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THE IMPACT OF SOCIAL SUPPORT AND COPING ON ACCULTURATION AND
ACCULTURATIVE STRESS AMONG EAST ASIAN INTERNATIONAL STUDENTS

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ABSTRACT

The purpose of this study was to examine the mediation effects of social support and coping on the relationship between levels of acculturation and acculturative stress among East Asian international students from China, South Korea, Taiwan, and Japan. In addition, this study also aimed to investigate whether a specific source of social support (i.e., family and old friends, new friends in the U.S., universities and colleges) and a specific type of coping (i.e., task-oriented coping, emotion-oriented coping, avoidance-oriented coping) mediate the effects of acculturation on acculturative stress. The final sample included 210 East Asian international students with F-1 visas enrolled at American institutions of higher education. To explore its research questions, the study conducted hierarchical multiple regression analyses. The results showed partial mediation effects of social support and coping on the relationship between acculturation and acculturative stress of East Asian international students. Moreover, the results revealed that social support from new friends in the U.S. and universities and colleges partially mediate the levels of acculturation on acculturative stress. However, this study found no mediation effect of social support from family and old friends back in the students' home countries. Additionally, there were partial mediation effects of task-oriented coping and avoidance-oriented coping on the relationship between acculturation and acculturative stress. Emotion-oriented coping, however, did not mediate the effects of acculturation on acculturative stress. At the close of this paper, I will also discuss the study's implications, limitations, and strengths, and then will offer recommendations for future research.

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CHAPTER 1

Introduction

This paper includes five chapters. The first chapter presents the statement of the problem, the purpose of the study, and research questions. The significance of the study, the definition of terms, as well as limitations and delimitations, are also addressed. The second chapter offers a review of the literature on issues of international students in the U.S. including levels of acculturation, acculturative stress, social support and coping, followed by the theoretical foundation of the study. The proposed model and research questions are also presented. Chapter Three presents the methodology of this study, including the research design, participants, instruments, variables, procedures, and data analyses. Chapter four describes the results of the study including preliminary analyses, univariate analysis, and bivariate analysis, followed by the results of hierarchical multiple regression analyses. Lastly, Chapter five offers the major findings of this study. The strengths and implications of the findings, limitations of the study, and recommendations for future research, are also discussed.

Statement of the Problem

Each year an increasing number of international students come to the U.S. in pursuit of higher education. According to the Institute of International Education (2012), the population of international students in the U.S. has climbed dramatically over the past decade, reaching an estimated total of 764,495 during the 2011-12 academic year. Mori (2000) indicates that these international students face unique stressors and psychological concerns. Not only must they adjust to a different culture and new academic environment, but they also experience language barriers, financial difficulties, and the loss of interpersonal relationships (Mori, 2000). Despite expanding research on the adjustment, adaptation, and difficulties of international students in the

U.S. (Edwards, Hershberger, Russell, & Market, 2001; Gall, Evans, & Bellerose, 2000; Gloria & Kurpius, 2001), few studies focus on the relationship between acculturation and acculturative stress of Asian international students; the impact of social support and coping on this relationship; or even the students' psychological well-being.

According to researchers (e.g., Hyun, Quinn, Madon, & Lustig, 2007; Mori, 2000), Asian international students express more acculturative stress but use mental health services less frequently than their American peers or European international counterparts. As a result, Asian international students may face significant psychological distress, physical illnesses and adjustment problems if exposed to acculturative stress for a prolonged period of time (Constantine, Okazaki, & Utsey, 2004; Kearney, Draper, & Baron, 2005). Therefore, for colleges and universities to provide effective counseling and psychological services to international students from diverse countries, counseling professionals and administrators need to understand how different groups of international students experience the process of acculturation and its associated stressors. Equipped with such knowledge, counselors and administrators would then be able to better recognize how international students—particularly Asian international students—make use of social support and coping mechanisms for decreasing acculturative stress.

Although sharing some common features, Asian sub-groups contain a variety of distinctive features that preclude the possibility of homogenization. However, an overview of the literature reveals that most researchers fail to recognize the heterogeneity among sub-groups of Asian international students (Lee & Liu, 2001; Kim, Atkinson, & Yang, 1999). Fritz, Chin, and DenMarinis (2008) also mention this oversight in the much of the current literature that treats all Asian international students uniformly despite cultural differences. Those diverse

cultural values and traditions may influence how Asian international students undergo the process of acculturation and cope with acculturative stress. Heggins and Jackson (2003) suggest that the failure of addressing the differences among sub-groups of Asian populations often leads researchers to overgeneralizations and faulty conclusions. Therefore, this study focused on East Asian international students from China, South Korea, Taiwan, and Japan who share cultural values such as collectivism, Buddhism, Confucian ethical philosophy, similar legal and political structures, and a historically common writing system (Schoppa, 2008). The Institute of International Education (2012) reports that of all the Asian international students in the U.S., more than 70% of them originally hail from the four East Asian countries: China, South Korea, Taiwan, and Japan. By targeting students from these four countries, the findings of the study help develop our understanding of the role that acculturation, acculturative stress, social support, and coping play within the largest sub-group of East Asian international students.

Purpose of the Study and Research Questions

This study aimed to examine the role of social support and coping on the relationship between levels of acculturation and acculturative stress among East Asian international students. Many studies show that a significant relationship exists between levels of acculturation and acculturative stress (e.g., Hwang & Ting, 2008; Kim, 2007; Yi, 1996); such studies show that individuals with higher levels of acculturation are more likely to cope with acculturative stress. In addition, the literature on international students supports the notion that international students are more likely to overcome their acculturative stress when they have sufficient social support and coping strategies. Previous studies (e.g., Chen, 1999; Fang, 2013; Olaniran, 1993; Ying & Liese, 1991) have suggested that international students derive the important sources of social support from family and old friends, new friends in the U.S., and the universities and colleges

(e.g., student associations and international student center). Concurring with such studies, the literature on coping (e.g., Furukawa, 1997; Li & Browne, 2000) has determined that coping styles (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) affect acculturation and acculturative stress of international students in the U.S. Thus, by exploring this form of acculturation experience, this study aimed to broaden our knowledge of how East Asian international students perceive, experience, and overcome their acculturative stress during the acculturation process in the U.S. Furthermore, such an undertaking increases our understanding of how social support and coping relate with levels of acculturation and acculturative stress among these international students. Based on the theoretical framework of Berry's (1997) stress and coping model of acculturation, this study explored the relation among social support, coping, levels of acculturation and acculturative stress.

Specific research questions of the study included:

Research Question 1

To what extent do social support and coping mediate the effects of levels of acculturation on acculturative stress?

Research Question 2

To what extent does a specific source of social support (i.e., family and old friends, new friends in the U.S., and universities and colleges) mediate the effects of levels of acculturation on acculturative stress?

Research Question 3

To what extent does a specific type of coping (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) mediate the effects of levels of acculturation on acculturative stress?

Significance of the Study

With a deepened awareness of the effects of social support and coping, counselors, university faculties, and peer students would be better prepared to facilitate the acculturation process, reduce acculturative stress, and assist East Asian international students in adjusting to their new and unfamiliar surroundings. Without such an understanding, international students struggling with adjustment issues may continue to suffer a multitude of problems and considerable stress from acculturation. Lack of social support and coping negatively affects international students' adjustment regarding cultural differences, language problems, and financial pressure. In addition, the absence of social support and insufficient coping may lead to a loss of academic self-efficacy and interpersonal relationships (Poyrazli, Arbona, Nora, McPherson, & Pisecco, 2002). Leung (2001) notes that international students' academic and social difficulties can eventually detract from emotional well-being and lead to serious stress, a sense of loneliness, and anxiety. In serious cases of acculturative stress, international students can even experience physical ailments such as headaches, fatigue, or loss of appetite (Lacina, 2002). Thus, rather than simple challenges, the issues of acculturation and acculturative stress can be highly complex phenomena in which psychological factors and their impacts closely relate.

This study, in describing such psychological aspects of acculturation, hopes to enhance the understanding of how international students deal with their acculturative stress during the acculturation process within the U.S. With the findings of this study, fellow students, counselors, and faculty members can better address common acculturation experiences as well as the acculturative stress which results from the experiences. Furthermore, results of this study can assist professionals and administrators in higher education in providing a supportive

environment as well as effective services for continuously growing these populations of international students by providing a framework to allow for the design of preventive projects or workshops regarding mental health issues and general well-being. When trying to overcome their acculturative stress, international students could benefit from more satisfying social support and more efficacious methods of coping. Church (1982), for example, suggests that by obtaining better social connectedness and coping strategies, international students can also gain an increased appreciation of their home culture, a broader worldview, and greater self-awareness, self-esteem, and creativity all while reducing stereotypes. On a global level, they could, with sufficient social support and coping, contribute to diffusion of knowledge among diverse cultures and foster effective international relations (Petersen, 1991).

Limitations and Delimitations

There are three limitations in this study. First, this study targeted international students originally from four of East Asian countries (i.e., China, South Korea, Taiwan, and Japan) and therefore, results of this study may not be as applicable to international students from other countries. Second, this study used self-reported instruments: international students' self-reported responses might be different from their actual use of social support and coping because the responses are based on perception. Lastly, the timing of data collection may impact participants' levels of acculturation and acculturative stress. The target population was contacted at the beginning of the semester which may mean that their levels of acculturation, acculturative stress, perceived social support, and coping styles could differ from the middle or end of the semester.

Delimitation might lay in distinguishing sources of social support. The present study assumed that sources of social support (e.g., family and old friends, new friends in the U.S., and

universities and colleges) are critical in determining the quality of social support for East Asian international students. Some literature, however, also shows that types of social support (e.g., emotional support, instrumental support) serve as powerful buffers against the negative impact of stressors (e.g., De Jonge, Le Blanc, Peeters, & Noordam, 2008). Although prior studies have successfully applied the matching hypothesis using sources of social support (e.g., Peeters & LeBlanc, 2001; Terry, Neilson, & Perchard, 1993), it could be that the distinction between various sources is not entirely crucial.

Definition of Terms

International Students

International students are defined as individuals who enrolled in courses at U.S. higher education institutions for the purpose of achieving a degree yet are not U.S. citizens, immigrants, or refugees (Gu, 2008). Therefore, international students in this study are individuals currently living in the U.S., who are not U.S. citizens or residents, but hold a F-1 visa (i.e., student visa), and are enrolled in U.S. institutions of higher education for the purpose of earning their degree.

Asian International Students

Asian international students in this study refer to international students who are originally from any Asian country, such as China, South Korea, Taiwan, Japan, India, or Vietnam.

East Asian International Students

East Asian international students in this study are international students whose country of origin is China, South Korea, Taiwan, or Japan. International students from other East Asian countries were thus excluded from this study for a variety of reasons. This study, for instance, excluded North Korea and Mongolia because only a small number of international students from these countries attend American universities.

Acculturation

In its most general sense, acculturation is defined as the contact of two cultural groups in which one of the two groups changes as a result of contact (Berry, 1980). As a process, acculturation contains the adjustment and adaptation of individuals or groups as they settle into a new socio-cultural environment (Berry, 1980). This study considered the level of acculturation as a predictor variable. This variable was measured by the Suinn-Lew Asian Self-Identity Acculturation Scale (SA-ASIA).

Acculturative Stress

Acculturative stress refers to a reduction in the overall health of individuals who are undergoing acculturation (Berry, Kim, Minde, & Mok, 1987). For international students, major issues that cause acculturative stress include cultural differences, academic performance, interpersonal relationships, financial concerns, and using a second language. This study treated acculturative stress as an outcome variable. This variable was measured by the Index of Life Stress (ILS).

Social Support

Social support is defined as the perception of assistance to others in order to help them deal with a variety of stressors (American Psychological Association, 2007). Sources of social support for international students include family and old friends, new friends in the U.S., and universities and colleges. Social support was considered as a mediator variable in this study. This variable was measured by the Index of Social Support (ISS).

Coping

Coping is defined as cognitive and behavioral responses or efforts to negative life issues in order to manage those specific issues over the environment (Lazarus, 1990). Types of

coping for international students are task-oriented coping, emotion-oriented coping, and avoidance-oriented coping. Coping was considered as a mediator variable in this study. This variable was measured by the Coping Inventory of Stressful Situations (CISS).

Demographic Variables

Demographic variables refer to variables provide background information about participants. Demographic variables with stronger correlations with the predictor variable, the mediator variables and the outcome variable was planned to be treated as confounding demographic variables. However, there were no demographic variables with significant correlations with the predictor variable, the mediator variables and the outcome variable. In this study, demographic variables (e.g., length of stay in the U.S., gender, and age) were measured by the demographic questionnaire.

CHAPTER 2

Literature Review

The purpose of this study was to investigate the impact of social support and coping on the relation between levels of acculturation and acculturative stress among East Asian international students in the U.S. This chapter summarizes the current state of the discourse on the relationship between East Asian international students' acculturation and their corresponding acculturative stress. More importantly, this chapter also describes the literature regarding the role played by social support and coping in the relationship between levels of acculturation and acculturative stress for East Asian international students.

International Students in the U.S.

The number of international students in the U.S. is on the rise (Lee, Koeske, & Sales, 2004). Gu (2008) defined international students as those who enrolled in courses at U.S. higher education institutions, yet are not U.S. citizens, immigrants, or refugees. According to McMurtrie, Bollag, and Maslen (2001), the United States is the most popular destination for international students and the number of international students in the U.S. is the highest in the world. The Institute of International Education (2012) reported that the number of international students who move to the U.S. for higher education has dramatically increased over the past decade: from 582,996 in the 2001-02 academic year to a total of 764,495 in the 2011-12 academic year, amounting to almost 4% of U.S. higher education enrollment in 2011 (Institute of International Education, 2012). The population of international students in American institutions has contributed to both the globalization of American education (Arthur, 2004) and increased diversity in universities and colleges (Zhao, Kuh, & Carini, 2005).

Mori (2000) indicated that moving to the U.S. for the purpose of achieving a degree in higher education could serve as a meaningful life transition for international students. Most international students, however, experience difficulties when adjusting to a new culture, such as meeting people with different cultural backgrounds and overcoming language barriers. According to Chen (1999), international students need to not only adjust to a new culture, but also a different academic environment, all while confronting financial concerns and racial/ethnic discrimination.

In an effort to understand the difficulties that international students face in the U.S., Fritz et al. (2008) noted that all international students cannot be treated as a homogenous group because they have different cultural backgrounds and values; for example, Western culture versus Eastern culture and individualism versus collectivism. Mitchell, Greenwood, and Guglielmi (2007) also reported that the researchers should pay attention to diversity within the population of international students; they emphasized, in particular, Asian international students due to the rapid migration of Asian students to U.S. institutions. A report from the Institute of International Education (2012) revealed that students from Asia comprised 62% of international students in the U.S. In addition, Tracey, Leong, and Glidden (1986) found that there were critical differences between the difficulties experienced by Asian international students and other international students in the context of adjusting to American culture.

Previous studies (e.g., Yang & Clum, 1994; Yeh & Inose, 2003; Zhang & Dixon, 2003) have focused on Asian international students with an emphasis on their adjustment in the U.S. In particular, some of the studies (e.g., Lee et al., 2004; Ying, 2003) tried to understand the issues of Asian international students from China, South Korea, Taiwan, and Japan. Schoppa (2008) stated that culturally, these countries have been perceived as encompassed by East Asia.

These four countries have similar cultural backgrounds and values such as Buddhism, Confucian ethical philosophy, legal and political structures, and a historically common writing system (Schoppa, 2008). The Institute of International Education (2011) reported that international students from China, South Korea, Taiwan, and Japan comprised more than 40% of international students in the 2010-2011 academic year. Thus, the majority of participants in the previous research conducted on Asian international students were mainly from China, South Korea, Taiwan, and Japan (Constantine et al., 2004).

Therefore, this literature review included studies on international students broadly conceived, Asian international students, and international students from specific countries. The literature review progresses the existing discourse surrounding East Asian international students from the four countries: China, South Korea, Taiwan, and Japan.

Acculturation

Most of the international students in the U.S., especially Asian international students, have gone through the process of acculturation. In order to examine if the level of acculturation impacts an international student's acculturative stress, it is necessary to define the concept of acculturation, as well as to consider how it manifests in Asian international students in the U.S.

Acculturation Defined

The concept of acculturation is complex and is described in a number of ways. The indefinite and inconsistent results produced by previous research on acculturation can be attributed to the intricate nature of the term. Originating in anthropology, acculturation is conceived as a cultural group phenomenon (Berry, 1980). According to Berry (1980), the most simplistic and general definition of acculturation is: the contact of two cultural groups in which one or the other of the two groups changes as a result of the contact. In most cases of

acculturation, the non-dominant group, or minority, undergoes the change. Berry (1980) insisted that this definition provides a broad and general perspective on the complex process of acculturation.

The Process of Acculturation

Regardless of how researchers define acculturation, all theories and definitions imply that acculturation is a process that an individual undergoes (Tafoya, 2011). According to Berry (1980), the process of acculturation involves the adaptation and adjustment of individuals or groups of people as they settle into a new social and cultural environment. The acculturation process could be positive—resulting in the improvement of an individual’s life and mental health within the dominant culture—or, it could be negative due to the challenging nature of adapting to a new culture (Berry, 1988). Suinn, Rickard-Figueroa, Lew, and Vigil (1987) noted that during the process of acculturation, the beliefs, values, and customs of an ethnic minority group change and begin to reflect those of the dominant culture. These changes may also encompass language, habits, lifestyle, family structure, and peer relations.

Berry (1980) discussed acculturation as a multidimensional phenomenon consisting of three phases: contact (the encounter between two cultural groups), conflict (the point of difference between the values of two cultural groups), and adaptation (an approach used to assuage the differences between the two groups). He mentioned that “the first phase is necessary, the second is probable, and some form of the third is inevitable” (p. 33). Berry (1980) expressed that the main idea behind acculturation is the contact between two groups; therefore, acculturation would not exist without contact. At the point of contact, conflict occurs in the form of some degree of resistance; naturally, each group will not easily part with the distinguishing features of its culture. Adaptation serves as a means of mitigating this conflict.

Berry (1980) also noted that four possible outcomes result from the acculturation process: separation, marginalization, assimilation, and integration.

Separation. Separation means that the individual preserves his or her original identity and culture, but in doing so becomes isolated from the dominant society. As a result, international students with this status are confined to the social support provided only by those from their own country. As unproductive members within the new community and academic setting (Johnson & Sandhu, 2007), these students become vulnerable to such afflictions as mental health problems and alcohol dependence or abuse (Berry, 1980; Escobar, Randolph, & Puente, 1983).

Marginalization. Marginalization is a process whereby the student loses his or her cultural identity resulting in the inability to interact with either individuals from his or her own country or those from the host country. Ward and Kennedy (1993) mentioned that international students who are holding a marginalized status could suffer from the highest levels of acculturative stress. They could also experience serious psychological maladjustment while staying in the new country.

Assimilation. In the process of assimilation, an individual abandon his or her own culture for the dominant culture (Berry, 1980). International students with an assimilation status attempt to segregate from their traditional culture in the hopes of being accepted by the host culture. Although the assimilation strategy appears effective in terms of social adaptation, Searle and Ward (1990) pointed out that it also has negative implications for psychological adjustment. According to Ward and Kennedy (1993), assimilation is a risky strategy that can result in difficulties in work or school, high levels of acculturative stress and anxiety, and low self-esteem.

Integration. Integration is an acculturation strategy that involves some preservation of the individual's original culture, but also some interaction with the mainstream society.

Research has generally suggested that the status of integration is the most adaptive and beneficial strategy for international students (Berry, 1997; Coll & Magnuson, 1997; Ward & Kennedy, 1993). International students with integration status maintain both traditional and new cultural identity and show high level of English proficiency and active interaction with friends both from their own cultural group members and the United State (Berry, 1997; Berry, Phinney, Sam, & Vedder, 2006; Searle & Ward, 1990).

Influences of Acculturation

According to Berry (2005), both the individual and the cultural characteristics of the minority group and the mainstream culture influence acculturation. Identifying these influences in addition to Berry's acculturation statuses (i.e., separation, marginalization, assimilation, and integration) is significant, because it recognizes the role of the environment on the acculturation of an individual or group. Granting the complex nature of acculturation, Navas, Garcia, Sanchez, Rojas, Pumares, and Fernandez (2005), emphasized the importance of the environment and individual- or group-related factors in understanding acculturation process. They observed that individuals from different countries implement different strategies of acculturation (e.g., social support, coping strategies, and attitudes toward ethnic discrimination) based on their culture of origin.

A considerable amount of research on acculturation focuses on U.S. minority groups, including African Americans, Latino Americans, and Asian Americans (Chun, Organista & Marin, 2002). However, Mori (2000) pointed out an important difference between immigrants and international students: international students want to achieve their academic goals in a fairly

short period of time, while immigrants plan to stay a relatively long time in the U.S. Moreover, Sodowsky and Plake (1992) pointed out that within-group differences among international students needed to be considered. In their study, Sodowsky and Plake found that an international student's length of stay and visa status within the U.S. significantly influenced successful acculturation. For example, students who stayed in the U.S. for six years or longer were more acculturated than those who had been in the country for a shorter period of time. Similarly, international students who held permanent U.S. residency reported higher levels of acculturation than those who were holding a visa. In conclusion, region of origin, length of stay, and residency status impact international students' levels of acculturation.

Acculturative Stress

Acculturative Stress Defined

While acculturation can be a fairly smooth process for some, it can be stressful for others. Stress that results directly from the process of acculturation is called acculturative stress (Berry, 1980). Berry et al. (1987) described acculturative stress as a reduction in the overall health (including psychological, somatic, and social aspects) of individuals who are undergoing acculturation; in particular, where there is evidence that this decline in health is systematically related to the stressors involved in intercultural contact. For example, they asserted that individuals who are in the process of adjusting to a host culture's language and norms usually experience acculturative stress. Therefore, acculturative stress occurs as a result of intercultural contact. Undergoing cultural losses, as well as experiencing uncertainty about how to live in a new culture, result in higher levels of stress, depression, and anxiety. Berry (2006) mentioned that stress, coping, and adaptation comprise the main theoretical view for understanding how individuals deal with acculturative stress.

Acculturation and Acculturative Stress

Acculturation and acculturative stress are intimately related; naturally, someone must be undergoing the acculturation process in order to experience acculturative stress. Additionally, those experiencing acculturative stress can change their acculturation status in response to the stress they are experiencing (Berry, 1980). Berry (1980) indicated that acculturation statuses (i.e., separation, marginalization, assimilation, and integration) describe an individual's level of acculturation within the dominant culture, whereas acculturative stress captures the stress associated with achieving a certain level of acculturation. For example, although an individual may desire assimilation into a new culture, not everyone will be accepted by the host group with the same ease; this leads to different levels of stress responses in the individual.

Previous studies (e.g., Chung, 2005; Kline & Liu, 2005) have focused on levels of acculturation and acculturative stress among international students; however, the findings from these studies remain mixed and inconclusive. Some researchers, such as Ward et al. (2001), found that as international students acculturate, risk for developing acculturative stress may increase due to the combination of heightened exposure to psychological stressors and the loss of culturally-protected social resources, such as family relations and friendship networks. Many other researchers (Hwang & Ting, 2008; Kim, 2007; Yi, 1996), however, insisted that much of the research on Asian international students indicated that those who are less acculturated are at higher risk for acculturative stress than those who are more acculturated; the negative experiences associated with acculturation, such as racial/ethnic discrimination, enhance their forbearance of coping and ability to adjust successfully in their new environment.

Certain factors, which have significant influence over the relationship between acculturation and acculturative stress, can explain how levels of acculturative stress manifest

differently for different groups of people. Some factors are present before the acculturation process even begins: age, gender, education, reasons for immigrating, language proficiency, and personality (Berry, 1997; Berry, 2006). Other factors arise during the acculturation process, such as developing coping strategies and a solid social network (Berry, 1997; Berry, 2006). For example, lacking the appropriate social network and coping skills for alleviating the stress of the acculturation process could have damaging results, whereas people who have sufficient support from other people and who can effectively cope with the stress related to the acculturation process will possess the capacity to evade these same damaging results. Berry (2006) noted that when not managed well, acculturative stress augments, leading to more detrimental outcomes for the individual, such as severe anxiety and depression.

Acculturative Stress and International Students

Moving from one's home country to an entirely new environment and culture is often accompanied with significant life changes (Prendes-Lintel, 2001). According to Yeh and Inose (2003), many international students experience chronic stress, from boarding the flight to resettling in the U.S. In addition, international students often struggle with problems related to language, education, proprieties, financial hardships, and social support. When these personal, economic, social, and cultural needs are not met, international students experience great acculturative stress (Berry, 1970).

Consistent with acculturative stress, several researchers (Fernandez, 1988; Hendersen, Milhouse, & Cao, 1993; Yeh & Inose, 2003) found that Asian international students have a harder time adjusting to the U.S. culture compared to European international students; this suggests a greater discrepancy between Eastern and Western cultures. Ying and Liese (1994) found that Asian international students with perceptions of severer problems regarding culture,

language, academic pressure, social networks, and financial issues are less likely to have a successful adjustment to their new environment. Lin and Yi (1997) thus agreed that with such myriad stressors as cultural differences, communication in a second language, academic performance, interpersonal relationships, and financial concerns, the acculturative stress of Asian international students warrants closer consideration.

Culture shock. According to Oberg (1960), culture shock is defined as a consequence of stress resulted from feelings of loss, discomfort, and confusion after moving into a new cultural environment. Research has unveiled that nearly everyone who lives in a new culture experiences some form of culture shock (Weaver, 1994). Among this population, international students may be most susceptible to higher levels of stress caused by culture shock given the added pressure to succeed academically. Winkelman (1994) suggested that when attempting to adapt to a new environment, much conscious effort is required to make sense of the new environment. The switch from automatic, habitual, unconscious, and effortless daily life functioning to unnatural, unusual, conscious effort and attention may lead to cognitive and mental fatigue, or even mental burnout. International students may also feel loss of control, helplessness, and hopelessness caused by a lack of understanding of what is going on around them (Weaver & Uncapher, 1981).

Moving out of one's native country is necessarily accompanied by the loss of established social networks and hence the loss of the roles played within that culture. Although Asian international students may have traditionally assumed dependent roles within a culture of collectivism, they are expected to assume much more independent roles within the U.S. culture of individualism. This expectation may become inconsistent with their previous self-concept. Winkelman (1994) noted that this new role may cause the individual to suffer from low self-

esteem and feelings of ambiguity in terms of their cultural identity; ultimately, this may lead to the deterioration of their psychological well-being. In this way, international students may suffer from serious acculturative stress due to cultural differences (Winkelman, 1994).

Language barriers. Mori (2000) argued that acquiring foreign language proficiency could be the most salient problem for the majority of international students. Most international students typically learn English in classroom settings. Gardner (1985), however, mentioned that English language knowledge learned in traditional classroom settings by no means guarantees the level of language proficiency needed for real-life situations in American colleges and universities, because inefficient learning style and high levels of anxiety may cause great difficulty for English learners. Similarly, obtaining a high score on English proficiency tests required for admission, such as the Test of English as a Foreign Language (TOEFL), does not mean that international students possess the necessary language competency to succeed in American higher institutions (Pedersen, 1991). According to Sovic (2008), high scores on TOEFL tests sometimes only indicate students' ability to pass the tests, and not their ability to use the language competently in an English speaking environment.

Furthermore, limited language proficiency may impede on international students' ability to establish social connections with American students and professors (Pedersen, 1991; Sovic, 2008). Hayes and Lin (1994) insisted that this inability to interact fluently in the dominant language spoken by the host society could further hinder international students' social involvement in the mainstream culture. Yeh and Inose (2003) stated that failure to establish social connections in the dominant culture contributes to international students' academic difficulties, as well as their isolation, leading to a higher level of acculturative stress. On the other hand, students who reported a higher level of fluency in English, a greater degree of

comfort in using the host language, and a higher frequency of using the dominant language experienced less acculturative stress (Yeh & Inose, 2003).

Academic pressure. International students often find it difficult to comprehend the various accents of their American professors and classmates (Lin & Yi, 1997), to follow the fast pace in which native speakers communicate, to respond immediately, and to articulate their ideas clearly (Sovic, 2008). All these factors contribute to their reluctance or inability to be active in class discussions. Lin and Yi (1997) indicated that international students also need much more time to read their textbooks and other required readings. Many of them even need to read the materials several times before they can fully understand the meaning of the texts. Furthermore, international students find it extremely difficult to express their thoughts in English due to their limited vocabulary or unfamiliarity with the writing style (Sovic, 2008).

According to Aubrey (1991), students coming from non-English speaking countries, such as Asia and the Middle East, are trained to quietly take notes in the classroom while the teacher provides instruction. Students from these countries are accustomed to earning good grades through the memorization of information in textbooks, class notes, and other reading materials. In consequence, international students are ill-prepared for the American education system, which emphasizes interactive class discussion, critical and creative paper writing, and frequent oral presentations (Thomas & Althen, 1989). Sovic (2008) mentioned that the resulting conflict between expectations for American education and the reality exerts immense stress on international students.

Because international students, particularly Asian international students, tend to represent the highest achieving population from their home country, they are placed under even greater pressure—by the expectations of their families, relatives, friends, sponsoring organizations, as

well as themselves—to gain unrealistically high academic success (Mori, 2000; Pedersen, 1991; Yeh & Inose, 2003). However, given the language barrier and international students' unfamiliarity with the American education system, it is not surprising that many encounter tremendous academic pressure. Earning a poor grade in school would thus make Asian international students feel as though they had failed (Hall, 1976; Matsumoto, 1991). Consequently, international students may suffer from a constant lack of energy, mental burnout, and severe acculturative stress due to their academic work (Winkelman, 1994).

Interpersonal stress. For international students, lack of English proficiency, as well as cross-cultural differences, interfere with their ability to make new friends among their American peers (Mallinckrodt & Leong, 1992; Yeh & Inose, 2003). Berry (1997) has demonstrated that social support from various interpersonal relationships may help individuals build a sense of belongingness and more successfully adapt to a new cultural environment, while the loss of social relationships can make individuals more susceptible to stress (Roskin, 1982; Yeh & Inose, 2003). Markus and Kitayama (1991) mentioned that relationships with significant others are given such high priority by international students from collectivist cultures, especially students from Asia, that even their definition of self is dependent upon references to the feelings and behaviors of the ones they are closest to. Thus, leaving the family and friends of one's home country necessitates the validation of an alternative sense of self in the host country. Unfortunately, satisfying Asian international students' psychological needs is complicated by the fact that their American peers have a totally different sense of the self, based on the cultural value of individualism.

Furthermore, Bulthuis (1986) insisted that friendship is perceived as more permanent and lasting in Asian collectivist cultures than in individualist cultures. As a result, Asian

international students often misinterpret American students' amiable, yet superficial greetings as signs of an invitation to form deep and significant relationships (Pedersen, 1991). Over time, an accumulation of merely superficial relationships with their American peers may lead to Asian international students' acculturative stress (Wright, 1987).

Financial difficulties. Due to the relatively high cost of American colleges and universities, many researchers have identified financial difficulties as one of the greatest source of stress for many international students (Chen, 1999; Khawaja & Dempsey, 2008; Lin & Yi, 1997). Chen (1999) mentioned that while many college students experience financial difficulties because the tuition and living expenses continue to increase over the years, these expenses are significantly higher for international students who not only pay out-of-state tuition, but who also spend more on traveling, transportation, and housing. However, the time spent negotiating a heavy course load and unfamiliar education systems prohibit international students from seeking employment. In addition, studying as a full-time student requires a full-time commitment to schoolwork, which leaves little room for students to obtain income from working. Chen (1999) argued that being a full-time student dependent on other sources of funding could exert tremendous stress on international students.

International students must rely on either personal funds (e.g., previous savings, support from parents) or other sponsors (e.g., government funding or scholarships). Lin and Yi (1997) reported that nearly two thirds (65%) of Asian international students are paying their tuition using of personal or family funds. When the source of academic funding changes—e.g., due to exhaustion of personal savings, a family financial crisis or withdrawal of government funding/scholarships—international students may experience considerable acculturative stress as a result (Chen, 1999).

Social Support

Social Support Defined

The American Psychological Association (2007) defined social support as “the provision of assistance or comfort to others, typically in order to help them cope with a variety of biological, psychological, and social stressors” (p. 869). According to Dunn and O’Brien (2009), social support involves surrounding individuals with a community of people who care about and love them, creating a sense of reassurance through the provision of a community on whom they can rely during times of need. Many studies have found social support to have a positive impact on life and to decrease psychological stress in general (Flannery & Wieman, 1989; Vaux, 1988). For example, Finch and Vega (2003) indicated that social support could minimize the perceived importance of external stressors and facilitate healthy reactions to it. Dunkley, Sanislow, Grilo, and Glashan (2006) also found that among other variables, highly perceived social support was significantly related to reducing individuals’ depressive symptoms.

Sources of Social Support for International Students

A critical issue in the investigation of the impact of social support for international students is where exactly to find this support. Many theorists and researchers (e.g., Barerra & Ainlay, 1983; Himle & Jayaratne, 1991) have identified various categories of social support. In particular, researchers who focused on the population of Asian international students (Fang, 2013; Kim, 2010) analyzed three sources of social support: family and old friends, new friends in the U.S., and universities and colleges. “Family and old friends” refers to social support from family and friends in home country. Interactions with family and old friends offer relationships in which cultural values and behaviors can be maintained. These interactions also have the potential to reduce negative symptoms associated with the unique experience of international

students in a new country (Hayes & Lin, 1994). According to Ying and Liese (1991), the support from family and friends in home country has been associated with positive mental health among international students. Ye (2006) also noted that social support from family members and old friends could decrease the acculturative stress of Asian international students. “New friends in the U.S.” describes social support provided by host culture natives and/or international peers in the U.S. Many previous studies have reported that social support from host nationals is important for the psychological adjustment of international students (Olaniran, 1993; Surdam & Collins, 1984). For example, Poyrazli, Kavanaugh, Baker, & Al-Timimi (2004) stated that international students who have interactions with Americans and participate in community activities reported less acculturative stress than those socializing only with friends in their home country. Olaniran (1993) suggested that international students who do not have adequate support from their peers in the U.S. may experience great levels of acculturative stress. The last category of social support for international students is “universities and colleges.” Mallinckrodt and Leong’s study (1992) showed that social support from universities or academic programs (e.g., counseling services, student organizations, and international student center) helped international students reduce acculturative stress associated with adjustment issues. Chen (1999) also contended that the support from universities and colleges is a valuable source of social support for Asian international students in terms of adjusting to a new academic environment.

Social Support and Acculturative Stress

The positive influence of social support on the acculturation process and the mental health problems of international students has been well documented (e.g., Misra, Crist, & Burant, 2003; Trice, 2004; Yeh & Inose, 2003). According to Poyrazli et al. (2004), social support contributed to minimizing the acculturative stress of international students in various ways.

Markus and Kitayama (1991) suggested that building a new social support is helpful for Asian international students' adjustment, because of their cultural value of collectivism. However, according to Chapdelaine and Alexitch (2004), Asian international students experience significantly more difficulties interacting socially in the host country than in their home country.

Pedersen (1991) stated that international students who do not have enough support from family and peers in their country of origin might experience serious acculturative stress in the dominant culture. Yeh and Inose (2003) asserted that international students, especially those from Asia, who perceived effective support from their family and old peers, have less acculturative stress. In addition, Misra, Crist and Burant (2003) observed that social support from the academic programs and universities had the largest impact on reducing academic stressors of international students. Moreover, Trice (2004) recommended that relationships with American or international peers in the U.S. should be encouraged because these relationships help international students access opportunities and resources. Similarly, Mallinckrodt and Leong (1992) concurred that international students who are friends with American students are also inclined to attend campus social events and to have interactions with other American students. Poyrazli et al. (2004) suggested that international students who interacted only with friends in their own country reported more acculturative stress than those who perceived host national support.

Overall, the results of the general discourse demonstrate that social support from family and old friends, new friends in the U.S., and universities and colleges are all important for the adjustment and well-being of international students. However, it is clear that different sources of social support can affect acculturation as well as acculturative stress differently based on several factors, such as ethnicity and cultural background. Thus, the subcategories of social

support need to be the focus for further research on the relation between levels of acculturation and acculturative stress for international students, especially East Asian international students.

Coping

Coping Defined and Coping Styles

Coping has been theorized to designate cognitive and behavioral responses to negative life events that ultimately enable individuals to maintain control over the environment (Lazarus, 1990). Coping, therefore, is a mediating procedure that occurs between the individual and the environment. Lazarus and Folkman (1984) conceptualized coping as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). In their Transactional Stress Coping Model, Lazarus and Folkman (1984) proposed two major forms of coping: 1) problem-focused coping, where an individual tries to manage or change the external environment that triggers stress; and 2) emotion-focused coping, where an individual focuses on regulating the internal emotional response to the stressful situation. Problem-focused coping involves changing the environment through certain strategies, such as: defining the character of the problem, generating alternative solutions, and taking action. Lazarus and Folkman (1984) reasoned that it could also be directed towards oneself—i.e., altering the stressor by changing one’s motivation, cognition, and behavior. Common strategies for problem-focused coping include: changing one’s goals, setting new behavioral norms, and learning new skills. Rather than focusing on the external environment, emotion-focused coping emphasizes the internal emotional response to the stressful situation. Typical examples of emotion-focused coping include wishful thinking and distancing (Lazarus & Folkman, 1984). According to Lazarus and Folkman (1984), emotion-focused coping includes holding and regulating internal emotional

responses to a specific stressor. In conclusion, emotion-focused coping pertains specifically to the self, while problem-focused coping pertains to the environment and situation.

Amending Lazarus and Folkman's Transactional Stress Coping Model, Endler and Parker (1988) identified a third type of coping characterized by avoidance. They titled the three types of copings as follows: task-oriented coping, emotion-oriented coping, and avoidance-oriented coping. Task-oriented coping and emotion-oriented coping refer respectively to the problem-focused coping and emotion-focused coping recognized in Lazarus and Folkman's model. Researchers have identified avoidance-oriented coping as a third general mode, where an individual attempts to disengage mentally from the stressful situation (Amirkhan, 1990). Endler and Parker (1990) developed the Coping Inventory for Stressful Situations (CISS), which assesses the three types of coping styles—task-oriented, emotion-oriented, and avoidance-oriented. This instrument helps researchers identify individuals' coping styles and better understand the relation between those coping styles and stress (Endler & Parker, 1990).

Coping and Acculturative Stress

Empirical research (e.g., Connor-Smith & Compas, 2002; Jose & Huntsinger, 2005) has shown the critical mediating role coping plays between stressful life events and an individual's psychological well-being. Studies on coping, therefore, have the potential to inform intervention and treatment plans for individuals suffering from different types of stress. In addition, Endler & Parker (1990) noted that some individuals might have different coping styles from others in the way they deal with various types of stress. They have documented that people tend to use different coping strategies depending on their personality and the environment. However, little attention has been paid to how international students cope with stressful situations; particularly, acculturative stress. Some literature yields investigation of international

students' help-seeking behaviors, yet only a few studies have examined levels of coping or coping styles among international students. Of the studies that investigated different coping styles among international students, even fewer focused specifically on the population of Asian international students.

Furukawa (1997) conducted a study on 199 Asian students to explore how Asian international students deal with their stress from a foreign culture. The results of the study indicated that Asian students experienced higher degrees of acculturative stress while studying abroad. Regarding coping style, the researcher found that task-oriented coping was significantly and negatively correlated to the stress. In addition, those Asian international students tend to adopt emotion-oriented coping during their adaptation to a new culture, which may contribute to the part in their experience of acculturative stress. Yang and Clum (1994) also assessed the problem-solving skills and coping styles of Asian international students; their study revealed that a lack of task-oriented coping predicted considerable acculturative stress and eventual anxiety and depression among Asian international students. On the other hand, McWilliam, Cox, and Enns (2003) indicated in their study that there was a negative correlation between the avoidance-oriented coping and stress. Li and Browne (2000) also revealed that most Asian international students were found to be more likely to avoid dealing with their difficulties and mental problems and to delay seeking psychological treatment until they were in crisis, or until their symptoms became worse. As a result, when treatment was eventually sought, their symptoms tended to be more severe than clients of different ethnicities (Li & Browne, 2000). In conclusion, more research is required regarding the extent to coping impacts the acculturative stress of Asian international students and which type of coping strategy is most commonly used by them in stressful situations (Ensel & Lin, 1991).

Theoretical Framework

Berry's Stress and Coping Model of Acculturation

Much literature surrounds the topic of how individuals manage acculturation and acculturative stress through a stress, coping, and adaptation approach. According to Berry (1980), a stress and coping approach defines the acculturation process as a series of stress-provoking life changes that draw on sources of adjustment and require coping responses. In his article, Berry (1997) developed a more elaborate and explicit stress and coping model of acculturation. The stress-coping framework focuses on the identification of factors that influence relation between acculturation and acculturative stress. Within this framework, the stressors associated with acculturation are influenced by both group-level and individual-level variables. While previous studies on acculturation have emphasized group factors, such as physical, economic, cultural, and social changes, more recent studies have sought to understand how the individual adapts within a cultural group. In other words, interest on this topic has shifted towards understanding the process whereby individuals simultaneously acquire competency within a new culture while shedding the identity associated with their native culture (Berry, 1994).

Following this recent trend of analysis, Berry's model identifies the cultural and psychological factors that influence levels of acculturative stress. The acculturation process involves five phenomena: life events (acculturation experiences), stressors (appraisal of experiences), coping (strategies used), stress (immediate effects), and adaptation (long-term outcome). Berry's model proposes that these five phenomena are influenced by individual factors prior to acculturation (e.g., age, gender, motivation behind immigration, language proficiency, and personality) and during acculturation (e.g., length of stay, coping strategies,

social support, and societal attitudes). Yan and Berliner (2011) asserted that these factors exert influence over an individual's cross-cultural adaptation. According to Berry (1997), in order to reduce acculturative stress and achieve integration status—the highest level of acculturation and the most positive long-term adaptive acculturation strategy—individual factors arising during the acculturation process need to be taken into account, particularly social support and coping.

Berry (1997) indicated that high levels of social support and coping are beneficial to acculturation and minimize acculturative stress. Within his framework, social support and coping are mediating factors in the relation between acculturation and acculturative stress.

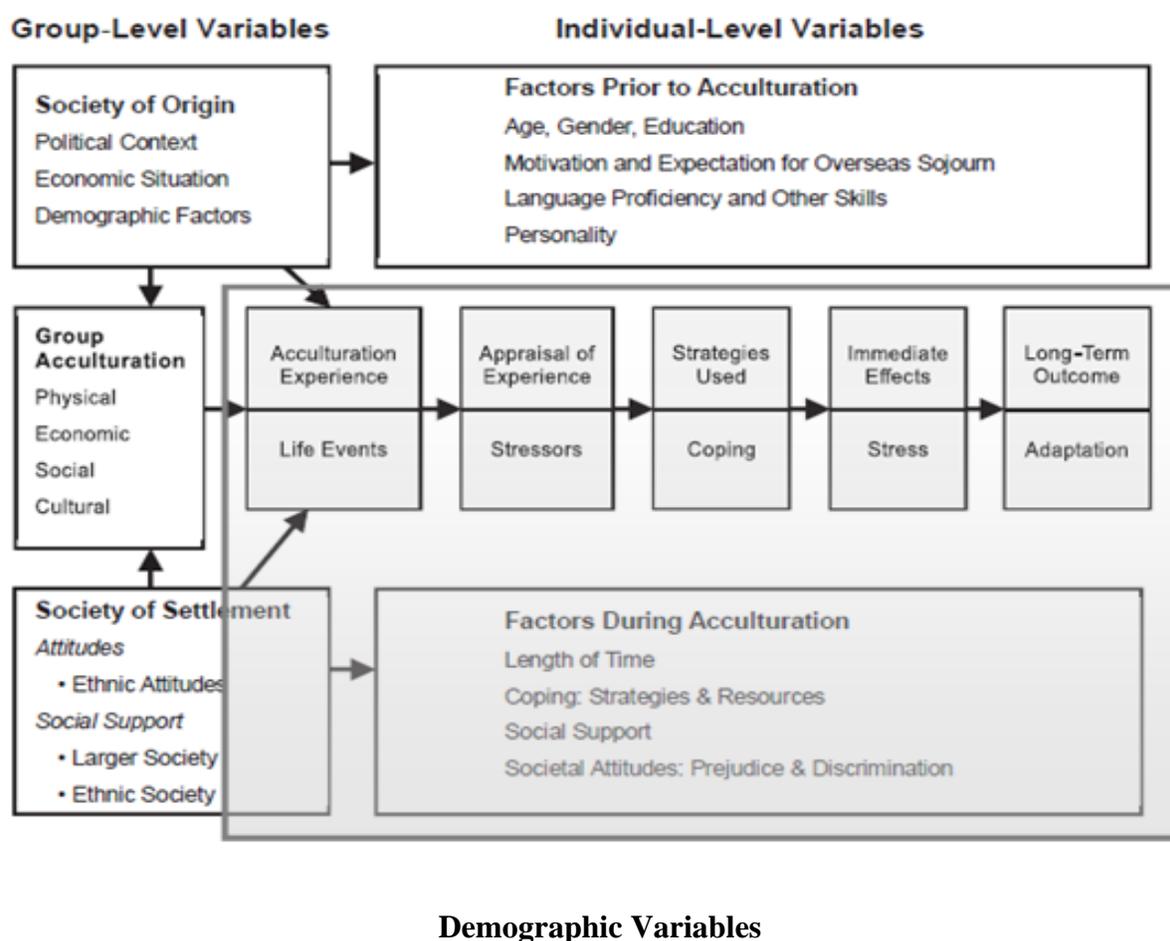
Berry (1997) provided many studies that show the role of social support and coping in his framework. For example, Schmitz (1992) conducted a study with international students using the three styles of coping (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) identified by Endler and Parker (1990). He discovered a negative correlation between the level of task-oriented coping and the students' acculturative stress. In terms of the positive role of social support, Ward and Kenny (1993) indicated in their study that social support is an important factor associated with lower acculturative stress. Kealey (1989) agreed that supportive relationships with individuals from both dominant and native cultures were most indicative of successful acculturation and less acculturative stress.

Berry's model proposes the five psychological acculturation phenomena (i.e., experiences of acculturation, stress from the acculturation experiences, using strategies for coping the stressors from acculturation, changes in acculturation process, and adaptation) and explains the individual-level factors that arise during acculturation process (e.g., length of stay, coping strategies, social support, and societal attitudes). The research questions addressed by this study were closely related to the five phenomena of acculturation influenced by individual-

level variables during acculturation process in Berry's stress-coping approach. Therefore, Berry's (1997) stress and coping model of acculturation was used as a conceptual framework in this study to create research questions surrounding the relationship between levels of acculturation and acculturative stress and the impact that social support and coping have on this relationship. A Berry (1997)'s model is proposed in Figure 1 (below).

Figure 1

Stress and Coping Framework for Acculturation (Berry, 1997)



Length of Stay in the U.S.

Zheng and Berry (1991) noted that individuals, especially those staying only briefly in the new culture, experience greater acculturative stress. Many studies (e.g., Wilton &

Constantine, 2003) also indicated that international students who spent more time in the U.S. developed more coping skills and established more social support than those who had just recently arrived. Similarly, Ying (2003) suggested that the length of stay in the U.S. was positively related to Asian international students' perceived sense of social connectedness and coping strategies. However, in the study of Poyrazli and her colleagues (2004), they found that there is not a significant relationship between the length of stay in the U.S. and social support, coping strategies, and acculturative stress among international students.

Gender

Mallinckrodt and Leong (1992)'s study explored the gender differences regarding sources of perceived social support among international students. They reported that female international students are more likely to seek social support from their new friends in the U.S., whereas male international students feel that social support from universities is more beneficial for them. Additionally, Endler and Parker (1994) asserted that female international students were more likely to use emotion-oriented coping than male international students. However, other researchers (e.g., Poyrazli et al., 2004) found no significant differences between male and female international students in their perception of social support and coping styles on acculturative stress.

Age

Sumer, Poyrazli, and Grahame (2008) insisted that younger international students are more fluent in English than older international students; therefore, they adjust more easily to a new culture and have less acculturative stress. However, Poyrazli et al. (2004) denied that age was a significant factor in predicting international students' English proficiency and acculturative stress.

The Proposed Model and Research Questions

Researchers found that most Asian international students experience the acculturation process and acculturative stress (Lin & Yi, 1997). In addition, the literature has supported the effect of social support and coping on the relationship between levels of acculturation and acculturative stress (Berry, 1990; Mori, 2000). Results from previous studies have shown that levels of acculturation affect acculturative stress; however, these studies have also suggested that social support and coping may help East Asian international students from four countries: China, South Korea, Taiwan, and Japan, both reduce their acculturative stress and adjust to American culture.

Based on the results from previous studies on acculturation, acculturative stress, social support, and coping, this study intended to examine whether the relation between levels of acculturation and acculturative stress is stronger for East Asian international students who lack social support and coping skills than for East Asian international students who possess sufficient social support and coping. Thus, the relationship between levels of acculturation and acculturative stress among East Asian international students was examined, as well as the mediating effects of social support and coping. Furthermore, I explored whether social support from a specific source (e.g., family and old friends, new friends in the U.S., and universities and colleges) mediates the effect of acculturation on acculturative stress. I also investigated whether a specific coping style (e.g., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) mediates the effect of acculturation on acculturative stress. A model is proposed in Figure 2 (below).

This study sought to answer the following major research questions:

Research Question 1

To what extent do social support and coping mediate the effects of levels of acculturation on acculturative stress?

Research Question 2

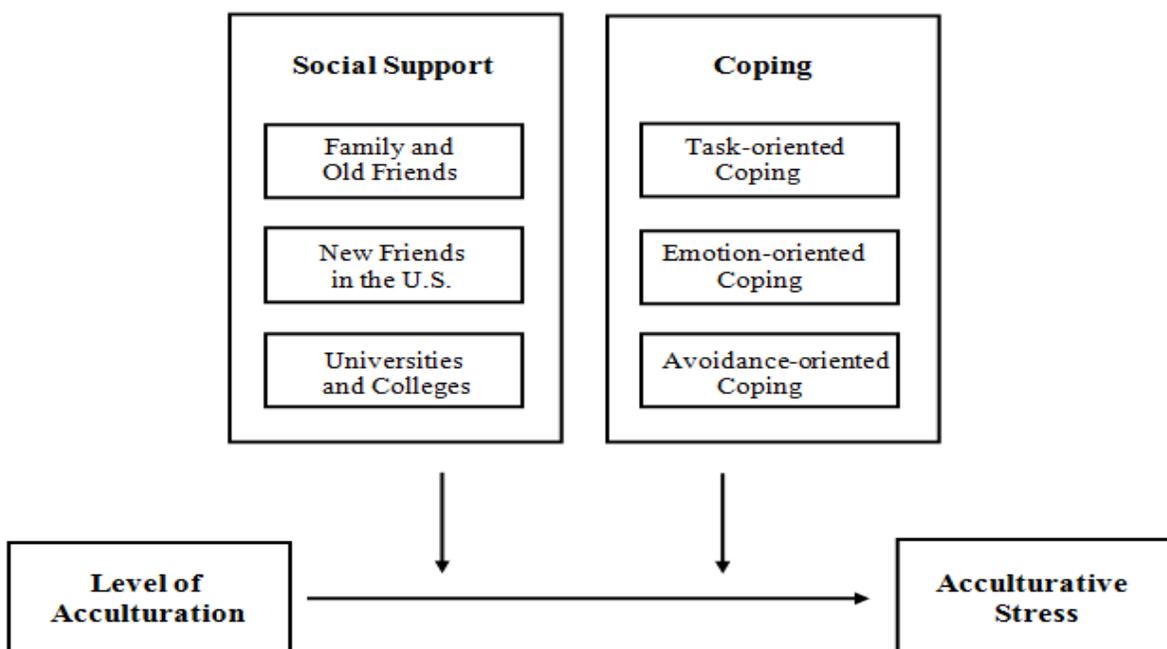
To what extent does a specific source of social support (i.e., family and old friends, new friends in the U.S., and universities and colleges) mediate the effects of levels of acculturation on acculturative stress?

Research Question 3

To what extent does a specific type of coping (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) mediate the effects of levels of acculturation on acculturative stress?

Figure 2

Model of the Impact of Social Support and Coping on the Relation Between Acculturation and Acculturative Stress



CHAPTER 3

Methodology

In this chapter, the methodology for the study is discussed, including the purpose of the study, research questions, a description of the target population, and the procedure for collecting data. In addition, the measurements used in this study are described, and the statistics used for analyzing the data are also identified.

Purpose of the Study and Research Questions

The purpose of this study was to investigate the impact of social support and coping on the relationship between levels of acculturation and acculturative stress among East Asian international students from China, South Korea, Taiwan, and Japan. Social support and coping were hypothesized to mediate the relationship between levels of acculturation and acculturative stress. In addition, I explored if social support from a specific source (e.g., family and old friends, new friends in the U.S., and universities and colleges) mediates the effect of acculturation levels on acculturative stress. Also, I investigated if a specific coping style (e.g., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) mediates the effect of acculturation on acculturative stress.

This study aimed to answer the following research questions:

Research Question 1

To what extent do social support and coping mediate the effects of levels of acculturation on acculturative stress?

Research Question 2

To what extent does a specific source of social support (i.e., family and old friends, new friends in the U.S., and universities and colleges) mediate the effects of levels of acculturation on acculturative stress?

Research Question 3

To what extent does a specific type of coping (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) mediate the effects of levels of acculturation on acculturative stress?

Research Design

This study used a quantitative research methodology, including correlation and multiple regression to analyze data. Correlational research is used to determine whether a relationship exists between two or more variables. For example, this study examined whether relationships exist among acculturation, social support, coping, and acculturative stress.

A survey instrument was a primary data collection instrument. A non-experimental survey research design, which used in this study, is one of the most used research methods in the social sciences field (Heppner, Wampold, & Kivlighan, 2008). According to Heppner et al. (2008), survey research is used to explore the nature or frequency of a particular variable or variables; the variables under consideration in this study are: acculturation, acculturative stress, social support, and coping. The advantages of survey research designs have been well documented. Heppner et al. (2008) indicate that the primary advantage is ease of data collection, particularly when the researcher is attempting to target participants across a wide geographic area. According to Tian, Tang, Liu, Tan, and Tang (2011), survey research designs are also cost-effective models for collecting large amounts of data in a productive way. Furthermore, researchers have argued that survey research is an essential step in a process that

has an eventual goal of changing or manipulating variables (Greenberg, 1986). The accumulation of descriptive data for all variables also allows the researcher to make comparisons across demographic variables and to describe the levels for each variable. In this study, four self-report questionnaires were distributed to the participants in addition to a demographic questionnaire.

The survey was anonymous in order to help students feel comfortable participating in the study. Thus, self-selective convenience sampling was conducted through an online survey (www.qualitrics.com). For calculating an appropriate and sufficient sample size for testing multiple correlations, Tabachnick and Fidell (2007) recommended using the formula $N \geq 50 + 8m$, where m is equal to the number of variables. I used this formula, treating m as the number of variables in the study (i.e., the predictor variable, the mediator variables, the outcome variable, and the demographic variables which have stronger correlations with the predictor variable, the mediator variables, and the outcome variable), in order to obtain an appropriate sample size for the study. The minimum number of participants for the study was 130 using the formula: $N \geq 50 + 8m$, where m is equal to 10 (the sum of the predictor variable, the mediator variables, and the outcome variable). I continued to collect data until the sample size reached at least 130.

Participants

A convenience sampling technique was used to recruit participants. Participants were East Asian international students from four countries: China, South Korea, Taiwan, and Japan. Those East Asian international students qualified to participate in the study were those who are currently living in the U.S., who are not U.S. citizens or residents, who are holding a F-1 visa (i.e., student visa), and who are enrolled in U.S universities for the purpose of earning their

undergraduate or graduate degree. This study included 210 participants as final sample. This final sample was used to examine all three research questions of the study.

The participants' ages ranged from 18 to 39 years with a mean age of 24.20 ($SD = 4.43$). Women represented 66.7% ($n = 140$) and men made up 33.3% ($n = 70$). Participants reported that they have resided in the U.S. for an average of 46.25 months ($SD = 37.16$), ranging from 1 to 152 months. The 60.0% of participants were undergraduate students ($n = 126$), 22.4% were masters' students ($n = 47$) and 17.6 % were doctoral students ($n = 37$). The majority of participants were South Korean (67.6%, $n = 142$), followed by Taiwanese (18.6%, $n = 39$), Chinese (11.4%, $n = 24$), and Japanese (2.4%, $n = 5$). The 95.2% of participants ($n = 200$) were on F-1 student visas and the remaining participants (4.8%) were on F-1 OPT (Optional Practical Training) ($n = 10$).

In this study, I got respondents from 23 different states across the U.S.: Arkansas (0.5%), Alabama (3.3%), Arizona (3.3%), California (4.3%), Connecticut (0.5%), Florida (3.3%), Georgia (9.0%), Idaho (0.5%), Iowa (6.2%), Maryland (6.2%), Massachusetts (0.5%), Michigan(3.3%), Minnesota (5.2%), Missouri (0.5%), Nebraska (5.2%), New York (11.0%), Ohio (2.9%), Pennsylvania (13.8%), Rhode Island (1.4%), Texas (1.9%), Virginia (1.0%), Washington (2.4%), and Wisconsin (2.4%) . Table 1 outlines demographic characteristics for this sample population.

Table 1

Demographic Description of the Sample Population (N = 210)

Variables	Category	<i>n</i>	%
Gender	Men	70	33.3

	Women	140	66.7
Degree	Bachelors	126	60.0
Sought	Master's	47	22.4
	Doctorate	37	17.6
Country of origin	China	24	11.4
	South Korea	142	67.6
	Taiwan	39	18.6
	Japan	5	2.4

Instruments

The questionnaire package consisted of (a) demographic and background information, (b) Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn et al., 1987), (c) Index of Life Stress (ILS; Yang & Clum, 1995), (d) Index of Social Support (ILS; Yang & Clum, 1995), and (e) The Coping Inventory of Stressful Situations (CISS; Endler & Parker, 1990). All measures were provided in English. I assumed that participants have the ability to complete the questionnaires in English because they were enrolled students in an American institution of higher education, which requires students to have relevant levels of English language proficiency as an admission requirement.

Demographic Questionnaire

The demographic questionnaire was developed by the researcher to gather relevant demographic information from the participants. Personal background information included descriptive information such as age, gender, degree sought, major, visa type, participant's country of origin, total length of stay in the U.S., and the location of their universities.

Levels of Acculturation

Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn et al., 1987).

Participants' levels of acculturation were measured by items on the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA). The purpose of developing the SL-ASIA was to design a scale to measure levels of acculturation in Asian Americans (Suinn et al., 1987). SL-ASIA was developed after the Acculturation Scale for Mexican-Americans (ARMSA), which was developed by Cuellar, Harris, and Jasso (1980). According to Suinn et al. (1987), SL-ASIA not only assesses the ideals or preferences, but also examines actual behaviors of the Asian respondents.

The current version of this multidimensional instrument consists of 26 multiple-choice questions. This version contains five questions not included on the original version of 21 questions (Suinn, Ahuna, & Khoo, 1992). According to Suinn et al. (1992), these last five questions, items 22-26, were developed to assess categorical information and were not intended to be included in the calculation for the participant's overall level of acculturation.

Most literature on the SL-ASIA discusses the 21 questions in the original version, which includes six subscale areas. The subscales assess language (4 items), identity (4 items), friendship choice (4 items), behaviors (5 items), generation/geographic history (3 items), and attitudes (1 item). A language sample question asks, "What language can you speak?"; an identity sample question asks, "How do you identify yourself?"; a friendship choice sample item asks, "What was the ethnic origin of the friends and peers you had?"; a behavior sample item asks, "What is your music preference?"; a generation/geographic history sample item asks, "What generation are you?"; and an attitude sample item asks, "How would you rate yourself?" on a scale from very Asian to very Westernized. All questions are rated on a 5-point Likert scale ranging from 1 (*only Asian*) to 5 (*only English/Western*). The wording of SL-ASIA items

is targeted toward Asian American groups such as Chinese Americans, Korean Americans, and Japanese Americans (Ponterotto, Baluch, & Carielli, 1998).

This study used the 26-question version of the SL-ASIA. However, the level of acculturation was calculated from the first 21 items. A total value was determined by adding up the answers for the first 21 items. Therefore, scores may range from 21 (low acculturation, indicating high Asian identification) to 105 (high acculturation, indicating high Western identification). A final acculturation score was computed by dividing the total value by 21. Therefore, scores ranged from 1.00 (low acculturation, indicating high Asian identification) to 5.00 (high acculturation, indicating high Western identification).

With respect to concurrent validity, the SL-ASIA was significantly correlated with various factors (Suinn et al., 1992). According to Suinn et al. (1992) concurrent validity was found for the following factors: self-rating of acculturation, $r = 0.62$; total years attending school in the U.S., $r = 0.61$; age of first attending school in the U.S., $r = -0.60$; years living in the U.S., $r = 0.49$; and years lived in a non-Asian neighborhood, $r = 0.41$, $p < .001$.

The reliability of the SL-ASIA is considerably high and consistent (Suinn et al., 1987). Suinn et al. (1987) reported .88 as a reliability coefficient of SL-ASIA. In a cross-cultural validation study of the SL-ASIA between Asian Americans and Asian Singaporeans, the reliability for the SL-ASIA was found to be .79 (Suinn & Khoo, 1995). After reviewing sixteen studies that assessed the SL-ASIA's internal consistency, Ponterotto et al. (1998) found that a total of twelve coefficient alphas, ranging from .68 to .91, were reported in nine studies. Ponterotto et al. (1998) noted that most of the alphas were in the .80 range. In this study, the reliability of the SL-ASIA was .75. Table 2 shows the coefficient alphas of SL-ASIA across

Asian populations in previous studies. Table 3 indicates the reliability of the SL-ASIA for the current study.

Table 2

Internal Consistency of SL-ASIA by Racial/ethnic Group (Ponterotto et al., 1998)

Reference	Group	Cronbach's Alpha
Atkinson & Gim, 1989	Asian	.89
Atkinson & Gim, 1989	Chinese	.90
Atkinson & Gim, 1989	Japanese	.83
Atkinson & Gim, 1989	Korean	.89
Park & Harrison, 1995	Asian	.90
Suinn, Ahuna & Khoo, 1992	Asian	.91

Table 3

Reliability of the SL-ASIA for the Current Study

Construct	Cronbach's Alpha
Acculturation	.75

Acculturative Stress

Index of Life Stress (ILS; Yang & Clum, 1995). Participants' levels of acculturative stress were measured by items on the Index of Life Stress (ILS). Yang and Clum (1995) revealed that the purpose of developing the ILS was to design a scale to measure the level of stress experienced by Asian international students in the U.S.

The ILS has 31 items, including five subscales, which ask how often respondents experience feelings related to each statement. The subscales assess stress arising from cultural adjustment (8 items), language difficulties (5 items), academic pressure (5 items), interpersonal stress (7 items), and concern about finances (6 items). A cultural adjustment item states, “Americans way of being too direct is uncomfortable to me”; a language difficulties sample statement states: “my English embarrasses me when I talk to people”; an academic pressure item states, “I am not doing as well as I want to in school”; an interpersonal stress sample item states, “people treat me badly just because I am a foreigner”; and lastly, a financial concern item states, “my financial situation makes my life here very hard.” The ILS has a 4-point Likert-type scale, ranging from 0 (*never*) to 3 (*often*). Thus, the possible range of scores for the ILS is 0 to 93 and higher scores represent higher levels of acculturative stress.

The concurrent validity was assessed in terms of the correlation between the ILS and the Life Experiences Survey (LES, Sarason Johnson, & Siegel, 1978); a 57-item self-report scale of stressful life experiences derived a $r(100)$ score of $-.46$ ($p < .0001$). Stepwise hierarchical regression analyses were also conducted to determine incremental validity for the ILS. Results showed that the ILS significantly enhanced the ability to predict depression and hopelessness among participants. The construct validity assessed by factor analyses for five factors (i.e., cultural adjustment, language difficulties, academic pressure, interpersonal stress, and concern about finances) explained 52.21% of the variance. Furthermore, the ILS scale was also found to significantly and positively correlate with the UCLA Loneliness Scale (UCLA, Russell, Peplau, & Ferguson 1978), with $r = .51$ ($p < .0001$), Zung’s Self-Rating Depression Scale (ZDS, Zung, 1965), with $r = .41$ ($p < .0001$), Beck Hopelessness Scale (BHS, Beck, Weissman, Lester,

& Trexler, 1974), with $r = .37$ ($p < .0001$), and the Modified Scale for Suicide Ideation (MSSI, Miller, Norman, Bishop, & Dow, 1986), with $r = .21$ ($p < .05$).

Yang and Clum (1995) insisted that ILS has demonstrated satisfactory reliability for Asian international students. In an assessing of the ILS's reliability, the internal consistency estimate ($KR20$) was .86 ($n = 101$) in the original norm group of Asian international student participants and the test-retest reliability with a 1-month interval for the ILS was .87 ($n = 20$). Internal consistency estimates ($KR20$) for the five subscales were .70, .82, .70, .86, and .75, respectively (Yang & Clum, 1995). Additionally, in research conducted by Lee et al. (2004) to examine how social support affects the relationship between acculturative stress and mental health symptoms among Korean international students ($n=74$), the ILS's reliability was discovered to be .88 after deleting 4 items based on an item analysis. In this study, the reliability of the ILS was .88. Table 4 reveals the reliability of the ILS in Yang and Clum's study. Table 5 shows the reliability of the ILS for the current study.

Table 4

Reliability for the ILS (Yang & Clum, 1995)

Construct	Cronbach's Alpha
ILS Total	.86

Table 5

Reliability of the ILS for the Current Study

Construct	Cronbach's Alpha
Acculturative Stress	.88

Social Support

Index of Social Support (ISS; Yang & Clum, 1995). Participants' perceived social supports were measured by items on the Index of Social Support (ISS). The purpose of developing the ISS was to design a scale to measure the levels of perceived social support among Asian international students (Chen et al., 2002). According to Chen et al. (2002), the ISS has been successfully administered to Asian international students to assess their perceived social support.

The ISS has 40 items, including eight subscales, which ask how often respondents experience feelings pertaining to each statement. The subscales assess contact with direct family (5 items), secondary families (5 items), old friends in home country (5 items), new friends in the United States (5 items), community activities (5 items), student organizations (5 items), international student center (5 items), and religious places (5 items). A direct family item states, "I have contact with my family"; a secondary family item states, "I have contact with my secondary families"; an old friends in home country item states, "I am satisfied with my old friends in my home country"; a new friends in the United States item states, "My new friends in the U.S.A. are available when I need them"; a community activities item states, "I participate in community activities here"; a student organization item states, "I am satisfied with the student organizations on campus"; an international student center item states, "I trust the international student center"; and a religious places item states, "My religious place here means a lot to me." The ISS has 4-point Likert-type scale ranging from 0 (*never*) to 3 (*often*). The possible range of scores for the ISS is 0 to 120 and higher scores represent higher levels of perceived social support.

In this study, ISS was used to assess the mediating effect of social support on the relation between levels of acculturation and acculturative stress, as well as the extent to which specific sources of social support mediate the effects of levels of acculturation on acculturative stress. Therefore, eight subscales (i.e., direct family, secondary families, old friends in home country, new friends in the United States, community activities, religious places, student organizations, and international student center) of ISS were categorized into three sources of social support—family and old friends, new friends in the U.S., and universities and colleges. Direct family, secondary families, and old friends in home country subscales referred to the support East Asian international students are receiving from family and old friends. The support received from new friends in the U.S. included the new friends in the United States, community activities, and religious places subscales. The support received from universities and colleges involved student organizations and the international student center subscales. Table 6 shows specific sources of social support and its subscales in this study.

Table 6

Three Categories of Social Support and Its Subscales

Sources of Social Support	Subscales
Family and Old Friends	Direct Family
	Secondary Families
	Old friends in home country
New friends in the U.S.	New friends in the United States
	Community activities
	Religious places

Universities and Colleges

Student organizations

International student center

The concurrent validity of the ISS was calculated by correlating the ISS scores with the corresponding scores on the UCLA Loneliness Scale, $r(100) = -.39, p < .0001$. Factor analysis for construct validity showed that the four factors (i.e., general contact with one's own culture; new friends in the United States and direct family; community activities and student organizations; and religious places) accounted for 51.91% of the variance. Yang and Clum (1995) also reported that the incremental validity of the ISS over the UCLA in predicting suicide ideation, hopelessness, and depression was determined.

Assessing the reliability of ISS, Yang and Clum (1995) reported that the internal consistency estimate ($KR20$) was .81 ($n = 100$) in the original norm group of Asian international student participants and the test-retest reliability with a 1-month interval for the ISS was .81 ($n = 20$). In addition, factor analysis indicated that items of ISS loaded on 4 factors: general contact with one's own culture (contact with old friends in home country, secondary family, and the international student center on campus); new friends in the United States and direct family; community activities and student organizations; and religious places. Internal consistency estimates ($KR20$) for the four factors were .90, .83, .87, and .86, respectively (Yang and Clum, 1995). Moreover, in research conducted by Kim (2010) to investigate the role of social support on the relation between acculturative stress and depression among Asian international students ($n = 239$), the reliability for the ISS's factors gauged in his study were .93, .96, and .93 for co-national support, host national support and college support, respectively. In this study, the reliability of the ISS total was .93. Internal consistency for the three sub-categories (i.e., family

and old friends, new friends in the U.S., and universities and colleges) were .88, .95, and .93, respectively. Table 7 shows the reliability of the ISS's three categories in Kim (2010)'s study. Table 8 indicates the reliability of the ISS and its three categories for the current study.

Table 7

Reliability for ISS's Three Categories (Kim, 2010)

Construct	Cronbach's Alpha
Co-national Support	.93
Host National Support	.96
College Support	.93

Table 8

Reliability of the ISS and Its Three Categories for the Current Study

Construct	Cronbach's Alpha
ISS Total	.93
Family and Old Friends	.88
New Friends in the U.S.	.95
Universities and Colleges	.93

Coping**The Coping Inventory of Stressful Situations (CISS; Endler & Parker, 1990).**

Participants' levels of coping were measured by the items on the Coping Inventory of Stressful Situations (CISS). According to Endler and Parker (1990), the purpose of developing the CISS

was to design a scale to measure the general level of coping and coping styles across various stressful and upsetting situations.

CISS has 48 items, including three subscales, which ask participants to rate their degree of engagement in a wide variety of coping behaviors on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*). The three subscales assess task-oriented coping, emotion-oriented coping, and avoidance-oriented coping; there are 16 items under each style of coping. Task-oriented coping describes strategies implemented to deal with daily problems. Examples of items within the category of task-oriented coping are “Analyze the problem before reacting” and “Come up with several different solutions to the problem.” Emotion-oriented coping involves emotional reactions to stressful situations. An example of an item within the category of emotion-oriented coping is “I worry about what I am going to do.” Avoidance-oriented coping focuses on strategies used to avoid dealing with problems. Examples of items within the category of avoidance-oriented coping are “Go to a party” and “Watch TV.”

According to Endler and Parker (1994), CISS’s construct validity was also established by a comparison study done between CISS and two other coping scales. The first one, the Coping Strategy Indicator (CSI), is a 33-item self-report coping measure developed by Amirkhan (1990). CSI is designed to assess three coping styles: problem solving coping, seeking social support, and avoidance. Significant correlations were found between the subscales of CSI and CISS. CSI Problem Solving subscale was positively correlated with CISS task-oriented coping ($r = .53$ for men, and $r = .46$ for women, $p < .01$). Additionally, positive correlations were found between CSI Avoidance subscale and CISS emotion-oriented coping ($r = .49$ for men, and $r = .57$ for women, $p < .01$). The second measure that was used to assess CISS’s construct validity was the Defense Style Questionnaire (DSQ), developed by Bond and Vaillant (1986).

The comparison of CISS to DSQ yielded similar results. Positive correlations were found between the DSQ Mature Defenses subscale and the CISS task-oriented coping ($r = .34$ for men, and $r = .61$ for women, $p < .05$). Similarly, positive correlations were found between the DSQ Neurotic Defenses subscale in women only and the CISS emotion-oriented coping ($r = .48$, $p < .01$) and the CISS avoidance-oriented coping ($r = .51$, $p < .01$). Finally, positive correlations were discovered between the DSQ Immature Defenses subscale and the CISS emotion-oriented coping ($r = .49$ in men and $r = .47$ in women, $p < .01$) and the CISS avoidance-oriented coping ($r = .51$ in women, $p < .01$).

CISS has been found to be a highly reliable measure of coping (Endler & Parker, 1994). In their study of 832 college students (435 males and 397 females attending a large university), Endler and Parker (1994) revealed satisfactory internal reliability across samples for each of the coping dimensions. Specifically, the internal reliability of task-oriented coping for both men and women are exceptional with a Chronbach's alpha score of .90 and .89 for men and women, respectively. Chronbach's alpha for emotion-oriented coping has also been found to be highly satisfactory, with a score of .87 for both men and women. The internal reliability for the third factor, avoidance-oriented coping, is also satisfactory, with a score of .84 and .83 for men and women, respectively. Furthermore, the CISS scale has also been used by researchers to study Asian international students' coping styles (Furukawa, 1997). In an attempt to study how Asian students adjust to a new culture while studying abroad, Furukawa (1997) conducted a study with 199 Japanese international students. He reported that this measurement demonstrated high internal reliability and high test-retest reliability ($r = .72$ to $.82$) for Asian international students. In his study, coefficient alphas for the three subscales were: .85 for task-oriented coping, .83 for emotion-oriented coping, and .82 for avoidance-oriented coping. In this study, the reliability of

the CISS total was .89. Internal consistency for the three sub-factors (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) were .91, .89, and .83, respectively.

Table 9 indicates the reliability of the CISS's three subscales in Furukawa's study. Table 10 shows the reliability of the CISS and its three subscales for the current study.

Table 9

Reliability for the CISS's Three Subscales (Furukawa, 1997)

Construct	Cronbach's Alpha
Task-oriented Coping	.85
Emotional-oriented Coping	.83
Avoidance-oriented Coping	.82

Table 10

Reliability of the CISS and Its Three Subscales for the Current Study

Construct	Cronbach's Alpha
CISS Total	.89
Task-oriented Coping	.91
Emotion-oriented Coping	.89
Avoidance-oriented Coping	.83

Reliability and Post Hoc Item Analysis

According to Ormrod and Leedy (2005), internal consistency reliability of the instrument is defined as “the extent to which it yields consistent results when the characteristics being

measured have not changed” (p. 93). In order to assess the internal consistency of each variable for the data sample in this study, Cronbach’s alpha coefficients were calculated prior to analysis. Cronbach’s alpha for reliability was used in this study because the response scale for the items is a Likert-type response scale and Cronbach’s alpha is most commonly used in combination with the Likert scale (Cronbach, 1951). Additionally, according to Munro (2005), Cronbach’s alpha is the most general estimate of the internal consistency of items in a scale. In previous studies, the reliability estimates providing Cronbach’s coefficient alpha of the SA-ASIA ranged from .68 to .91 (Ponterotto et al., 1998; Suinn et al., 1987); the ILS ranged from .70 to .88 (Lee et al., 2004; Yang, & Clum, 1995); the ISS ranged from .81 to .96 (Kim, 2010; Yang, & Clum, 1995); and the CISS ranged from .83 to .92 (Endler & Parker, 1994; Furukawa, 1997). In the current study, the reliability estimates providing Cronbach’s coefficient alpha of the SA-ASIA was .75; the ILS was .88; the ISS and its sub-categories ranged from .88 to .95; and the CISS and its subscales ranged from .83 to .91. These reliability estimates demonstrate the empirical results of the acceptable reliability coefficient alpha. Borg and Gall (1989) mentioned that if the reliability coefficient is above .90, the instrument is regarded as highly reliable; between .79 and .89 indicates moderate reliability; and below .60 generally signals inadequacy, or at the most weak reliability. The results showed that the measures for each variable (i.e., levels of acculturation, acculturative stress, social support, and coping) and their subscales (i.e., family and old friends, new friends in the U.S., universities and colleges, task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) were internally consistent and thus reliable.

Procedure

This study intended to examine the relationship existing among levels of acculturation, social support, coping, and the acculturative stress of East Asian international students including

Chinese, South Korean, Taiwanese, and Japanese students who are currently enrolled in American institutions of higher education. After receiving the Institutional Review Board approval from the Office for Research Protections at the researcher's university, I first conducted a pilot test for the web survey to check whether the survey works appropriately. After conducting the pilot test, I used a social networking service (Facebook.com) by requesting students associations to post the web link to the research project, describing the purpose of the study, confidentiality, anonymity, and the procedures of the study, in the recruiting email to international students who are from China, South Korea, Taiwan, and Japan.

When participants who were willing to take part in the survey visited the study's website, information about the purpose and procedure of the study, the approximate time of completing the survey questions, as well as the informed consent form including confidentiality, anonymity, and the right to discontinue participation at any time were available to them on the screen. In addition, instructions for the study indicated that participants could participate in the survey voluntarily and that they could register for a free giveaway (Two \$50, three \$30, five \$10 Amazon gift certificates) after the survey is completed as compensation for their participation. The informed consent form had a "continue" button at the end of the form; by clicking the button, participants were indicating that they were informed about the nature of the study and agreed to participate. As soon as the participants clicked the "continue" button, they could begin to complete the first questionnaire.

Participants completed five questionnaires in this study: demographic questionnaire, Suinn-Lew Asian Self-Identity Acculturation Scale, Index of Life Stress, Index of Social Support, and the Coping Inventory of Stressful Situations. Permissions for using the instruments were secured from the researchers who developed the scales beforehand. The demographic

questionnaire was the first questionnaire for participants to complete. Once completed, the four other questionnaires (i.e., Suinn-Lew Asian Self-Identity Acculturation Scale, Index of Life Stress, Index of Social Support, and the Coping Inventory of Stressful Situations) appeared on the screen sequentially. When participants completed one questionnaire, they clicked the “continue” button and immediately had access to the next questionnaire. When they completed the last questionnaire, they could finish the survey by clicking the “finish” button. Once finished, the screen showed a message that thanks participants for their participation and informed them that they could contact the researcher if they have any questions regarding the study. They were also asked to provide their email address if they would like to register for the free giveaway (Two \$50, three \$30, five \$10 Amazon gift certificates) as compensation for their participation in the study. Once the data collection was finished, I closed the survey website and began to analyze the data.

Variables

Independent Variables

Acculturation. Acculturation was a predictor variable that was measured by the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA). The total score of all 21 items represents the respondent’s level of acculturation. Higher scores correspond to higher levels of acculturation. The total score of the SL-ASIA was used for the general level of acculturation in the three research questions.

Social support. Social support was a mediator variable that was measured by the Index of Social Support (ISS). The total score of all 40 items represents the respondent’s perception of his or her social support. Higher scores correspond to higher levels of perceived social support. The total score of the ISS was used for the general social support in the first research

question. In addition, the score of each subscale was used to represent participants' perceived social support from different sources (i.e., family and old friends, new friends in the U.S., and universities and colleges) in the second research question.

Coping. Coping was a mediator variable that was measured by the Coping Inventory of Stressful Situations (CISS). The total score of all 48 items represents the respondent's perception of his or her level of coping. Higher scores correspond to higher levels of coping. The total score of the CISS was used for general level of coping in the first research question. In addition, the score of each subscale was used to represent participants' different coping styles (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) in the third research question.

Dependent Variables

Acculturative stress. Acculturative stress was an outcome variable that was measured by the Index of Life Stress (ILS). The total score of all 31 items represents the respondent's perceived acculturative stress. Higher scores correspond to a higher level of perceived acculturative stress. The total score of the ILS was used for general acculturative stress in each of the three research questions.

Demographic Variables

Length of stay in the U. S. Length of stay in the U.S. was a self-reported interval/ratio variable in the study. Participants typed the total number of years and months they have lived in the U.S. on the demographic questionnaire.

Gender. Gender was a self-reported nominal variable in the study. Participants selected one answer from "Male," "Female," or "Other" on the demographic questionnaire. Participants were also asked to describe their gender if they selected "Other."

Age. Age was a self-reported interval/ratio variable in the study. Participants typed their age on the demographic questionnaire.

Country of origin. Country of origin was a self-reported nominal variable in the study. Participants selected one answer from “China,” “South Korea,” “Taiwan,” “Japan,” or “Other” on the demographic questionnaire. Participants were also asked to specify their country of origin if they selected “Other.”

Visa type. Visa type was a self-reported nominal variable in the study. Participants selected one answer from “F-1 students,” “F-1 Optional Practical Training (OPT),” or “Other” on the demographic questionnaire. Participants were also asked to specify their visa type if they selected “Other.”

Degree sought. Degree sought was a self-reported nominal variable in the study. Participants selected one answer from “Bachelor’s degree,” “Master’s degree,” “Doctorate,” or “Other” on the demographic questionnaire. Participants were also asked to specify their degree sought if they selected “Other.”

Major. Major was a self-reported nominal variable in the study. Participants typed their major in the demographic questionnaire.

Location of institutions. Location of institutions was a self-reported nominal variable in the study. Participants typed their name of institutions in the demographic questionnaire.

Data Analysis

The data was analyzed employing descriptive and inferential statistics, including correlation and hierarchical multiple regression. The Statistical Package for Social Science (SPSS) 21.0 was used as the data analysis program.

For three research questions, the independent variables were level of acculturation, social support and coping, and the dependent variable was acculturative stress. To identify the mediating effect of social support and coping on the relationship between level of acculturation and acculturative stress, correlation was first used to see relationships among variables. Next, hierarchical multiple regression analysis was used to determine the mediating effect of social support and coping, as well as to what extent specific sources of social support and specific types of coping mediate the effects of acculturation on acculturative stress.

Correlation analysis is appropriate for investigating the relationship among variables in this study. Because all variables are interval and ratio scales, the Pearson correlation coefficient was used in order to assess the magnitude and direction of the correlations (Cohen, 1988; Urdan, 2005). The study mainly used hierarchical multiple regression to examine the mediating effects of social support and coping on the relationship between acculturation and acculturative stress among East Asian international students. According to Hair, Black, Babin, Anderson, and Tatham (2006), multiple regression analysis is relevant when the research question includes a single dependent variable and two or more independent variables. They also mentioned that the primary purpose of multiple regression is to understand the relationship between several variables, and particularly to predict changes in the dependent variable. The result of multiple regression analysis is shown by an analysis of the regression coefficient value (Urdan, 2005). The process of hierarchical multiple regression evaluates variability in the outcome variables as different predictor variables are added (Field, 2009).

Regression analysis relies on the assumptions of normality, linearity, homoscedasticity, independence, and normal distribution of residuals. Tabachnick and Fidell (2007) stated that it is important for researchers to check for outliers and multicollinearity when using regression.

In cases where there is no theoretical contradictory evidence of mediation or contradictory evidence of such a relationship among variables, Baron and Kenny (1986) with many other researchers (e.g., McKinnon, Warsi, & Dwyer, 1995; Preacher & Hayes, 2004) suggested performing a test of mediation. The Baron and Kenny's mediation test procedure involves several steps (Baron & Kenny, 1986; Sobel, 1982). The first step is to demonstrate that the first independent variable (acculturation) is significantly related with the outcome variable (acculturative stress). The second step is to establish a significant relationship between the first independent variable (acculturation) and the second independent variable (social support/coping). This treats the second independent variable (social support/coping) as if it were a dependent variable. The third step is to demonstrate that the second independent variable (social support/coping) significantly predicts the outcome variable (acculturative stress). The next step involves using the first independent variable (acculturation) and second independent variable (social support/coping) together as predictor variables for the dependent variable (acculturative stress). If the second independent variable (social support/coping) predicts the dependent variable (acculturative stress) when the influence of the first independent variable (acculturation) is included, the magnitude of the relationship between the first independent variable (acculturation) and the dependent variable (acculturative stress) drops (Baron & Kenny, 1986). If it were perfect mediation, the effects of the independent variable (acculturation) on the dependent variable (acculturative stress) drop to zero. If the effects of the independent variable (acculturation) on the dependent variable (acculturative stress) decrease, but not to zero, it indicates partial mediation. After conducted this Baron and Kenny' mediation test, I examined these mediating effects with Sobel test. The Sobel test is known as the most common and conservative way to examine the indirect effects between variables in the research model

(McKinnon, Warsi, & Dwyer, 1995). Conducting Sobel test shows the role of the mediator as: “no mediation,” or “found to mediate the relationship between independent variable and dependent variable”. If Sobel test produces a p -value under .05, the researcher has some evidence of mediation. Sobel test calculator is proposed in Figure 3 (below).

Figure 3

Sobel Test Calculator

To conduct the Sobel test

Details can be found in Baron and Kenny (1986), Sobel (1982), Goodman (1960), and MacKinnon, Warsi, and Dwyer (1995). Insert the a , b , s_a , and s_b into the cells below and this program will calculate the critical ratio as a test of whether the indirect effect of the IV on the DV via the mediator is significantly different from zero.

Input:		Test statistic:	Std. Error:	p -value:
a	<input type="text"/>	Sobel test:	<input type="text"/>	<input type="text"/>
b	<input type="text"/>	Aroian test:	<input type="text"/>	<input type="text"/>
s_a	<input type="text"/>	Goodman test:	<input type="text"/>	<input type="text"/>
s_b	<input type="text"/>	<input type="button" value="Reset all"/>	<input type="button" value="Calculate"/>	

Alternatively, you can insert t_a and t_b into the cells below, where t_a and t_b are the t -test statistics for the difference between the a and b coefficients and zero. Results should be identical to the first test, except for error due to rounding.

Input:		Test statistic:	p -value:
t_a	<input type="text"/>	Sobel test:	<input type="text"/>
t_b	<input type="text"/>	Aroian test:	<input type="text"/>
		Goodman test:	<input type="text"/>
	<input type="button" value="Reset all"/>	<input type="button" value="Calculate"/>	

<http://www.quantpsy.org/sobel/sobel.htm>

Summary

To briefly summarize the methodology chapter, Table 11 is proposed. Research questions, variables, type of data, and data analysis used for each research question are included in Table 11 (below).

Table 11

Research Questions and Data Analysis Used for each Research Question

Research Question	Variables	Data	Analytic technique
1. To what extent do social support and coping mediate the effects of levels of acculturation on acculturative stress?	Independent		
	Acculturation	Interval	Descriptive Statistics
	Social Support	Interval	Inferential Statistics
	Coping	Interval	(Hierarchical Multiple Regression)
	Dependent		
	Acculturative Stress	Interval	
2. To what extent does a specific source of social support (i.e., family and old friends, new friends in the U.S., and universities and colleges) mediate the effects of levels of acculturation on acculturative stress?	Independent		
	Acculturation	Interval	Descriptive Statistics
	Family and old friends	Interval	Inferential Statistics
	New friends in the U.S.	Interval	(Hierarchical Multiple Regression)
	Universities and colleges	Interval	
	Dependent		
	Acculturative Stress	Interval	
3. To what extent does a specific type of coping (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) mediate the effects of levels of acculturation on acculturative stress?	Independent		
	Acculturation	Interval	Descriptive Statistics
	Task-oriented Coping	Interval	Inferential Statistics
	Emotion-oriented Coping	Interval	(Hierarchical Multiple Regression)
	Avoidance-oriented	Interval	
	Coping		
	Dependent	Interval	
	Acculturative Stress		

CHAPTER 4

Results

This chapter describes the results of the preliminary analyses, the univariate analysis, and the bivariate analysis. In addition, it presents the results of hierarchical multiple regression analyses for the study's three research questions.

Preliminary Analysis

Data Cleaning

This study gathered its survey data from qualtrics.com. From the full dataset (N = 353), the study only included participants who were Chinese, South Korean, Taiwanese, or Japanese international students enrolled at an American institution of higher education with a F-1 visa. The study excluded U.S. citizens and students enrolled in non-degree programs (e.g. Intensive English Communication Programs). Based on these criteria, I removed a total of 28 respondents from the original dataset— 2 removed because they were not from China, South Korea, Taiwan, and Japan (1 from Malaysia, 1 from Kazakhstan), and 26 because they had either another type of visa beside F-1 (e.g., J-1, E-2, H1B, L-2) or maintained a U.S. citizenship. Among the remaining respondents (N = 325), I removed 115 participants because they answered less than 70% of each and/or all instrument. As a result, the study analyzed a total of 210 participants for missing data.

Missing Data

The study used the SPSS missing-data mechanism to determine how to precisely handle the missing data. Among 210 participants, 63 respondents reported either one or two missing values, 11 reported three or four, 4 reported five or six, and 2 reported 10 missing values. Researchers (Graham, 2012; Sterner, 2011) have recommended determining missing data type

before performing a remediation of that data. The missing-data mechanism produces one of three categories: missing completely at random (MCAR); missing at random (MAR); or missing not at random (MNAR) (Graham, 2012; Sterner, 2011). Sterner (2011) has indicated that the SPSS Missing Value Analysis (MVA) Expectation Maximization (EM; Little's MCAR test) can be used for confirming MCAR data. I applied the MVA menu option of SPSS to a total of 210 responses to describe the pattern of missing values and to check whether the dataset's missingness was MCAR. When the significance value of the chi-square test is greater than .05, the data are considered MCAR. The results of Little's MCAR test (χ^2 (df = 9960) = 9975.696, $p < .05$) showed that the data in this study were not MCAR.

According to Graham (2012), when data are not MCAR, the researcher should apply complete case analysis, also known as listwise deletion. However, this listwise deletion, which removes cases with missing values, biases parameter estimates because complete cases are not representative of the whole sample. Schafer and Graham (2002) therefore have pointed out the advantages of imputing missing values, which reduces problems resulting from a small sample size, such as power and generalizability, and keeps a full dataset for a complete analysis. A number of other researchers (Cohen et al., 2003, Graham, 2012; Tabachnick & Fidell, 2007) have also noted multiple imputation's advantages over other traditional methods such as mean substitution. According to Graham (2012), the goals of the multiple imputation method are to maintain significant characteristics of the entire dataset, to produce unbiased estimates of parameters, and to allow us to examine the variability around estimates. Tabachnick and Fidell (2007) have insisted that multiple imputation is the most effective strategy for dealing with missing data and that it could be used for data which is not MCAR. Although multiple imputation is based on the MAR assumption, Schafer and Graham (2012) have emphasized the

difficulty in determining whether the data is MAR or NMAR. Graham (2012) thus noted that multiple imputation is at least as good as or better than other methods for treating missing data, even data that is not MAR. Therefore, this study applied multiple imputation in SPSS to remediate its missing data.

Outliers

Following the multiple imputation, I then calculated the Z-score of variables to assess univariate outliers. According to Tabachnick and Fidell (2007), the absolute value of a Z-score exceeding 3.29 indicates a potential univariate outlier. This study found two univariate outliers: 1 for acculturative stress (Z-score: 3.39), and 1 for task-oriented coping (Z-score: 3.43). For further detection of multivariate outliers, I employed a Mahalanobis distances analysis (Tabachnick & Fidell, 2007), which identified nine cases with $p < .0001$. I retained these eleven outliers for further analyses for two reasons. First, I did not want to violate the sample. As Sundram (2003) reminds us, a violation of the sample occurs when the researcher fails to maintain adequately the participants' responses. The outlier samples found contain, at the minimum, sufficient information to support this study's results. Second, all the instruments used in this study consisted of a maximum of five Likert scale, and outlier samples measured by these Likert scales were not extreme enough to warrant elimination. Therefore, I decided to keep these outliers for further analysis.

Univariate Analysis

I then tested the data to check that it met the three assumptions for multivariate procedures—normality, linearity, and homoscedasticity. The study applied descriptive analyses to explore the central tendency and the distribution of each variable including means, skewness values, and kurtosis values. For all variables, the values of skewness and kurtosis remained between negative one and positive one.

According to Weinberg and Abramowitz (2002), a variable meets the normality assumption when the skewness statistic divided by the standard error of skewness is less than or equal to the absolute value of two. On the other hand, when the skewness statistic divided by the standard error of skewness is greater than the absolute value of two, normality transformation is applied (Weinberg & Abramowitz, 2002). With the exception of one of the subscales of social support (family and old friends), the other variables of this study—the predictor (acculturation), the outcome (acculturative stress), the first mediator (social support) and its two other subscales (new friends in the U.S, universities and colleges), the second mediator (coping), and the three subscales of this second mediator variable (task-oriented coping, emotion-oriented coping, avoidance-oriented coping)—were normally distributed. Therefore, I further examined the variable that did not meet the normality assumption (i.e., family and old friends) to normalize its distribution. Tabachnick and Fidell (2007) indicated that taking the square root of the variable with positively skewed distribution results in a normally or near normally distributed variable, while using a second power transformation for variables with negatively skewed distribution generates a normal distribution as well. Based on the descriptive analyses, I conducted a second power transformation for the family and old friends variable, thus providing the normal distribution of the scores.

Residuals plots and bivariate scatterplots allowed for the evaluation of linearity assumptions (Tabachnick & Fidell, 2007). I checked both the residuals plots and bivariate scatterplots and found no variables with curvilinear relationships. Calculating bivariate correlations also enabled the examination of multicollinearity. As Tabachnick and Fidell (2007) have pointed out, if variables are highly related with a correlation equal to or greater than the

value of .90, then the researcher should eliminate one of the two variables. Because the data showed no highly correlated variables, all variables remained part of the investigation.

Tabachnick and Fidell (2007) have indicated that variables are homoscedastic when they meet normal assumption. The variables in this study thus met three assumptions for multivariate procedures, normality, linearity, and homoscedasticity. Table 12 indicates means, standard deviations, skewness, kurtosis, and ranges for all variables.

Table 12

Descriptive Statistics for All Variables (N = 210).

	<i>M</i>	<i>SD</i>	Minimum	Maximum	Skewness	Kurtosis
Acculturation	2.0890	.26390	1.31	2.92	.286	.481
Acculturative Stress	2.2818	.42002	1.09	3.71	-.100	.815
Social Support	2.9160	.46662	1.43	3.95	-.274	.320
Family & Old friends ^a	10.8626	3.02297	3.48	16.00	-.284	-.564
New friends in U.S.	2.7749	.64379	1.07	4.00	-.042	-.482
University & Colleges	2.6112	.69205	1.00	4.00	-.202	-.387
Coping	3.2430	.42477	1.85	4.58	.261	.991
Task Coping	3.5953	.58691	1.94	5.61	.211	.203
Emotion Coping	2.9283	.68799	1.25	4.81	.079	-.465
Avoidance Coping	3.2053	.58955	1.56	4.81	-.085	.272

Standard error of skewness = .168, Standard error of kurtosis = .334 for all variables

Note. ^a: Second Power Transformed.

Bivariate Analysis

I calculated bivariate correlations for the demographic variables, the predictor variable, two mediator variables and their three subscales, and the outcome variable, and then examined the correlation coefficients between the demographic variables (age, gender, and length of stay in

the U.S.) and the predictor variable, the outcome variable, and the mediator variables. None of demographic variables significantly correlated with all predictor, outcome, and mediator variables. The study therefore used no demographic variables as control variables in the subsequent regression analyses.

Additionally, I examined correlation coefficients between the predictor variable, the outcome variable, two mediator variables and their three subscales. Table 13 illustrates the correlation matrix for all variables in the study, including the demographic variables, the predictor variable, the outcome variable, the mediator variables, and their subscales.

Table 13

Correlation Matrix for All Variables (N = 210).

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Stress	-	-.264**	.087	.143*	-.107	-.336**	-.243*	-.280**	-.249**	-.162*	-.338**	.163*	-.203**
2.Aculturation		-	-.254**	.107	.000	.083*	.004	.085**	.236**	.276**	.195**	.130	.025**
3.Age			-	-.231**	.173*	-.103	-.009	-.102	-.127	-.180**	.025	-.176*	-.209**
4.Gender				-	-.039	-.061	.039	-.063	-.121	.150*	-.037	.178**	.153*
5.Length of stay in U.S.					-	0.86	-.028	.094	.131	.139*	.113	.113	.051
6.Social Support						-	.727**	.846**	.749**	.310**	.396**	.005	.270**
7.Family & Old Friends ^a							-	.397**	.346**	.190**	.276**	-.027	.168*
8.New Friends in U.S.								-	.461**	.281**	.335**	.008	.265**
9.University & Colleges									-	.240**	.312**	.027	.175*
10.Coping										-	.606**	.660**	.788**
11.Task-oriented Coping											-	-.037	.358**
12.Emotion-oriented Coping												-	.297**
13.Avoidance-oriented Coping													-

* $p < .05$, ** $p < .01$. Stress: Acculturative Stress (Dependent Variable)

Note. ^a: Second Power Transformed.

In examining correlations between the predictor and outcome variables, the predictor variable (acculturation) significantly and negatively correlated with the outcome variable (acculturative stress), showing a correlation of $-.264$ ($p < .0005$).

The predictor variable (acculturation) and the two mediators variables (social support and coping) showed significant and positive relationships: the correlation between acculturation and social support was $.183$ ($p = .008$), while the correlation between acculturation and coping was $.276$ ($p < .0005$). Moreover, the predictor variable (acculturation) had significant and positive relationships with two of the three subscales of the mediator variables. The level of acculturation significantly related with new friends in the U.S. with the correlation of $.185$ ($p = .007$), and related with universities and colleges with the correlation of $.236$ ($p = .001$), but did not have an association with family and old friends with the correlation of $.004$ ($p = .957$). The level of acculturation was also significantly associated with task-oriented coping with a correlation of $.195$ ($p = .004$) and avoidance-oriented coping with the correlation of $.250$ ($p < .0005$), but was not related with emotion-oriented coping with correlation of $.130$ ($p = .060$).

In examining the correlations between the outcome variable (acculturative stress) and two mediators (social support and coping), social support was significantly and negatively related with the outcome variable with a correlation of $-.336$ ($p < .0005$), while coping was also significantly and negatively related to acculturative stress with a correlation of $-.162$ ($p = .019$). All of the three subscales of social support and coping had a significant relationship with the outcome variable. The correlations between acculturative stress and the three subscales of social support were $-.243$ ($p < .0005$) for family and old friends, $-.280$ ($p < .0005$) for new friends in the U.S., and $-.249$ ($p < .0005$) for universities and colleges. In addition, the correlations between acculturative stress and three subscales of coping were $-.338$ ($p < .0005$) for

task-oriented coping, .163 ($p = .018$) for emotion-oriented coping, and -.203 ($p = .003$) for avoidance-oriented coping.

Hierarchical Multiple Regression

In order to examine the three research questions, I conducted three corresponding hierarchical multiple regression analyses. After undertaking an analysis of residuals, I administered hierarchical multiple regression for examining the impact of two mediators (social support and coping), hierarchical multiple regression for investigating the impact of three subscales of social support (family and old friends, new friends in the U.S., universities and colleges), and hierarchical multiple regression for exploring the impact of three subscales of coping (task-oriented coping, emotion-oriented coping, and avoidance-oriented coping).

Analysis of Residuals

Residuals represent the differences between observed and predicted values and examining residuals scatterplots from three regression analyses allow the researcher to test model assumptions of normality, linearity, and homoscedasticity of residuals (Cohen et al., 2003; Tabachnick & Fidell, 2007). I plotted standardized residuals from the three regression analyses against the standardized predicted values. Tabachnick and Fidell (2007) have demonstrated that if all these three assumptions are met, then the residuals need to be distributed in nearly rectangular shape with a concentration of scores at the center.

In this study, a review of the histograms supported the approximate normal distribution for all variables and showed only slightly residuals near the center of the distribution. A probability plot illustrated the observed probabilities closely following a straight line (See Appendix M), which supported the assumptions of linearity. A residual scatterplot indicated only a slight deviation from normality (See Appendix M), thus supporting the normal

distribution. In summary, the histogram, probability plot, and scatterplot showed no evidence of violating the assumptions of a normal distribution.

Regression Analyses

The application of regression analyses served to answer the three research questions in this study. Following to Baron and Kenny's (1986) procedure, I examined the following steps: (a) the relationships between the independent variable and the dependent variable, (b) the relationships between the independent variable and the mediating variable (this treats the mediator as if it were a dependent variable), (c) the relationships between the mediating variable and the dependent variable, and (d) the relationships between the independent variable and the dependent variable when the mediator was included as a second independent variable. This last step is to test whether a change exists in the relationships between the independent and the dependent variables when the mediating variable functions as an independent variable. If the effect of the independent variable on the dependent variable decreases with the addition of the mediator variable in this last step, then the mediator variable has the mediating effect on the relationship between the independent variable and the dependent variable (Baron & Kenny, 1986). After these regression analyses, I conducted a Sobel test to check the effect of the mediator. The test for this research was done at the website for the Sobel test provided by Preacher and Leonardelli (see <http://quantpsy.org/sobel/sobel.htm>).

Research Question 1. To what extent do social support and coping mediate the effects of levels of acculturation on acculturative stress?

Table 14 indicates the results of the regression analyses for examining the mediating effect of social support and coping. I examined two separate analyses for each variable (social support and coping) with Baron and Kenny's four steps.

Table 14

Result of Multiple Regression Analyses for Mediating Effects of Social Support and Coping on the Relationship between Acculturation and Acculturative Stress (N = 210)

Analysis	Step	Dependent Variable	Independent Variables	R ²	B	SE	β	P
Analysis 1	1	Acculturative Stress	Acculturation	.070	-.420	.106	-.264	.000
	2	Social Support	Acculturation	.034	.324	.121	.183	.008
	3	Acculturative Stress	Social Support	.113	-.303	.059	-.336	.000
	4	Acculturative Stress	Acculturation	.155	-.333	.103	-.209	.001
			Social Support		-.268	.058	-.298	.000
Analysis 2	1	Acculturative Stress	Acculturation	.070	-.420	.106	-.264	.000
	2	Coping	Acculturation	.076	.444	.107	.276	.000
	3	Acculturative Stress	Coping	.026	-.160	.068	-.162	.019
	4	Acculturative Stress	Acculturation	.078	-.378	.110	-.237	.001
			Coping		-.095	.069	-.096	.167

I first conducted multiple regression analyses to test the mediating effect of social support. The results showed significant relationships between the independent variable (acculturation) and the dependent variable (acculturative stress), between the independent variable and the mediating variable (social support), and between the mediating variable and the dependent variable. Social support significantly predicted acculturative stress when acculturation was included. Additionally, the effect of acculturation on acculturative stress was weaker with the inclusion of the mediator variable. A Sobel test checked the mediational relationship, providing a test statistic of -2.374 ($p = .017$) (See Appendix N), thus proving that social support was a partial mediator on the relationship between the level of acculturation and acculturative stress according to Baron and Kenny's procedure and the results of Sobel test.

I repeated the same procedure to examine the mediating effect of coping. Again, the results showed significant relationships between the independent variable (acculturation) and the

dependent variable (acculturative stress), between the independent variable and the mediating variable (coping), and between the mediating variable and the dependent variable. Furthermore, the effect of acculturation on acculturative stress decreased with the addition of the mediator variable. However, when the mediator was added to the relationship between acculturation and acculturative stress, coping did not significantly regress on acculturative stress ($\beta = -.096, p = .167$). A Sobel test checked the mediational relationship, and the results supported coping as a partial mediator on the relationship between the level of acculturation and acculturative stress with Sobel statistics of $-2.046 (p = .040)$ (See Appendix N).

Research Question 2. To what extent does a specific source of social support (i.e., family and old friends, new friends in the U.S., and universities and colleges) mediate the effects of levels of acculturation on acculturative stress?

Table 15 indicates the results of the regression analyses for examining the mediating effects of three sources of social support: family and old friends, new friends in the U.S., and universities and colleges. I tested three analyses for each variable of social support with Baron and Kenny's four steps.

Table 15

Result of Multiple Regression Analyses for Mediating Effects of specific sources of social support on the Relationship between Acculturation and Acculturative Stress (N = 210)

Analysis	Step	Dependent Variable	Independent Variables	R^2	B	SE	β	P
Analysis 1	1	Acculturative Stress	Acculturation	.070	-.420	.106	-.264	.000
	2	Family & Old friends	Acculturation	.000	.043	.794	.004	.957
	3	Acculturative Stress	Family & Old friends	.059	-.034	.009	-.243	.000
	4	Acculturative Stress	Acculturation	.128	-.419	.103	-.263	.000
			Family & Old friends		-.034	.009	-.242	.000
Analysis 2	1	Acculturative Stress	Acculturation	.070	-.420	.106	-.264	.000

	2	New friends in U.S.	Acculturation	.034	.452	.166	.185	.007
	3	Acculturative Stress	New friends in U.S.	.079	-.183	.043	-.280	.000
	4	Acculturative Stress	Acculturation	.125	-.349	.105	-.219	.001
			New friends in U.S.		-.156	.043	-.240	.000
	1	Acculturative Stress	Acculturation	.070	-.420	.106	-.264	.000
	2	University & Colleges	Acculturation	.056	.619	.177	.236	.001
Analysis 3	3	Acculturative Stress	University & colleges	.062	-.151	.041	-.249	.000
	4	Acculturative Stress	Acculturation	.107	-.346	.108	-.217	.002
			University & Colleges		-.120	.041	-.198	.004

First, multiple regression analyses tested the mediating effect of family and old friends, the results of which showed that the family and old friends variable was not significantly associated with the independent variable (acculturation); although, there was a significant relationship with the dependent variable (acculturative stress). The results of regression analyses thus did not meet the requirements of testing mediation effect (Baron & Kenny, 1986), and this prohibited the researcher from testing the mediation hypothesis. The Sobel test results also indicated that the family and old friends variable does not work as a mediator on the relationship between acculturation and acculturative stress with Sobel statistics of -0.054 ($p = .956$) (See Appendix N).

I conducted the same procedure for examining the mediating effect of new friends in the U.S. The results showed significant relationships between the independent variable (acculturation) and the dependent variable (acculturative stress), between the independent variable and the mediating variable (new friends in the U.S.), and the relationship between the mediating variable and the dependent variable. Social support from new friends in the U.S. significantly predicted acculturative stress when acculturation was included. Also, the addition of the mediator variable reduced the effect of acculturation on the acculturative stress. A Sobel

test checked the mediational relationship, and indicated that new friends in the U.S. was a mediator on the relationship between levels of acculturation and acculturative stress with Sobel statistics of -2.293 ($p = .021$) (See Appendix N). As the results show, social support from new friends in the U.S. functions as a partial mediator on the relationship between levels of acculturation and acculturative stress according to the Baron and Kenny's procedure and the results of Sobel test.

I then tested the mediating effect of universities and colleges. The results showed significant relationships between the independent variable (acculturation) and the dependent variable (acculturative stress), between the independent variable and the mediating variable (universities and colleges), and between the mediating variable and the dependent variable. Social support from universities and colleges significantly predicted acculturative stress when acculturation was included. In addition, the effect of acculturation on the acculturative stress decreased with the addition of the mediator variable. The results of the Sobel test showed that universities and colleges mediates the effect of acculturation on acculturative stress with Sobel statistics of -2.536 ($p = .011$) (See Appendix N). The results thus showed that social support from universities and colleges serves as a partial mediator on the relationship between level of acculturation and acculturative stress according to the Baron and Kenny's procedure and the results of the Sobel test.

Research Question 3. To what extent does a specific type of coping (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) mediate the effects of levels of acculturation on acculturative stress?

Table 16 indicates the results of the regression analyses for examining the mediating effects of three types of coping: task-oriented coping, emotion-oriented coping, and avoidance-

oriented coping. I examined three analyses for each variable of coping with Baron and Kenny's four steps.

Table 16

Result of Multiple Regression Analyses for Mediating Effects of specific types of coping on the Relationship between Acculturation and Acculturative Stress (N = 210)

Analysis	Step	Dependent Variable	Independent Variables	R ²	B	SE	β	P
Analysis 1	1	Acculturative Stress	Acculturation	.070	-.420	.106	-.264	.000
	2	Task Coping	Acculturation	.038	.434	.151	.195	.004
	3	Acculturative Stress	Task Coping	.114	-.242	.047	-.338	.000
	4	Acculturative Stress	Acculturation	.155	-.328	.104	-.206	.002
			Task Coping		-.213	.047	-.297	.000
Analysis 2	1	Acculturative Stress	Acculturation	.070	-.420	.106	-.264	.000
	2	Emotion Coping	Acculturation	.017	.338	.179	.130	.060
	3	Acculturative Stress	Emotion Coping	.026	.099	.042	.163	.018
	4	Acculturative Stress	Acculturation	.109	-.461	.105	-.290	.000
		Emotion Coping.		.122	.040	.200	.003	
Analysis 3	1	Acculturative Stress	Acculturation	.070	-.420	.106	-.264	.000
	2	Avoidance Coping	Acculturation	.062	.558	.150	.250	.000
	3	Acculturative Stress	Avoidance Coping	.041	-.145	.048	-.203	.003
	4	Acculturative Stress	Acculturation	.090	-.362	.109	-.227	.001
		Avoidance Coping		-.104	.049	-.147	.033	

I first applied multiple regression analyses to test the mediating effect of task-oriented coping. The results showed that the relationship between the independent variable (acculturation) and the dependent variable (acculturative stress), the relationship between the independent variable and the mediating variable (task-oriented coping), and the relationship between the mediating variable and the dependent variable were all significant. Task-oriented coping significantly predicted acculturative stress when acculturation was included. Moreover,

the addition of the mediator variable reduced the effect of acculturation on the acculturative stress. A Sobel test checked the mediational relationship and showed that task-oriented coping was a mediator on the relationship between levels of acculturation and acculturative stress with Sobel statistics of $r = -2.509$ ($p = .012$) (See Appendix N). As the results therefore demonstrate, task-oriented coping acts as a partial mediator on the relationship between levels of acculturation and acculturative stress of East Asian international students according to the Baron and Kenny's procedure and the results of Sobel test.

The mediating effect of emotion-oriented coping was also tested and the results of the multiple regression showed that emotion-oriented coping was not significantly associated with the independent variable (acculturation), although there was a significant relationship with the dependent variable (acculturative stress). Furthermore, when emotional-oriented coping was added to the relationship between acculturation and acculturative stress, the effect of acculturation on the acculturative stress did not decrease. Thus, the results of regression analyses did not meet the requirements of testing mediation effect according to Baron and Kenny's (1986) procedure. The Sobel test results also indicated that emotion-oriented coping does not work as a mediator on the relationship between levels of acculturation and acculturative stress with Sobel statistics of 1.473 ($p = .140$) (See Appendix N).

After conducting the same procedure for examining the mediating effect of avoidance-oriented coping, the results showed that the relationship between the independent variable (acculturation) and the dependent variable (acculturative stress), the relationship between the independent variable and the mediating variable (avoidance-oriented coping), and the relationship between the mediating variable and the dependent variable were all significant. Avoidance-oriented coping significantly predicted acculturative stress when acculturation was

included. In addition, the effect of acculturation on acculturative stress was weaker with the addition of the avoidance-oriented coping variable. A Sobel test demonstrated the mediating effect of avoidance-oriented coping with Sobel statistics of -2.345 ($p = .019$) (See Appendix N). According to the Baron and Kenny's procedure and the results of Sobel test, avoidance coping acts as a partial mediator on the relationship between levels of acculturation and acculturative stress.

CHAPTER 5

Discussion

This chapter presents the major findings of this study. Moreover, it discusses the findings' strengths and implications, and provides the study's limitations and recommendations for future research.

Discussion of the Results

The first purpose of this study was to examine if social support and coping play mediating roles between levels of acculturation and acculturative stress of East Asian international students in the U.S. The second aim of the study was to investigate whether specific types of social support (i.e., family and old friends, new friends in the U.S., university and colleges) mediate the role of acculturation on the acculturative stress. The study's third and final purpose aimed to explore the mediating role of specific styles of coping (i.e., task-oriented coping, emotion-oriented coping and avoidance-oriented coping) on the relationship between level of acculturation and acculturative stress. Three hierarchical regression analyses provided answers to the three research questions, the results of which imply the following findings.

Research Question 1

To what extent do social support and coping mediate the effects of levels of acculturation on acculturative stress?

Social support. Previous studies (e.g., Berry, 1997) indicated that higher levels of acculturation decrease the acculturative stress of international students. According to Berry (1997), in this relationship social support plays a positive role in adaptation to acculturation and lower stress in a new culture. Other researchers (e.g., Cohen & Wills, 1985; Poyrazli et al., 2004) also pointed out that social support facilitates the acculturation process and minimizes the

acculturative stress of international students. The findings of this study were consistent with previous studies that demonstrate the relationship between acculturation, social support and acculturative stress. The results showed that 14.7% of variance in acculturative stress is explained by level of acculturation and social support (Cohen (1988) noted that R^2 between .09 and .25 is a medium effect size in social sciences research). In addition, adjusted R^2 (adjusted $R^2 = .147$) was slightly smaller than R^2 ($R^2 = .155$) in the regression analysis and this supported that the data in this study were reliable (Cohen, 1988).

This study found the significant effects of social support with acculturation as well as acculturative stress. Social support also significantly predicted the acculturative stress with the addition of acculturation. The effect of acculturation on acculturative stress was weaker with the addition to the mediator variable (social support). A Sobel test also showed this mediating role of social support. Therefore, the results of the current study revealed that social support partially mediates the effects of acculturation on acculturative stress of East Asian international students.

Not only does level of acculturation directly affect acculturative stress, it also appears that this relationship is partly based on how international students perceive social support; in other words, how East Asian students perceive social support affects their response to acculturative stress. Social support thus accounts for significant variance in the relationship between the level of acculturation and acculturative stress such that experiences with the acculturation process lead East Asian international students to seek social support, which then leads to reduced levels of acculturative stress. If an international student has lower acculturative stress and higher psychological well-being in the U.S., he or she may have more social support than those who do not. In summary, this study supported other researchers'

assertions (e.g., Ye, 2006; Yeh & Inose, 2003) that an international student's social support can explain his or her adaptation to a new cultural environment and that this adaptive function of the social network both decreases acculturative stress (Yeh & Inose, 2003) and provides newcomers with their psychological well-being (Ye, 2006).

Coping. Empirical research (e.g., Connor-Smith & Compas, 2002; Jose & Huntsinger, 2005) has shown the important role coping plays in managing stress and promoting well-being. Berry (1997) also has noted the mediating role of coping strategies on the relationship between acculturation and acculturative stress. Furthermore, a number of other researchers (e.g., Li & Browne, 2000, Yang & Clum, 1994) have studied the effects of coping on acculturative stress specifically among international students. The results showed that 6.9% of variance in acculturative stress is explained by level of acculturation and coping (Cohen (1988) noted that R^2 between .01 and .09 is a small effect size in social sciences research). Additionally, adjusted R^2 (adjusted $R^2 = .069$) was slightly smaller than R^2 ($R^2 = .078$) in the regression analysis and this supported that the data were reliable (Cohen, 1988).

The current study found the significant effects of coping with acculturation as well as with acculturative stress. Additionally, the effect of acculturation on acculturative stress was weaker with the addition of the mediator variable (coping). Although coping did not significantly predict acculturative stress with the addition of acculturation ($\beta = -.096, p = .167$), the role of coping on the relationship between acculturation and acculturative stress cannot be ignored due to the findings of previous research and because of the small decrease in probability with the addition of acculturation. James and Brett (1984) have argued that the last step of Baron and Kenny's procedure (i.e., testing whether a mediator predicts the dependent variable when the influence of the independent variable is included) should be modified by not

controlling for the independent variable and have insisted that the researcher is allowed to continue the mediation analysis when the mediator to outcome relationship without the inclusion of the independent variable is significant. Moreover, because the Sobel test revealed that coping still plays a mediating role (Sobel statistics of -2.046 , $p = .040$) with the reduced effect of acculturation on acculturative stress when the mediator variable was added, I conclude that coping partially mediates the relationship between acculturation and acculturative stress but caution that the relationship may not be reliable.

Not only does the level of acculturation directly affect acculturative stress, but it also seems like this relationship is partially based on how East Asian international students cope with acculturative stress. In other words, levels of coping account for some degrees of variance in the relationship between the level of acculturation and acculturative stress. The experiences of acculturation with stress lead East Asian international students to seek effective coping strategies with high levels of coping to deal with the stress, which then leads to decreased levels of acculturative stress. If an international student has lower acculturative stress, he or she may have greater levels of coping than those who do not. The results of this study therefore supported past claims (e.g., Berry, 1997) that an international student's levels of coping explain their acculturation and the stress in the adaptation process in the new culture.

Research Question 2

To what extent does a specific source of social support (i.e., family and old friends, new friends in the U.S., and universities and colleges) mediate the effects of levels of acculturation on acculturative stress?

Cohen and Wills (1985) have contended that specific resources and support should match with stress for its fullest alleviation. A number of studies (e.g., Fang, 2013; Kim, 2010) have

focused on the effect of specific sources of social support for international students. Entering into that body of scholarship, this study also examined the extent to which specific sources of social support (i.e., family and old friends, new friends in the U.S., and universities and colleges) mediate the effects of levels of acculturation on acculturative stress. The results of the study showed the mediating effects of new friends in the U.S. and universities and colleges, but showed that family and old friends did not play a role as a mediator in the relationship between acculturation and acculturative stress.

Family and old friends. Past studies (e.g., Hayes & Lin, 1994, Ye, 2006) have indicated that family and friends in an international student's home country are associated with his or her psychological well-being. Following such evidence, the current study also hypothesized that family and old friends would have a mediating effect on the relationship between levels of acculturation and acculturative stress. The findings, however, did not support that assumption: family and old friends did not mediate the effect of acculturation on acculturative stress. The results revealed that 12.0% of variance in acculturative stress is explained by level of acculturation and social support from family and old friends (Cohen (1988) noted that R^2 between .09 and .25 is a medium effect size in social sciences research). Also, adjusted R^2 (adjusted $R^2 = .120$) was slightly smaller than R^2 ($R^2 = .128$) in the regression analysis and this supported that the data in this study were reliable (Cohen, 1988).

Family and old friends had the significant effects on acculturative stress but not with levels of acculturation. The results of the Sobel test also did not reveal the mediating effect of family and old friends on the relationship between acculturation and acculturative stress. Although the current study noted no mediation effects or significance in the relationship between

acculturation and family and old friends, the results still suggested that family and old friends is significantly and negatively associated with the acculturative stress.

Maundeni (2001) stated that many international students wish to have more contact with their family and old friends in home country, missed them, and felt homesickness. Lu (1990) also noted that international students' feelings of homesickness are stable and long lasting. According to Sandhu and Asrabadi (1994), this homesickness was found to be a crucial variable in causing social alienation within the new culture. In addition, social support from family can inhibit an international student's encounter U.S. culture, which stresses the individual self, an emphasis particularly alien to East Asian international students who come from societies that tend to value the familial self (Roland, 1994). Thus, this study supports the findings that contacting family and old friends in home country might not be helpful in adjusting to the new culture or in facilitating acculturation, although it could act as a buffer for decreasing acculturative stress.

In addition, Asian families, including grandparents and secondary families, are traditionally rather large. Due Asia's modernization, however, the family size has been progressively decreasing (Jiloha, 2009). According to Ting (2012), the family structure in East Asia has grown more nuclear, meaning that East Asian international students may conceptualize their family as consisting only of parents and their siblings and not of grandparents or extended family members. Among the 15 items used to assess family and old friends in the Index of Social Support (ISS; Yang & Clum, 1994) (which was used in this study), 5 items asked about secondary families (e.g., uncles, aunts): for instance, "I trust my secondary families" and "My secondary families mean a lot to me." Such items have the potential to influence East Asian international students' perception of social support from family and old friends in home country

because they may not have had frequent contact with those particular family members. In conclusion, this study showed that social support from family and old friends in home country did not mediate the effects of acculturation on acculturative stress of East Asian international students.

New friends in the U.S. Researchers have considered social support from the host nation to be important for international students' adjustment (Olaniran, 1993; Surdam & Collins, 1984). Previous literature (e.g., Poyrazli et al., 2004) reported that international students who interact with new friends in the U.S. easily adjust to the acculturation process and feel less acculturative stress. The findings of this current study were consistent with previous studies that document the relationship between acculturation, social support from new friends in the U.S., and acculturative stress. The results indicated that 11.7% of variance in acculturative stress is explained by level of acculturation and social support from new friends in the U.S. (Cohen (1988) noted that R^2 between .09 and .25 is a medium effect size in social sciences research). In addition, adjusted R^2 (adjusted $R^2 = .117$) was slightly smaller than R^2 ($R^2 = .125$) in the regression analysis and this supported that the data in this study were reliable (Cohen, 1988).

It found that new friends in the U.S significantly predicted acculturation as well as acculturative stress. New friends in the U.S. also significantly related to acculturative stress with the inclusion of acculturation. Furthermore, the addition of the mediator variable (new friends in the U.S.) reduced the effects of acculturation on acculturative stress. The results of the Sobel test supported this mediating role of new friends in the U.S. Thus, the findings of the current study indicated that 'new friends in the U.S.' partially mediates the effects of levels of acculturation on acculturative stress for East Asian international students.

Ultimately, East Asian students with greater support from new friends in the U.S connect experiences of acculturation with acculturative stress. In other words, the perception of social support from new friends in the U.S. explains the relationship between levels of acculturation and acculturative stress; the experiences with acculturation of East Asian international students are associated with the support from new friends in the U.S., which then leads to decreased levels of acculturative stress. If an East Asian international student has lower acculturative stress in the U.S., then he or she may have higher perceived social support from the host culture than those who do not have such support.

Social support from new friends in the U.S. (i.e., new friends in the United States, community activities, and religious places) can be helpful for East Asian international students because this network provides effective advice and resources for cultural and psychological adjustment. In summary, the results of this study supported other researchers' assertions (e.g., Mallinckrodt & Leong, 1992; Trice, 2004) that an international student's social support from new friends in the U.S. accounts for his or her adaptation to the new culture and minimizes acculturative stress.

Universities and colleges. Many studies (e.g., Chen, 1999; Mallinckrodt & Leong, 1992) have shown that international students obtain help from universities and colleges, and receiving such support reduces their acculturative stress, which relates to the acculturation process in the U.S. The findings of this study were consistent with previous assertions that demonstrate the relationship between acculturation, social support from universities and colleges, and acculturative stress. The results indicated that 9.8% of variance in acculturative stress is explained by level of acculturation and social support from universities and colleges (Cohen (1988) noted that R^2 between .09 and .25 is a medium effect size in social sciences research).

Additionally, adjusted R^2 (adjusted $R^2 = .098$) was slightly smaller than R^2 ($R^2 = .107$) in the regression analysis and this supported that the data in this study were reliable (Cohen, 1988).

Universities and colleges significantly affected levels of acculturation and acculturative stress. With the addition of acculturation, universities and colleges also significantly predicted acculturative stress. The effect of acculturation on the acculturative stress decreased with the addition to the mediator variable (universities and colleges). Furthermore, the Sobel test results showed that universities and colleges has mediating effects. Thus, the universities and colleges variable functioned as a partial mediator on the relationship between acculturation and acculturation stress in this study.

Not only does level of acculturation directly affect acculturative stress, it also appeared that this relationship is partly based on how international students perceive social support from universities and colleges, which implies that East Asian students' perception of social support from universities and colleges links the acculturation process to their responses for acculturative stress. In other words, universities and colleges accounts for a significant amount of variance in the relationship between level of acculturation and acculturative stress such that experiences with the acculturation process lead East Asian international students to seek social support from universities and colleges, which then leads to reduced levels of acculturative stress. If an international student has lower acculturative stress and higher psychological well-being in the U.S., he or she may have greater social support from universities and colleges than those who do not.

Support from universities and colleges (i.e., international student centers, student organizations) can help international students resolve their unique difficulties (e.g., visa issues, registration, legal residence in the U.S.) and this support reduces acculturative stress. In

conclusion, the results supported other researchers' findings (e.g., Chen, 1999; Mallinckrodt & Leong, 1992) that an international student's social support from universities and colleges explains his or her adaptation and experience with acculturative stress.

Research Question 3

To what extent does a specific type of coping (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) mediate the effects of levels of acculturation on acculturative stress?

Many studies (e.g., Furukawa, 1997; Li & Browne, 2000) have focused on the effect of coping strategies for international students and role that specific coping styles have on impacting international students' life in the new culture. This study also examined the extent to which specific types of coping (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) mediate the effects of levels of acculturation on acculturative stress. The results showed the mediating effects of task-oriented coping and avoidance-oriented coping but did not show the mediating effect of emotion-oriented coping.

Task-oriented coping. Task-oriented coping is an important coping strategy for international students (Furukawa, 1997). Regarding task-oriented coping, the findings of this study were consistent with those of previous studies that document the relationship between acculturation, task-oriented coping, and acculturative stress. The results indicated that 14.7% of variance in acculturative stress is explained by level of acculturation and task-oriented coping (Cohen (1988) noted that R^2 between .09 and .25 is a medium effect size in social sciences research). Also, adjusted R^2 (adjusted $R^2 = .147$) was slightly smaller than R^2 ($R^2 = .155$) in the regression analysis and this supported that the data in this study were reliable (Cohen, 1988).

The significant effects of task-oriented coping were found with acculturation and acculturative stress. With the inclusion of acculturation, task-oriented coping also had a significant relationship with acculturative stress. Also, the addition of the mediator variable (task-oriented coping) reduced the effects of acculturation on acculturative stress, and the results of Sobel test supported the mediating role of task-oriented coping. Task-oriented coping therefore acts as a partial mediator on the relationship between acculturation and acculturation stress.

This means that East Asian students' task-oriented coping links the acculturation process to their responses for acculturative stress. The examples of task-oriented coping are: "Use my time better" and "Focus on the problem and see how I can solve it." As such, actively responding to the stressors significantly related to acculturation and acculturative stress. The use of active coping behaviors explains the relationship between acculturation and acculturative stress in that East Asian international students' experiences with adjusting in the U.S. are associated with the use of these task-oriented coping strategies, which then leads to reduced levels of acculturative stress. If an international student has lower acculturative stress, he or she may have greater increases in task-oriented coping than those who do not.

According to Hahn (2011), this may happen because when an international student focuses on finding the solutions to the stressors, he or she may be able to resolve the problems and then ideally terminate the difficulties that can lead to serious acculturative stress. In summary, the results of this study supported that task-oriented coping can account for a significant amount of variance in the relationship between the acculturation process and acculturative stress of East Asian international students.

Emotion-oriented coping. Previous studies (e.g., Flett et al., 1996; Furukawa, 1997; Shikai, Shono, & Kitamura, 2009) have revealed the significant relationship between emotion-oriented coping and psychological maladjustment and distress. The results of the current study also showed that emotion-oriented coping was positively and significantly associated with acculturative stress; all the other types of coping (i.e., task-oriented coping, avoidance-oriented coping), however, were negatively associated with acculturative stress. The results showed that 10.1% of variance in acculturative stress is explained by level of acculturation and emotion-oriented coping (Cohen (1988) noted that R^2 between .09 and .25 is a medium effect size in social sciences research). Additionally, adjusted R^2 (adjusted $R^2 = .101$) was slightly smaller than R^2 ($R^2 = .109$) in the regression analysis and this supported that the data in this study were reliable (Cohen, 1988).

This study found no significant relationship between levels of acculturation and emotion-oriented coping, and thus emotion-oriented coping did not mediate the effect of acculturation on acculturative stress. A Sobel test also did not indicate the mediating role of emotion-oriented coping on the relationship between acculturation and acculturative stress. Although this study did not find any significant mediation effects of emotion-oriented coping and a significant relationship between acculturation and emotion-oriented coping, the results still supported that emotion-oriented coping is significantly and positively associated the level of acculturative stress of East Asian international students. This finding thus supports that emotion-oriented coping is significantly associated with psychological maladjustment (Flett et al., 1996).

Even though some previous research (e.g., Stanton, Danoff-Burg, Cameron, & Ellis, 1994) suggests that emotion-oriented coping was related to distress and dysfunction, many have asserted (Thompson, 1991; Seo, 2013) that such findings were based on the distorted

perspectives on emotion that emphasize solely its maladaptive and disorganizing functions. Seo (2013) also demonstrated the intrinsic problems in the conceptualization and evaluations of the emotion-oriented coping because the existing instruments for measuring emotion-oriented coping include items associated with distress and self-deprecation. For example, the CISS measurement, which was used in this study, includes items such as “Blame myself for having gotten this situation” or “Blame myself for not having a solution” (Endler & Parker, 1990). Such self-deprecatory items would influence East Asian international students’ perception of emotion-oriented coping because they were highest achieving population in their home country (Mori, 2000; Pedersen, 1991; Yeh & Inose, 2003) thus were used to maintaining high levels of self-efficacy (Komarraju & Nadler, 2013).

Additionally, it is important to consider existing literature on Asians’ attitudes toward emotions. One line of research has argued that Asians, especially East Asians, tend to be reserved and reluctant to express their emotions (Kim, Atkinson, & Yang, 1999), because Asian cultures value emotional self-control, understanding it as a symbol of maturity (e.g., Kim, Atkinson, & Yang, 1999; Kim, Li, & Ng, 2005). However, the examples of emotion-oriented coping items in CISS are “Become tense,” “Feel anxious about not being able to cope,” or “Take it out on other people when I feel angry or depressed.” Such items almost certainly would have a crucial impact on identifying emotion-oriented coping for East Asian international students, many of whom mostly likely would be reserved and less willing express their true feelings. Given the findings on Asians’ attitudes toward emotions, it is unclear how emotions may function as a coping method for acculturative stress. Further research, therefore, needs to clarify the adaptability of emotions as a coping strategy for this population. In conclusion, this

study showed that emotion-oriented coping did not mediate the effects of acculturation on acculturative stress of East Asian international students.

Avoidance-oriented coping. Avoidance-oriented coping has been considered an important strategy to overcome acculturative stress for international students (Hahn, 2011). Some literature, however, has shown mixed results regarding avoidance-oriented. Some have found a negative correlation between avoidance-oriented coping and stress (McWilliam, Cox, & Enns, 2003; Turner, King, & Tremblay, 1992), while others suggested that avoidance-oriented coping positively correlated with stress (e.g., Endler & Parker, 1990b; Flett, Blankstein, & Obertynski, 1996). In the current study, avoidance-oriented coping significantly and negatively associated with acculturative stress. The results indicated that 8.1% of variance in acculturative stress is explained by level of acculturation and avoidance oriented coping (Cohen (1988) noted that R^2 between .01 and .09 is a small effect size in social sciences research). In addition, adjusted R^2 (adjusted $R^2 = .081$) was slightly smaller than R^2 ($R^2 = .090$) in the regression analysis and this supported that the data in this study were reliable (Cohen, 1988).

Avoidance-oriented coping had the significant effect on both acculturation as well as acculturative stress and also a significant relationship with acculturative stress with the inclusion of acculturation. Additionally, the effect of acculturation on acculturative stress was weaker with the addition to the mediator variable (avoidance-oriented coping). Furthermore, the results of the Sobel test supported this mediating role of avoidance-oriented coping. Avoidance-oriented coping thus partially mediates the effects of levels of acculturation and acculturative stress of East Asian international students.

This finding means that East Asian students' avoidance-oriented coping accounts for their acculturation process and responses to acculturative stress. If an international student has lower

acculturative stress and higher psychological well-being in the U.S., he or she may have a higher level of avoidance-oriented coping than those who do not. The use of avoidance-oriented coping behaviors explains the relationship between acculturation and acculturative stress; that is, the experiences of East Asian international students with acculturation process are associated with the use of this coping strategy, which leads to reduced levels of acculturative stress.

Examples of avoidance-oriented coping include “Visit a friend,” “Watch TV,” and “Go for a walk.” As such, the East Asian international students who engage themselves in other activities rather than directly confronting the stressors may experience less acculturative stress. Although focusing on finding solutions to the problems (i.e., task-oriented coping) may be considered a better strategy to respond to stressful situations for international students, avoiding the stressors may also facilitate relaxation because engaging in other activities may temporarily relieve one’s extremely stressful feelings, hence improving psychological well-being (Hahn, 2011). In conclusion, the results of the study suggested that avoidance-oriented coping partially mediates the levels of acculturation on acculturative stress of East Asian international students.

Implications

The findings of this study illustrated the role of both general and specific sources of social support (i.e., family and old friends, new friends in the U.S., universities and colleges), and general and specific types of coping (i.e., task-oriented coping, emotion-oriented coping, and avoidance-oriented coping) in the relationship between acculturation and acculturative stress among East Asian international students. Education professionals, such as counselors, faculties, and administrators, would greatly benefit from the knowledge of how to help East Asian international students lessen stress from the acculturation process and how to assist this population in achieving social support and higher levels of coping.

Counseling Professionals

According to many researchers (e.g., Leong & Sedlacek, 1986; Mitchell et al., 2007; Zhang & Dixon, 2003), international students, especially Asian international students, have concerns about utilizing professional psychological help in universities and colleges. Those studies revealed that Asian international students are more likely to be unaware of the availability of psychological services and to be unfamiliar with the American counseling services system. Additionally, Zhang (1998) mentioned that these students tend to have a negative perception of receiving mental health services. Thus, a considerable need exists for counseling professionals to introduce their services to these students by providing activities such as workshops or orientation to raise awareness of such mental health services and to show how and what kind of services are offered on campus. Such endeavors could possibly lead to the elimination of the negative stigma related with mental health services.

Brinson and Kottler (1995) found that international students, because of cultural and linguistic barriers, might be reluctant to work with counseling professionals, many of whom come from a Western background of Western cultures and are unilingual. The students often think that American counselors might not understand their unique situations and concerns in the U.S. Counseling professionals thus need to be culturally sensitive and develop their cultural self-awareness as well as multicultural competencies (Winterowd, Adams, Miville, & Mintz, 2009).

In addition, many international students tend to rely on their social network and coping strategies when they experience difficulties in the U.S. Counselors thus also need to familiarize themselves with international students' lives in the U.S. and know how to access useful resources regarding social support and coping (e.g., interpersonal group counseling, peer support groups,

or social/coping skill learning program for international students). As this study has shown, social support from family and friends in home country was not an important predictor of acculturation, although support from U.S. friends and colleges showed a significant relationship with acculturation and acculturative stress. In terms of coping, emotion-oriented coping stood out as having a positive association with acculturative stress, but task-oriented coping and avoidance-oriented coping were negatively associated with acculturative stress. When working with international students, counselors should evaluate the ways these students obtain social support and how they cope with stressful events in order to identify risk and protective factors of serious stress. Therefore, the first step for counselors in the discussion of acculturation and its accompanying stressors may be to increase awareness of social support and coping strategies. With findings of this study, counselors would be able to help more effectively this growing population of international students build their social support systems and learn effective coping strategies in their new environment.

Counselor Educators

One of the main objectives for counselor educators is helping counselors match counseling strategies with both personal values and those of their prospective clients, all of whom come from diverse backgrounds (Archer & McCarthy, 2007). In assisting international students, the counselors' knowledge and ability of adapting to cultural diversity is a crucial resource, and as such a great deal of attention must go into considering how best to instill these skills within the counselor training. The counselor educators need to promote multicultural sensitivity, awareness, and knowledge to trainees, while also remaining cognizant of the experiences and difficulties of international students in the U.S. and understanding the students' cultural values, which include intellectual, emotional, and strategic resources (Jacob & Greggo,

2001). According to Jacob and Greggo (2001), counselor trainees should be exposed to accurate information about the international students' experience and potential counseling issues that may emerge. The findings of this current study therefore would be helpful for counselor educators to present accurate and sensitive information about such issues and would help identify effective resources that international students employ in overcoming the difficulties of acculturation.

Leong and Chou (1996) have pointed out that counselors need to recognize the many variables that can influence their engagement with international students and have posited that counselor education must begin with trainees examining their values to understand the impact of biases and prejudices. By sharing the findings of the current study, which demonstrates the process of acculturation and acculturative stress and the ways international students use their social support and coping, the counselor educators would be able to have better interactions with trainees, helping them to confront traditional counseling expectations as well as Western-oriented approaches while also providing an opportunity to explore biases when working with international students.

Understanding the difficulties of international students may lead counselor educators to explore ways to engage in interdisciplinary collaboration within the university setting to develop experiential learning activities for trainees. Such collaboration could be an opportunity for counselors to interact with international students at International Students Centers, Career Services, or the Students Affairs program, so that trainees could meet international students and work to understand their unique issues. With the supervisions from counselor educators, this would provide effective experiential learning for counselor trainees and would generate an increased awareness about the issues of international students.

The findings of this study—on international students’ acculturation and acculturative stress, their resources (social support and coping), how they use those resources, and more broadly, on how to create counselor training procedures, which includes strategies to counsel international students—could be handled in many courses in throughout the counselor education program. Multicultural counseling and counseling theory courses would be most effective in assisting trainees to obtain an awareness and knowledge about the issues of international students. In addition, counselor educators would also be able to help their students to improve skills in a pre-practicum class on counseling and assisting international students who have difficulties in the process of acculturation as well as acculturative stress.

Higher Education Professionals

Not only for counseling professionals, the multicultural training programs or workshops would be useful for faculties and administrators (e.g., Counseling and Psychology Services, International Student Center, and Office of Students Affair) and would better their ability to assist international students. With such programs, higher education professionals could increase their cultural awareness, prepare them to teach students with different cultural backgrounds, and help recognize when and where they can refer or aid students who need appropriate assistance.

With findings of the study, staffs in universities and colleges (e.g., International Student Center, Global Programs, Residence Life, Students Affair Program, and Counseling and Psychological Services) also can collaborate with the community (e.g., community churches, or community libraries) to build an international student-friendly environment and a culturally sensitive community through activities such as local fairs or diversity enhancement groups. In undertaking such projects, universities and colleges can promote a culturally sensitive campus

and encourage both American students and international students to be open to different backgrounds and exchange cultural values.

Limitations of the Study

This study had several limitations. First, it study targeted international students originally from four East Asian countries (China, South Korea, Taiwan, and Japan), and therefore, the results may not translate to international students from other countries. In addition, this study had the majority of responses from South Korean international students but a small number of responses from Chinese, Taiwanese, and Japanese international students. The findings thus may be generalized to international students from South Korea in particular. Second, this study used self-reported instruments. Thus, participants' self-reported responses might be different from their actual use of social support and coping because the responses are based on perception. Also, it is possible that they might have provided answers that majority of people accepted instead of basing their responses on true beliefs and feelings. Third, the timing of data collection may have impacted participants' levels of acculturation and acculturative stress. The target population was contacted at the beginning of the semester. Their acculturative stress, their level of acculturation, perceived social support, and levels of coping may differ during the course of the academic year.

Strengths of the Study

The current study has a number of unique strengths. First, it focused specifically on East Asian international students whereas most other studies have examined international students in general or Asian students from multiple countries (e.g., Reynolds & Constantine, 2007). This study supported that higher levels of acculturation lead to lower levels of acculturative stress among East Asian international students. Moreover, this study also

suggested that less perceived social support and lower levels of coping lead to higher levels of acculturative stress among this population. Second, at least to my knowledge, no other studies have applied the matching hypothesis of social support and coping together with the relationship between acculturation and acculturative stress. With this matching, this study illuminates how cultural values (i.e., East Asian values, in this study) associated with constructs of social support and coping, and how such values influence acculturation and acculturative stress. Although past literature on acculturative stress has assumed the importance of culture (e.g., Sovic, 2008; Trice, 2004), no research has been carried out to examine simultaneously the role of culture in social support and coping. Third, this study found all measurements used for the current study to be highly reliable. The reliability estimates providing Cronbach's coefficient alpha of the SA-ASIA was .751; the ILS was .888; the ISS and its sub-categories ranged from .881 to .951; and the CISS and its sub-scales ranged from .835 to .912. These reliabilities demonstrate the empirical results of the highly acceptable reliability coefficient alpha. In addition, with designed to measure the general level of coping and coping styles across various stressful situations, the Coping Inventory for Stressful Situations (CISS, Endler & Parker, 1990), was developed based on the characteristics of a Western population (Endler & Parker, 1990). This study, however, found the CISS to be highly reliable with the East Asian international student population. Finally, the current study used a multiple imputation strategy to handle the missing data. Researchers have considered this method to have many advantages over other traditional options for coping with missing data such as mean substitution, listwise deletion, and pairwise deletion (Graham, 2012; Tabachnick & Fidell, 2007). By using multiple imputation, this study attempted to estimate unbiased parameters as well as standard errors and minimize potential biases from missing data.

Overall, this study assists in raising international students' awareness of potential stressors and anxiety during the acculturation process and provides assistance in dealing with them. Clearly, the mental, emotional, and behavioral patterns of international students regarding their social network and coping strategies directly impacts their adaptive processes and levels of stress. Found throughout the experiences of international students in this study, sufficient social support and effective coping strategies improve the success of acculturation and assists in overcoming acculturative stress. Furthermore, findings of this study also aid faculties, counseling professionals, and administrators working in American higher education familiarize themselves with issues of acculturation, acculturative stress, social support, and coping strategies of international students.

Recommendations for Future Research

The limitations of this study may help guide and structure future research. First, East Asian international students' experiences need to be compared with the domestic student population as well as with a home culture sample in order to better understand East Asian students' unique needs and issues. Second, future studies need to focus on the mediating effects of social support and coping on the relationships between acculturation and specific types of acculturative stress (e.g., cultural adjustment, language barriers, academic difficulties, interpersonal relationship, financial issues) in order to understand international students' unique stress in their acculturation process. Third, to better understand international students' acculturation and acculturative stress, a qualitative approach might be useful to examine their actual experiences in the U.S. A qualitative methodology will allow researchers to explore deeper the details of the data and to note the similarities and differences of personal acculturative experiences and stress as well as perceived social support and coping. Finally, other negative

psychological outcomes such as depression or anxiety also need to be studied to better understand the stress and coping model. In addition, risk factors— not just protective factors of acculturative stress—and positive psychological outcomes of acculturation also need further examination to gain a better understanding of resilience; this may eventually help to design more effective interventions for acculturative stress during the process of acculturation among international students.

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Appendix A

Approval Letter: Penn State Office for Research Protections

PENNSTATE



Vice President for Research
Office for Research Protections

The Pennsylvania State University
The 330 Building, Suite 205

Phone : (814) 865-1775
Fax: (814) 863-8699
Email : orprotections@psu.edu
Web : www.research.psu.edu/orp

Date: November 25, 2013

From: The Office for Research Protections - FWA#: FWA00001534
Courtney A. Whetzel, Compliance Coordinator

To: Young-An Ra

Re: Determination of Exemption

IRB Protocol ID: 44736

Follow-up Date: November 24, 2018

Title of Protocol: The Impact of Social Support and Coping on the Relation between Levels of Acculturation and Acculturative Stress among East Asian International Students.

The Office for Research Protections (ORP) has received and reviewed the above referenced eSubmission application. It has been determined that your research is exempt from IRB initial and ongoing review, as currently described in the application. You may begin your research. The category within the federal regulations under which your research is exempt is:

45 CFR 46.101(b)(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Given that the IRB is not involved in the initial and ongoing review of this research, it is the investigator's responsibility to review [IRB Policy III "Exempt Review Process and Determination"](#) which outlines:

- What it means to be exempt and how determinations are made
- What changes to the research protocol are and are not required to be reported to the ORP
- Ongoing actions post-exemption determination including addressing problems and complaints, reporting closed research to the ORP and research audits
- What occurs at the time of follow-up

Please do not hesitate to contact the Office for Research Protections (ORP) if you have any questions or concerns. Thank you for your continued efforts in protecting human participants in research.

This correspondence should be maintained with your research records.

Appendix B

Email Permission to Use the Acculturation Framework

Reply	Reply to All	Forward	Delete	Full Headers	Printer Friendly	Previous	Next	Index
From	"J Berry" <elderberrys@gmail.com> 							
To	Young-An Ra <yzt106@psu.edu> 							
Subject	Re: Request your permission to use a framework of acculturationresearch							
Date	Mon, Oct 7, 2013 10:34 AM							
Safe View	On [Turn Off] What is "Safe View"?							

dear young an-ra,

yes, you have permission to use my acculturation framework.

good luck with your research.

cheers, john

From: Young-An Ra
Sent: Monday, October 07, 2013 10:20 AM
To: elderberrys@gmail.com
Subject: Request your permission to use a framework of acculturationresearch

Hello Dr. Berry,

My name is Young-An Ra, a doctoral candidate in Counselor Education program at Penn State University. I am writing this email to request your permission to use your framework of acculturation research in my dissertation.

The purpose of my dissertation is to investigate the effect of social support and coping on the relation between level of acculturation and acculturative stress among East Asian international students. While I did the literature review, I thought your framework for acculturation research would best fit to my dissertation as a theoretical framework, since your framework includes social support and coping as factors arise during acculturation.

I hope that I can use and insert this framework in my dissertation on East Asian international students' acculturation in the U.S. Please let me know if I can get your permission to use it. If you have any questions or need more information about my research, please feel free to contact me.

I deeply appreciate your time and consideration. I look forward to hearing from you. Thank you so much.

Sincerely,
 Young-An

Appendix C

Permission to Use the SL-ASIA

SUNN-LEW ASIAN SELF-IDENTITY ACCULTURATION SCALE

(SL-ASIA)

This document provides formal permission to anyone wishing to use the SL-ASIA scale. The scale is duplicated in the last section. Also discussed are some practical research design suggestions as well as some theoretical issues. Finally some potential new items are described for those researchers who may wish to extend the scale. (The same information is duplicated in a more convenient format under separate links in the web site: <http://www.awong.com/~randy/dad/index.html>)

RESEARCH DESIGN:

Please note that if you feel your sample is one that requires reading a translated version, this could mean that your sample is very restricted to a first generation. If so, then by definition you would not have enough subjects who represent the various levels of acculturation (low to middle to high). If this is the case, then this restricted range will prevent you from testing any hypothesis regarding how "level of acculturation" or acculturation differences has effects.

Also note the usual principles regarding use of standardized tests: if you revise any part of the test - order of questions, wording of answers, etc. - then it may be questionable whether the test still is valid. Certainly, the question can be raised about whether the same norms can be used to interpret the results. If you choose to do such a revision, you should discuss the matter with a colleague who is a methodologist, or your advisor if you are a student.

After some thoughts about acculturation and its measurement, I have added questions 22-26 to the original 21 item scale. These questions can serve to further classify your research participants in ways that use current theorizing that acculturation is not linear, unidimensional but multi-dimensional and orthogonal. These new items were developed based on writings of those who felt that a linear, unidimensional scale was insufficient. Hence, some added items have been written as a potential separate way of classifying the subjects...if the original scale did not turn out predictive. I have not obtained any validity/reliability info on these added items, but hope that users of the added items will share their results with me.

Appendix D

Email Permission to Use the ILS and ISS

Reply	Reply to All	Forward	Delete	Full Headers	Printer Friendly	Previous	Next	Index
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From Bin Yang <bin.yang@oracle.com> 
To Young-An Ra <yZR106@psu.edu> 
Subject RE: Request your permission to use the ILS and ISS
Date Wed, Oct 16, 2013 01:20 PM
CC Bruce Yang <brucebyang@hotmail.com> 
Safe View On [\[Turn Off\]](#) [What is "Safe View"?](#)

Hi Young-An:

Thank you for your interest in these measurements. You have my permission to use them. Your research topic sounds very interesting. Good luck with your research project and your graduate program!

-Bin Yang

From: Young-An Ra [mailto:yZR106@psu.edu]
Sent: Wednesday, October 16, 2013 9:36 AM
To: Bin Yang
Subject: Request your permission to use the ILS and ISS

Dear Dr. Yang,

My name is Young-An Ra, a doctoral candidate in Counselor Education program at Penn State University. I am writing this email to request your permission to use the ILS and ISS for my dissertation.

The purpose of my dissertation is to investigate the impact of social support and coping on the relation between levels of acculturation and acculturative stress among East Asian international students. I believe that these measurements are good instruments for my study on understanding adjustment issues of international students in the U.S. It would be grateful if I can use your scales to measure the East Asian international students' stress and social support in this study.

Appendix E

Email Permission to Use the CISS

Reply	Reply to All	Forward	Delete	Full Headers	Printer Friendly	Previous	Next	Index
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From	"James Parker" <jparker@trentu.ca> 
To	yzr106@psu.edu 
Subject	Re: Request your permission to use the CISS
Date	Tue, Oct 15, 2013 09:02 PM
Safe View	On [Turn Off] What is "Safe View"?

Hi:

Please consider this email permission to use the CISS in your dissertation (as described in your email). I was not sure from your email if you already had a copy of the instrument, but I have enclosed a copy of the items and instructions to respondents, scoring instructions for the scale, as well as key references for citing the measure.

Best of luck with your interesting project.

Cheers,

James D. A. Parker, Ph.D.,
 Professor of Psychology,
 Department of Psychology,
 1600 West Bank Drive,
 Trent University,
 Peterborough, Ontario
 Canada K9J 7B8

Appendix F

Recruiting Email

Hello. My name is Young-An Ra. I am a doctoral candidate in Counselor Education program at Penn State University. I am conducting research that investigates East Asian international students' adjustment issues in the U.S. The purpose of this study is to examine the impact of social support and coping on the relation between levels of acculturation and acculturative stress among East Asian international students. I am looking for the participants for the research study. If you fit the following criteria, please consider participating in this study:

You must be international students from China, South Korea, Taiwan or Japan who are holding F-1 student visa and working on a higher education degree in the U.S.

If you agree to participate, you will respond to a demographic questionnaire and four instruments that will take approximately 15-20 minutes to complete. Your participation in this study is completely voluntary and you have the right to stop your participation and leave the study at any time without any penalties or consequences.

Your participation in this study is anonymous and responses will remain completely confidential. For those who complete this survey, I will enter your email address in a random drawing for one of Amazon gift certificates. (Two \$50, three \$30, five \$10 gift certificates). If you are interested in participating, please click on the link below:

https://qtrial.qualtrics.com/SE/?SID=SV_0oeDu3lvQCGmdWR

This study is conducted for research purposes. If you have any questions or need more information about this research, please contact me, Young-An Ra (yxr106@psu.edu), or my advisor, Dr. Jerry Trusty (jgt3@psu.edu).

Thank you so much for your help,
Young-An Ra

Appendix G

Implied Informed Consent Form for Social Science Research

The Pennsylvania State University

Title of Project: The impact of social support and coping on the relation between levels of acculturation and acculturative stress among East Asian international students in the U.S.

Principle Investigator: Young-An Ra (yzt106@psu.edu)

Advisor: Dr. Jerry Trusty (jgt3@psu.edu)

1. Purpose of the Study: The purpose of this study is to investigate the impact of social support and coping on the relation between levels of acculturation and acculturative stress among East Asian international students in the U.S.

2. Procedures: If you decide to participate, you will be asked to complete a demographic questionnaire and four instruments about your experiences in the U.S.

3. Duration: It will take about 15-20 minutes to complete the survey.

4. Anonymity/Confidentiality: This study is conducted for research purposes. Your participation in this study is anonymous and responses will remain completely confidential. The collected data will be used for statistical analysis and no personally identifiable information will be revealed.

5. Voluntary Participation: Your participation in this study is voluntary, so you can decide whether you would like to take this survey or not. Also, you have the right to stop your participation and leave the study at any time without any penalties or consequences.

6. Benefits /Compensation: Your responses would help contribute to the field of counseling and higher education and the area of East Asian international students' adjustment in the U.S. For those who complete the survey, I will enter your email address in a random drawing for one of Amazon gift certificates. (Two \$50, three \$30, five \$10 gift certificates).

8. Risks: There are no known risks or discomfort associated with participation in this study.

9. Right to Ask Questions: If you have any questions or need more information about this research, please contact Young-An Ra at yzt106@psu.edu.

Please click the "continue" button to start to take this survey. By clicking the "continue" button indicates that you have read the informed consent, understand the informed consent, and agree to participate in this study.

Appendix H
Demographic Questionnaire

Please type in or click the appropriate answer to the following.

1. Age: _____

2. Gender: Male _____ Female _____ Other _____ (Please describe your gender)

3. Which degree are you working on?
Bachelor degree _____ Master's degree _____ Doctorate _____ Other _____ (Please specify)

4. College major: _____ (Please specify)

5. Total length of stay in the United States: _____ year(s) _____ month(s)
Total length of stay in other English speaking countries: _____ year(s) _____ month(s)

6. Country of origin: China _____ South Korea _____ Taiwan _____ Japan _____
Others _____ (Please specify)

7. Visa type: F-1 Students _____ F-1 Optional Practical Training (OPT) _____
Others _____ (Please specify)

8. The name of the institution where you are currently enrolled: _____

Appendix I

Suinn-Lew Asian Self-Identity Acculturation Scale

INSTRUCTIONS: The questions which follow are for the purpose of collecting information about your historical background as well as more recent behaviors which may be related to your cultural identity. Choose the one answer which best describes you.

1. What language can you speak?
 1. Asian only (for example, Chinese, Japanese, Korean, Vietnamese, etc.)
 2. Mostly Asian, some English
 3. Asian and English about equally well (bilingual)
 4. Mostly English, some Asian
 5. Only English

2. What language do you prefer?
 1. Asian only (for example, Chinese, Japanese, Korean, Vietnamese, etc.)
 2. Mostly Asian, some English
 3. Asian and English about equally well (bilingual)
 4. Mostly English, some Asian
 5. Only English

3. How do you identify yourself?
 1. Oriental
 2. Asian
 3. Asian-American
 4. Chinese-American, Japanese-American, Korean-American, etc.
 5. American

4. Which identification does (did) your mother use?
 1. Oriental
 2. Asian
 3. Asian-American
 4. Chinese-American, Japanese-American, Korean-American, etc.
 5. American

5. Which identification does (did) your father use?
 1. Oriental
 2. Asian
 3. Asian-American
 4. Chinese-American, Japanese-American, Korean-American, etc.
 5. American

6. What was the ethnic origin of the friends and peers you had, as a child up to age 6?
 1. Almost exclusively Asians, Asian-Americans, Orientals
 2. Mostly Asians, Asian-Americans, Orientals

3. About equally Asian groups and Anglo groups
 4. Mostly Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
 5. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
7. What was the ethnic origin of the friends and peers you had, as a child from 6 to 18?
1. Almost exclusively Asians, Asian-Americans, Orientals
 2. Mostly Asians, Asian-Americans, Orientals
 3. About equally Asian groups and Anglo groups
 4. Mostly Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
 5. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
8. Whom do you now associate with in the community?
1. Almost exclusively Asians, Asian-Americans, Orientals
 2. Mostly Asians, Asian-Americans, Orientals
 3. About equally Asian groups and Anglo groups
 4. Mostly Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
 5. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
9. If you could pick, whom would you prefer to associate with in the community?
1. Almost exclusively Asians, Asian-Americans, Orientals
 2. Mostly Asians, Asian-Americans, Orientals
 3. About equally Asian groups and Anglo groups
 4. Mostly Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
 5. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
10. What is your music preference?
1. Only Asian music (for example, Chinese, Japanese, Korean, Vietnamese, etc.)
 2. Mostly Asian
 3. Equally Asian and English
 4. Mostly English
 5. English only
11. What is your movie preference?
1. Asian-language movies only
 2. Asian-language movies mostly
 3. Equally Asian/English English-language movies
 4. Mostly English-language movies only
 5. English-language movies only
12. What generation are you? (Circle the generation that best applies to you)
- 1 1st Generation = I was born in Asia or country other than U.S.
 - 2 2nd Generation = I was born in U.S., either parent was born in Asia or country other than U.S.
 - 3 3rd Generation = I was born in U.S., both parents were born in U.S., and all grandparents born in Asia or country other than U.S.

4 4th Generation = I was born in U.S., both parents were born in U.S, and at least one grandparent born in Asia or country other than U.S. and one grandparent born in U.S.

5 5th Generation = I was born in U.S., both parents were born in U.S., and all grandparents also born in U.S.

13. Where were you raised?

1. In Asia only
2. Mostly in Asia, some in U.S.
3. Equally in Asia and U.S.
4. Mostly in U.S., some in Asia
5. In U.S. only

14. What contact have you had with Asia?

1. Raised one year or more in Asia
2. Lived for less than one year in Asia
3. Occasional visits to Asia
4. Occasional communications (letters, phone calls, etc.) with people in Asia
5. No exposure or communications with people in Asia

15. What is your food preference at home?

1. Exclusively Asian food
2. Mostly Asian food, some American
3. About equally Asian and American
4. Mostly American food
5. Exclusively American food

16. What is your food preference in restaurants?

1. Exclusively Asian food
2. Mostly Asian food, some American
3. About equally Asian and American
4. Mostly American food
5. Exclusively American food

17. Do you

1. Read only an Asian language?
2. Read an Asian language better than English?
3. Read both Asian and English equally well?
4. Read English better than an Asian language?
5. Read only English?

18. Do you

1. Write only an Asian language?
2. Write an Asian language better than English?
3. Write both Asian and English equally well?
4. Write English better than an Asian language?
5. Write only English?

19. If you consider yourself a member of the Asian group (Oriental, Asian, Asian-American, Chinese-American, etc., whatever term you prefer), how much pride do you have in this group?

1. Extremely proud
2. Moderately proud
3. Little pride
4. No pride but do not feel negative toward group
5. No pride but do feel negative toward group

20. How would you rate yourself?

1. Very Asian
2. Mostly Asian
3. Bicultural
4. Mostly Westernized
5. Very Westernized

21. Do you participate in Asian occasions, holidays, traditions, etc.?

1. Nearly all
2. Most of them
3. Some of them
4. A few of them
5. None at all

22. Rate yourself on how much you believe in Asian values (e.g., about marriage, families, education, work):

- | | | | | |
|---------------------|---|---|---|---------------------------------------|
| 1 | 2 | 3 | 4 | 5 |
| (do not
believe) | | | | (strongly believe
in Asian values) |

23. Rate yourself on how much you believe in American (Western) values:

- | | | | | |
|---------------------|---|---|---|---------------------------------------|
| 1 | 2 | 3 | 4 | 5 |
| (do not
believe) | | | | (strongly believe
in Asian values) |

24. Rate yourself on how well you fit when with other Asians of the same ethnicity:

- | | | | | |
|--------------|---|---|---|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| (do not fit) | | | | (fit very well) |

25. Rate yourself on how well you fit when with other Americans who are non-Asian (Westerners):

- | | | | | |
|--------------|---|---|---|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| (do not fit) | | | | (fit very well) |

26. There are many different ways in which people think of themselves. Which ONE of the following most closely describes how you view yourself?

1. I consider myself basically an Asian person (e.g., Chinese, Japanese, Korean,

Vietnamese, etc.). Even though I live and work in America, I still view myself basically as an Asian person.

2. I consider myself basically as an American. Even though I have an Asian background and characteristics, I still view myself basically as an American.

3. I consider myself as an Asian-American, although deep down I always know I am an Asian.

4. I consider myself as an Asian-American, although deep down, I view myself as an American.

5. I consider myself as an Asian-American. I have both Asian and American characteristics, and I view myself as a blend of both.

Appendix J
Index of Life Stress

Please indicate how often you feel the way described in each of the following statement. Click one number, which most closely represents your own personal experience living in the U.S., for each statement.

0 = *never*; 1 = *rarely*; 2 = *sometimes*; 3 = *often*

1. My English embarrasses me when I talk to people.
2. I don't like the religions in the U.S.A.
3. I worry about my academic performance.
4. I worry about my future career in my own country.
5. I can feel racial discrimination toward me from other students.
6. I'm not doing as good as I want to in school.
7. My English makes it hard for me to read articles, books, etc.
8. It's hard for me to develop opposite-sex relationships here.
9. I don't like the ways people treat each other here.
10. I don't like American food.
11. People treat me badly just because I am a foreigner.
12. I owe money to others.
13. I think that people are very selfish here.
14. I don't like the things people do for their entertainment here.
15. I can feel racial discrimination toward me in stores.
16. I worry about whether I will have my future career in the U.S.A.
17. Americans' way of being too direct is uncomfortable to me.
18. I study very hard in order not to disappoint my family.
19. I can feel racial discrimination toward me from professors.
20. I can't express myself well in English.

21. It would be the biggest shame for me if I fail in school.
22. I worry about my financial situation.
23. I don't like American music.
24. I can feel racial discrimination toward me in restaurants.
25. My financial situation influences my academic study.
26. I worry about my future: will I return to my home country or stay in the U.S.A.
27. I haven't become used to enjoying the American holidays.
28. I don't want to return to my home country, but I may have to do so.
29. My English makes it hard for me to understand lectures.
30. I want to go back to my home country in the future, but I may not be able to do so.
31. My financial situation makes my life here very hard.

Appendix K

Index of Social Support

Please indicate how much you feel or how often you act the way described in each of the following statement. Click one number, which most closely represents your own personal experience living in the U.S., for each statement.

0 = *never*; 1 = *rarely*; 2 = *sometimes*; 3 = *often*

1. I have contact with my family.
2. My new friends in the U.S.A. are available when I need them.
3. I have contact with my old friends in my home country.
4. Community activities here mean a lot to me.
5. I am satisfied with student organizations on campus.
6. I trust my family.
7. I have contact with my secondary families (uncles, aunts, etc.).
8. I trust my new friends in the U.S.A.
9. I trust my secondary families (uncles, aunts, etc.).
10. I trust the international student center on campus.
11. My family means a lot to me.
12. I trust my church (or any religious place) here.
13. My secondary families (uncles, aunts, etc.) are available when I need them.
14. I am satisfied with my old friends in my home country.
15. I am satisfied with my family.
16. I have contact with the international student center on campus.
17. My old friends in my home country are available when I need them.
18. I have contact with student organizations on campus.
19. My family is available when I need it.
20. I participate in community activities here.

21. I am satisfied with my new friends in the U.S.A.
22. I trust my old friends in my home country.
23. I have contact with my church (or any religious place) here.
24. My secondary families (uncles, aunts, etc.) mean a lot to me.
25. I trust the people I meet in community activities.
26. My new friends in the U.S.A. mean a lot to me.
27. My church (or any religious place) here means a lot to me.
28. I am satisfied with the international student center on campus.
29. I am satisfied with my secondary families (uncles, aunts, etc.).
30. I am satisfied with my church (or any religious place) here.
31. I have contact with my new friends in the U.S.A.
32. The student organizations on campus are available when I need them.
33. My church (or any religious place) here is available when I need it.
34. People I meet in community activities are available when I need them.
35. Student organizations on campus mean a lot to me.
36. The international student center on campus is available when I need it.
37. My old friends in my home country mean a lot to me.
38. The international student center on campus means a lot to me.
39. I am satisfied with community activities here.
40. I trust student organizations on campus.

Appendix L

The Coping Inventory for Stressful Situations

Please indicate how much you engage in the following types of activities when you encounter a difficult, stressful, or upsetting situation.

0 = *Not at all*; 1 = *rarely*; 2 = *sometimes*; 3 = *often*; 4 = *Always*

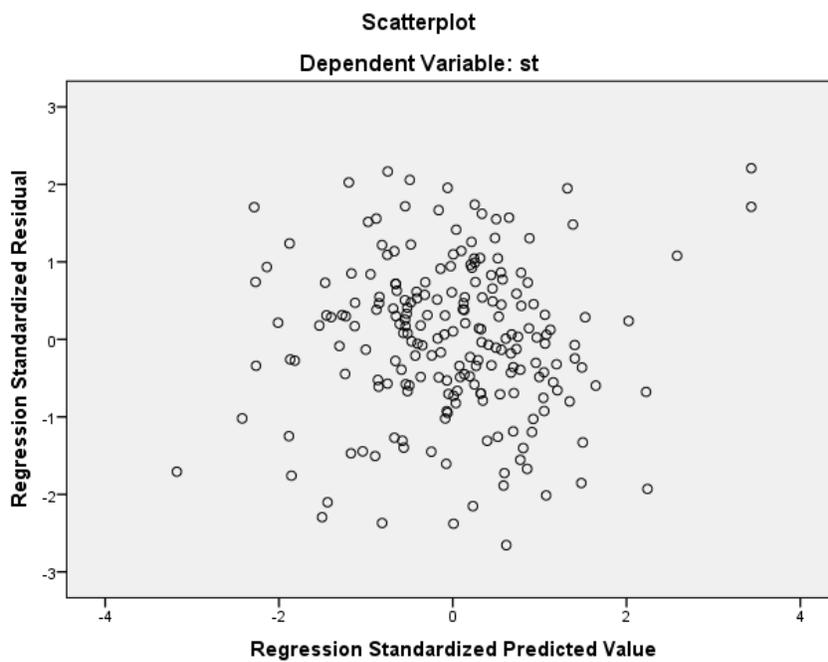
1. Use my time better.
2. Focus on the problem and see how I can solve it.
3. Think about the good times I've had.
4. Try to be with other people.
5. Blame myself for procrastinating (wasting time).
6. Do what I think is best.
7. Preoccupied with aches and pains.
8. Blame myself for having gotten this situation.
9. Window shop.
10. Outline my priorities
11. Try to go to sleep.
12. Treat myself to a favorite food or snack.
13. Feel anxious about not being able to cope.
14. Become very tense.
15. Think about how I have solved similar problems.
16. Tell myself "it's really not happening to me."
17. Blame myself for being too emotional about the situation.
18. Go out for a snack or meal.
19. Become very upset.
20. Buy myself something.
21. Determine a course of action and follow it.
22. Blame myself for not knowing what to do.
23. Go to a party.

24. Work to understand the situation.
25. “Freeze” and don’t know what to do.
26. Take corrective action immediately.
27. Think about the event and learn from my mistakes.
28. Wish that I could change what had happened or how I felt.
29. Visit a friend.
30. Worry about what I’m going to do.
31. Spend time with a special person.
32. Go for a walk.
33. Tell myself “it will never happen again”.
34. Focus on my general inadequacies.
35. Talk to someone whose advice I value.
36. Analyze the problem before reacting.
37. Phone a friend.
38. Get angry.
39. Adjust my priorities.
40. See a movie.
41. Get control of the situation.
42. Make an extra effort to get things done.
43. Come up with several different solutions to the problem.
44. Take time off and get away from the situation.
45. Take it out on other people (i.e., burdening others with my frustration).
46. Use the situation to prove that I can do it.
47. Try to be organized so I can be on top of the situation.
48. Watch TV.

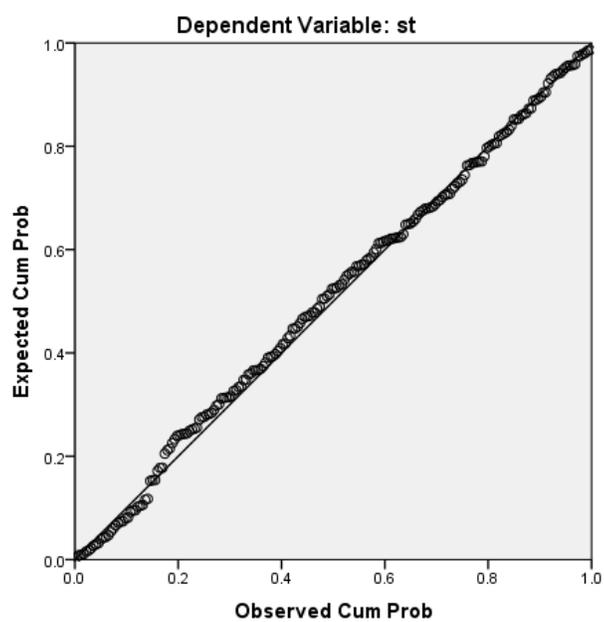
Appendix M

Residual Scatter Plots and Normal Probability Plots

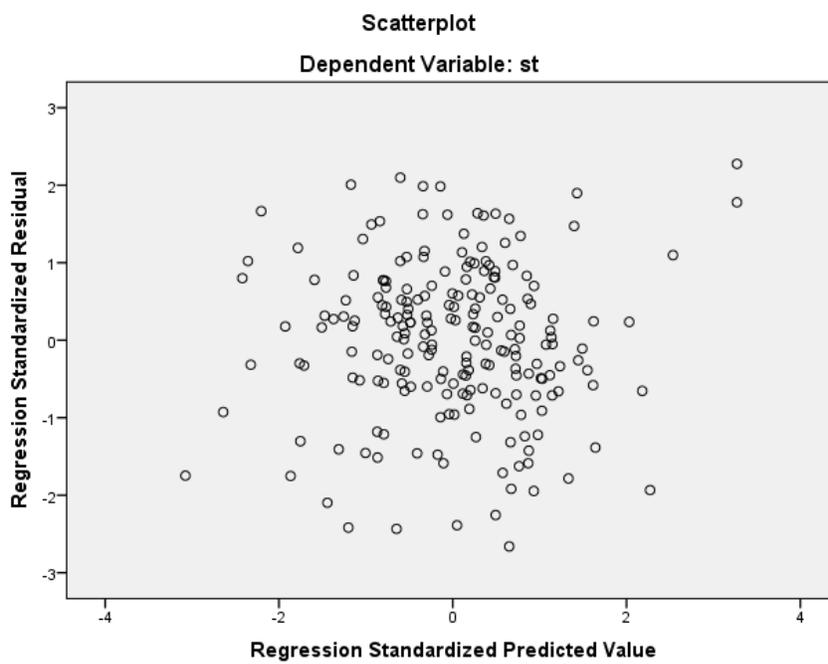
Research Question 1



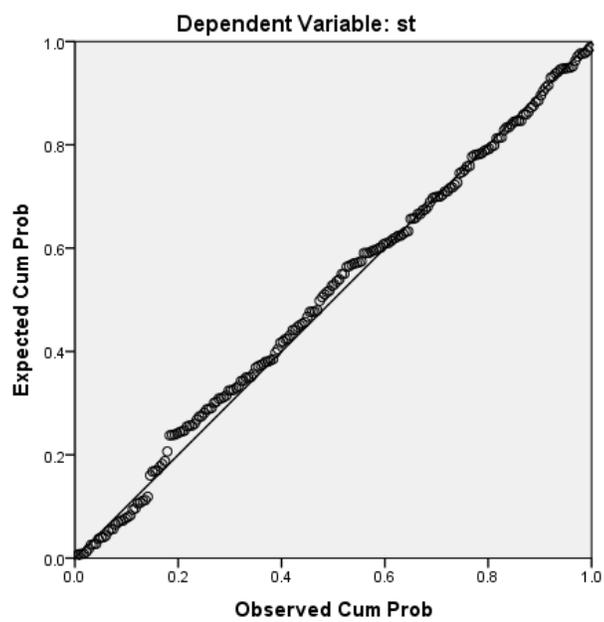
Normal P-P Plot of Regression Standardized Residual



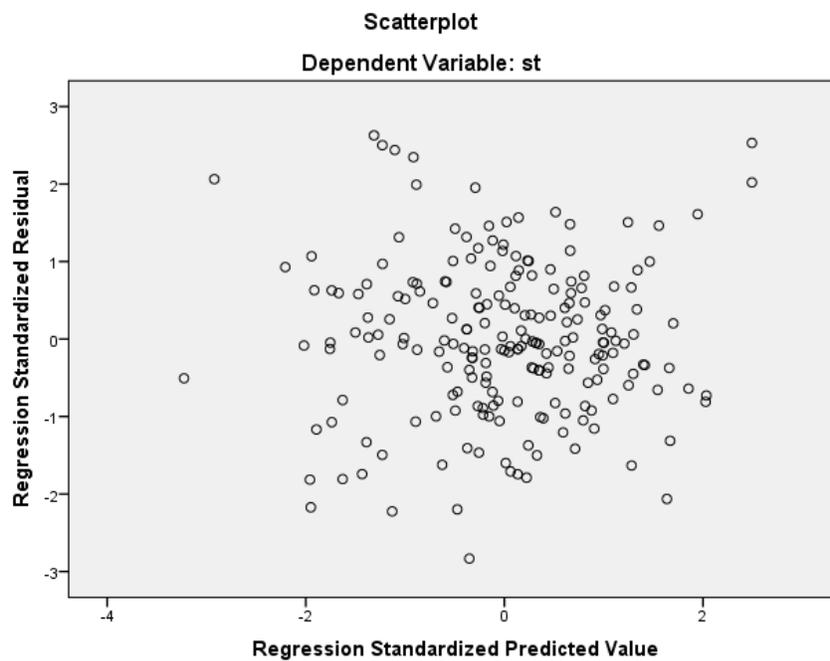
Research Question 2



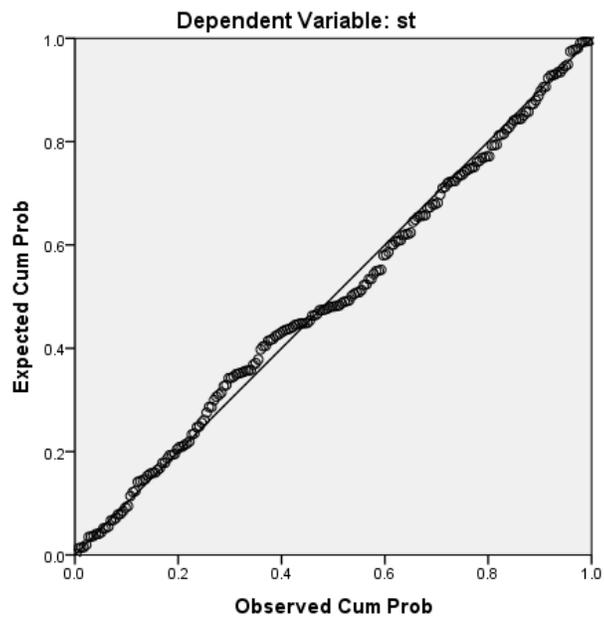
Normal P-P Plot of Regression Standardized Residual



Research Question 3



Normal P-P Plot of Regression Standardized Residual



Appendix N

Sobel Test Results

Research Question 1

Social Support

Input:		Test statistic:	Std. Error:	<i>p</i> -value:
<i>a</i>	.324	Sobel test: -2.37432826	0.04134727	0.01758091
<i>b</i>	-.303	Aroian test: -2.33970948	0.04195906	0.01929875
<i>s_a</i>	.121	Goodman test: -2.41053065	0.0407263	0.01592933
<i>s_b</i>	.059	Reset all	Calculate	

Coping

Input:		Test statistic:	Std. Error:	<i>p</i> -value:
<i>a</i>	.444	Sobel test: -2.04678527	0.03470809	0.04067917
<i>b</i>	-.160	Aroian test: -2.00324084	0.03546254	0.04515144
<i>s_a</i>	.107	Goodman test: -2.09329858	0.03393687	0.03632251
<i>s_b</i>	.068	Reset all	Calculate	

Research Question 2

Family and Old Friends

Input:		Test statistic:	Std. Error:	<i>p</i> -value:
<i>a</i>	.043	Sobel test: -0.05415061	0.02699877	0.95681517
<i>b</i>	-.034	Aroian test: -0.05234803	0.02792846	0.95825138
<i>s_a</i>	.794	Goodman test: -0.05615322	0.02603591	0.95521975
<i>s_b</i>	.009	Reset all	Calculate	

New Friends in the U.S.

Input:		Test statistic:	Std. Error:	<i>p</i> -value:
<i>a</i>	.452	Sobel test: -2.29361661	0.03606357	0.02181253
<i>b</i>	-.183	Aroian test: -2.24996807	0.03676319	0.02445097
<i>s_a</i>	.166	Goodman test: -2.33990817	0.03535011	0.01928848
<i>s_b</i>	.043	Reset all	Calculate	

Universities and Colleges

Input:		Test statistic:	Std. Error:	p -value:	
a	.619	Sobel test:	-2.53600191	0.03685683	0.01121261
b	-.151	Aroian test:	-2.48822819	0.03756448	0.01283813
s_a	.177	Goodman test:	-2.58663746	0.03613533	0.00969175
s_b	.041	Reset all	Calculate		

Research Question 3

Task-oriented Coping

Input:		Test statistic:	Std. Error:	p -value:	
a	.434	Sobel test:	-2.5096485	0.04184969	0.01208514
b	-.242	Aroian test:	-2.47432187	0.04244719	0.01334894
s_a	.151	Goodman test:	-2.54653276	0.04124353	0.0108799
s_b	.047	Reset all	Calculate		

Emotion-oriented Coping

Input:		Test statistic:	Std. Error:	p -value:	
a	.338	Sobel test:	1.4737105	0.02270595	0.14055955
b	.099	Aroian test:	1.39901797	0.02391821	0.16180759
s_a	.179	Goodman test:	1.56180447	0.02142522	0.11833406
s_b	.042	Reset all	Calculate		

Avoidance-oriented Coping

Input:		Test statistic:	Std. Error:	p -value:	
a	.558	Sobel test:	-2.34502515	0.03450283	0.0190258
b	-.145	Aroian test:	-2.29557535	0.03524607	0.02170017
s_a	.150	Goodman test:	-2.39781475	0.03374322	0.0164932
s_b	.048	Reset all	Calculate		

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