the effects of academic stressors on behavioral and emotional reaction to stressors	9
28	Rahman & Rollock (2004)	South Asian undergrad and grad stud. N=199	Depression: CES-D (Radloff, 1977)	EX Cited multidimensional models of acculturation	Cross sectional	Correlation, hierarch. regression	Perceived prejudice (acculturation dimension), intercultural attitudes/behavior (intercultural competence dimension), work efficacy, personal/social efficacy	6

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
29	Kline & Liu (2005)	Chinese intl. stud. N=99	Acculturative stress: shortened form of ASSIS (Sandhu & Asrabadi, 1994)	EX Theory of the niche; cited theory of separation-individuation, Berry and colleagues' acculturation model (2 dimensions and 4 strategies), Ward and colleagues' sojourner adjustment framework, attachment theory, relational maintenance theory	Cross sectional	Regression	Gender, phone contact frequency with family, diversity of email topics to family members	7
30	Ye (2005)	East Asian undergrad and grad stud. N=115	Acculturative stress: ASSIS (Sandhu & Asrabadi,1994) Satisfaction: 2 author constructed items (one on academic study, the other on social life)	EX Uses and gratification theory	Cross sectional	Correlation	Predicting acculturative stress: Age, length of stay in US, English skills, satisfaction Predicting satisfaction: Age, length of stay in US, English skills	7
31	Ying (2005)	Taiwanese grad stud. N=172-97	Acculturative stressors: Migration-Acculturative Stressor Scale (MASS; developed by author)	IM Cited Berry and colleagus' 5 categories of acculturative stressors	Longitud.	Repeated MANOVA, ANOVA	Length of stay in US, gender	7

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
32	Li & Gasser (2005)	Asian undergrad and grad stud. N=117	Socio-cultural adjustment: SCAS (Ward & Kennedy, 1999)	EX Social-learning-social cognition framework, social learning theory and self efficacy theory, social identity theory, The Contact Hypothesis, Berry and colleagues' acculturation model (2 dimensions and 4 strategies), Ward and colleagues' sojourner adjustment framework	Cross sectional	Regression	Cross cultural contact with Americans, cross cultural self efficacy. Mediating effects: Contact with Americans partially mediated the association between cross cultural self efficacy and sociocultural adjustment	6
33	Cemalcilar, Falbo, & Stapleton (2005)	Intl grad stud. N=280	Psychological adaptation: Generalized Contentment Scale (GCS; Hudson, 1982). Socio-cultural adaption: Short version of SCAS (Ward & Kennedy, 1994)	IM Cited Ward and colleagues' sojourner adjustment framework, authors developed own conceptual/path model	Cross sectional	SEM	Predicting psychological adaptation: Host identification (acculturation dimension), perceived social support from home. Predicting sociocultural adaptation: Host identification (acculturation dimension). Mediating effects: perceived social support from home mediated the association between computer mediated communication with home and psychological adaptation	7

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
34	Ye (2006)	Chinese intl. stud. N=135	Socio-cultural adaption: Adapted Rohrlich and Martin's (1991) measurement of cross cultural adjustment Psychological adjustment: Developed by author	EX Social network theory, Ward and colleagues' sojourner adjustment framework	Cross sectional (Students from 15 Chinese intl stud newsgroups)	Hierarch. regression	Predicting psychological adjustment: Perceived support from interpersonal social networks, long-distance social networks Predicting sociocultural adaptation: age, length of stay in US, perceived support from interpersonal social networks, perceived support from online ethnic social groups	7
35	Ye (2006)	Chinese intl. stud. N=112	Acculturative stress: ASSIS (Sandhu, & Asrabadi,1994)	IM Cited theoretical work on stress and social support	Cross sectional	Hierarch. regression	Gender, age, length of stay in US, satisfaction of interpersonal support network	7
36	Wang & Mallinckrodt (2006)	Chinese and Taiwanese intl. stud. N=104	Social cultural adjustment difficulties: SCAS (Ward & Kennedy, 1999). Psychological distress: 3 subscales of the Brief Symptom Inventory 18 (BSI-18; Derogatis, 2000)	EX Berry and colleagues' comprehensive model of acculturation, Attachment theory, Ward and colleagues sojourner adjustment framework	Cross sectional	Hierarch. regression	Predicting psychological distress: Attachment avoidance and anxiety, length of stay in US, English proficiency, and identification with host culture (acculturation dimension) Predicting sociocultural adjustment difficulties: English proficiency, university setting (being 1 of the 2 universities surveyed), identification with the host culture (acculturation dimension), attachment anxiety and avoidance Moderating effects: Attachment avoidance and identification with home culture (acculturation linearity) had an interaction effect on sociocultural adjustment difficulties	7

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
37	Gong & Fan (2006)	Intl undergrad stud. N=165	Social adjustment: Adapted Black (1988)	EX Goal orientation theory, Self efficacy theory	Longitud.	Path analysis	Social self efficacy, TOEFL, and social support Mediating effect: Social self efficacy mediated association between learning goal orientation and social adjustment	9
38	Shupe (2007)	Intl grad stud. N=206	Intercultural adaptation—work-related aspects and satisfaction with other grad students and satisfaction with academic advisors: The Job Descriptive Index (JDI; Smith, Kendall, & Hulin, 1969; Roznowski, 1989) Intercultural adaptation—social cultural aspects: Measured by a scale developed from Phase I interviews Intercultural adaptation—psychological aspect: Measured by 1) life satisfaction, Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985); 2) psychological wellbeing, by a shortened version of the General Health Questionnaire (GHQ; Banks et al., 1980) Intercultural adaption—health related aspects of adaption (Health conditions): Cornell Medical Checklist (Brodman, Erdman, Lorge, & Wolff, 1949)	EX Theory of stress and coping, Ward and colleagues' sojourner adjustment framework, Social identity theory, conceptual framework on cultural distance relating to interpersonal, intercultural conflict	Cross sectional	Path analysis	Predicting work satisfaction: Intercultural conflicts Predicting sociocultural distress: Intercultural conflicts, work stress Predicting psychological wellbeing: Work satisfaction, sociocultural distress Predicting health conditions: psychological wellbeing Mediating effects: Work satisfaction ("attitudes") and sociocultural distress mediated the association between intercultural conflict and psychological wellbeing. Psychological wellbeing mediated the association between intercultural conflict and health conditions.	9

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
39	Atri, Sharma,& Cottrell (2007)	Asian Indian undergrad and grad. stud. N=185	Mental health (psychological wellbeing): The Kessler Psychological Distress Scale-K-6 scale (Kessler et al.)	NO	Cross sectional	Stepwise regression	Control (hardiness dimension), commitment (hardiness dimension), belonging (social support dimension), acculturation, prejudice (acculturation component)	4
40	Jung, Hecht, & Wadsworth (2007)	Intl undergrad and grad stud. N=218	Depression: Selected items from CES-D (Radloff, 1977)	EX The Communication Theory of Identity	Cross sectional	Regression SEM	Perceived discrimination Mediating effects: Personal enacted gap mediated the association between acculturation and depression, and the association between perceived discrimination and depression Moderating effects: Social undermining moderated the association between perceived discrimination and depression	9
41	Duru & Poyrazli (2007)	Turkish undergrad and grad stud N=229	Acculturative stress: ASSIS (Sandhu & Asrabadi,1994)	IM Adequate logical reasoning	Cross sectional (Students from 17 univ.)	Hierarch. regression	Marital status, neuroticism and openness (personality), English proficiency, social connectedness	6

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
42	Wei, Heppner, Mallen, et al. (2007)	Chinese and Taiwanese undergrad and grad stud. N=189	Depression: CES-D (Radloff, 1977)	IM Fine logical reasoning	Cross sectional	Hierarch. regression	Acculturative stress, maladaptive perfectionism Moderating effects: There was a three way interaction effect among acculturative stress, maladaptive perfectionism, and years in US on depression	6
43	Kilinc & Granello (2003)	Turkish stud. N=120	Satisfaction in Life: author constructed items Difficulty in Life: author constructed items	NO	Cross Sectional Turkish Stud. from 4 states	Hierarch. regression	Predicting satisfaction in life: acculturation and difficulties in life Predicting difficulties in life: acculturation, length of stay in US, satisfaction in life, religion, student status (undergrad/grad)	5
44	Chen, Mallinckrodt, & Mobley (2002)	Asian undergrad and grad stud. N=52	Psychological functioning: Brief Symptom Inventory (BSI) (Derogatis & Spencer, 1982) Life stress: Index of Life Stress (ILS) (Yang & Clum, 1995). 31 items. Modified version used.	IM Adequate logical reasoning	Cross sectional	Correlation, hierarch. regression	Predicting distress symptoms: Attachment security (attachment pattern), attachment anxiety (attachment pattern), stress Predicting stress: Attachment security (attachment pattern), attachment anxiety (attachment pattern), new contact (component of social support) Moderating effects: social support from the campus International Student Office moderated the effect of racism events on distress symptoms	4
45	Kagan & Cohen (1990)	Intl stud. N=92	Societal, associational, family and intra-psychic adjustment: Personality and Social Network adjustment scale (PSNAS; Clark, 1968)	EX Model of Acculturation	Cross sectional	Canonical analysis; stepwise regression	External decision making style, values related to society, Cultural incorporation and cultural transmutation (acculturation stages)	7

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
46	Chen (1993)	Asian college stud. N=129	Ability to cope with difficulties caused by the host culture: Social Situations Questionnaire (Furnham & Bochner, 1982)	IM Adequate logical reasoning Cited Ward and colleague's sojourner framework	Cross sectional	Stepwise regression	Self disclosure	6
47	Barratt & Huba (1994)	Intl undergrad stud N=170	Adjustment to the community: 2 author developed items (one evaluates experience with the city; the other evaluates success in building relationships with Americans)	IM Adequate logical reasoning	Cross sectional Other intl. stud as comparison group	Regression ANOVA	Evaluation of experience with the city, Success in building relationships with Americans, self esteem, oral/aural English skills, country/region	5
48	Kaczmarek, Matlock, Merta, Ames, & Ross (1995)	Intl undergrad and grad stud N=29 U.S. undergrad stud. N=57	Adjustment (with psychological distress as a subscale): Student adaptation to college questionnaire (Baker & Siryk, 1989)	NO	Longitud. U.S. comparison group	t test	Country/region	4
49	Hullett & Witte (2001)	Intl undergrad and grad stud N=121	Adaptation: 8 items developed by authors Social isolation: 6 items to measure degree to which sojourners embraced their co-nationals and 10 items adapted from Stephan and Stephan's (1985) Social Contact scale	EX Extended parallel process model (EPPM), Anxiety/Uncertainty Management (AUM) Theory	Cross sectional	Path analysis Regression	Predicting adaptation: Uncertainty control (When attributional confidence exceeds anxiety) Predicting social isolation: Anxiety control (When anxiety exceeds attributional confidence)	8

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
50	Gao & Gudykunst (1990)	Intl undergrad and grad stud N=121	Adaptation: 8 items developed by authors	EX Anxiety/Uncertainty Management (AUM) Theory	Cross sectional	SEM	Attributional confidence (Uncertainty reduction) Mediating effects: Attributional confidence (Uncertainty reduction) and anxiety reduction mediated the association between 1) cultural similarity, knowledge of host culture, social contact with Americans, and 2) adaptation	7
51	Gong (2003)	Intl undergrad and grad stud N=85	Interaction adjustment: adapted Black (1988)	EX Goal orientation theory	Cross sectional	Hierarch. regression	Learning goal orientation, TOEFL, length of stay in US, number of relatives in US	6
52	Ying & Han (2006)	Taiwan grad stud. N=155	Depression: CES-D (Radloff, 1977) Functional adjustment: 3 author-constructed items Acculturative stressors: Migration-Acculturative Stressor Scale (MASS; developed by first author)	EX Theoretical work on cognitive development	Longitud.	Multiple regression	Predicting depression: Internality, acculturative stressors Predicting functional adjustment: Internality, affiliation with Americans, acculturative stressors Predicting acculturative stressors: Gender Mediating effects: Affiliation with Americans partially mediated the effect of internality on functional adjustment	8

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
53	Upvall (1990)	Intl grad. stud. N=101	Mode of reaction to uprooting: General Well-Being Schedule (Wan & Livieratos, 1978)	EX Theory of uprooting	Cross sectional	Logistic regression	Social contact with Americans	4
54	Zhang & Rentz (1996)	Chinese grad stud. N=72	Adaptation: 22 items from the Survey of Intercultural Adaptation (Gao & Gudykunst, 1990)	NO	Cross sectional	Pearson r ANOVA	American cultural knowledge, satisfaction, length of stay in US	1
55	Galloway & Jenkins (2005)	Intl stud. N=215	Socio-Personal Problems: Measured by 12 items (problem areas) from Michigan International Student Problem Inventory (Porter, 1993)	NO	Cross sectional	Hierarch. regression	Marital status, length of stay in US, English problems	3
56	Matsumoto, LeRoux, Ratzlaff et al. (2001)	Japanese stud. N=95 (largest among all samples reported by this study)	Depression: measured by Beck Depression Inventory Social Adjustment problems: measured by Social Adjustment Scale Self-Report (SAS-SR)	IM Adequate logical reasoning	Cross sectional	Correlations	Predicting depression: Intercultural adjustment potential Predicting social adjustment problems: Intercultural adjustment potential	2
57	Poyrazli & Kavanaugh (2006)	Intl. grad stud N=149	Adjustment Strain: Inventory of student adjustment strain (ISAS; Crano & Crano (1993)	IM Adequate logical reasoning	Cross sectional Stud. from 5 univ.	Correlations Regression	Country/origin, English proficiency	6
58	Gong & Chang (2007)	Intl. undergrad stud N=117	Social adjustment: authors developed own scale based on Black (1988)	EX Goal orientation theory	Longitud.	Regression	Mediating effects: Goal levels mediated the association between learning goal orientation and social adjustment	8
59	Cemalcilar & Falbo (2008)	Intl. grad stud. N=90	Psychological adaptation: Generalized Contentment Scale (GCS; Hudson, 1982) Socio-cultural adaptation: Short version SCAS (Ward & Kennedy, 1994)	EX Berry et al.'s theoretical work on acculturation, The stress and coping framework, Ward and colleagues' sojourner adjustment framework	Longitud.	MANOVA	Predicting psychological adaptation: Time Predicting sociocultural adaptation: Pre-transition acculturation strategy	8

#	Authors	Sample nationality & size	DVs & measurement tools	Theoretical framework[a]	Study design & analytic methods	Analytic methods[b]	Findings (Predictors)	MQS
60	Ying & Han (2008)	Taiwan grad stud. N=155	Functional adjustment: 3 author-constructed items	EX Cited Ecological theory, Theory of stress and coping theory, Berry's acculturation theory	Longitud.	Hierarch. & Multiple regression	English competence Moderating effects: ethnic density moderated the associations between 1) English competence, homesickness (acculturative stress dimension), affiliation with Americans and 2) functional adjustment	8
61	Sumer, Poyrazli, & Grahame (2008)	Intl. grad. Stud N=440	Depression: Goldberg Depression Scale (GDS; Goldberg, 1993)	NO	Cross sectional	Correlations Hierarch. regression	GPA, social support, English proficiency	5
62	Wei, Ku, Russell, et al. (2008)	Asian undergrad and grad stud N=354	Depression: CES-D (Radloff, 1977)	EX Cited the minority stress model, biopsychosocial model, and racism-related stress model	Cross sectional	Hierarch. regression	Perceived stress, perceived discrimination, self esteem, suppressive coping, reactive coping Moderating effects: Perceived discrimination x suppressive coping ; Perceived discrimination x reactive coping x self-esteem	7
63	Nilsson, Butler, Shouse, & Joshi (2008)	Asian intl. stud N=76	Stress: College Stress Inventory (CSI; Solberg, Hale, Villarreal, & Kavanagh, 1993)	IM Adequate logical reasoning	Cross sectional	Hierarch. regression	Perfectionism, perceived prejudice	5
64	Yoo, Matsumoto, & LeRoux (2005)	Intl. stud N=63 (largest of all samples reported by this study)	Depression: Beck Depression Inventory Satisfaction with life: SWLS (Diener, Emmons, Larsen, & Griffin, 1985)	EX Emotional Intelligence Framework	Longitud.	Hierarch. regression	Predicting depression: Emotional regulation Predicting life satisfaction: Emotional regulation	7

Note. Due to space limits, we did not include direction of associations for predictors of psychosocial adjustment or references for instruments and theories. Interested readers may refer to original articles for more details.

[a] EX = Explicit theoretical framework. IM = Implicit theoretical framework. NO = No theoretical framework.

[b] We counted analytic methods used in main analysis (major hypothesis tests), rather than those used in preliminary analysis.

Findings of the Reviewed Studies

(A) Predictors of psychological symptoms[a]		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
Stress (18 studies)	Stress	+	+		1,2,8,12,44,26,62
	Pre-departure anticipated interpersonal difficulty	+			2
	Pre-departure anticipated academic problems			+	2
	Homesickness problems	+			3
	Interpersonal problems	+			3
	Academic problems	+			3
	Academic stressors	+			20,27
	• Status as moderator: academic stressors x status (American vs. intl.) ["Stressors were more important for American students in their effects on reaction; those with higher academic stressor exhibited greater emotional and behavioral reactions compared with international students" (p.142)]	-			27
	Acculturative stress or acculturative stressors	+			25,42,21,52
	Perceived discrimination or prejudice (acculturative stress dimension)	+	+	+	28,39,40,62
	• Indirect effect of perceived discrimination on depression: personal enacted gap as mediator	+(DL)			40
	• Social undermining as moderator: perceived discrimination (acculturative stress dimension) x social undermining (negative social support) [When social undermining is high, perceived discrimination is positively associated with depression]	+			40
	• Suppressive coping as moderator: perceived discrimination x suppressive coping ["Asian international students who tend to use suppressive coping are vulnerable to depressive symptoms associated with perceived discrimination, whereas those who tend not to use suppressive coping are less negatively affected by perceived discrimination" (p. 457).]	+			62
	• Reactive coping and self esteem combined as moderator: perceived discrimination x reactive coping x self-esteem ["Asian international students who reported high levels of self-esteem and low use of reactive coping were less vulnerable to depressive symptoms associated with perceived discrimination" (p. 458).]	+			62

(A) Predictors of psychological symptoms[a] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
	• ISO support as moderator: racism stress x ISO support (ISO=International Student Office) [The highest social support from ISO renders racism stress-distress association non-significant; among those with lowest ISO social support, racism stress is strongly positively associated with distress]	-			44
	• Maladaptive perfectionism and years in US combined as moderator: acculturative stress x maladaptive perfectionism x years in US [Low maladaptive perfectionism buffers acculturative stress only when students stay in US longer]	+			42
	• Acculturation combined with social support as moderator: stress x social support x acculturation [The social support's stress buffering effect exists only when acculturation level is high]	-			26[b]
	• Social support as moderator: stress x social support [Korean international students with acculturative stress but with a high level of social support would express lower mental health symptoms than the students with low level of social support]	-			26[b]
	• Indirect effect of stress: social support as mediator	+(DL)			8,20
	• Indirect effect of life stress on reactions to stressors: academic stressors as mediator	+(DL)			20
	Intercultural competence concerns (cultural adjustment difficulties)	+			21
	Sociocultural distress	+			38
	• Indirect effect of intercultural conflict: sociocultural distress as mediator	+ (DL)			38
Social support (13)	Perceived social support	-			8,12,33,61
	Perceived social support from interpersonal social networks	-			34
	Perceived social support from long-distance social networks	-			34
	Size of social support network/far	-			3
	Belonging (Social support dimension)	-			39
	Graduate program social support: Relationship with faculty		-		5
	Graduate program social support: Quality of instruction		-		5
	Graduate program social support: Tangible support and relations with students		-		5
	Graduate program social support: Facilities and curriculum flexibility			-	5
	Satisfaction of interpersonal support network	-			35
	• Indirect effect of social support: hopelessness as mediator	-(DL)			8
	• Indirect effect of social support on reaction to stressors: academic stressors as mediator	-(DL)			20

(A) Predictors of psychological symptoms[a] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
	• Social undermining as moderator: perceived discrimination (acculturative stress dimension) x social undermining (negative social support) [When there is social undermining, the association of perceived discrimination with depression can be especially strong]	+			40
	• ISO support as moderator: racism stress x ISO support (ISO=International Student Office) [The highest social support from ISO renders racism stress-distress association non-significant; among those with lowest ISO social support, racism stress is strongly positively associated with distress]	-			44
	• Acculturation combined with social support as moderator: stress x social support x acculturation [The stress buffering effect of social support is apparent only when acculturation level is high]	-			26[b]
	• Social support as moderator: Stress x social support [Korean international students with acculturative stress but with a high level of social support would express lower mental health symptoms than the students with low level of social support]	-			26[b]
	• Indirect effect of stress: social support as mediator	+(DL)			8,20
	• Indirect effect of computer mediated communication (CMC use) on non-psychotic depression: perceived social support as mediator	- (DL)			33
English proficiency (6)	TOEFL	+	+		2
	Self-assessed English proficiency (pre-or post-arrival in U.S.)	-	-	+	2,3,28(+),36,30,61
Length of residence (6)	Length of residence in US	-			30,35,36
	Time [psychological strain is highest in month 3; lowest in months 0 and 6]	+ then -			16
	Time [psychological wellbeing decreased 3 months after arrival as compared to 2 months prior to arrival]	+			59
	Country/Region as a moderator: time x sojourner type [During the first 6 months, psychological strain is the highest at month 3, then declines; at month 3, strain of domestic stud. is higher than intl. stud, but at 0 and 6 month, their strain is lower than intl. stud.]	+ then -			16
	• Maladaptive perfectionism and years in US combined as moderator: acculturative stress x maladaptive perfectionism x years in US [Low maladaptive perfectionism buffers acculturative stress only when students stay in US longer]	+			42
Acculturation (5)	Acculturation	-			39
	Host identification (acculturation dimension)	-			33,36

(A) Predictors of psychological symptoms[a] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
	• Indirect effect of acculturation (complete mediator) on depression: personal enacted gap as mediator	No DL			40
	• Acculturation combined with social support as moderator: Stress x social support x acculturation [The stress buffering effect of social support is apparent only when acculturation level is high]	-			26[b]
Personality (4)	Feminine tendency		+		2
	Hardiness-control	+			39
	Hardiness-commitment	-			39
	Maladaptive perfectionism	+			42
	• Maladaptive perfectionism and years in US combined as moderator: acculturative stress x maladaptive perfectionism x years in US [Low maladaptive perfectionism buffers acculturative stress only when students stay in US longer]	+			42
	Internality (predicting depression 14 months post arrival)	+			52
Self efficacy (3)	Problem solving confidence	-			8
	• Indirect effects of problem solving confidence: hopelessness as mediator	-(DL)			8
	Self efficacy upon arrival in US	-			16
	Work efficacy	-	-	-	28
	Personal/social efficacy	-	-	-	28
Country/Region (3)	Being Latin intl. students (vs. Asian)	+			21
	Being American stud. (vs. intl.)	+			27
	• Status as moderator: academic stressors x status (American vs. intl.) ["Stressors were more important for American students in their effects on reaction; those with higher academic stressor exhibited greater emotional and behavioral reactions compared with international students" (p.142)]	-			27
	• Country/Region as moderator: time x sojourner type [During the first 6 months, psychological strain is the highest at month 3, then declines; at month 3, strain of domestic stud. is higher than intl. stud, but at 0 and 6 month, their strain is lower than intl. stud.]	+ then -			16
Gender (3)	Being women	+			14,5,20
Social contact with Americans (2)	Greater proportion of friends who are host nationals 6 months after arrival	-			16
	Social contact with Americans (predicting mode of reaction to uprooting)	-			53
Attachment pattern (2)	Security (pattern)	-			44
	Anxiety (pattern)	+			44,36
	Avoidance (pattern)	+			36

(A) Predictors of psychological symptoms[a] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
Pre-departure depression level (2)	Pre-departure depression level	+/-	+	+	2,3
Intercultural adjustment potential (2)	Intercultural adjustment potential	-			56
	Emotional regulation (dimension of Intercultural adjustment potential)	-			64
Social contact with Chinese (1)	Number of Chinese friends in US	-			3
Intercultural Competence (1)	Intercultural attitudes/behavior (aspect of intercultural competence)	-	-		28
Self esteem (1)	Self esteem	-			62
Coping (1)	Suppressive coping	+			62
	• Suppressive coping as moderator: perceived discrimination x suppressive coping ["These results indicate that Asian international students who tend to use suppressive coping are vulnerable to depressive symptoms associated with perceived discrimination, whereas those who tend not to use suppressive coping are less negatively affected by perceived discrimination" (p. 457).]	+			62
	Reactive coping	+			62
	• Reactive coping and self esteem combined as moderator: perceived discrimination x reactive coping x self-esteem ["These results indicate that Asian international students who reported high levels of self-esteem and low use of reactive coping were less vulnerable to depressive symptoms associated with perceived discrimination" (p. 458).]	+			62
Identity gap (1)	Personal enacted identity gap (PEGAP)	+			40
	• Indirect effect of perceived discrimination on depression: personal enacted gap as mediator	+(DL)			40
	• Indirect effect of acculturation (complete mediator) on depression: personal enacted gap as mediator	No DL			40
Intercultural conflict (1)	• Indirect effect of intercultural conflict: work satisfaction as mediator	+ (DL)			38
	• Indirect effect of intercultural conflict: sociocultural distress as mediator	+ (DL)			38
Work satisfaction (1)	Work satisfaction	-			38
	• Indirect effect of intercultural conflict: work satisfaction as mediator	+ (DL)			38
Financial resources (1)	Financial resources	+			3
SES in home country (1)	SES in home country	+			3
Pre-departure preparation level (1)	Pre-departure preparation level	-			3

(A) Predictors of psychological symptoms[a] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
Hopelessness (1)	Hopelessness	+			8
	• Indirect effect of social support: hopelessness as mediator	-(DL)			8
	• Indirect effects of problem solving confidence: hopelessness as mediator	-(DL)			8
Media use (1)	• Indirect effect of computer mediated communication (CMC use) on non-psychotic depression: perceived social support as mediator	- (DL)			33
GPA (1)	GPA	-			61
(B) Predictors of stress					
Region/Country (4 studies)	Being Mideastern, Chinese, Korean, and Japanese (vs. European, British, South American)	+			6
	Being Caucasian American (vs. Asian intl.)	+			1
	Being East Asian (vs. American)	+			11
	Being American (vs. intl. stud.) (predicting higher academic stress in areas of conflict, frustration, pressure, and self imposed stress)	+			27
Stress (3)	Life stress (predicting academic stressors; and stress due to racism)	+			20 (academic stressors),44 (stress due to racism)
	Perceived prejudice	+			63
	• Indirect effect of Life stress on academic stressors: social support as mediator	-			20
Social support (1)	Social support (predicting academic stressors)	-			20
	• Indirect effect of Life stress on academic stressors: social support as mediator	- (DL)			20
Coping (1)	Direct coping	-			11
	• Indirect effect of independent self construal: direct coping as mediator	+(DL)			11
Social contact (1)	New contact in the host culture	-			44
Attachment pattern (1)	Attachment anxiety (attachment) (predicting stress and stress due to racism)	+			44
	Attachment security	-			44
Self construal (1)	Interdependent self construal	+			11
	• Indirect effect of independent self construal: direct coping as mediator	+(DL)			11
Intercultural communication competence (1)	Intercultural communication competence dimension: adaptation	-			6
	Intercultural communication competence dimension: Social decentering	+			6
Perfectionism (1)	Perfectionism	+			63
Gender (1)	Being men (vs. women) (predicting academic stress from conflict)	+			27
	Being men (vs. women) (predicting academic stress from self imposed stress)	-			27

(C) Predictors of acculturative stress		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
Length of stay in US (5 studies)	Length of stay in US (predicting acculturative stress; cultural stress-relational; cultural shock; fear, perceived hatred, negative feelings caused by change; amount of acculturative stressors)	-			7,30,35,31,21
English proficiency (4)	English proficiency (predicting acculturative stress; fear, perceived hatred, perceived discrimination, cultural shock)	-			22,41,24,30
Gender (4)	Being women (predicting more difficulty in "unfamiliar climate," an acculturative stressor, study 31; acculturative stress, study 29; fear, perceived discrimination, perceived hatred, study 35)	+/-			31, 29, 35(-),52
Social support (3)	Social support satisfaction	-			22
	Social support	-			24
	Satisfaction of interpersonal support network (predicting perceived discrimination, perceived hatred, negative feelings caused by change)	-			35
Region/Country (2)	Being European intl. stud. (vs. other intl. stud.)	-			22
	Being Asian intl. stud. (vs. European stud.)	+			24
Social connectedness (2)	Social connectedness	-			22,41
Age (2)	Age (predicting perceived discrimination, perceived hatred, fear)	+			30,35
Social contact (1)	Primarily socializing with non-Americans (vs. primarily socializing with Americans)	+			24
	Primarily socializing with non-Americans (vs. socializing equally with Americans and non-Americans)	+			24
Marital status (1)	Being married	+			41
Personality (1)	Openness (personality)	+			41
	Neuroticism (personality)	+			41
Computer mediated communication (1)	Phone contact/week (when communicating with family)	+			29
	Email topic diversity (when communicating with family)	-			29
Stress (1)	Adjustment difficulties	+			41
Life satisfaction (1)	Life satisfaction (predicting fear, perceived hatred, perceived discrimination, cultural shock)	-			30
(D) Predictors of physical symptoms					
Stress (3 studies)	Stress	+/-			1 (+ for short lived symptoms; - for chronic and total symptoms)
	Academic stressors	+			20,27

(D) Predictors of physical symptoms (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
	• Country/Region as moderator: Academic stress x status (American vs. intl.) ["Stressors were more important for American students in their effects on reaction; those with higher academic stressor exhibited greater emotional and behavioral reactions compared with international student" (p.142)]	+			27
Gender (3)	Being women (predicting physical symptoms; and behavioral reactions, e.g., drinking and smoking)	+			5,20,27
Country/Region (2)	Being Caucasian American (vs. Asian intl.) (predicting chronic health problems; chronic and short-lived problems; drug use)	+			1
	Being American (vs. intl. stud.) (predicting behavioral reactions, e.g., drinking and smoking)	+			27
Psychological wellbeing (1)	Psychological wellbeing	-			38
Intercultural conflict (1)	• Indirect effect of intercultural conflict on health conditions: psychological wellbeing as mediator	+ (DL)			38
Social support (1)	Graduate program social support: relationship with faculty			-	5
	Graduate program social support: facilities and curriculum flexibility			-	5
Intercultural conflict (1)	• Indirect effect of intercultural conflict on health conditions: psychological wellbeing as mediator	+ (DL)			38
(E) Predictors of satisfaction with life in the United States					
Age (1 study)	Age	-			30
English proficiency (1)	English skills	+			30
Length of residence (1)	Length of residence	+			30
Self construal (1)	Independent self construal	+			17
Communication styles (1)	Feelings (communication style)	+			17
	Indirect (communication style)	-			17
	Sensitivity (communication style)	+			17
Intercultural adjustment potential (1)	Emotional regulation (dimension of Intercultural adjustment potential)	+			64
Acculturation (1)	Acculturation	+			43
Difficulty in life (1)	Difficulty in life	-			43
(F) Predictors sociocultural adjustment[c]					
English proficiency (11 studies)	Self assessed English proficiency (pre and post arrival in US)	+	+	+	2,23,36,57,60

(F) Predictors of sociocultural adjustment[c] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
	Self assessment of writing/reading English proficiency	+			13
	Self assessment of understanding proficiency in English	+			15
	Oral/aural English skills (predicting experience with city, adjustment indicator)	+			47
	TOEFL	+			37,51,
	• Ethnic density as moderator: English competence at 9 months post arrival x ethnic density (moderate as opposed to high level) (predicting adjustment 14 months post arrival) [On campuses of moderate ethnic density, English competence at 9 months post arrival is positively associated with adjustment, whereas on high ethnic density campuses, English competence at 9 months is not associated with adjustment]	+			60
	English problems	-			55
Social contact (8)	Friendship with Americans (efforts spent in making American friends)	+			9
	Frequency of talking with American students	+			10
	Greater proportion of friends who are host nationals 6 months after arrival	+			16
	Contact with host nationals	+			32
	Success in building relationships with Americans (predicting experience with people, an indicator of adjustment)	+			47
	Affiliation with Americans at 9 months post-arrival (the extent to which relationships with Americans are formed) (predicting adjustment 14 months post-arrival)	+			52
	• Ethnic density as moderator: Affiliation with Americans at 9 months post arrival x ethnic density (moderate as opposed to high) [On campuses of moderate ethnic density, Affiliation with Americans at 9 months is positively associated with adjustment, whereas on campuses of high ethnic density, affiliation with Americans at 9 months is not associated with adjustment]	+			60
	• Indirect effect of social contact with Americans on adaptation: Attributional confidence (uncertainty reduction) as mediator	+(DL)			50
	• Indirect effect of social contact with Americans on adaptation: anxiety control as mediator	+(DL)			50
	• Indirect effect of cross cultural self efficacy on sociocultural adjustment: Contact with host as partial mediator	+(DL)			32
	• Indirect effect of internality on adjustment (14 months post arrival): affiliation with Americans (9 months post arrival) as mediator	-(DL)			52
Acculturation (6)	Host identification (acculturation dimension)	+			33,36
	Cultural incorporation (stage of acculturation)	-			45

(F) Predictors of sociocultural adjustment[c] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
	Cultural transmutation (stage of acculturation)	+			45
	Pre-transition acculturation strategy (separation vs. bicultural, assimilated, marginalized) (predicting sociocultural adaptation 3 months post arrival)	-			59
	Acculturation (predicting absence of difficulties in academic life, language, and medical/physical health in study 43)	+			43
	Home culture identification as moderator: Avoidance x Home culture identification	+			36
Length of residence in US (6)	Length of residence in US (predicting adjustment; predicting absence of difficulties in language in study 43)	+			34,16,51,54,55,43
	• Country/Region as moderator: Time x sojourner (intl. vs. American) [Rate of adjustment is higher-slope steeper-for intl. stud. between 0 and 3 months; from 3-6 months, adjustment rate is similar for both intl. and domestic stud.]	+			16
Country/Region (6)	Being European, British, and South American intl. stud. (vs. Korean, Taiwanese, and Southeast Asian) (predicting the handling of stress)	+			6
	Being European intl. stud. (vs. Asian) (predicting experience with people, adjustment indicator; predicting adjustment)	+			47,57
	Being intl. stud (v. domestic stud) (predicting sociocultural adjustment; social adjustment; institutional attachment and goal commitment)	-			16,48
	Being Latin American intl. stud. (vs. Asian) (predicting experience with people, adjustment indicator)	+			47
	Being Latin American intl. stud. (vs. African) (predicting experience with people, adjustment indicator)	+			47
	Being Asian (vs. European) (predicting problems in English, personal, education, social and problem—areas of adjustment strain)	-			18
	• Country/Region as moderator: Time x sojourner (intl. vs. American) [Rate of adjustment is higher-slope steeper-for intl. stud. between 0 and 3 months; from 3-6 months, adjustment rate is similar for both intl. and domestic stud.]	+			16
Self efficacy (4)	Cross cultural self efficacy	+			32
	• Indirect effect of cross cultural self efficacy on sociocultural adjustment: contact with host nationals as partial mediator	+(DL)			32
	Social self efficacy	+			37
	• Indirect effect of learning goal orientation on social adjustment: social self efficacy as mediator	+ (DL)			37
	Self efficacy upon arrival in US	+			16
	Self efficacy 3 months after arrival	-			16
	Academic self efficacy	+			15
Age (4)	Age	-			2,9,13,34

(F) Predictors of sociocultural adjustment[c] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
Stress (4)	Homesickness problem	-			9
	• Ethnic density as moderator: homesickness (acculturative stress dimension) at 9 months post arrival x Ethnic density (moderate as opposed to high) [On campuses of moderate ethnic density, homesickness at 9 months post arrival is negatively associated with adjustment, whereas on campuses of high ethnic density, homesickness at 9 months is not associated with adjustment]	-			60
	Work stress	-			38
	Acculturative stressors (9 months post arrival predicting adjustment 14 months post arrival)	-			52
Psychological wellbeing (3)	Post-arrival depression level	-			2
	Satisfaction (predicting adjustment; predicting absence of difficulties in academic life, financial life, homesickness, medical/physical health in study 43)	+			54,43
Goal orientation (3)	Learning goal orientation (predicting interaction adjustment)	+			51
	• Indirect effect of learning goal orientation on social adjustment: social self efficacy as mediator	+ (DL)			37
	• Indirect effect of Learning goal orientation on social adjustment: goal levels as a complete mediator	+ (DL)			58
Personality (3)	Feminine tendency (personality)			-	2
	Internality (personality)	-	-		2,52
	• Indirect effect of Internality on adjustment (14 months post arrival): affiliation with Americans (9 months post arrival) as mediator	-(DL)			52
	Wellbeing (personality) (for Asians)	+			18
	Social presence (personality) (for Asians)	+			18
	Empathy (personality) (for Asians)	+			18
	Good impression (personality) (for Asians)	+			18
	Sociability (for Asians)	+			18
	Psychological mindedness (personality) (for Asians)	+			18
	tolerance (personality) (for Asians)	+			18
	Capacity for status (personality) (for Asians)	+			18
	Achievement via independence (personality) (for Asians)	+			18
	Independence (personality) (for Asians)	+			18
	Responsibility (for Asians)	+			18
	Intellectual efficiency (personality) (for Asians)	+			18
Social support (3)	Social support	+			37
	Pre-departure assessment of social support network in US	+		+	2

(F) Predictors of sociocultural adjustment[c] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
	Perceived social support from interpersonal social networks	+			34
	Perceived social support from online ethnic social groups	+			34
Attributional confidence (during interactions with Americans) (2)	Uncertainty control (i.e., when attributional confidence exceeds anxiety) (predicting the state in which adaptation exceeds social isolation)	+			49
	Attributional confidence (uncertainty reduction)	+			50
	• Indirect effect of social contact with Americans on adaptation: attributional confidence (uncertainty reduction) as mediator	+(DL)			50
	• Indirect effect of cultural similarity on adaptation: attributional confidence (uncertainty reduction) as mediator	-(DL)			50
	• Indirect effect of knowledge of host culture on adaptation: attributional confidence (uncertainty reduction) as mediator	+(DL)			50
Anxiety control (during interactions with Americans) (2)	Anxiety control (When anxiety exceeds attributional confidence) (predicting the state in which social isolation exceeds adaptation: sign flipped in right column to predict adjustment)	-			49
	• Indirect effect of social contact with Americans on adaptation: anxiety control as mediator	+(DL)			50
	• Indirect effect of cultural similarity with Americans on adaptation: anxiety control as mediator	-(DL)			50
	• Indirect effect of knowledge of host culture with Americans on adaptation: anxiety control as mediator	+(DL)			50
Knowledge of host culture (2)	• Indirect effect of knowledge of host culture on adaptation: Attributional confidence (uncertainty reduction) as mediator	+(DL)			50
	• Indirect effect of knowledge of host culture with Americans on adaptation: anxiety control as mediator	+(DL)			50
	American cultural knowledge	+			54
Marital status (2)	Being married (predicting adjustment; predicting absence of difficulties in medical and physical health and life in general in study 43)	+			55, 43
Communication apprehension about speaking English (1)	Communication apprehension about speaking English	-			19
Social contact with Chinese (1)	Number of relatives in US	+			51
Self esteem (1)	Self esteem (predicting experience with city, indicator of adjustment)	+			47
Ethnic identity search (1)	Ethnic identity search	+			23

(F) Predictors of sociocultural adjustment[c] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
Ethnic density (1)	• Ethnic density as moderator: Affiliation with Americans at 9 months post arrival x ethnic density (moderate as opposed to high) [On campuses of moderate ethnic density, affiliation with Americans at 9 months is positively associated with adjustment, whereas on campuses of high ethnic density, affiliation with Americans at 9 months is not associated with adjustment]	+			60
	• Ethnic density as moderator: English competence at 9 months post arrival x Ethnic density (moderate as opposed to high level) (predicting adjustment 14 months post arrival) [On campuses of moderate ethnic density, English competence at 9 months post arrival is positively associated with adjustment, whereas on high ethnic density campuses, English competence at 9 months is not associated with adjustment]	+			60
	• Ethnic density as moderator: Homesickness (Acculturative Stress dimension) at 9 months post arrival x Ethnic density (moderate as opposed to high) [On campuses of moderate ethnic density, homesickness at 9 months post arrival is negatively associated with adjustment, whereas on campuses of high ethnic density, homesickness at 9 months is not associated with adjustment]	-			60
Communication styles (1)	Indirect (communication styles)	-			17
	Sensitivity (communication styles)	+			17
	Silence (communication styles)	+			17
Goal levels (1)	• Indirect effect of Learning goal orientation on social adjustment: goal levels as complete mediator	+ (DL)			58
Attachment patterns (1)	Attachment anxiety	-			36
	Attachment avoidance	-			36
	• Home culture identification as moderator: avoidance x home culture identification	+			36
Assertiveness (1)	Assertiveness	+			15
Self construal (1)	Independent self construal	+			17
Self disclosure (1)	Self disclosure	+			46
Communication competence (1)	Communication adaptability (communication competence)	+			4
	Interaction involvement (communication competence)	+			4
Intercultural communication competence (1)	Adaptation— Ability to adapt to US (intercultural communication competence dimension; predicting ability to handle stress)	+			6

(F) Predictors of sociocultural adjustment[c] (cont.)		Direction of association			Studies reporting the factor
		Men and women	Men	Women	
	Communication effectiveness (intercultural communication competence dimension; predicting ability to handle stress)	+			6
	Social integration—ability to initiate and maintain relationships with Americans (intercultural communication competence dimension; predicting ability to handle stress)	+			6
Decision making style (1)	Decision making style—making decisions based on external values	-			45
Values (1)	Values on societies	-			45
Control differential (1)	Decline in control	-			9
Pre-departure preparation level (1)	Pre-departure preparation level	+			9
Pre-departure anticipated problem (1)	Pre-departure anticipated interpersonal difficulty	-			2
Experience with the city (1)	Experience with the city (predicting experience with people, an indicator of adjustment)	+			47
Cultural similarity (1)	• Indirect effect of cultural similarity on adaptation: attributional confidence (uncertainty reduction) as mediator	-(DL)			50
	• Indirect effect of cultural similarity with Americans on adaptation: anxiety control as mediator	-(DL)			50
Religiosity (1)	Religiosity (predicting the absence of financial difficulties)	+			43
Undergraduate/graduate (1)	Undergraduate (vs. graduate) (predicting absence of difficulties in medical and physical health)	-			43
Intercultural conflict (1)	Intercultural conflict (predicting sociocultural adjustment; work satisfaction)	-			38
Intercultural adjustment potential (1)	Intercultural adjustment potential	+			56
University setting (1)	Being a student in one university (vs. another university)	+			36

Note. Bullet points mean a finding is cross-posted under all factors involved in the finding. DL = direct link.

[a]Psychological symptoms included depression, depressive symptoms, reactions to stressors, psychological well being—signs flipped.

[b]Study 26 used the Index of Life Stress (Yang & Clum, 1995, i.e., study 12)—an instrument used in other studies for measuring stress—to measure acculturative stress. We counted Study 26's reported factor as stress, rather than acculturative stress.

[c]Sociocultural adjustment included adjustment, adaptation, ability to handle stress, adjustment difficulties—signs flipped.

APPENDIX A4

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Panel A
Predicting depression
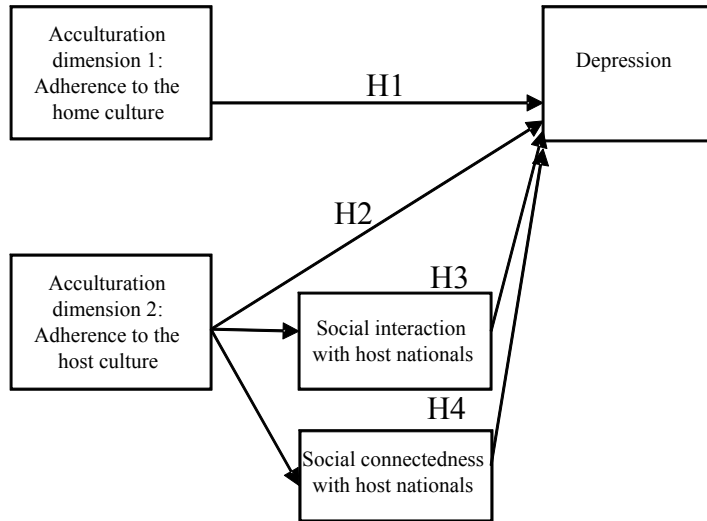
Panel B
Predicting sociocultural adjustment difficulties
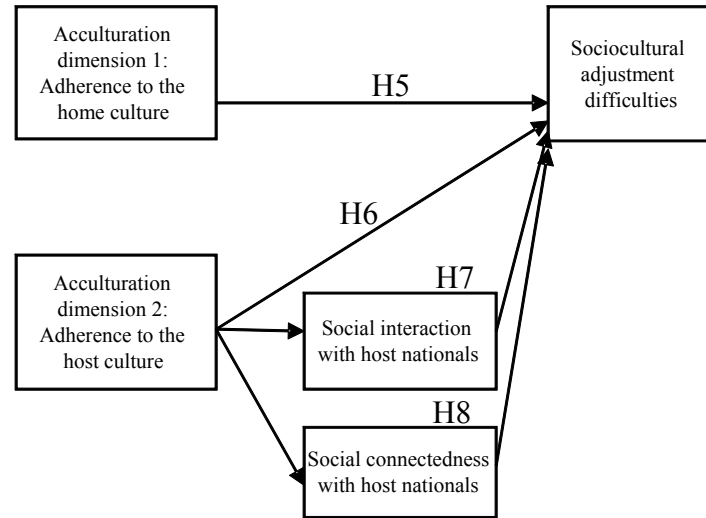
Chapter III's major conceptual model and hypotheses. Panel A presents Hypotheses H1-H4, predicting depression. Panel B presents Hypothesis H5-H8, predicting sociocultural adjustment difficulties. Hypothesis H9 (moderation effect) is not presented in the model for clarity purposes.

APPENDIX B2

Descriptive Statistics of Participants' Demographic Profile

Variables	Valid N	Missing	Mean & *SD*	Percent
Age (Range = 18-45)	507	1	Mean = 26.19 (*SD*=3.75)	
	Valid N	Missing	Frequency	Percent
Gender	504	4		
• Male			287	56.5
• Female			217	42.7
Immigration status[a]	508	0		
• Holding F-1 visa			470	92.5
• Holding J-1 visa			21	4.1
• Holding Green Card			17	3.3
University	506	2		
• Texas A&M University at College Station			320	63.0
• The University of Texas at Austin			102	20.1
• University of Houston			36	7.1
• Rice University			48	9.4
Degree	505	3		
• Bachelor's			47	9.3
• Master's			139	27.4
• Doctorate (e.g., Ph.D. and Ed.D.)			319	62.8
Length of stay in US	507	1		
• Less than 4 full months			12	2.4
• Between 4 full months and 2 full years			265	52.1
• Between 2 and 4 full years			136	26.8
• Between 4 and 6 full years			53	10.4
• More than 6 full years			41	8.0
Marital status	507	1		
• Single			314	61.8
• Married			169	33.3
• Divorced			2	0.4
• Coupled (not legally married)			20	3.9
• Separated			2	0.4
Sources paying for most of tuition	507	1		
• The U.S. university participants			370	72.8

	were attending (through graduate assistantships or scholarships)		
•	Loans	4	0.8
•	The Chinese government	14	2.8
•	Family	105	20.7
•	Self	14	2.8

[a] Foreign students hold F-1 visas, exchange visitors hold J-1 visas, and permanent U.S.

residents hold "Green cards."

APPENDIX B3

Pattern Coefficients from Exploratory Factor Analysis (EFA), Means, SDs, and Cronbach's α for this Study's Instrument

	M	SD	α	Number of factors emerging from each scale	
				1	2
Acculturation dimension 1 scale (10 items): Adherence to the home culture					
Response scale = (1) strongly disagree, (2) disagree, (3) mildly disagree, (4) mildly agree, (5) agree, (6) strongly agree					
Higher scores indicate: Greater adherence to the home culture					
EFA Procedures: Principle Axis Factoring with promax rotation extracting factors with eigenvalues > 1					
Factor 1: Cultural behaviors and affects			0.79		
N47. I enjoy social activities with people from the Chinese culture.	4.90	0.90		**.942**	-.140
N49. I am comfortable working with people from the Chinese culture.	4.79	0.91		**.639**	.021
N61. I am interested in having friends from the Chinese culture.	5.12	0.71		**.565**	.233
N43. I often participate in Chinese cultural traditions.	4.31	1.27		**.416**	.066
N51. I enjoy entertainment (such as movies, music) from the Chinese culture.	5.08	0.87		**.378**	**.345**
N45. I would be willing to marry a person from the Chinese culture.	5.20	0.97		**.357**	.117
Factor 2: Cultural beliefs and affects			0.78		
N57. I believe in most of the values of the Chinese culture.	4.75	0.89		-.126	**.819**
N55. It is important for me to maintain or develop the practices of the Chinese culture.	4.73	0.94		.046	**.694**
N53. I often behave in ways that are typical of the Chinese culture.	4.64	0.92		.128	**.560**
N59. I enjoy the jokes and humor of the Chinese culture.	5.12	0.77		.172	**.521**
Overall Cronbach's α = 0.86			0.86		
Total variance explained = 44.92%				39.58%	5.34%

	M	SD	α	Number of factors emerging from each scale	
				1	2
Acculturation dimension 2 scale (10 items): Adherence to the host culture					
Response scale = (1) strongly disagree, (2) disagree, (3) mildly disagree, (4) mildly agree, (5) agree, (6) strongly agree					
Higher scores indicate: Greater adherence to the host culture					
EFA Procedures: Principle Axis Factoring with promax rotation extracting factors with eigenvalues > 1					
Factor 1: Cultural behavior and affects			0.77		
N48. I enjoy social activities with Americans.	4.12	0.99		**.716**	.000
N62. I am interested in having American friends.	4.91	0.75		**.704**	-.126
N50. I am comfortable working with Americans.	4.58	0.81		**.653**	-.022
N52. I enjoy American entertainment (such as movies, music).	4.72	0.93		**.496**	.108
N44. I often participate in American cultural traditions.	3.25	1.09		**.326**	.238
N46. I would be willing to marry an American.	2.93	1.36		**.311**	.202
N60. I enjoy American jokes and humor.	3.95	1.07		**.304**	.291
Factor 2: Cultural beliefs			0.63		
N54. I often behave in ways that are typical of the American culture.	3.20	1.00		.006	**.681**
N58. I believe in most of the American values.	3.82	0.94		-.110	**.668**
N56. It is important for me to maintain or develop American cultural practices.	4.12	1.10		.090	**.462**
Overall Cronbach's α = 0.80			0.80		
Total variance explained = 35.18%				29.66%	5.52%

	M	SD	α	Number of factors emerging from each scale	

Social interaction with host nationals scale (9 items)

Response scale for quantity items = (1) rarely or never, (2) occasionally, (3) sometimes, (4) often, (5) very often

Response scale for quality items= (1) not at all, (2) slightly, (3) somewhat, (4) equal/willing/pleasant/cooperative, (5) very

Higher scores indicate: Greater social interaction with host nationals

EFA Procedures: Principle Axis Factoring with varimax rotation extracting factors with eigenvalues > 1

Item	M	SD	α	1	2
Factor 1: Quantity of social interaction			0.80		
N34. During the past 12 months, how often did you interact socially with Americans as close friends (in whom you confide and with whom you discuss important personal issues)?	2.37	1.34		**.766**	.224
N37. During the past 12 months, how often did you have social interactions with Americans you know from school (such as classmates, colleagues, members in student organizations)?	2.51	1.28		**.640**	.275
N33. During the past 12 months, how often did you visit American homes?	2.37	1.15		**.611**	.140
N32. During the past 12 months, how often did you have informal conversations with Americans?	3.28	1.19		**.600**	.291
N36. During the past 12 months, how often did you interact socially with Americans who live close to you (as roommate(s) or neighbors)?	2.01	1.13		**.541**	.159
Factor 2: Quality of social interaction			0.74		
N41. Regarding most of your social interactions with Americans, would you consider the social interactions to be pleasant?	3.46	0.84		.228	**.750**
N42. When you socially interact with Americans by working toward a common goal (such as working together for a class project, community activity, or research), would you consider the social interaction to be cooperative?	3.82	0.91		.122	**.653**

	M	SD	α	Number of factors emerging from each scale	
Social interaction with host nationals scale (9 items) (cont.)				1	2
N38. Regarding most of your social interactions with Americans, would you consider you and the American(s) had equal status?	3.01	1.14		.247	**.509**
N39. Regarding most of your social interactions with Americans, how willing were you to engage in the social interactions?	3.29	1.01		**.421**	**.474**
Overall Cronbach's α = 0.83			0.83		
Total variance explained = 45.07%				25.87%	19.20%
Social connectedness with host nationals scale (8 items)					
Response scale = (1) strongly disagree, (2) disagree, (3) mildly disagree, (4) mildly agree, (5) agree, (6) strongly agree				1	2
Higher scores indicate: Greater social connectedness with host nationals					
EFA Procedures: Principle Axis Factoring with varimax rotation extracting factors with eigenvalues > 1					
Factor 1: Negatively worded social connectedness			0.87		
N64. I feel like an outsider in the American society[a].	3.08	1.09		**.749**	.223
N69. Even around Americans I know, I don't feel that I really belong[a].	3.07	1.11		**.727**	.257
N63. I feel distant from Americans[a].	3.09	1.11		**.705**	.295
N70. I feel disconnected from the American world around me[a].	3.58	1.16		**.689**	.329
N68. I don't feel I participate in any American group[a].	3.36	1.24		**.650**	.228
Factor 2: Positively worded social connectedness			0.73		

	M	SD	α	Number of factors emerging from each scale			
Social connectedness with host nationals scale (8 items) (cont.)				1	2		
N67. I am able to connect with Americans.	4.12	0.95		.184	**.676**		
N65. I feel understood by the Americans I know.	4.18	0.92		.250	**.657**		
N66. I feel close to Americans.	3.24	0.94		**.471**	**.552**		
Overall Cronbach's α = 0.87			0.87				
Total variance explained = 54.48%				35.02%	19.46%		

	M	SD	α	1	2	3	4
Depression scale (19 items)							
Response scale = (1) rarely or none of the time, (1) some or a little of the time, (2) occasionally or a moderate amount of the time, (3) most or all of the time							
Higher scores indicate: Greater amount of depressive symptoms.							
EFA Procedures: Principle Axis Factoring with varimax rotation extracting factors with eigenvalues > 1							
Factor 1: Positive affect			0.78				
N86. I enjoyed life.[a]	0.71	0.86		**.741**	.190	.137	.272
N82. I was happy.[a]	0.78	0.85		**.718**	.185	.213	.289
N78. I felt hopeful about the future.[a]	0.75	0.88		**.666**	.218	.058	.051
N74. I felt that I was just as good as other people.[a]	0.89	1.00		**.421**	.202	.120	.020
Factor 2: Depressed affect			0.85				
N79. I thought my life had been a failure.	0.31	0.61		**.366**	**.337**	**.353**	.119
N73. I felt that I could not lift myself out of the depressive mood.	0.47	0.70		.294	**.666**	.100	**.346**

	M	SD	α	Number of factors emerging from each scale			
				1	2	3	4
Depression scale (19 items) (cont.)							
N76. I felt depressed.	0.63	0.77		**.335**	**.615**	.234	**.322**
N88. I felt sad.	0.55	0.71		**.320**	**.547**	**.465**	.046
N75. I had trouble keeping my mind on what I was doing.	0.77	0.80		.210	**.492**	.188	.162
N90. I could not get "going." (In other words, I did not feel like taking the initiative to work on t...	0.66	0.81		.226	**.470**	.271	.171
N80. I felt fearful.	0.44	0.67		.269	**.340**	**.355**	.187
Factor 3: Interpersonal			0.67				
N89. I felt that people disliked me.	0.33	0.60		.208	.262	**.578**	.156
N85. People were unfriendly.	0.30	0.61		.011	.000	**.540**	.242
N84. I felt lonely.	0.86	0.92		**.322**	**.375**	**.408**	.165
N87. There were moments that I cried.	0.26	0.55		.078	.206	**.397**	.035
N83. I talked less than usual.	0.75	0.85		.140	.211	**.330**	.246
Factor 4: Somatic			0.58				
N72. I did not feel like eating; my appetite was poor.	0.31	0.63		.109	.193	.095	**.557**
N71. I was bothered by things that usually don't bother me.	0.48	0.71		.139	**.317**	.284	**.437**
N81. My sleep was restless.	0.50	0.77		.152	.091	.259	**.391**
Overall Cronbach's α = 0.90			0.90				
Total variance explained = 43.06%				13.23%	12.70%	10.20%	7.00%

		M	SD	α	Number of factors emerging from each scale			

Sociocultural adjustment difficulties scale (21 items)

Response scale = (0) no difficulty, (1) slight difficulty, (2) moderate difficulty, (3) great difficulty, (4) extreme difficulty

Higher scores indicate: Greater amount of sociocultural adjustment difficulties

EFA Procedures: Principle Axis Factoring with promax rotation extracting factors with eigenvalues > 1

	M	SD	α	1	2	3	4
Factor 1: Casual personal communication in English			0.84				
N11. Making American friends	2.55	0.97		**.950**	.008	.007	-.167
N13. Making other foreign friends	2.2	0.86		**.764**	-.144	.169	-.091
N21. Interacting with Americans of the opposite sex	2.28	0.99		**.618**	.047	-.042	.097
N17. Participating in American social events and gatherings	2.45	1.00		**.516**	-.018	.040	.250
N18. Talking about yourself with Americans	1.80	0.80		**.425**	.201	.030	.206
Factor 2: Academic work and impersonal communication in English			0.84				
N29. Coping with academic work	1.69	0.75		-.095	**.821**	.090	-.192
N31. Expressing your ideas in class(es)	1.98	0.84		.117	**.799**	-.086	-.133
N28. Understanding what is required of you at the university	1.44	0.62		-.147	**.790**	.250	-.131
N30. Interacting with American staff at the university	1.58	0.66		.062	**.624**	.058	-.008
N25. Understanding the spoken English language	1.93	0.72		.051	**.456**	-.154	**.334**
N14. Making yourself understood	1.87	0.71		.256	**.393**	.062	.045
N27. Adapting to the local etiquette	1.66	0.76		.093	**.313**	.183	.145

	M	SD	α	Number of factors emerging from each scale			
Sociocultural adjustment difficulties scale (21 items) (cont.)				1	2	3	4
Factor 3: Survival involving miminal English communication			0.61				
N16. Shopping in American grocery, supermarket, and department stores	1.32	0.6		.027	-.117	**.484**	**.332**
N26. Living independently from your parents	1.24	0.55		-.076	.095	**.443**	.138
N12. Making Chinese friends	1.37	0.64		.245	.073	**.417**	-.205
N15. Getting used to the pace of life in the United States	1.58	0.73		.148	.221	**.350**	.098
Factor 4: Food, humor, service use			0.67				
N20. Getting used to the local food	2.02	1.02		.019	-.260	.058	**.608**
N24. Dining in American restaurants and fast food outlets	1.52	0.72		-.099	.118	.164	**.502**
N23. Finding your way around (in other words, finding the location to which you need to go)	1.59	0.76		-.143	.119	.257	**.453**
N19. Understanding American jokes and humor	2.99	1.01		.222	.209	-.291	**.375**
N22.Handling unsatisfactory service which is provided by Americans	2.20	0.90		.208	.077	.109	**.347**
Overall Cronbach's α = 0.90			0.90				
Percent of total variance explained = 43.76%				32.55%	6.03%	2.71%	2.47%

Note. We chose Principle Axis Factor (PAF) as the EFA method because it is one of the most widely reported EFA methods in published journal articles (Warner, 2008). PAF produces similar solutions with Principle Component Analysis (PCA) (Thompson, 2004). Since PAF considers measurement errors in the extraction of factors (Warner, 2008) whereas PCA assumes perfect score reliability (no measurement errors), we chose PAF as the EFA method. We only included items with larger than 0.3 pattern coefficients in subsequent analyses. The rationale was when an item's pattern coefficient is lower than 0.3, the item contributes little to the factor (less than 10% of the information in the item is useful in describing the factor) (Tabachnick and Fidell, 2007). We bolded cross-loading items' pattern coefficients. For easier interpretation, we included such items in the factor to which it contributed the most in internal consistency. For example, if an item had a higher corrected item-total correlation on Factor 1 than Factor 2, and if we deleted this item, Factor 1's internal consistency reduced more than Factor 2, we would include this item in Factor 1. We used promax rotation for acculturation and sociocultural adjustment difficulties scales because a) theories for these constructs support correlated factors (B.S.K. Kim & Abreu, 2001; Ward & Kennedy, 1999) and b) promax solutions are simpler and clearer than varimax solutions.
[a] Items were reverse coded before running EFA.

APPENDIX B4

Means, Standard Deviations, and Zero-order Correlations of Variables

Variables	M	SD	1	2	3	4	5	6
1. Adherence to the home culture	48.62	6.01	--	.156***	.023	-.050	-.211***	-.078
2. Adherence to the host culture	39.60	6.01		--	.499***	.520***	-.242***	-.420***
3. Social interaction with Americans	26.13	6.57			--	.640***	-.216***	-.420***
4. Social connectedness with Americans	27.72	6.21				--	-.331***	-.480***
5. Depression	10.73	8.47					--	.379***
6. Sociocultural adjustment difficulties	39.24	9.75						--

Note. N = 508.

* *p* < .05. ** *p* < .01. *** *p* < .001.

APPENDIX B5

Simple and Multiple Regression Analyses of Depression

Independent variables	Pearson *r*	Model 1	Model 2	Model 3	Model 4	Model 5
		Standardized regression coefficient β (Structure coefficient r_s)				
Adherence to the host culture	-.242***	-.242*** (-1.000)	-.214*** (-.809)	-.143** (-.749)	-.040 (-.599)	-.046 (-.599)
Adherence to the home culture	-.211***	--	-.178*** (-.706)	-.186*** (-.653)	-.221*** (-.522)	-.222*** (-.522)
Social interaction with Americans[a]	-.216***	--	--	-.141** (-.669)	--	.027 (-.535)
Social connectedness with Americans	-.331***	--	--	--	-.322*** (-.819)	-.336*** (-.819)
Multiple *R*		.242	.299	.323	.404	.404
Multiple R^2		.058	.089	.104	.163	.163
Adj. R^2	--	.057	.086	.099	.158	.157
F	--	31.432	24.777	19.530	32.726	24.568
Sig	--	.000	.000	.000	.000	.000

Note. N = 508.

[a] Refer to this paper's Notes section for additional explanation.

* *p*< .05. ** *p*< .01. *** *p*< .001.

APPENDIX B6

Simple and Multiple Regression Analyses of Sociocultural Adjustment Difficulties

		Standardized regression coefficient β (Structure coefficient r_s)			
Independent variables	Pearson *r*	Model 1	Model 2	Model 3	Model 4
Adherence to the host culture	-.420***	-.420*** (-1.000)	-.280*** (-.866)	-.233*** (-.808)	-.203*** (-.794)
Adherence to the home culture	-.078	--	--	--	--
Social interaction with Americans	-.420***	--	-.280*** (-.866)	--	-.134** (-.794)
Social connectedness with Americans	-.480***	--	--	-.359*** (-.923)	-.289*** (-.907)
Multiple *R*		.420	.485	.520	.529
Multiple R^2		.176	.235	.270	.280
Adj. R^2	--	.175	.232	.267	.276
F	--	108.371	77.766	93.526	65.409
Sig	--	.000	.000	.000	.000

Note. N = 508.

* *p* < .05. ** *p* < .01. *** *p* < .001.

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