Contributions of personality, acculturation/enculturation and perceived racial discrimination to social anxiety among Chinese immigrants: a context-specific assessment

Ke Fang
University at Albany, State University of New York, kfang@albany.edu

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Contributions of Personality, Acculturation/Enculturation and Perceived Racial Discrimination to Social Anxiety among Chinese Immigrants: A Context-Specific Assessment

By

Ke Fang

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I view the process of working on this dissertation as travelling to an exotic land, where the unknown was explored, new knowledge was learned, and the rewards are abundant. As this journey coming to an end, I would like to express my deepest gratitude to my fellow travelers, who made this journey much more enjoyable and fulfilling.

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ABSTRACT

Previous studies have documented that Asian immigrants tend to report higher levels of social anxiety than do their White American counterparts. However, little is known about the sources and predictors of social anxiety under the context of cultural change.

Based on the diathesis-stress framework of social anxiety (Rapee & Spence, 2004), which posits that social anxiety is resulted from the interaction of genetic, cultural and environmental factors, this study examined relationships among social anxiety and personality traits (neuroticism and extraversion), cultural adaptation (acculturation, enculturation and perceived English fluency), and an environmental stressor (perceived racial discrimination). Participants were 140 first-generation Chinese/Taiwanese immigrants, aged 18 to 71.

A unique feature of this study is that social anxiety was assessed in two social contexts: mainstream society and ethnic community. That is, participants reported their levels of social anxiety interacting with mainstream White Americans (Mainstream SA) and with other Chinese in the U.S. (Ethnic SA), as measured by the revised Social Interaction Anxiety Scale (Mattick & Clarke, 1998). It was hypothesized that participants would report experiencing significantly more Mainstream SA than Ethnic SA. Neuroticism, extraversion, acculturation, perceived English fluency and perceived racial discrimination were hypothesized to jointly and uniquely predict Mainstream SA. Moreover, neuroticism, extraversion and enculturation were hypothesized to jointly and uniquely predict Ethnic SA.
All hypotheses were supported at $p \leq .017$. First, a dependent $t$-test indicated that scores on Mainstream SA were significantly higher than scores on Ethnic SA. Second, hierarchical multiple regression analyses indicated that personality traits contributed 35% of the variance in the prediction of Mainstream SA. Cultural factors contributed an additional 10% of the variance after controlling for personality traits. Perceived racial discrimination accounted for an additional 4% of the variance. The full model explained a total of 48% of the variance in Mainstream SA with extraversion, neuroticism and perceived discrimination being the unique predictors. With respect to Ethnic SA, personality traits contributed 29% of the variance. Cultural factors added an additional 5% of the variance after controlling for personality traits. Perceived racial discrimination added an additional 8% of the variance. The full model explained 43% of the variance in Ethnic SA with extraversion and perceived discrimination being the unique predictors.

Implications for theory, research and practice with Chinese/Taiwanese immigrants are discussed. In particular, results of this study highlight the importance of assessing social anxiety symptoms in different social contexts, particularly for immigrants.
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CHAPTER ONE

Statement of the Problem

Social anxiety is defined as the emotional state of anxiety “resulting from the prospect or presence of interpersonal evaluation in real or imagined social settings” (Schlenker & Leary, 1982, p. 642). Social anxiety is a debilitating psychological condition which can have a negative impact on the development and maintenance of social, personal, and work relationships (American Psychiatric Association, 2000). Specifically, social anxiety can impair daily functioning and result in negative psychological consequences, such as negative affect, negative daily mood, perceived life impairment, and poor quality of life (Hsu & Alden, 2007; Watson, Clark & Carey, 1988; Wittchen, Fuetsch, Sonntag, et al., 1999). Moreover, research has documented that there is a high risk for co-morbid psychological problems for individuals with social anxiety, including depression, generalized anxiety, substance abuse, and problematic internet use (Lee & Stapinsky, 2012; Magee, Eaton, Wittchen, McGonagle, & Kessler, 2003; Schneier, Johnson, Horning, et al., 1992; Schneier, Martin, Liebowitz, et al., 1989; Stein, Fuetsch, Muller, et al., 2001).

Without proper intervention, symptoms of social anxiety may reach the diagnostic threshold for social anxiety disorder (SAD) (also called social phobia), which is characterized in the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV; American Psychiatric Association, 2000) as marked and persistent fear of one or more social situations accompanied by marked distress and impairment in normal routine, educational and occupational functioning, and social relationships. Previous research suggested that social anxiety symptoms range on a continuum from shyness,
with minimal impairment on one end, to severe symptoms of social anxiety disorder and avoidant personality disorder on the other end (McNeil, 2010; Rapee, 1995).

The present study focused on the middle range of the continuum, that is, low to moderate levels of social anxiety below diagnostic thresholds among general populations. The general purpose of the study was to examine the contributions of a specific set of personality, cultural and environmental factors to social anxiety among Chinese immigrants.

Social anxiety is a universal phenomenon that differs in its prevalence and cultural content (Hofmann, Asnaani & Hinton, 2010). Numerous studies have documented that East Asians and Asian Americans tend to report higher levels of social anxiety than their European American counterparts (Hsu & Alden, 2007; Lau, Fung, Wang et al., 2009; Okazaki, Liu, Longworth, & Winn, 2002; Okazaki, 2000, 2002). Researchers have explored the socio-cultural underpinnings of social anxiety, and identified cultural values, social norms, individualism/collectivism, self-construals, and cultural acceptability of socially reticent behaviors as correlates of social anxiety among Asians (Heinrichs et al. 2006; Hofmann et al., 2010; Hong & Woody, 2007; Rapee et al., 2011). Even though several cultural determinants have been identified, there is little empirical evidence on the predictors of social anxiety in the context of cultural change, which occurs when an individual immigrates to a new country. Social anxiety is particularly relevant to the adjustment of immigrants because social relationships are affected by various stressors inherent in the process of acculturation (Ryder, Alden & Paulhus, 2001; Suinn, 2010; Ying & Han, 2006).
During the past few decades, immigrant populations in the U.S. have increased dramatically. Chinese Americans are the largest Asian American group in the U.S., with a population over 3.8 million (U.S. Census Bureau, 2009). The majority are first-generation Chinese immigrants (U.S. Census Bureau, 2009), that is, individuals who immigrated to the U.S. from China after birth.

Chinese immigrants are particularly vulnerable to cultural and environmental stressors due to differences between the host culture and Chinese culture (Mak & Nesdale, 1999). In the U.S., Chinese immigrants must adapt to a new social, political, and language environment as well as new cultural values and traditions. They often experience acculturative stress, lack of social support, English language difficulties, and racial discrimination, all of which can create feelings of alienation, loneliness, social difficulties, as well as depression and anxiety (Furnham & Li, 1993; Goto, Gee & Takeuchi, 2002; Lueck & Wilson, 2010; Wong, Yoo & Stewart, 2005; Yakushko, Watson & Thompson, 2008). Indeed, studies have found elevated social anxiety in the Chinese immigrant population. In two studies, first-generation Chinese college students in North America reported higher levels of social anxiety than did their North American peers (Hsu & Alden, 2007; Ryder et al., 2000).

Even though Chinese immigrants are at high risk for social anxiety, little is known about the sources and predictors of social anxiety in this population. One possible factor is level of acculturation. That is, less acculturated Chinese immigrants may be less familiar with the social norms and cultural expectations for appropriate social behavior in the U.S., thus increasing their anxiety about social interactions. Additionally, negative social experiences with racial discrimination may increase anxiety in social situations and
perpetuate social isolation from individuals from the dominant culture. In sum, given the unique context of cultural change, it is important to examine risk factors for social anxiety among Chinese immigrants.

In this study, the diathesis-stress model (Zubin & Spring, 1977) served as the theoretical framework for examining sources of social anxiety among Chinese immigrants. This model posits that psychological problems result from the interaction of biological/genetic factors ("nature") and life experiences ("nurture"). Rapee and Spence (2004) proposed a diathesis-stress model specific to social anxiety disorder, describing several distinct contributions to its development, including (a) genetic, biological, and temperament factors, (b) cognitive styles, (c) parent-child interaction, (d) adverse social experiences, (e) negative life events, and (f) cultural influences. In this study, three specific factors were examined: personality, acculturation/enculturation, and perceived racial discrimination.

First, genetic factors, as manifested in personality traits (like neuroticism and extraversion), are said to play a role in the development of social anxiety (Rapee and Spence, 2004). Numerous studies have shown that neuroticism and extraversion are strong predictors of social anxiety and social anxiety disorder (Kotov Gamez, Schmidt et al., 2010; Kotov, Watson, Robles & Schmidt, 2007; Zhong et al., 2008). Specifically, higher levels of neuroticism and lower levels of extraversion tend to be associated with elevated social anxiety (Bienvenu, Hettema, Neale et al., 2007). Indeed, highly neurotic individuals are susceptible to negative emotions as well as to self-consciousness, which may heighten social anxiety and perpetuate social avoidance (Hettema, Neale, Myers et al., 2006). In addition, introverts are particularly susceptible to social anxiety because
they tend to have an internal focus with less environmental interaction than extraverts (Eysenck & Eysenck, 1969). These individuals tend to avoid highly social environments to avoid potential negative evaluations (Creed & Funder, 1998; Leary & Kowalski, 1995). For these reasons, in the current study, Chinese immigrants’ levels of neuroticism and extraversion were assessed as genetic sources of social anxiety.

Second, in the diathesis-stress model (Rapee & Spence, 2004), adverse social experiences are said to contribute to social anxiety. These experiences include excessive teasing, criticism, bullying, rejection, ridicule, humiliation, and social exclusion (Rapee & Spence, 2004). For Chinese immigrants, experiences with racial discrimination are negative social experiences that are likely to contribute to social anxiety, inasmuch as racial discrimination is prevalent in interpersonal contexts (Kwok et al., 2011). Empirically, perceived racial discrimination among ethnic minority populations has been found to predict negative social interactions, race-based rejection sensitivity, and low social connectedness with mainstream society (Broudy et al., 2007; Chan & Mendoza-Bento, 2008; Yoon, Hacker, Hewitt et al., 2012). To date, however, no studies specifically examined relationships between perceived racial discrimination and social anxiety in immigrant populations. The current study was the first to test perceived racial discrimination as an environmental risk factor for social anxiety.

Third, the diathesis-stress model highlights the role of cultural influences on social anxiety (Rapee & Spence, 2004). Previous studies have examined specific cultural influences, such as individualism/collectivism and self-construals, on social anxiety, but few researchers have explored the contributions of acculturation and enculturation in immigrant populations. Previous studies that included acculturation factors tended to use
different conceptual models of acculturation (unilinear vs. bilinear), with mixed findings. For example, among studies based on the unilinear model of acculturation (Okazaki, 1997, 2000; Okazaki et al., 2002), some of them reported a negative association between level of acculturation and social anxiety among Asian American college students (Okazaki, 1997; Okazaki et al., 2002), whereas the other studies did not find an association (Okazaki, 2000). Moreover, among studies that used the bilinear model of acculturation, results were mixed in terms of the association between enculturation and social anxiety (Hsu & Alden, 2008, Lee, 2012; Ryder et al., 2000). For these reasons, to elucidate how acculturation and enculturation play a role in social anxiety, the present study used the bilinear model of acculturation to examine relationships among acculturation and enculturation and social anxiety in Chinese immigrants.

According to Stravynski (2007), social anxiety behaviors and patterns “gain in meaningfulness by being considered contextually” (p. 10). One unique feature of the current study was specification of the contexts of social interactions. That is, Chinese immigrants interact socially with members from mainstream U.S. society (i.e., White Americans) as well as with members of their own ethnic community (i.e., Chinese individuals living in the U.S.). However, most previous studies conceptualized social anxiety as a broad construct representing symptoms across social situations (e.g., Hsu & Alden, 2007; Lee, 2012). This approach can be problematic for immigrant populations, because participants might respond to questions about social anxiety without considering the context of the social interaction, i.e., with members from mainstream society or from their ethnic community.
Recently, there has been a trend in multicultural research to specify the social contexts of the targeted social relationship factors. For example, Lin and Betz (2009) assessed Chinese international students’ social self-efficacy in the context of speaking in English versus Chinese. Yoon, Lee and Goh (2008) and Yoon, Hacker, Hewitt, et al., (2011) studied social connectedness in mainstream society versus ethnic community among Korean immigrants and Asian Americans. Additionally, Ryder et al. (2000) assessed Chinese Americans’ level of shyness with people from their heritage culture versus from the mainstream culture. All of these authors took a context-specific approach to provide a culturally-sensitive understanding of the two social “worlds” of ethnic minority individuals (Lin & Betz, 2009). By adopting this approach, the current study assessed social anxiety in two contexts: with people from mainstream society (Mainstream SA) and with people from the Chinese community (Ethnic-SA). This contextualization approach extended the studies conducted by Yoon and colleagues (Yoon, Lee & Goh, 2008; Yoon & Lee, 2010; Yoon, Hacker, Hewitt, et al., 2011).

Based on the diathesis-stress model of social anxiety (Rapee & Spencer, 2004), the current study investigated the relative contributions of personality, cultural and environmental factors to social anxiety among Chinese immigrants. Specifically, this study examined the degree to which neuroticism, extraversion, acculturation, enculturation, and perceived racial discrimination are related to social anxiety when individuals interact with people from mainstream society (Mainstream SA) versus from the Chinese community (Ethnic SA). Results of this study were anticipated to further our understanding of (a) sources and predictors of social anxiety and (b) the effects of two social contexts on social anxiety symptoms among Chinese immigrants. This
understanding was expected to contribute to future research and theory on social anxiety and to contribute to clinical practice with Chinese immigrant populations.
CHAPTER TWO

Literature review

The following chapter provides an in-depth review of the relevant literature. A review of the nature of social anxiety and its cross-cultural perspective is followed by a review of the relationship between acculturation/enculturation and social anxiety. Next, the rationale for a context-specific approach to assess social anxiety is provided, along with a review of the relationship between perceived racial discrimination and social relationship factors. Finally, research on the influence of personality traits on social anxiety is reviewed. Throughout this literature review, the focus is research related to Chinese immigrants and other Asian populations whose experiences might be similar to those of Chinese immigrants.

Social Anxiety

Diathesis-Stress Model of Social Anxiety

Leary (1983) defined anxiety as “a cognitive-affective syndrome that is characterized by physiological arousal and apprehension or dread regarding an impending, potentially negative outcome that the person believes he or she is unable to avert” (p. 15). For an individual with social anxiety, fear is triggered by the prospect or reality of certain kinds of social situations where one might be negatively evaluated or scrutinized (Crozier & Alden, 2005). Social anxiety encompasses affective experiences of dread and apprehension about social events, as well as rumination over potential negative outcomes of social interactions. Moreover, social anxiety includes unpleasant physiological arousal (e.g., sweating, fast breathing, speech difficulties) as well as fear of psychological harm (Leary & Kowalski, 1995).
Most people tend to experience some degree of anxiousness, self-consciousness or feelings of vulnerability in stressful situations. Indeed, a small amount of social anxiety can be adaptive by preparing a person to respond to signs of social or physical threats (Buss, 1990). However, if the resulting distress and social avoidance lead to impairments in personal and interpersonal functioning, social anxiety becomes maladaptive and even pathological (APA, 2000). Social anxiety has been conceptualized on a continuum ranging from no anxiety or fear, to varying mild to moderate degrees of social anxiety in the middle, and to psychopathological extremes representing symptoms of social anxiety disorder (SAD) and avoidance personality disorder (APD; McNeil, 2010).

To better understand the experience of social anxiety symptoms among Chinese immigrants, it is important to examine a variety of sources that might be related to its origins (Rapee & Spence, 2004). Rapee and Spence proposed a diathesis-stress paradigm of social anxiety, which features an interaction between predisposition toward social anxiety (diathesis) and environmental disturbances (stress). Specifically, these authors identified how specific biological, psychological and environmental factors contribute to the development of social anxiety, including (a) genetic, biological, and temperament factors, (b) cognitive styles, (c) parent-child interaction, (d) adverse social experiences, (e) negative life events, and (f) cultural influences.

Although this model was originally developed to account for the etiology of social anxiety disorder in clinical populations, it can also be applied to the general population because social anxiety and social anxiety disorder do not differ qualitatively but rather reflect a continuum of symptoms (Rapee, 1995). In sum, the current study, based on the
diathesis-stress framework (Rapee & Spence, 2004), investigated three specific sources (i.e., genetic, cultural and environmental factors) of social anxiety among Chinese immigrants. Due to marked differences between eastern and western cultures in regard to appropriate social behavior (Markus & Kitayama, 1991), it is necessary to begin with a review of cross-cultural perspectives on social anxiety.

**Cross-Cultural Perspectives of Social Anxiety**

Social anxiety differs in prevalence, content and manifestation across cultures (e.g., Heinrichs et al., 2006; Hofmann et al., 2010; Hong & Woody, 2007; Schreier et al., 2010). Culture can be a pivotal factor in the experience of social anxiety, because it influences an individual’s perception of self and others, as well as his or her perception of appropriate social behaviors (Hong & Woody, 2007). As suggested by Hofmann et al., in order to accurately assess the degree and expression of social anxiety, a person’s cultural, racial, and ethnic background needs to be examined.

**Prevalence of social anxiety among Asians.** Cross-cultural studies consistently reported greater endorsement of social anxiety among East Asians than European Americans (e.g., Heinrichs et al., 2006; Xie & Leong, 2008; Zhong, Wang, Qian, et al., 2008). For example, college students in mainland China reported significantly more social anxiety than did their White counterparts in the U.S., and the magnitude of this difference was larger than the difference found for trait anxiety. These results highlight the important role of culture on social anxiety (Xie & Leong, 2008).

The same pattern has also been found among Asians living in North America. Asian-American college students consistently reported greater social anxiety than did their White peers (Hsu & Alden, 2007; Lau et al. 2009; Lee, 2012; Lee et al., 2006;
Okazaki, 1997, 2000; Okazaki et al., 2002). Similar results were repeated despite different methods of assessment, including self-report questionnaires (e.g., Lau et al., 2009; Lee, 2012; Okazaki, 2000, 2002), daily diaries (e.g., Lee et al., 2006), observer ratings of symptoms during social performance tasks (e.g., Okazaki et al., 2002), and diagnostic interviews (e.g., Hsu & Alden, 2007). Moreover, compared to White Americans, a stronger intensity of negative emotions in social situations and greater perceived life impairment due to social anxiety were reported by Asian Americans and Chinese Americans, respectively (Hsu & Alden, 2007; Lee, Okazaki & Yoo, 2006).

In sum, these studies suggest that East Asians and Asian Americans are particularly vulnerable to social anxiety and tend to experience greater impairment as a result. In order to develop appropriate interventions for clients with social anxiety, it is imperative to understand factors related to its development. A few theoretical and empirical papers addressed this question from the perspectives of cultural values, individualism/collectivism, and self-construal (Heinrichs et al. 2006; Hofmann et al., 2010; Hong & Woody, 2007; Schreier et al., 2010).

**Cultural explanations of social anxiety among Asians.** East Asian cultures emphasize interdependence with significant others and the importance of maintaining harmony within social groups (Markus & Kitayama, 1991). Modesty and deference to elders and authority figures are desired, shown through quiet and self-effacing behaviors, whereas direct expression of interpersonal conflict and confrontation tends to be discouraged (King & Bond, 1985). East Asians are expected to be sensitive to others’ reactions to their behaviors and are taught to act appropriately according to their hierarchical status (e.g., age). One the other hand, Western cultures emphasize
individualism and direct expressions of thoughts and feelings (Hofstede, 2001). Assertiveness and self-promotion through attention-seeking social behaviors are admired, whereas introversion and socially reticent behaviors are often considered as signs of incompetence (Markus & Kitayama, 1991).

These cultural differences can be further understood in light of Taijin-kyofu-sho (TKS), which is an “East Asian cultural pattern of social anxiety” found mostly in Japan and Korea (Chang, 1997, p. 115). TKS was first introduced in Japan and was translated as interpersonal (taijin) fear (Kyofu) syndrome (sho). TKS is characterized by an intense fear that one’s body or rude behavior will displease, offend, or embarrass other people. Different from the typical SAD in Western cultures, where the primary target of discomfort is oneself, TKS refers to concern about creating discomfort in others. Symptoms of TKS are congruent with the socio-cultural context of East Asia, where group harmony is maintained by being sensitive to other people’s reactions to one’s social behaviors. TKS has been included in the DSM-IV as a culture-bound syndrome (APA, 2000).

In addition to East Asian cultural values, Heinrichs et al. (2006) postulated that cultural norms related to individualism/collectivism may explain differences in social anxiety. These authors found that participants from collectivistic countries (Japan, South Korea, and Spain) reported greater social anxiety and more cultural acceptance toward socially reticent behaviors than did participants from individualistic countries (Australia, Canada, Germany, the Netherlands, and the U.S.). Similarly, Schreier et al. (2010) found that participants from Japan and Korea reported greater social anxiety and more
acceptance of socially reticent behaviors than did participants from Latin American and Western countries.

A major limitation of these studies is that these countries’ positions on the continuum of individualism/collectivism may not reflect individuals’ perceptions of self and others in social relationships. For this reason, researchers began studying the links between self-construal and social anxiety among Asian Americans (Hong & Woody, 2007; Hsu & Alden, 2007).

Self-construal refers to “overarching schemata that define how people relate to others and the social context” (Hofmann et al., 2010, p. 1122). Self-construals include independent and dependent styles (Markus & Kitayama, 1991). Individuals from the United States and other individualistic societies tend to possess and promote independent self-construals, which are characterized by the tendency to view oneself as autonomous and separate from the social context. On the other hand, members of Asian and other Eastern cultures are more likely to value and possess interdependent self-construals, which are characterized by viewing oneself as intricately connected and integrated with others in the social group. In general, these studies found that Asian Americans with an interdependent self-construal were more likely to report experiencing social anxiety than did those with independent self-construal (Ho & Lau, 2011; Okazaki, 1997; Park, Sulaiman, Schwartz et al., 2011).

In sum, the above studies shed light on the influence of East Asian cultural values and norms on the prevalence and manifestation of social anxiety. Taken together, Asians may be particularly prone to social anxiety due to their cultural values, collectivistic norms, and interdependent self-construal.
Although these studies provided a good foundation for the current study in its examination of Chinese immigrants, the previous findings are nonetheless limited in several ways. First, almost all of these studies used pan-Asian American samples, with participants from various ethnic groups (e.g., Chinese, Korean, and Filipino). This sampling method ignores within-group heterogeneity, which can affect the internal validity of the results. As suggested by Sue, Bucceri, Lin, et al. (2007), invalidation of inter-ethnic group differences is one form of discrimination and should be avoided in multicultural research. Second, the primary source of participants for these studies was undergraduate students in U.S. colleges and universities. Thus, generalizability to broader Asian communities (e.g., employed adults) has yet to be determined. Finally, there is a dearth of literature on associations between acculturation/enculturation and social anxiety among immigrants from Asia. Because these individuals experience two different cultures first hand, it is essential to study how acculturation and enculturation processes influence social anxiety symptoms in different social contexts. The present study was designed to address these limitations in previous studies by examining the roles of acculturation/enculturation as cultural predictors of social anxiety among Chinese immigrants in two social contexts.

**Acculturation and Enculturation**

Redfield, Linton, and Herskovits (1936) defined acculturation as “…those phenomena which result when groups of individuals sharing different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups” (p. 149). This definition allows for bidirectional impacts—two cultures of contact influence each other (Yoon, Langrehr & Ong, 2011). *Acculturation* is
most often considered as cultural socialization to the majority culture, whereas *enculturation* is the retention of (e.g., for first-generation immigrants) or cultural socialization to (e.g., for second- or third-generation immigrants) one’s culture of origin (Berry, 2003; Kim & Abreu, 2001; Kim, Atkinson, & Umemoto, 2001). For Chinese immigrants in the U.S., the exchange of cultural influences generally occurs between two broad contexts: mainstream U.S. culture and ethnic Chinese culture.

**Models of Acculturation**

Extant literature on the acculturation process reveals two predominant formulations, the unilinear and the bilinear models (Miller, 2007, 2010). According to the unilinear model (Berry, 2003), acculturation occurs when a person moves from one end of the continuum, reflecting involvement in the culture of origin, to the other end of the continuum, reflecting involvement in the mainstream culture. Acculturating individuals are seen as being in a process of losing the attitudes, values, and behaviors of their culture of origin, while simultaneously adopting those of the new culture (Ryder et al., 2000).

In contrast, the bilinear model (Miller, 2007) posits that individuals can retain significant features of their ethnic cultural background while acquiring the attitudes, values, and behaviors of the mainstream culture. That is, acculturation can occur simultaneously with enculturation, and these two orientations are said to be relatively independent of each other (Schwartz, Unger, Zamboanga & Szapocznik, 2010).

Recent research generally supports the bilinear model of acculturation/enculturation as a more valid and useful operationalization of acculturation for Asian Americans (Miller, 2007, 2010; Ryder et al., 2000). The relevant literature will be reviewed in the next section.
Acculturation/Enculturation and Social Anxiety among Asian Americans

Research evidence suggests that acculturation and enculturation are important factors contributing to social anxiety among Chinese immigrants and Asian Americans (e.g., Lee, 2012; Okazaki, 1997, 2000; Ryder et al., 2000). For example, Okazaki (1997) used the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn, Richard-Figueroa, & Vigil, 1987) and found a moderately negative association between level of acculturation and social anxiety in a sample of Asian-American college students. However, a similar relationship was not replicated in another study with the same population (Okazaki, 2000). In Okazaki et al. (2002), Asian Americans’ degree of acculturation was also negatively associated with social anxiety, suggesting a buffering role of acculturation. Of note, the SL-ASIA employed in these studies was consistent with the unilinear model of acculturation, i.e., measuring acculturation on a single continuum, without consideration of the individual’s degree of adherence to the culture of origin (i.e., enculturation).

Two studies used the bilinear model of acculturation to examine the dual role of acculturation and enculturation on social anxiety. First, Hsu and Alden (2007) investigated social anxiety and anxiety-related impairments in three groups of North American college students: European-heritage, first-generation Chinese, and second-generation Chinese. Both acculturation and enculturation were assessed using the Vancouver Index of Acculturation (VIA; Ryder et al., 2000), which is based on the bilinear model of acculturation. Results showed that first-generation Chinese students reported significantly greater social anxiety than did European-heritage students. The former also reported greater perceived anxiety-related impairment than did the second-
generation Chinese and the European-heritage students. Moreover, all participants who reported relatively greater acculturation had significantly lower scores on measures of social fears, social avoidance, and impairment. Reported enculturation, on the other hand, did not predict social anxiety. This study revealed that less acculturated first-generation Chinese individuals (i.e., Chinese immigrants) not only tend to be at greater risk for social anxiety but also tend to experience more symptomatic impairment. Moreover, acculturation, but not enculturation, was again shown to be a protective factor against social anxiety.

A Similar pattern of relationships between acculturation/enculturation and social anxiety was reported by Hsu, Woody, and Lee, et al. (2012). These authors simultaneously tested two rival hypotheses, which they called the *East Asian socialization hypothesis* and the *cultural discrepancy hypothesis*, in a cross-national sample of 692 university students. Results showed that bicultural East Asian individuals (East Asian Canadians) reported significantly higher social anxiety than did unicultural participants (i.e., Western-heritage Canadians, native Koreans and native Chinese), thereby supporting the cultural discrepancy hypothesis. On the other hand, no linear relationship was found between social anxiety and degree of exposure to East Asian cultural norms, thus rejecting the East Asian Socialization hypothesis. Results from this study supported the contribution of acculturation, but not enculturation, to social anxiety.

A different result was reported in a recent study by Lee (2012), who found significant relationships between social anxiety and both acculturation and enculturation in a community sample of Asian Americans. Using the bilinear-based Asian American Multidimensional Acculturation Scale (AAMAS; Chung, Kim, & Abreu, 2004), Lee
hypothesized that acculturation would be negatively related to social anxiety, whereas
enculturation would be positively related to social anxiety. However, contrary to
expectations, both acculturation and enculturation significantly predicted social anxiety in
a negative direction. That is, Asian Americans who reported greater acculturation to
mainstream culture or reported more enculturation to their cultures of origin scored
significantly lower on the measure of social anxiety. However, acculturation/enculturation failed to predict social anxiety after gender, age, and
personality traits were taken into account.

In sum, previous studies yielded mixed findings in terms of relationships between
acculturation/enculturation and social anxiety. Some studies supported the protective role
of acculturation on social anxiety (Hsu & Alden, 2007; Okazaki, 1997; Ryder et al.,
2000), whereas other studies suggested that both acculturation and enculturation can
protect against social anxiety (Lee, 2012). Methodological differences are a possible
explanation, in that the models of acculturation were not consistent across these studies.
Second, none of these studies took into account the social contexts within which social
anxiety was experienced. For Asians living in the U.S., social relationships are developed
in multiple social contexts. Two broad contexts are social situations with members from
the mainstream society (i.e., White Americans) and with members from the ethnic
community (i.e., Chinese) (Yoon et al., 1998). For Chinese immigrants, it is reasonable to
expect that the frequency and degree of social anxiety differ depending on the social
situation.

The theory of intergroup anxiety (Stephan & Stephan, 1985) supports this
argument. This theory posits that people tend to experience more anxiety when
interacting with out-group members than with in-group members, due to fear of negative psychological or behavioral consequences for the self and fear of negative evaluations by in-group as well as out-group members. In an early study, Stephan and Stephan (1989) found that Asians reported more social anxiety when interacting with Caucasians than did Hispanics. Moreover, members of ethnic minority groups tend not to report symptoms of social anxiety when they are among members of their own ethnic group (Ingram, Ramel, Chavira & Scher, 2005). Thus, it seems that the experience of social anxiety may depend on cultural and contextual factors, such that Chinese immigrants may manifest different levels of social anxiety depending on the social context.

**Social Anxiety in Different Contexts**

In order to provide an accurate and culturally-sensitive understanding of social anxiety among Chinese immigrants, the current study examined social anxiety in two social contexts that are most salient for Chinese immigrants: mainstream U.S. society and the ethnic Chinese community. In the past decade, an increasing number of studies in counseling psychology have contextualized social relationship variables when studying ethnic minority groups. For example, Lin and Betz (2009), in a study of Chinese and Taiwanese international students, contextualized the construct of social self-efficacy into self-efficacy speaking in Chinese versus English. The authors found lower social self-efficacy in English than social self-efficacy in Chinese. Moreover, social self-efficacy in English was negatively related to acculturative stress and positively related to self-esteem. In another study (Ryder et al., 2000), the construct of shyness was contextualized as shyness with people from mainstream culture versus with people from the heritage culture. Participants were Chinese college students in North America. Results showed
that those who were less acculturated or more enculturated reported more shyness with Westerners. Acculturation and enculturation did not predict shyness with people from the heritage culture, however.

Another important line of research that used a context-specific approach was conducted by Yoon and colleagues (Yoon et al., 2008; Yoon & Lee, 2010; Yoon, et al., 2011). These authors contextualized social connectedness as social connectedness in mainstream U.S. society and in ethnic communities. Participants were Korean immigrants and Asian Americans. Specifically, Yoon et al. (2008) investigated relationships among acculturation/enculturation, social connectedness, and subjective well-being (SWB) in Korean immigrants. These authors revised the Social Connectedness Scale (Lee & Robins, 1995) to have two subscales: Social Connectedness in Mainstream Society (SCMN) and Social Connectedness in Ethnic Community (SCETH). Results showed that SCMN and SCETH mediated the relationship between acculturation and SWB and enculturation and SWB, respectively.

In 2011, Yoon and colleagues replicated and extended the context-specific model with a sample of Asian Americans. Similar to Yoon et al. (2008), the same mediating effects of SCMN and SCETH were found. These results highlighted the variation of social connectedness in mainstream versus ethnic communities as well as psychological benefits in terms of subjective well-being for Asians in the US.

The current study adopted Yoon et al.’s (1998, 2010, 2011) conceptualization of social connectedness and applied it to the construct of social anxiety. Specifically, Chinese immigrants’ social anxiety was assessed in terms of social anxiety when interacting with people from mainstream U.S. society (i.e., White Americans;
Mainstream SA) and with people from the ethnic community (i.e., Chinese residing in the U.S; Ethnic SA).

Based on the theory of intergroup anxiety (Stephan & Stephan, 1985, 1989) and previous studies on contextualized social relationship variables (e.g., social self-efficacy, shyness, social connectedness), it is likely that Chinese immigrants tend to experience higher Mainstream SA than Ethnic SA. Moreover, as was argued in the previous section, because acculturation/enculturation tend to be associated with social anxiety (Lee, 2012), Chinese immigrants’ experience of anxiety in different social contexts may depend on their levels of acculturation and enculturation. Specifically, it was reasoned that Chinese immigrants who are relatively more acculturated are likely to experience less Mainstream SA, whereas those who are relatively more enculturated are likely to experience less Ethnic SA.

**Perceived Racial Discrimination and Social Anxiety**

According to the diathesis-stress model of social anxiety (Rapee & Spence, 2004), environmental disturbances contribute to the onset and maintenance of social anxiety (for a review, see Brook & Schmidt, 2008). One potential risk factor is experiences of adverse social events, such as excessive teasing, criticism, bullying, rejection, ridicule, humiliation, and social exclusion (Rapee & Spence, 2004). For Chinese immigrants, experiencing racial discrimination is likely to be a salient adverse social event that puts them at risk for social anxiety. Racial discrimination is defined as “…unfair, differential treatment on the basis of race” (Ong, Thomas & Anthony, 2009, p. 1259). Numerous studies documented that Asian Americans and Asian immigrants perceived racial discrimination in their daily lives and
suffer from its negative consequences on their physical and psychological health (Gee, Ro, Shariff-Marco & Chae, 2009; Lee & Ahn, 2011). Asian Americans who experience racial discrimination tend to report elevated depression, anxiety, negative emotions, suicidal ideation, and relationship difficulties (Huynh & Fuligni, 2010; Hwang & Goto, 2008; Wei, Heppner, Ku & Liao, 2010).

Lee and Ahn (2011) conducted a meta-analysis of 23 studies on the effects of perceived racial discrimination on mental health outcomes among Asians. Significant overall relationships between racial discrimination and anxiety, depression, and psychological distress were reported. Moreover, in a nationwide survey on Asian Americans, Gee, Spencer, Chen, et al. (2007) found that self-reported racial discrimination was associated with greater odds of having depressive or anxiety disorders within the past 12 months, after taking into account a variety of sociodemographic characteristics, level of acculturative stress, and physical health factors.

According to Berry (1980), discrimination encourages ethnic minority immigrants and their descendants to remain separated from mainstream culture. Chinese immigrants are particularly vulnerable to discrimination from the mainstream society because their race and ethnicity, foreign accents, and language difficulties tend to invite social exclusion, unfair treatment, harassment, and other forms of racism (Mak & Nesdale, 2001; Yoo, Gee, & Takeuchi, 2009). These negative social experiences may lead to heightened anxiety when interacting with individuals from mainstream society. For example, a Chinese employee who has repeatedly experienced racial discrimination on the job is likely to feel anxious whenever social interactions with co-workers occur. Moreover, based on aversive conditioning experiences (Barlow, 1988; McCabe, Antony,
Summerfeldt, et al., 2003), this individual may develop social fear and avoidance in other social situations with White Americans.

**Perceived Racial Discrimination and Social Anxiety among Asian Americans**

Few studies specifically examined the link between perceived racial discrimination and social anxiety. Previous researchers found perceived racial discrimination to be associated with other known predictors of social behavior. For example, in a multiethnic sample, perceived racial discrimination was related to the intensity of participants’ ratings of routine social interactions as harassing, exclusionary and unfair (Broudy et al., 2007). Among African Americans, perceived racial discrimination predicted interpersonal sensitivity and lower perceived social support (Klonoff, Landrine & Ullman, 1999; Prelow, Mosher & Bowman, 2006). Among Asian Americans, perceived racial discrimination was a significant predictor of race-based rejection sensitivity (Chan & Mendoza-Benton, 2008) and low social connectedness (Yoon et al., 2011). Specifically, Yoon et al. found that Asian Americans who perceived greater racial discrimination reported lower social connectedness in mainstream U.S. society, but not in their ethnic communities. Wei, Wang, Heppner and Du (2012) found an inverse relationship between perceived racial discrimination and social connectedness in mainstream society based on a sample of Chinese international students.

Only one study was located that specifically examined social anxiety as a psychological outcome of perceived discrimination. In Burns, Kamen, Lehman and Beach (2012), social anxiety was significantly predicted by the frequency of perceived sexual orientation discrimination and internalized homophobia in a sample of gay men.
In sum, based on the diathesis-stress model of social anxiety (Rapee & Spence, 2004) and previous relevant research, adverse social experiences with racial discrimination may serve as an environmental risk factor for social anxiety among Chinese immigrants. It was reasoned that Chinese immigrants who experience relatively more racial discrimination are likely to have greater social anxiety when relating to White Americans. One the other hand, because there is less racial discrimination within ethnic communities, this environmental stressor is not likely to contribute to social anxiety when interacting with members of the Chinese community.

**Personality Factors and Social Anxiety**

According to the diathesis-stress model of social anxiety (Rapee & Spence, 2004), cultural and environmental factors provide only a partial explanation of the sources of “stress” in social anxiety. In order to have a more comprehensive understanding, the “diathesis,” or genetic predisposition of social anxiety, needs to be studied. According to Rapee and Spence, the combination of shared or common genetic factors in the diathesis-stress model “might be expressed as general emotionality, such as neuroticism” (p. 755). A person’s personality traits, thus, can tap into this general emotionality.

Personality is traditionally defined as “the dynamic organization within the individual of those psychophysical systems that determine his characteristic behavior and thought” (Allport, 1961, p. 28). Personality is the way that an individual typically behaves, thinks, and feels. No single term or trait dimension can provide an adequate description of an individual’s personality. Rather, personality consists of a constellation of related and often interacting traits (Widiger, 1993).
Given the complexity of personality, numerous researchers have attempted to develop theories or models of personality. Currently, the dominant model of personality is the Five-Factor Model (Costa & MacCrae, 1998). Relevant research on this model is reviewed next.

**The Five-Factor Model of Personality**

Specifically, the Five-Factor Model identifies five broad domains of personality functioning, including neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (Digman, 1990). Neuroticism represents the general tendency to experience negative affect, such as fear, sadness, embarrassment, anger, guilt, and disgust. Extraversion refers to the tendency to be cheerful, upbeat, sociable, energetic, and optimistic. The elements of openness to experience are active imagination, aesthetic sensitivity, attentiveness to inner feelings, intellectual curiosity, and independence of judgment. Agreeableness describes the tone of one’s interpersonal relationships, such as kindness and hostility and focuses on relational styles. Finally, the signs of conscientiousness include being purposeful, strong-willed, and determined.

Personality traits have been frequently studied as a dispositional, trait component of social anxiety (Naragon-Gainey & Watson, 2011). Kotov, Gamez, Schmidt et al., (2010) meta-analyzed 175 studies from 1980 to 2007 on relationships between personality traits and psychological disorders. From the 22 studies on social phobia, neuroticism and extraversion were the strongest predictors. In particular, both neuroticism and extraversion were moderately associated with social phobia. The degree of heritability within the FFM has been extensively investigated by researchers from different countries, with particular attention paid to neuroticism and extraversion, the two
personality traits that seem most relevant to social anxiety (Eaves, Eysenck, & Martin, 1989). Large twin studies across five countries ($N = 24,000$ twin pairs) yielded support for the high heritability of personality traits (e.g., Jang, McCrae, Angleitner, Reimann, & Livesley, 1998; Loehlin, 1992). For example, Loehlin found that significant average correlations between identical twins and fraternal twins on neuroticism and extraversion, with larger effect sizes found in identical twins. According to Bienvenu et al., (2007), genetic factors that influence individual variation in extraversion and neuroticism appear to fully account for the genetic liability of social phobia.

Indeed, introverts are particularly susceptible to social anxiety because they tend to have an internal focus and less environmental interaction than extraverts (Eysenck & Eysenck, 1969). Due to this trait, they may view themselves or be viewed by others as not possessing good social skills. Thus, these individuals tend to avoid highly social environments due to fear of negative evaluation, which is characteristic of social anxiety (Creed & Funder, 1998; Leary & Kowalski, 1995). Furthermore, individuals with high level of neuroticism are susceptible to negative emotions as well as self-consciousness and shyness. These internal experiences heighten social anxiety and perpetuate social avoidance (Hettema, Neale, Myers et al., 2006). For these reasons, neuroticism and extraversion, the two personality traits most closely related to social anxiety, were studied as genetic contribution to social anxiety in the present study.

**Personality Traits and Culture**

The FFM model has been replicated across a wide range of cultures and in different languages (John & Srivastava, 1999). McCrae and Costa (1997) reported structural equivalence across various languages (including Chinese) using factor analyses.
According to these authors, “because the samples studied represented highly diverse cultures with languages from five distinct language families, these data strongly suggest that personality trait structure is universal” (p. 509). Specifically, the factorial structure of the FFM measure has been replicated among Chinese participants in mainland China and Taiwan (McCrae & Costa, 1997; Yang & Bond, 1990).

Among Asian participants, neuroticism and extraversion were the only personality traits that were significantly associated with social anxiety in a community sample of Asian Americans (Lee, 2012) and in a sample of mainland Chinese university students (Zhong et al., 2008). Specifically, neuroticism was positively related and extraversion was negatively related to social anxiety.

According to the diathesis-stress model of social anxiety (Rapee & Spence, 2004), genetic predispositions and environmental stressors together predict social anxiety. The present study assessed the genetic determinants of social anxiety, as manifested in personality traits, among Chinese immigrants. It is likely that neuroticism and extraversion predict social anxiety in either social context for Chinese immigrants (i.e., Mainstream SA and Ethnic SA).

**Hypotheses**

The present study of Chinese immigrants examined the relative contributions of personality traits (neuroticism and extraversion), cultural factors (acculturation, enculturation and perceived English fluency), and perceived racial discrimination to social anxiety in two social contexts. Because previous research indicated that the sources of social anxiety include inherited traits as well as situational factors (Cozier & Alden, 2005), both sources were explored in this study. Of note, since the study involved
immigrants, whose fluency in English varies widely, perceived English fluency was also tested as a proxy for acculturation. The following hypotheses were tested:

*Hypothesis 1.* Chinese immigrants will report greater social anxiety when interacting with people from mainstream U.S. society than with people from their ethnic community.

*Hypothesis 2.* Chinese immigrants who report relatively more neuroticism, less extraversion, more acculturation, less perceived English fluency, and more racial discrimination will report greater social anxiety when interacting with White Americans (Mainstream SA).

*Hypothesis 3.* Chinese immigrants who report relatively more neuroticism, less extraversion, and less enculturation will report greater social anxiety when interacting with Chinese individuals in their ethnic community (Ethnic SA).
CHAPTER THREE

Method

Participants

The sample consisted of 140 first-generation Chinese immigrants. The majority of participants were from the northeast \( (n = 73; 52.1\%) \) and west coast regions of the U.S. \( (n = 25, 17.9\%) \). There were 55 men \( (39.3\%) \) and 82 women \( (58.1\%) \) (2 participants specified “other;” 1 participant did not specify gender). Participants’ ages ranged from 18 to 71 \( (M = 35.88, SD = 11.61; 4 \text{ participants did not report their age}) \). Most participants immigrated from mainland China \( (n = 120; 85.7\%) \), followed by Taiwan \( (n = 15; 10.7\%) \) and Hong Kong \( (n = 3; 2.1\%) \) (2 people did not report their country of origin). Length of residency in the U.S. varied from 1 to 45 years \( (M = 12.39, SD = 9.76) \). Most participants reported having earned a master’s \( (38.6\%) \) or a doctoral degree \( (32.9\%) \). The range of annual household income was evenly spread in this sample, with 32.1\% of participants earning more than $100,000 per year \( (n = 45) \), 21.4\% earning $20,000 to $60,000 per year \( (n = 30) \), 20.7\% earning less than $20,000 per year \( (n = 29) \), and 19.3\% earning $60,000 to $100,000 per year \( (n = 27) \) (9 participants did not report their income). More than half of participants were married \( (n = 85; 60.7\%) \) or single \( (n = 390; 27.9\%) \). In terms of religion, this sample was composed mostly of atheists \( (n = 62; 44.3\%) \) and Christians \( (n = 29; 20.7\%) \). The majority \( (n = 132; 94\%) \) of the sample reported no prior counseling experience (see Table 1 for more details).

Power analysis. An a priori power analysis (Cohen, 1988) was conducted to determine the sample size necessary to achieve significance at \( \alpha = .05 \) with power at .80 for the hypothesized relationships.
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**Religion**

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*Note. N = 140.*
First, no previous authors had directly tested differences between Mainstream SA and Ethnic SA or the association between perceived racial discrimination and social anxiety.

A previous study with an Asian-American sample reported effect sizes of $r^2 = .16$ ($p < .01$) between acculturation and social anxiety (Okazaki, 1997). It was calculated that with an effect size of .16, a sample of 90 would be necessary to achieve statistical power of .80.

Second, in a previous study with Asian-American sample (Zhong et al., 2008), the effect size for the relation between social anxiety and neuroticism was $r^2 = .19$ ($p < .001$), requiring $N = 73$. In the same study, the effect size for the relation between social anxiety and extraversion was $r^2 = .10$ ($p < .001$), requiring $N = 128$. Based on the largest sample size attained from these analyses, 128 participants were required to achieve power = .80. In the present study, a total $N=140$ was obtained.

**Design**

This study was ex post facto, with six continuous predictors and two continuous criterion variables. The five predictors were Neuroticism, Extraversion, Acculturation, Enculturation, Perceived English Fluency and Racial Discrimination. Neuroticism and Extraversion were assessed using the relevant scales in the Big Five Inventory (Benet-Martinez & John, 1998). Acculturation and Enculturation were measured using the Asian American Multidimensional Acculturation Scale (Chung, Kim, & Abreu, 2004). Perceived English Fluency was assessed by a one-item question in the demographic questionnaire. Finally, perceived Racial Discrimination was assessed using the Brief Perceived Ethnic Discrimination Questionnaire – Community Version (Brondolo et al.,
The two criterion variables, Mainstream SA and Ethnic SA, were assessed using the revised version of the Social Interaction Anxiety Scale (Mattick & Clarke, 1998).

**Instruments**

**Big Five Inventory (BFI).** The Big Five Inventory (BFI; Benet-Martínez & John, 1998) is a widely used self-report measure of the Big Five personality traits see (Appendix A). It consists of 44 items and measures 5 dimensions of personality: Neuroticism, Extraversion, Conscientiousness, Agreeableness, and Openness to Experience. Each item is rated on a 5-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The total score ranges from 44 to 220. Higher scores in each subscale indicate greater endorsement of each personality trait. In the current study, only the Neuroticism (8 items) and Extraversion (8 items) subscales were used. Sample items include “I am someone who is talkative” (Extraversion) and “I am someone who is emotional stable, not easily upset” (Neuroticism).

This instrument was selected because, compared to other personality measures, the BFI is well known for its brevity and efficiency in assessing the five dimensions of personality (John & Srivastava, 1999). Scores on the BFI have demonstrated good psychometric properties. In U.S. and Canadian samples, internal consistency reliabilities ranged from $\alpha = .75$ to .90; three-month test-retest reliabilities ranged from $\alpha = .80$ to .90 (John & Srivastava, 1999). Moreover, the BFI has demonstrated substantial convergent validity, with correlations above .80 with other measures of the Five Factor model, such as the NEO-Five Factor Inventory (Costa & McCrae, 1992) and the Trait Descriptive Adjectives (Goldberg, 1992) with mostly White Americans samples. For Asian samples, the BFI evidenced alphas ranging from .71 to .78 among Asian American men (Eap,
DeGarmo, Kawaki et al., 2008) to .63 to .83 among Taiwanese college students (Wang, 2008).

The current study used both the English and Chinese version of the BFI. The Chinese BFI has been previously translated and validated in Chinese populations by McCrae and Costa (1997). In the present study, the internal consistency reliabilities were satisfactory. For BFI-Extraversion, $\alpha = .80$ (total sample), .87 (English version), and .75 (Chinese version). For BFI-Neuroticism, $\alpha = .75$ (total sample), .80 (English version), and .73 (Chinese version).

**Asian American Multidimensional Acculturation Scale (AAMAS).** The AAMAS (Chung, Kim, & Abreu, 2004) is a 15-item, self-report inventory used to measure participants’ levels of acculturation and enculturation (see sample items in Appendix B). This instrument was chosen because it is based on the bilinear model and assesses acculturation and enculturation in multiple construct domains. These domains include language (4 items), food consumption (2 items), cultural knowledge (3 items) and cultural identity (6 items). Respondents are asked to rate each item using a 6-point rating scale (1 = not very much to 6 = very much) in relation to three ethnic groups: (a) their culture of origin (AAMA-CO), (b) other Asian Americans (AAMAS-AA), and (c) European Americans (AAMAS-EA).

In the current study, only the Culture of Origin and European American scales were used. That is, participants answered a set of parallel questions in relation to their Chinese culture of origin and to White mainstream group. Sample items include “How well do you understand the language of” (language), “How often do you eat the food of” (food consumption), “How knowledgeable are you about the history of” (cultural
knowledge) and “How much do you identify with” (cultural identity). Items in each subscale were averaged such that higher scores on the AAMAS-CO scale indicated greater enculturation and higher scores on the AAMAS-EA indicated greater acculturation. The total score in each subscale ranges from 15 to 90.

Chung et al. (2004) reported three studies using the AAMAS with Asian American college students that demonstrated acceptable levels of reliability. Internal consistency alphas ranged from .87 to .91 for the AAMAS-CO, .78 to .83 for the AAMAS-AA, and .76 to .81 for the AAMAS-EA. In another study with Chinese immigrants, AAMAS yielded reliabilities from $\alpha = .78$ to .87 for the three subscales (Yeh, Okubo, Ma et al., 2008). Evidence for concurrent and discriminant validity for the AAMAS was also reported by Chung et al. (2004). For example, the AAMAS-CO was negatively correlated with ($r = -.75$) acculturation and positively correlated with ($r = .51$) with identification with cultural of origin in a large sample ($N = 342$) of Asian American university students.

In the current study, the internal consistency reliabilities were as follows: for AAMAS-CO (enculturation), $\alpha = .87$ (total sample), .83 (English version), and .88 (Chinese version); for AAMAS-EA (acculturation), $\alpha = .92$ (total sample), .92 (English version) and .92 (Chinese version).

**Brief Perceived Ethnic Discrimination Questionnaire-Community Version (Brief PEDQ-CV).** The brief PEDQ-CV (Brondolo et al., 2005) is the short version of the 70-item Perceived Ethnic Discrimination Questionnaire-Community Version (Brondolo et al., 2005). The brief PEDQ-CV (see sample items in Appendix C) was selected because of its brevity and good psychometric properties (Brondolo et al., 2005).
It contains a 17-item scale that specifically assesses exposure to different types of ethnic discrimination among adults who live in the community and represent various educational and ethnic backgrounds.

The measure yields a full scale score (ranged from 17 to 85), plus four subscales scores. The subscales include Social Exclusion, Stigmatization, Discrimination at Work/School, Threat/Aggression, and Police. Participants are asked to indicate how often during their lifetime in the U.S. they have had each experience described due to their ethnicity or race on a 5-point Likert-type scale (1 = never happened to 5 = happened very often). Higher full scale scores indicate more perceived ethnic discrimination. Sample items include, “Have others ignored you or not paid attention to you?” (Social Exclusion) and “How often have you been treated unfairly by coworkers or classmates?” (Discrimination at Work/School).

The Brief PEDQ-CV has demonstrated good reliability (Cronbach’s $\alpha > .80$) in Black and Latino samples (Brondolo et al., 2005). In terms of convergent validity, the Brief PEDQ-CV correlated positively with the Perceived Racism Scales (PRS; McNeilly, Anderson, Armstead, et al., 1996) among African American ($r = .61, p < .01$) and Latino ($r = .51, p < .01$) samples. In the current sample, coefficient alphas were .92 (total sample), .91 (English version) and .93 (Chinese version).

**Social Interaction Anxiety Scale (SIAS).** The 20-item SIAS (Mattick & Clarke, 1998) assesses fears related to general social interaction (see Appendix D). Respondents are asked to rate the extent to which each statement characterizes them on a 5-point Likert-type scale ranging from 0 (not at all) to 4 (extremely). Higher total scores indicate
more social anxiety with potential range from 19 to 76. A sample item is “I am tense mixing in a group.”

The SIAS was chosen because of its good psychometric properties. Mattick and Clarke (1998) found that the SIAS discriminated between clinical groups with social phobia, agoraphobia, and simple phobia; the Cronbach’s α = .88 in an undergraduate sample. The SIAS has been used with Asian American samples in previous research. For example, in Park et al. (2011), the SIAS yielded α = .92 and a positive correlation with depressive symptoms (r = .41) among Asian Americans.

The SIAS was modified for this study, because the original SIAS simply asks respondents “to indicate the degree to which you feel the statement is characteristic or true for you.” That is, there is no referent to a specific social context. Variation as a function of social context required two instructional formats: one format instructed participants to consider only their interaction with White Americans (i.e., mainstream society; SIAS-M), whereas the second format instructed participants to consider only their interaction with Chinese in the U.S. (i.e., their ethnic community; SIAS-E). Both formats were administered to all participants in counterbalanced order. In the current sample, coefficient alphas for SIAS-M were .93 (total sample), .95 (English version), and .93 (Chinese version). The coefficient alphas for SIAS-E were .89 (total sample), .89 (English version), and .89 (Chinese version).

Perceived English Fluency. This one-item question in the demographic questionnaire asked participants to rate their level of perceived English fluency on a 5-point likert scale, “What is your current level of English fluency?” (1 - not fluent at all to 5 - very fluent).
**Demographic questionnaire.** Participants’ birth country, age, gender, education level, length of residence in the U.S., annual household income, marital status, region in the U.S. and religion were assessed using a demographic questionnaire (see Appendix E). Responses were used to describe the sample and to assess for potential covariates.

**Procedure**

First-generation Chinese immigrants, aged 18 years and older, were recruited using a snowballing technique. A designated website address was sent to individuals personally known to the investigator and to listservs of various Chinese student and non-student groups across the U.S., including two Chinese community centers in the east and west coast regions, one Chinese outdoor group in the northeast, and Chinese student associations from five universities in the northeast and mid-west regions. Participants were invited to participate in a study on “Chinese/Taiwanese immigrants’ social adjustment” (see Appendix F for the recruitment e-mail).

An informed consent statement (see Appendix G) appeared on the first page of the web site. This statement explained that the study was voluntary and anonymous, and that participants could withdraw at any time. In addition, the statement indicated that participants might experience some psychological distress from filling out the questionnaires. Appropriate referral information was provided. By clicking on the informed consent webpage, volunteers electronically indicated that they were at least 18 years of age and consented to participate in the study.

After the informed consent webpage, three yes/no screening questions asked participants whether they were second-generation Chinese Americans, international students/visitors or Chinese immigrants (e.g., Are you an international student or visitor
in the U.S.?). Responses from 32 international students/visitors were excluded from the analyses. No surveys were completed by second-generation Chinese Americans.

The incentive for participating in the study was a chance to win one of ten $50.00 cash prizes. Participants were invited to enter their e-mail address at the end of the study. The list of e-mail addresses was kept confidential and separate from the survey data.

**Translation**

In this study, consent forms and all instruments (except the BFI, which has been previously translated) were translated into Chinese. First, the investigator, who is fluent in both English and Chinese, translated the original English measures into Chinese. Then, a bilingual professor in the field of medicine back translated the instruments, remaining blind to the original measure. To achieve content equivalence, a third bilingual professional with a background in public administration examined the back-translated version against the original version. Corrections were made until full agreement was achieved. The translation and back-translation followed the procedures suggested by Brislin et al. (1973).

**Hypotheses**

**Hypothesis 1.** Participants will score significantly higher on Mainstream SA (SIAS-M) than on Ethnic SA (SIAS-E).

**Hypothesis 2.** As a set, participants’ scores on Neuroticism, Extraversion, Acculturation, Perceived English Fluency and Perceived Racial Discrimination will significantly predict Mainstream SA scores (SIAS-M).

**Hypothesis 2a.** Higher BFI-Neuroticism scores will significantly and uniquely predict higher SIAS-M scores.
Hypothesis 2b. Lower BFI-Extraversion scores will significantly and uniquely predict higher SIAS-M scores.

Hypothesis 2c. Lower AAMAS-Acculturation scores will significantly and uniquely predict higher SIAS-M scores.

Hypothesis 2d. Higher Perceived English Fluency will significantly and uniquely predict lower SIAS-M scores.

Hypothesis 3d. Higher PEDQ-CV scores will significantly and uniquely predict higher SIAS-M scores.

Hypothesis 3. As a set, participants’ scores on Neuroticism, Extraversion, and Enculturation will significantly predict Ethnic-SA (SIAS-E) scores.

Hypothesis 3a. Higher BFI-Neuroticism scores will significantly and uniquely predict higher SIAS-E scores.

Hypothesis 3b. Lower BFI-Extraversion scores will significantly and uniquely predict higher SIAS-E scores.

Hypothesis 3c. Lower AAMAS-Enculturation scores will significantly and uniquely predict higher SIAS-E scores.

Analyses

Internal consistency reliability analyses were performed for all of the measures. Descriptive statistics were calculated. Moreover, analyses of variance were used to examine scores as a function of language versions (English vs. Chinese), order of scales, gender, country of origin, education and income level. An intercorrelational matrix was also used to examine interrelationships among all the variables and to determine if any covariates should be included in the major analyses.
To test Hypothesis 1, a $t$ test was used to compare scores on SIAS-M and SIAS-E. To test Hypothesis 2 and the five sub-hypotheses, a hierarchical multiple regression analysis was used to assess the relationships between Neuroticism, Extraversion, Acculturation, Perceived English Fluency, Perceived Discrimination and Mainstream SA. To test hypotheses 3 and the three sub-hypotheses, another hierarchical multiple regression analysis was used to assess the relationships between Neuroticism, Extraversion, Enculturation and Ethnic SA.

To be able to compare the results for Ethnic SA and Mainstream SA, the same predictors were used in both analyses. It should be noted, however, that there were no hypotheses about the predictions of Acculturation or Perceived English Fluency in the prediction of Ethnic SA (i.e., Hypothesis 3). Of note, a Bonferroni corrected $p$ value of .017 was used in the major analyses to minimize Type I error.
CHAPTER FOUR

Results

Preliminary Analyses

As mentioned in Chapter Three, in the total sample of 183 respondents, 32 (17%) were eliminated because these participants indicated being Chinese international students or visitors. Next, 11 cases with four or more items missing from the BFI, AAMAS, brief PEDQ-CV, SIAS-M or SIAS-E were also eliminated, yielding a final sample of 140.

A multivariate analysis of variance (MANOVA) was conducted to determine if there were significant group differences on the two criterion variables by (a) order of administration of the SIAS-M and SIAS-E, (b) gender, (c) country of origin, (d) region in the U.S., (e) marital status, and (f) religion. No significant main effects on the dependent variables emerged by order of administration, $F(2, 137) = 0.42, p = .66$; gender, $F(6, 180) = 0.46, p = .84$; country of origin, $F(6, 180) = 0.27, p = .95$; region in the U.S., $F(8, 180) = 0.43, p = .90$; marital status, $F(8, 180) = 1.75, p = .09$; or religion, $F(8, 180) = .27, p = .95$.

Since more participants completed the Chinese version ($n = 99$) than the English version ($n = 41$) of the questionnaires, an Analysis of Variance (ANOVA) was conducted to determine whether Language accounted for significant variance in either criterion variable. This analysis was done because it was reasoned that participants’ choice of language would be related to acculturation. Results showed no significant effect for Language on either version of the measure, Mainstream SA, $F(1, 138) = .25, p = .62$; Ethnic SA, $F(1, 138) = 0.81, p = .37$. 

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Descriptive statistics on all measures (means, standard deviations, ranges, skewness, and kurtosis) are shown in Table 2. To compare these means with those reported in previous research using the same measures, a series of independent \( t \) tests were conducted. Of note, the mean Acculturation score (\( M = 3.76, SD = .82 \)) for the present participants was significantly lower than that reported by Lee (2012) with Asian Americans (\( M = 4.70, SD = .59 \)), \( t(363) = 12.71, p < .01 \), and the present mean for Enculturation (\( M = 5.01, SD = 0.64 \)) was significantly higher than that reported by Lee (\( M = 4.32, SD = .87 \)), \( t(363) = 8.11, p < .01 \). The latter was, however, not significantly different from Enculturation mean score in Kim and Park’s (2011) study with Korean immigrants, \( t(215) = 1.46, p > .05 \) (\( M = 5.13, SD = .45 \)). In terms of personality traits, the present sample had scores on Neuroticism (\( M = 2.70, SD = .63 \)) that were significantly lower than those reported by Asian Americans, \( M = 3.10, SD = .69 \), \( t(363) = 5.57, p < .01 \), in Lee (2012). The mean score on Extraversion (\( M = 3.16, SD = .67 \)), however, was comparable to Lee’s mean score (\( M = 3.08, SD = .81 \), \( t(393) = 1.00, p > .05 \). Perceived Discrimination scores (\( M = 1.68, SD = .56 \)) were significantly lower than those reported by Brondolo et al. (2005) in a sample of Black and Latino individuals (\( M = 2.05, SD = .65 \), \( t(278) = 5.83, p < .001 \)).

Finally, scores on both the SIAS-M (\( M = 2.35, SD = .71 \)) and the SIAS-E (\( M = 2.08, SD = .57 \)) were significantly higher than those reported by Asian Americans, \( M = 1.30, SD = .66 \), \( t(393) = 14.72, p < .001 \), \( t(393) = 4.12, p < .001 \), in Lee (2012) and White Americans, \( M = 1.44, SD = .71 \), \( t(258) = 10.30, p < .001 \), \( t(258) = 8.06, p < .001 \), in Parade, Leerkes and Blankson (2010). Of note, in comparisons of social anxiety scores reported by Brown, Turovsky, Heimberg et al. (1997) in a clinical sample of individuals
with social anxiety disorder ($M = 2.54, SD = .85$), the current SIAS-M scores were comparable, $t(188) = 1.54, p > .05$, yet the current SIAS-E scores were significantly lower, $t(188) = 4.27, p < .001$, than those reported by Brown et al.

As shown in Table 2, skewness and kurtosis of the scores on the major variables fell within acceptable limits of normality, except for Perceived Discrimination and Mainstream SC, which were negatively skewed. Thus, a log transformation of these two variables were used (Cohen, Cohen, West, & Aiken, 2003), which resulted in a decrease in skewness values to .40 and .07, respectively. Analyses were conducted using both the raw scores and the transformed scores. Because these results were identical, the original Perceived Discrimination and Mainstream SC scores are reported below.

Next, intercorrelations were computed to determine the magnitude and direction of the relationships among the variables (see Table 3). First, Mainstream SA significantly correlated with Ethnic SA ($r = .77, p < .001$), indicating that almost 60% of the variance was share between the two sets of scores and that 40% of the variance was explained by other factors, including measurement and random errors. Next, Mainstream SA was negatively associated with Extraversion ($r = -.51, p < .01$) and Acculturation ($r = -.43, p < .01$), and positively associated with Perceived Discrimination ($r = .35, p < .01$) and Neuroticism ($r = .53, p < .01$). Similarly, Ethnic SA was negatively correlated with Extraversion ($r = -.46, p < .01$) and Acculturation ($r = -.31, p < .01$) and positively correlated with Neuroticism ($r = .46, p < .01$) and Perceived Discrimination ($r = .42, p < .01$). Enculturation, on the other hand, was not associated with either Mainstream or Ethnic SA.
Finally, results showed significant correlations between some of the major variables and four of the demographic variables (i.e., income, education, perceived English fluency and year in the U.S.). Specifically, higher income was significantly associated with less Perceived Discrimination, less Mainstream SA and less Ethnic SA; higher education was significantly associated with higher Acculturation; more years in the U.S. was associated with lower Enculturation, higher Acculturation, and lower Mainstream SA; and higher Perceived English Fluency was related to higher Extraversion, higher Acculturation, and lower Mainstream and Ethnic SA. Given the medium effect sizes of the relationships between Perceived English Fluency and Mainstream SA and Ethnic SA ($r_s = -.31$ and -.32), the decision to include Perceived English Fluency in the set of cultural adaption variables was strengthened.

**Tests of Hypotheses**

The three major hypotheses were tested using $a = .017$. This Bonferroni corrected alpha level was used to minimize Type I error.

**Hypothesis 1.** Hypothesis 1 postulated that participants would score significantly higher on Mainstream SA than Ethnic SA. To test this hypothesis, a dependent $t$ test was conducted. A significant mean difference between Mainstream SA ($M = 2.47$, $SD = .75$) and Ethnic SA ($M = 2.19$, $SD = .60$) was found; $t(139) = 6.93$, $p < 0.01$. Cohen’s $d = .41$, indicated a moderate effect size. Thus, Hypothesis 1 was supported.
Table 2

*Descriptive Statistics on the Major Variables*

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<th>$SD$</th>
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*Note. $N = 140$.*
Table 3

Intercorrelations

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</tbody>
</table>

Note. Ns = 140. Perceived Fluency was an item in the demographic questionnaire; Extraversion = scale in Big Factor Inventory (BFI; Benet-Martínez & John, 1998); Neuroticism = scale in Big Factor Inventory (BFI; Benet-Martínez & John, 1998); Enculturation = scale in Asian American Multidimensional Acculturation Scale (AAMAS; Chung, Kim, & Abreu, 2004); Acculturation = scale in Asian American Multidimensional Acculturation Scale (AAMAS; Chung, Kim, & Abreu, 2004); Discrimination = Brief Perceived Ethnic Discrimination Questionnaire-Community Version (Brief PEDQ-CV; Brondolo et al., 2005); Mainstream SA = Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998); Ethnic SA = Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998). * p < .05. ** p < .01, two-tailed.
Hypothesis 2. A hierarchical regression equation was conducted to test Hypothesis 1, with the criterion variable being Mainstream SA (SIAM). In Step 1, Neuroticism and Extraversion were entered to examine the contribution of these two personality traits to Mainstream SA. In Step 2, Acculturation, Enculturation and Perceived English Fluency were entered to examine the role of cultural adaptation processes after controlling for Personality Traits. Finally, Perceived Racial Discrimination was entered in Step 3 after controlling Personality Traits, Acculturation, Enculturation and Perceived English Fluency.

Table 4 shows that in Step 1, Neuroticism and Extraversion added 35% of the variance in the prediction of Mainstream SA, $F(2, 136) = 36.36, p < .001, R^2 = .35$. In Step 2, Acculturation, Enculturation and Perceived English Fluency explained an additional 10% of the variance in Mainstream SA, $F(3, 133) = 7.72, p < .001, R^2 = .45, \Delta R^2 = .10$, after controlling for Neuroticism and Extraversion. Finally, Perceived Racial Discrimination accounted for an additional 4% of the variance, $F(1, 132) = 9.07, p < .01, R^2 = .48, \Delta R^2 = .04$.

In the full model, the six predictors combined explained a total of 48% of the variance in Mainstream SA, $F(6, 132) = 20.37, p < .001, R^2 = .48$. The $t$ tests of each beta weight showed that Extraversion ($\beta = -.31, p < .017$), Neuroticism ($\beta = .20, p < .017$), Acculturation ($\beta = -.27, p < .017$) and Discrimination ($\beta = .21, p < .017$) were significant unique predictors of Mainstream SA. Thus, Hypothesis 2 was supported. Of the sub-hypotheses, 2a, 2b, 2c and 2e were supported.

Hypothesis 3. Similar blocks of variables were entered into the hierarchical regression model predicting Ethnic SA. Table 5 shows that in Step 1, Neuroticism and
Extraversion contributed 29% of the variance in the prediction of Ethnic SA, $F(2, 136) = 27.58, p < .001$. In Step 2, Acculturation, Enculturation and Perceived English Fluency added an additional 5% of the variance in Ethnic SA after controlling Personality Traits, $F(3, 133) = 3.53, p = .017, R^2 = .34, \Delta R^2 = .05$. Finally, Perceived Racial Discrimination accounted for an additional 8% of the variance, $F(1, 132) = 19.40, p < .017, R^2 = .43, \Delta R^2 = .08$. In the full model, the six predictors combined explained 43% of the variance in Ethnic SA, $F(6, 132) = 16.29, p < .001, R^2 = .43$. The $t$ tests of the beta weights showed that Extraversion ($\beta = -.31, p < .017$) and Discrimination ($\beta = .33, p < .017$) were significant unique predictors of Ethnic SA. Thus, Hypothesis 3 was supported. Of the sub-hypotheses, only 3b was supported.
Table 4  
*Hierarchical Multiple Regression Analysis Predicting Mainstream SA*

<table>
<thead>
<tr>
<th>Predictors</th>
<th>$B$</th>
<th>$SE$ B</th>
<th>$\beta$</th>
<th>$\Delta R^2$</th>
<th>$\Delta F$</th>
<th>$df$</th>
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<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.92</td>
<td>.21</td>
<td>-.35**</td>
<td></td>
<td>36.36**</td>
<td>2, 136</td>
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<tr>
<td>Neuroticism</td>
<td>.97</td>
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<td>.34**</td>
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<tr>
<td><strong>Step 2</strong></td>
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<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.76</td>
<td>.20</td>
<td>-.29**</td>
<td>.10</td>
<td>7.72**</td>
<td>3, 133</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.87</td>
<td>.21</td>
<td>.31**</td>
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<tr>
<td>Acculturation</td>
<td>-.30</td>
<td>.10</td>
<td>-.26*</td>
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<tr>
<td>Enculturation</td>
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<td>.10</td>
<td>.13</td>
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<tr>
<td>Perceived Fluency</td>
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<td>1.36</td>
<td>-.05</td>
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<tr>
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<td></td>
<td>.04</td>
<td>9.07*</td>
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</tr>
<tr>
<td>Extraversion</td>
<td>-.82</td>
<td>1.92</td>
<td>-.31**</td>
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</tr>
<tr>
<td>Neuroticism</td>
<td>.57</td>
<td>.23</td>
<td>.20*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acculturation</td>
<td>-.32</td>
<td>.09</td>
<td>-.27**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enculturation</td>
<td>.16</td>
<td>.09</td>
<td>.11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Fluency</td>
<td>-.77</td>
<td>1.32</td>
<td>-.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discrimination</td>
<td>.32</td>
<td>.11</td>
<td>.21*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* $N = 140$. Full model, $F(6,132) = 20.37$, $p < .001$, $R^2 = .48$. *$p \leq .017$. **$p \leq .001$. 


Table 5
Hierarchical Multiple Regression Analysis Predicting Mainstream SE

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>ΔR²</th>
<th>ΔF</th>
<th>df</th>
</tr>
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<tbody>
<tr>
<td><strong>Step 1</strong></td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Extraversion</td>
<td>-.67</td>
<td>.17</td>
<td>-.32**</td>
<td>.29</td>
<td>27.58**</td>
<td>2, 136</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.70</td>
<td>.19</td>
<td>.31**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.57</td>
<td>.17</td>
<td>-.27**</td>
<td>.05</td>
<td>3.53*</td>
<td>3, 133</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.67</td>
<td>.18</td>
<td>.30**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acculturation</td>
<td>-.06</td>
<td>.08</td>
<td>-.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enculturation</td>
<td>.08</td>
<td>.09</td>
<td>.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Fluency</td>
<td>-2.54</td>
<td>1.19</td>
<td>-.19</td>
<td></td>
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<tr>
<td><strong>Step 3</strong></td>
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<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.65</td>
<td>.16</td>
<td>-.31**</td>
<td>.08</td>
<td>19.40**</td>
<td>1, 132</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.31</td>
<td>.19</td>
<td>.14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acculturation</td>
<td>-.08</td>
<td>.08</td>
<td>-.08</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Enculturation</td>
<td>.04</td>
<td>.08</td>
<td>.03</td>
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<tr>
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<td></td>
<td></td>
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<tr>
<td>Discrimination</td>
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<td>.09</td>
<td>.33*</td>
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</tbody>
</table>

*Note. N = 140. Full model, F(6,132) = 16.29, p < .001, R² = .43. * p ≤ .017. ** p ≤ .001.*
CHAPTER FIVE

Discussion

This is the first study to explore social anxiety among Chinese immigrants by specifying the social context. As hypothesized, a significant difference in levels of reported social anxiety was observed between mainstream and ethnic social contexts among Chinese immigrants, suggesting that social anxiety varies in degree as a function of the social environment. Specifically, Chinese immigrants reported significantly more social anxiety when interacting with White Americans (i.e., mainstream context) than with other Chinese in the U.S. (i.e., ethnic context).

Of note, the levels of social anxiety in both contexts reported by the current sample were significantly higher than the non-context-specific social anxiety scores reported in previous studies by Asian Americans (Lee, 2012) and White Americans (Parade et al., 2010). Of note, the mean level of mainstream SA in the current Chinese sample was similar to that reported by a clinical sample of individuals with social anxiety disorder (Brown et al., 1997). This elevated level of social anxiety among Chinese immigrants is consistent with prior research with Asian participants, which has shown higher propensity toward social anxiety symptomatology (e.g., Okazaki, 1997, 2000; Okazaki et al., 2002). More importantly, considering the significant difference between levels of social anxiety in mainstream and ethnic contexts with the finding that mainstream social anxiety reached clinical significance extended previous research by highlighting the role of social context for Chinese immigrants. Taken together, it seems that Chinese immigrants may indeed experience elevated social anxiety navigating a new
cultural, language and social environment in the U.S. The anxiety experienced when interacting with White Americans is apparently significantly taxing.

For this reason, it is important to understand the sources of these elevated levels of social anxiety in the two social contexts. To do so, this study investigated the relative contributions of, two personality traits that have been linked with social anxiety in many previous studies (neuroticism and extraversion), cultural adaption factors (acculturation, enculturation and perceived English fluency) and environmental stress (perceived racial discrimination) to self-reported social anxiety based on a diathesis-stress framework (Rapee & Spence, 2004). As expected, personality traits, acculturation, enculturation, perceived English fluency and perceived racial discrimination as a set significantly predicted levels of social anxiety in the mainstream context, contributing almost half the variance (48%). Of this total, the two personality traits uniquely contributed about 35% of the variance. Moreover, as expected, acculturation was the only unique cultural predictor of Mainstream SA, added an incremental 10% of variance, and perceived racial discrimination contributed an additional 4% of the variance.

With respect to the experience of social anxiety in interacting with other Chinese in the U.S., the full model explained a total of 43% of the variance. The two personality traits contributed 29% of variance, with Extraversion being the significant unique predictor. Enculturation did not significantly predict social anxiety in the ethnic context as hypothesized. On the other hand, an unexpected yet interesting finding was that Perceived Racial Discrimination was also a significant unique predictor in predicting Ethnic SA, contributing an additional 8% of the variance to the model.
Contributions to Theory

First, with respect to personality, the present findings were consistent with previous studies that considered neuroticism and extraversion as the most important predictors of social anxiety (Kotov, Gamez, Schmidt et al., 2010; Kotov, Watson, Robles & Schmidt, 2007; Zhong et al., 2008). Moreover, in the current study, these traits made significant unique contributions to the prediction of social anxiety irrespective of context. These findings support the “diathesis” aspect of the diathesis-stress model of social anxiety (Rapee & Spence, 2004), supporting the link between genetic predisposition and social anxiety in an understudied immigrant population.

Second, with respect to cultural factors, an important goal of the current study was to test whether acculturation and enculturation contribute to social anxiety above and beyond genetic/personality traits. As expected, Chinese immigrants’ levels of acculturation played a major role in their experiences interacting with White Americans but not with other Chinese in the U.S. Compared to their more acculturated counterparts, Chinese immigrants who reported being less acculturated tended to experience more social anxiety in social situations with White Americans. These findings are consistent with previous research that suggest that acculturation plays a protective role against social anxiety among Asian populations in the U.S. (e.g., Hsu and Alden, 2007; Hsu et al., 2012; Okazaki, 1997; Ryder et al., 2000).

On the other hand, enculturation did not uniquely predict social anxiety in the ethnic context. In other words, adherence to Chinese culture did not make a difference on how much social anxiety these Chinese immigrants were experiencing within their own ethnic community. Although this finding was inconsistent with Lee (2012), who sampled
on Asian Americans in general, it supported other results that also revealed a
nonsignificant relationship between enculturation and social anxiety in first-generation
Chinese and Chinese American samples (Hsu & Alden, 2007; Ryder et al., 2000).
Recently, Hsu et al. (2012) concluded that elevated social anxiety among bicultural East
Asians is likely due to a cultural discrepancy with the mainstream culture rather than
socialization to East Asian cultural values.

Another possible explanation for the nonsignificant results could be the
exceptionally high scores on the AAMAS-CO (Enculturation) by the current participants
($M = 5.01$, $SD = 0.64$), inasmuch as 93% of the sample ($n = 130$) scored $\geq 4$ on this 6-
point Likert, indicating high levels of enculturation. The ceiling effect may account for
the nonsignificant relationship between enculturation and social anxiety. Future studies
with second- and third- generation Chinese immigrants or those who immigrated early in
life, who are likely to report a wider range of enculturation, may reveal significant
relationships.

Interestingly, perceived English fluency did not uniquely predict social anxiety in
the mainstream context as expected. One explanation could be that English language
skills, although frequently viewed as a proxy for acculturation, reflect only one facet of
acculturation amongst other multidimensional processes (e.g., value, knowledge, identity,
behavior). (Yoon et al., 2011). Moreover, participants’ perception of their English
fluency may not reflect their real English skills or comfort level of using English in social
settings. For example, past research has found varied levels of social efficacy as a result
of English- vs. Chinese-speaking situations among Chinese international students (Lin &
Betz, 2009). Despite not being a significant unique predictor, zero-order correlations
showed significant negative correlations between perceived English fluency and Mainstream and Ethnic SA. Thus, more studies are needed to examine the influences of perceived English fluency on social anxiety among Chinese immigrants.

Third, this study is the first to test the potential relationship between perceived racial discrimination and social anxiety for Chinese immigrants. As expected, Chinese immigrants who perceived more racial discrimination reported more social anxiety in the mainstream context, regardless of their personality traits and acculturation. It seems possible that experiences of racial discrimination lead Chinese immigrants to develop a heightened anxious response in anticipation of their social interactions with White Americans.

An interesting yet unintentional finding was the significant relationship between perceived racial discrimination and social anxiety in the ethnic context regardless of personality traits and cultural processes. That is, more negative experiences with racial discrimination not only increased participants’ social anxiety when interacting with White Americans, but also increased their social anxiety when interacting with individuals in their own ethnic community. These findings may reflect the negative and pervasive effects of racial discrimination on psychological health (Gee, Ro, Shariff-McCready & Chae, 2009; Lee & Ahn, 2011), and supported Pieterse, Carter, Evans and Walter’s (2010) recent call for researchers to examine the effects of racial discrimination on psychological outcomes other than depression and generalized anxiety.

Limitations

Prior to discussing the practical implications, the limitations of the present study must be acknowledged. First, the contextualization of social anxiety (mainstream vs.
ethnic community), although a strength of the study, is not exhaustive of all possible social situations encountered by Chinese immigrants. In addition to interacting with mainstream Americans and other Chinese, these immigrants also interact with people from other ethnic and racial groups (e.g., Koreans, Latinos, African Americans and Middle Easterners). However, this study was the first to contextualize social anxiety, suggesting that the dichotomization (Mainstream SA and Ethnic SA) used here would be a starting point for future studies with immigrant populations.

Second, although most instruments were translated and back-translated, the factorial equivalence between the English and Chinese versions of the instruments is unclear, except for the BFI-Chinese, which had previously been translated and validated in Chinese populations (McCrae & Costa, 1997). Future psychometric studies are needed to test the psychometric properties (e.g., factorial structure) of the Chinese version of the Brief PEDQ-CV, AAMAS and SIAS for cross-cultural equivalence.

The study might also suffer from mono-method bias and common method variance because each construct was assessed using a single questionnaire. Additionally, in terms of sample characteristics, the current sample was composed of Chinese immigrants, most of whom (70%) held a graduate degree. Thus, the results cannot be generalized to Chinese immigrants with lower educational levels, to immigrants other than Chinese, to Chinese Americans or Chinese international students, or to individuals with SAD. In addition, because a convenience sample was used, self-selection bias might be present. Social desirability might also affect the results, as participants may answer questions in a manner to minimize distress or symptoms. Given the cross-sectional nature of the study, cause-and-effect also cannot be inferred.
Finally, although the current study focused on social anxiety symptoms among Chinese immigrants, it is important not to view this population as having high levels of psychopathology. First, social anxiety symptoms assessed in this study do not signify the criteria for social anxiety disorder as described by the DSM-IV. Second, the socially reticent behaviors and heightened interpersonal sensitivity that are often interpreted as maladaptive in Western cultures may be considered adaptive and healthy in Asian cultures. Future studies are needed to clarify this question by assessing the impact of social anxiety on actual social behaviors (e.g., social withdrawal), daily functioning (e.g., work, academic) and psychological well-being. Moreover, it will be interesting and meaningful for researchers to investigate positive social experiences among immigrant populations in the future.

**Implications for Theory, Practice, and Future Research**

Despite these limitations and considerations, the present study had a number of strengths. First, it challenged the conventional assumption from previous research that social anxiety is a dispositional trait that is constant across different social contexts. Although personality factors play the greatest role in social anxiety, the present findings highlight its situational aspect and suggest the importance of developing and using contextualized social anxiety assessments. By focusing on an understudied ethnic minority group and assessing for cultural factors, the current study also contributed important knowledge to the multicultural literature on social anxiety.

In terms of clinical implications, the results of the current study suggest a culturally-sensitive and context-specific perspective in the conceptualization, assessment and treatment of social anxiety for Chinese immigrants. Rather than viewing social
anxiety symptoms as constant across all situations, counselors shall assess for potential
differential levels of symptoms based on context, acculturation, and the experience of
racial discrimination.

Counselors also should be aware that while Chinese immigrants socialize in two
different “worlds,” where they develop different feelings and concerns, personality
nonetheless plays an important role in the development of social anxiety. In other words,
counselors need to help Chinese clients explore various factors that might be contributing
to their social anxiety, such as personality traits, cultural adaption, and experiences of
racial discrimination, particularly in social situations where they interact with White
Americans. Notably, the experience of racial discrimination may also be a factor that
influences social anxiety in ethnic contexts as well as in the mainstream context.
Additionally, as most counselors in the U.S. are White Americans, they need to be aware
of and assess, when appropriate, the high level of social anxiety that many Chinese
clients, particularly immigrants, are likely to experience in the consulting room.
Providing empathic and normalizing statements to Chinese clients about their anxiety
when discussing personal concerns with a white American counselor may strengthen the
working alliance and promote treatment outcomes.

Theoretically, the current study supports the cultural applicability of a diathesis-
stress framework of social anxiety (Rapee and Spence, 2004) to Chinese immigrants. By
empirically testing unique cultural and environmental etiological factors, the results
extended and strengthen the validity and cultural sensitivity of the model.

Future studies can include cultural variables other than acculturation/enculturation,
such as self-construal and cultural values of individualism/collectivism, as previous
studies found that Asians with more interdependent self-construals and stronger collectivistic cultural values reported more social anxiety (Heinrichs et al. 2006; Park et al., 2011; Schreier et al., 2010). Moreover, as Taijin-kyofu-sho (TKS; Interpersonal Fear Syndrome) is prevalent in East Asian countries (Chang, 1997, p. 115), it is unclear whether TKS and social anxiety symptoms can be experienced simultaneously. Future studies can assess social anxiety and TKS symptoms simultaneously among Chinese immigrants to better understand the relationship between these two forms of social anxiety.
References


Bienvenu, O. J., Hettema, J. M., Neale, M. C. et al. (2007). Low extraversion and high neuroticism as indices of genetic and environmental risk for social phobia,


model of personality: Theoretical perspectives (pp. 51-87). New York, NY: Guilford Press.


doi:10.1177/0095798406292677


doi: 10.1016/j.cpr.2004.06.004


Appendix A

Big Five Inventory (BFI) - Neuroticism and Extraversion Subscales

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please indicate the extent to which *you agree or disagree with that statement*.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disagree</td>
<td>Disagree</td>
<td>Neither agree</td>
<td>Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>1</td>
<td>Disagree strongly</td>
<td>Disagree a little</td>
<td>Neither agree nor disagree</td>
<td>Agree a little</td>
<td>Agree strongly</td>
</tr>
</tbody>
</table>

I am someone who…

1. Is talkative
2. Is depressed, blue
3. Is reserved
4. Is relaxed, handles stress well
5. Is full of energy
6. Can be tense
7. Generates a lot of enthusiasm
8. Worries a lot
9. Tends to be quiet
10. Is emotionally stable, not easily upset
11. Has an assertive personality
12. Can be moody
13. Is sometimes shy, inhibited
14. Remains calm in tense situation
15. Is outgoing, sociable
16. Gets nervous easily
Appendix B

Asian American Multidimensional Acculturation Scale (AAMAS)

*Instructions:* Use the scale below to answer the following questions. Please circle the number that best represents your view on each item. Please note that reference to “Asian” refers to Asians in North America, and not those in Asia.

<table>
<thead>
<tr>
<th>Not very well</th>
<th>Somewhat</th>
<th>Very well</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3  4</td>
</tr>
</tbody>
</table>

1. **How well do speak the language of** --
   a. your own Asian culture of origin? 1 2 3 4 5 6
   b. English? 1 2 3 4 5 6

2. **How well do you understand the language of** --
   a. your own Asian culture of origin? 1 2 3 4 5 6
   b. English? 1 2 3 4 5 6

3. **How well do you read and write in the language of** --
   a. your own Asian culture of origin? 1 2 3 4 5 6
   b. English? 1 2 3 4 5 6
Appendix C

Brief PEDQ- Community Version

How often have any of the things listed below happened to you since you have been in the U.S., because of your ethnicity as Chinese/Taiwanese?

BECAUSE OF YOUR ETHNICITY/RACE …

<table>
<thead>
<tr>
<th>A. How often</th>
<th>Never</th>
<th>Sometimes</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you been treated unfairly by teachers, principals, or other staff at school?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Have others thought you couldn’t do things or handle a job?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Have others threatened to hurt you (ex: said they would hit you)?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix D

Revised Social Interaction Anxiety Scale (SIAS) – Mainstream Society

**Instructions:** For each item, please write down the number to indicate the degree to which you feel the statement is characteristic or true for you when you are interacting with *White Americans*. The rating scale is as follows:

0 = **Not at all** characteristic or true of me.

1 = **Slightly** characteristic or true of me.

2 = **Moderately** characteristic or true of me.

3 = **Very** characteristic or true of me.

4 = **Extremely** characteristic or true of me.

1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).

2. I have difficulty making eye contact with others.

3. I become tense if I have to talk about myself or my feelings.

4. I find it difficult to mix comfortably with the people I work with.

5. I find it easy to make friends my own age.

6. I tense up if I meet an acquaintance in the street.

7. When mixing socially, I am uncomfortable.

8. I feel tense if I am alone with just one other person.

9. I am at ease meeting people at parties, etc.

10. I have difficulty talking with other people.

11. I find it easy to think of things to talk about.

12. I worry about expressing myself in case I appear awkward to someone.
13. I find it difficult to disagree with another’s point of view.

14. I have difficulty talking to attractive persons of the opposite sex.

15. I find myself worrying that I won’t know what to say in social situations.

16. I am nervous mixing with people I don’t know well.

17. I feel I’ll say something embarrassing when talking.

18. When mixing in a group, I find myself worrying I will be ignored.

19. I am tense mixing in a group.

20. I am unsure whether to greet someone I know only slightly.
Revised Social Interaction Anxiety Scale (SIAS) – Ethnic Community

**Instructions:** For each item, please write down the number to indicate the degree to which you feel the statement is characteristic or true for you when you are interacting with *Chinese in the U.S.* The rating scale is as follows:

0 = **Not at all** characteristic or true of me.

1 = **Slightly** characteristic or true of me.

2 = **Moderately** characteristic or true of me.

3 = **Very** characteristic or true of me.

4 = **Extremely** characteristic or true of me.

1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).

2. I have difficulty making eye contact with others.

3. I become tense if I have to talk about myself or my feelings.

4. I find it difficult to mix comfortably with the people I work with.

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17. I feel I’ll say something embarrassing when talking.

18. When mixing in a group, I find myself worrying I will be ignored.

19. I am tense mixing in a group.

20. I am unsure whether to greet someone I know only slightly.
Appendix E
Demographic Survey

Please take a minute to describe yourself:

1. Gender  Female _______  Male _______  Other (specify) _______

2. What is your country of birth
   a. Mainland China
   b. Hong Kong
   c. Taiwan
   d. Other (Specify: ___________)

3. Age  ___________

4. Highest Educational Level
   a. Some high school
   b. High School degree
   c. Some college or technical school
   b. Associate’s degree
   c. Bachelor’s degree or R.N.
   d. Master’s degree or Certificate of Advanced Study
   d. Doctoral degree, MD, or JD
   e. Other advanced degree, please specify ________________

5. Relationship Status  Single, never married _______  Single, cohabiting _______
                        Married _______  Separated _______
                        Divorced _______  Widowed _____
6. What age did you move to the U.S.? _______________

7. How long have you been living in the U.S.? _______ Years _______ Months

8. Do you have any children? No  Yes (How many _________)

9. Approximate annual household income?
   a. under $10,000
   b. $10,000 to $20,000
   c. $20,000 to $40,000
   d. $40,000 to $60,000
   e. $60,000 to $80,000
   f. $80,000 to $100,000
   g. over $100,000

10. Which state are you currently living in the U.S.? ________________

11. How often do you socialize with other Chinese in the U.S.?
   Not at all          Sometimes           Very often
   1                    2                  3                 4               5

12. How often do you socialize with White Americans in the U.S.?
   Not at all          Sometimes           Very often
   1                    2                  3                 4               5

13. How often do you try to avoid socializing with other Chinese in the U.S.?
   Not at all          Sometimes           Very often
   1                    2                  3                 4               5
14. How often do you try to avoid socializing with White Americans in the U.S.?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Sometimes</th>
<th>Very often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

15. What is your current level of English fluency? (1: not fluent at all; 5: very fluent)

| 1          | 2         | 3          | 4          | 5 |  

16. How comfortable are you communicating in English? (1: not comfortable at all; 5: very comfortable)

| 1          | 2         | 3          | 4          | 5 |  

17. Have you ever sought psychological counseling in the U.S.?

- No
- Yes

18. If Yes, how helpful do you find the psychological counseling you received? (1: not at all satisfied; 5: very satisfied)

| 1          | 2         | 3          | 4          | 5 |  

Appendix F

Solicitation E-mail

Dear Chinese and Taiwanese friends,

My name is Ke Fang, a Ph.D. student in the counseling psychology program at the University at Albany in Albany, NY. As a Chinese immigrant, I am particularly interested in the psychological and social well-being of this population. I am currently conducting a study on Chinese (include Taiwanese, Hong Kong) immigrants’ social adjustment in the U.S., and I am kindly inviting you to fill out my survey if you meet the following criteria:

a. A Chinese immigrant over the age of 18,

b. born in mainland China, Hong Kong or Taiwan, and

c. currently living in the U.S.

d. not planning to move out of the U.S. in the near future

English version: https://www.psychdata.com/s.asp?SID=149703
Chinese version: https://www.psychdata.com/s.asp?SID=149623

The survey will likely take you no more than about 20 minutes to complete. To thank you for your participation, you will have the opportunity to win one of ten $50.00 cash prizes.

If you do not fit the criteria, please FORWARD this e-mail to any Chinese adults who might meet the criteria, or who might know people who fit the criteria. The study has been approved by the university (#12-210).
If you have any further questions, please contact me at kfang@albany.edu. If you have any questions concerning your rights as a research participant that have not been answered by the investigator or if you wish to report any concerns about the study, you may contact the University at Albany Office of Research Compliance at 518-437-4569 (toll free 800-365-9139) or orc@uamail.albany.edu.

Thank you very much!

Ke
Appendix G

Informed Consent Form

This study is about Chinese immigrants’ social adjustment in the U.S. Questions regarding social and cultural adjustment will be included in the survey. (This study will be approved by the Institutional Review Board of University at Albany).

Please consider participating in the study if you:

a. are a Chinese immigrant over the age of 18,

b. were born in mainland China, Hong Kong or Taiwan,

c. are currently living in the U.S. and

d. are not planning to move out of the U.S. in the near future

This survey should take you no more than about 20 minutes to complete. This survey is anonymous, and your participation is voluntary. Completing the survey constitutes your consent to participate in this project. You may choose not to answer specific questions or withdraw from the study at any time.

When filling out the questionnaires, you may come across a question or answer choice that you find unpleasant or upsetting. For instance, a few of the questions may ask you to think about negative social experiences in the past. In the event that you experience psychological distress during or after the study and would like to speak with a professional, you can contact counseling services at your community or go to the website of the American Psychological Association (http://locator.apa.org/) for information on how to obtain appropriate services in your location.

To thank you for your time, you will have a chance to win one of five $50.00 cash prizes. At the end of the survey, you will see a blank that asks for your e-mail
address. The e-mail address you provided will be kept confidential and will be used solely for the purpose of sending you the prize.

If you have any further questions, please contact me at kfang@albany.edu. If you have any questions concerning your rights as a research participant that have not been answered by the investigator or if you wish to report any concerns about the study, you may contact the University at Albany Office of Research Compliance at 518-437-4569 (toll free 800-365-9139) or orc@uamail.albany.edu.

Thank you!