

A CROSS CULTURAL COMPARISON OF ASIAN COLLEGE STUDENTS' WELL-BEING:  
EXPLORING THE IMPACT OF CULTURAL FACTORS IN A SOCIAL COGNITIVE  
FRAMEWORK

by

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## Abstract

This study tested the cross-cultural validity of a modified version of Lent and Brown's (2006, 2008) satisfaction model. Hypothesized predictors and mediators included social-cognitive variables (supports, self-efficacy, outcome expectations, and goal progress), personality variables (extraversion and emotional stability), self-construal variables (interdependence and independence), as well as a variable that is specifically rooted in Asian culture (i.e., academic family shame). Data of 315 Asian American and 260 Singaporean college students were collected using an online survey in English. Data were analyzed using structural equation modeling (SEM) techniques, showing satisfactory fit of the modified model for both samples. For the Asian American sample, academic supports was found to mediate the relations of extraversion and interdependence to academic satisfaction, and for the Singaporean sample goal progress played an important role in mediating effects of emotional stability, academic supports, and self-efficacy to academic and life satisfaction. While multigroup SEM analyses offered evidence for measurement equivalence, several structural paths (e.g., extraversion → academic supports, self-efficacy → family shame) differed significantly between the Asian American and Singaporean groups. Overall, the study added to this literature by demonstrating the applicability of the modified well-being model to Asian college students in America and Singapore. Findings also suggest that personality and self-construal variables may impact students' pursuit of well-being differently. Practical implications for interventions and outreach programs, as well as directions for future research are discussed.

## Chapter I - Introduction

As an extension of the interest, choice, and performance/persistence models of social cognitive career theory (SCCT), Lent and Brown's (2006, 2008) satisfaction model has gained increased attention in recent years. While the model was initially proposed to predict job satisfaction, Lent and Brown (2008) indicated its useful application to predicting academic adjustment or educational satisfaction among student populations. Several variations of this model have been tested on samples of racially/ethnically diverse college students within the U.S. (Hui, Lent, & Miller, 2013; Lent et al., 2005; Ojeda, Flores, & Navarro, 2011; Sheu, Mejia, Rigali-Oiler, Primé, & Chong, 2016), and in European countries (e.g., Portugal; Lent, Taveira, & Lobo, 2012).

Specifically, some recent studies have investigated a modified version of the academic satisfaction model, including both cultural variables and the full set of originally hypothesized variables, in direct comparisons of Asian student samples in Asia (Sheu, Chong, Chen, & Lin, 2014; Sheu, Liu, & Li, 2017). While there has been considerable support for the applicability of the model cross-culturally and across racial groups within the U.S., there have been few studies that directly compare the model on one racial group across different cultural contexts (e.g., Asian students in the U.S. and Asian students in Asia). In a review on SCCT research in international contexts, Sheu and Bordon (2017) suggested that to advance research in this area, future studies should include relevant contextual and cultural factors to improve SCCT's explanatory power. Further, they advocated for more examination of the model's cross-national validity via direct multi-group comparisons. Such recommendations would allow for better identification of which components of the SCCT models may be universally applicable, and which parts may be more specific to particular regions, countries, or cultures. Additionally, Sheu et al.'s (2020) meta-

analysis of the social-cognitive well-being model across 100 studies between 2004 and 2017 demonstrated that a culture-modified version (including independent/individualistic and interdependent/collectivistic cultural orientations) offers a useful approach to understanding the experience and pursuit of well-being, and can help identify group differences potentially relevant for clinical interventions.

Thus, the current study builds upon this recent advance of the theory to incorporate both general and specific cultural variables with the full set of originally hypothesized variables in a modified academic satisfaction model. This model was tested across two different Asian subgroups (i.e., Asian American students in the U.S., and Asian students in Singapore). For clarification, the academic satisfaction model with the inclusion of cultural variables is thereafter referred to as the modified academic satisfaction model throughout the manuscript (see Figure 1, p. 16). Empirical status of this literature, relevant cultural variables, and Asian cultural contexts will be discussed in the next section.

### **Empirical Status of the Modified Academic Satisfaction Model**

Several variations of the modified academic satisfaction model have been tested with college student samples in the U.S. and other countries. These samples included students identified as European Americans, Mexican Americans, Asian Americans, African/African-American students in the U.S., and students in European, African, and Asian countries (see Hui et al., 2013; Lent et al., 2005; Lent et al., 2012; Ojeda et al., 2011; Sheu et al., 2016; Sheu et al., 2014; Sheu et al., 2017). Generally, findings offered consistent support for hypothesized mediating roles of academic supports, self-efficacy, and goal progress in the relations of extraversion, emotional stability, or positive affect, to academic satisfaction and/or life satisfaction.

While there has been research that sheds light on how the modified academic satisfaction model works with student populations, some general limitations to this body of literature include the following: (a) testing only a subset of the modified academic satisfaction model, and (b) aggregation of understudied populations into one sample to reach sufficiently large sample sizes. Despite many studies having tested variations of the modified academic satisfaction model that include some cultural variables (e.g., acculturation), most studies tested a subset of these variables rather than the full version of the theory (e.g., Ezeofor & Lent, 2014; Hui et al., 2014; Ojeda et al., 2011). As noted by Brown and Lent (2017), testing only a subset of these variables could offer misleading findings about the SCCT model, or produce inadequate evidence for the partial or full mediation of SCCT variables in predicting satisfaction outcomes. Since the model emphasizes the interplay of personality, environmental, person-cognitive, and behavioral variables in predicting both academic and life satisfaction, it would be important to include the full set of variables when testing the cross-cultural validity of the theory across different samples.

Additionally, with respect to multi-group comparisons, students with diverse racial/ethnic backgrounds had often been categorized into one group for reaching sufficiently large sample sizes. Such an approach discounts the within variability of culturally diverse groups, and ignores how the model can be more useful to each of these populations. While some studies did include diverse student samples, such as students born in and outside the U.S, students with different generations of immigrant statuses, and international students, (e.g., Ezeofor & Lent, 2014; Hui et al., 2014), analyses were limited to aggregating them in one sample. For the target population of Asian college students, future research is needed to examine the issue of within-group variability with respect to social cognitive and cultural predictors of Asian students' academic satisfaction.

Conversely, the only identified study that sought to explicate within-group differences was that of Sheu et al. (2017). Authors examined the applicability of a modified academic satisfaction model to college students in China, and tested the full set of variables across gender and location (eastern vs. southwest China). Their findings indicated regional differences in some structural paths.

Regarding cross-cultural research, it may be helpful to investigate what specific factors account for different structural paths for Asian students in the U.S. and in different countries, as opposed to continuing to aggregate them as one group. For example, the hypothesized effects of cultural variables may vary depending on the extent of exposure to more interdependent culture, such as being more collectivistic in Asia, or more exposure to individualistic culture, reflecting more of America's culture. Thus, the different cultural contexts may be one factor that accounts for potential different structural paths to investigate.

To address some of these limitations as mentioned previously, the aims of the current study are to test the applicability of the modified academic satisfaction model with the full set of variables within one racial group across different cultural contexts (i.e., Asian American students in the U.S. vs. Asian students in Singapore). To better understand cultural influences on the pursuit of well-being, the current model includes both the self-construal variables (i.e., interdependence and independence) and a variable (i.e., academic family shame) specific to the Asian culture.

### **Cultural Influences on the Pursuit of Satisfaction**

Per Sheu and Lent's (2009) recommendations for cultural considerations, a few recent studies investigated the modified the academic satisfaction in direct comparisons across student groups. Within the context of the U.S., Sheu and colleagues (2016) identified significant

racial/ethnic differences in several structural paths and indirect effects. Specifically, they found that extraverted White American students tended to have lower life satisfaction while extraverted Asian American students felt more satisfied with their overall lives. Additionally, results revealed that the relation between emotional stability and life satisfaction was more prominent for White American students than those of Asian or Latina/o descent. Such findings support the concept that those who are more individualistic may rely more on emotions to inform their life satisfaction as compared to those who are more collectivistic (Schimmack et al, 2002; Suh, Diener, Oishi, & Triandis, 1998). Conversely, suppression of emotions is considered a sign of maturity and a healthy coping strategy in some Asian cultures that are largely collectivistic (Hong, 2016; Sheu & Fukuyama, 2007). The cultural value of emotional self-control could potentially reduce the importance of emotions when evaluating life satisfaction among individuals with an Asian cultural background. Consistent with Cross et al.'s (2011) review about how those who endorse collectivistic cultural norms tended to have stronger relations between interdependent self-construal and life satisfaction, Sheu et al.'s (2016) results showed interdependence to be directly and positively predictive of life satisfaction only for Asian American and Latina/o American students, but absent for White Americans.

As mentioned previously, the modified academic satisfaction model was also studied with student samples in Asia, such as Taiwan and Singapore (Sheu et al., 2014), and China (Sheu et al., 2017). These studies supported the modified academic satisfaction model's fit to Asian students as well as structural paths that differed depending on nation and different regions in China. Therefore, this model appears to have some universal application despite originating from a U.S. cultural context, and can be a relevant and appropriate tool for understanding how Asian students outside of the U.S. pursue their well-being. These findings demonstrate that the



pursuit of well-being could still be different for those coming from similar cultural backgrounds. Thus, in this study, two Asian student groups in different cultural contexts are examined to get a more refined picture of how similar or different their pathways to well-being may be.

### **Cultural Contexts for Two Asian College Student Populations**

Kitayama et al. (1995) asserted that the pursuit of well-being (e.g., global and domain-specific satisfaction) is likely to be a universal goal; therefore, it is reasonable to assume that this is also relevant to Asian student populations. The modified academic satisfaction model offers an appropriate way to study how Asian students pursue and maintain their well-being, especially as academic achievement is a salient part of many Asian students' self-identity (Ho, Ang, & Ng, 1998). Thus, the current study focuses on comparisons of the modified academic satisfaction model across Asian student populations in two cultural contexts: (a) Asian American students in the U.S., and (b) Asian students in Singapore.

**Asian American students in the U.S.** In the U.S. context, Asians are a diverse population that encompass many ethnic groups, languages, nativity, generation/immigrant status, and countries of origin, but are often regarded by as a unitary high functioning group. Limited research on Asian American mental health may be attributed to the model minority myth that regards Asian Americans as high achieving, well-adjusted individuals with minimal mental health concerns (Yoo, Burrola, & Steger, 2010). However, literature reviews reveal that Asian American college students consistently have higher levels of anxiety compared to Whites (Okazaki, 2000; Okazaki, Liu, Longworth, & Minn, 2002), and experience major adjustment and emotional problems, report more mental health concerns (Greene, Way, & Paul, 2006; Sue & Chu, 2003), lower self-esteem (Greene et al., 2006), and more career decision-making difficulties (Mau, 2004) than their non-Asian counterparts.

Thus far, only two studies investigated a modified academic satisfaction model in samples of Asian American college students. In a study with direct comparisons across three racial/ethnic groups, Sheu et al. (2016) examined the modified academic satisfaction model with the full set of variables on Asian American college students; their findings offered validity evidence of the model's fit. Additionally, using a simpler version of the satisfaction model, Hui, Lent, and Miller (2013) also found support of the model's application to an Asian American population. It is important to note that Hui et al.'s (2013) study is limited given its model did not include outcome expectations and personality factors.

**Asian students in Singapore.** No study thus far has sought to compare Asian American students' pursuit of academic satisfaction to other Asian student populations, which would enable better understanding of the within-group differences in this racial group. It would be important to identify which SCCT variables and paths are universal versus culturally specific, particularly when comparing samples who share similar cultural values, but reside in different cultural contexts. Thus, to illuminate how the modified academic satisfaction model fits for different Asian populations, it would be meaningful to compare the model's applicability to Asian American students in the U.S. (as racial minorities), and to Asian students in a context where they are considered part of the racial majority, such as in Singapore.

In the current study, Singapore was chosen as the Asian country for a few reasons. These reasons include reducing the number of extraneous variables that may impact the different experiences Asian students in the U.S. have as compared to those in a more homogenous Asian country, such as Korea. A conceptual consideration is that relative to other Asian countries, Singapore has more of a diverse culture, with many students coming from Malaysian, Indian, and Chinese backgrounds. This exposure to other ethnicities may make it more similar to the

diverse environment in the U.S., given that many Asian American students are themselves different ethnicities, and exposed to different ones. Regarding methodological reasons, translation of surveys to a different language is not needed because English is the primary language taught in Singaporean schools. Moreover, there is evidence of the modified academic satisfaction model's applicability to Singaporean students, and this may facilitate comparisons.

The relevance of the modified academic satisfaction model to Singaporean students has been empirically supported with initial evidence from Sheu and colleagues (2014). As noted by Ho, Ang, and Ng (1998), Singaporean society emphasizes elitism, which is often measured by one's academic performance, and cultural values placed on education often result in more competition among and higher stress for Singaporean students (Cheng, 2009; Lin, Lin, Wang, & Chen, 2009). Given the focus and value of academic performance that is emphasized in Singaporean society, the current study focuses on the idea that the pursuit of satisfaction through academic means is relevant to Asian societies like those in Singapore.

### **Family Shame**

While there is a growing body of research in demonstrating the applicability of the modified academic satisfaction model on Asian populations, more empirical attention is warranted to better understand the complex ways this model works for Asian groups. As indicated earlier, both universal and specific cultural factors should be identified and considered for further exploration in this model. Family shame is considered as a culturally relevant psychological variable that might further improve the practical relevance of the modified academic satisfaction model among Asian students in the U.S. and Singapore. Family shame is defined as the perceptions that one has brought negative evaluation to oneself and one's family

(as measured by one of the subscales from the Interpersonal Shame Inventory; Wong et al., 2014).

Interpersonal shame is defined as the experience of shame (i.e., negative evaluation of one's self) arising from interpersonal concerns and consists of two distinct dimensions: external shame (resulting from concerns about others' negative evaluations of the self) and family shame. In this study, only the family shame component is included in the modified academic satisfaction model. While external shame is still likely to be relevant to Asian students' academic satisfaction, the emphasis on family relationships is of primary interest in the current study. This decision is based on the importance of family obligation and relationships on academic outcomes for Asian students (Garcia Coll et al., 1996; Mau & Bikos, 2000; Portes, Vickstrom, Haller, & Aparicio, 2013). Many studies suggest that Asian students endorse high levels of family obligation and a sense of responsibility to academically excel (Fuligni, 2001; Schneider & Lee, 1990; Kiang, 2015). Because of this emphasis on family expectations and duties, family shame is hypothesized to play a prominent role in the modified academic satisfaction model. Academic family shame is considered part of student's adjustment in academic settings and was contextualized in the academic domain. This variable is referred to as academic family shame in the study.

Literature has described many Asian cultures to be shame-based. For example, there have been more shame-related words documented in several Asian languages compared to English (e.g., Chinese, Japanese; Bedford, 2004; Fessler, 2007; Ha, 1995; Li, Wang, & Fischer, 2004). Additionally, among Chinese and Chinese American parents, a widespread use of shaming techniques has been found (Fung, 1999; Fung, Lieber, & Leung, 2003). Furthermore, Lutwak, Razzino, & Ferrari (1998) have found higher levels of shame experiences for Asian

Americans than White Americans. This psychological construct may also be culturally salient to Asians and Asian Americans, given the emphasis on collectivism in Asian cultures (Wong & Tsai, 2007) and persistence of its presence among different generations of Asian immigrants (Kim, Atkinson, & Yang, 1999). Being highly influenced by collectivistic values, Asian populations may be more susceptible to family shame, and how it affects their pursuit of well-being, compared to their more individualistic counterparts. Thus, this variable may be particularly useful to investigate in a modified academic satisfaction model for understanding the culturally specific factors that affect different Asian student populations in different cultural contexts.

The current study is primarily concerned with how academic family shame may function in a similar way as an outcome variable but also serve as a precursor to the outcome variables (i.e., academic stress, academic satisfaction, and life satisfaction). Specifically, it is posited that academic family shame will be affected directly by the person-cognitive variables (self-efficacy, outcome expectations, goal progress), and indirectly by the cultural variables (interdependent and independent self-construals) and environmental supports (academic supports). Academic family shame is placed after the person-cognitive variables because it can be argued that those who have made more progress towards their academic goals would be likely to experience lower levels of shame. In turn, the outcomes of academic satisfaction and stress and global life satisfaction may be then affected by one's state of academic family shame.

### **Purpose and Hypotheses of the Study**

The purpose of the current study is to examine the country (used as a proxy for the students' cultural contexts) of Asian students as a moderator for the validity of the modified academic satisfaction model across two student populations: (a) Asian American students in the

U.S., and (b) Asian students in Singapore. As tested in previous Asian student samples (Sheu et al., 2014, 2017), the modified academic satisfaction model includes independent and interdependent self-construals, the full set of variables hypothesized by Lent and Brown (2006, 2008), and an additional cultural variable unique to this study (i.e., academic family shame), in predicting the well-being outcomes (i.e., academic stress and satisfaction, and life satisfaction). Specifically, measurement and structural invariance of the model are tested across these two samples.

In the study (see Figure 1), academic supports is posited to directly predict academic self-efficacy, outcome expectations, goal progress, and academic satisfaction and stress (paths 1-5). Academic self-efficacy is assumed to predict outcome expectations and goal progress, and outcome expectations to predict goal progress (paths 6-8). Academic goal progress is also posited to predict academic satisfaction and stress, and life satisfaction (paths 9-11). Academic satisfaction and stress are hypothesized to be correlated (covariance 12), and also predict global life satisfaction (paths 13-14). For the exogenous variables, personality traits (i.e. extraversion and emotional stability), are posited to predict academic and global well-being directly (paths 19-24) and indirectly through academic supports and self-efficacy (paths 15-18). The other exogenous variables, self-construals (i.e., independence and interdependence) are posited to predict academic and global well-being outcomes directly (paths 29-34) and indirectly through academic supports and outcome expectations (paths 25-28). These four exogenous variables will be allowed to covary freely with each other (covariances 44-50). In addition to this model as specified by Sheu et al. (2014, 2017), nine additional paths are added to represent hypothesized relations associated with the culturally specific variable, academic family shame. Academic family shame is posited to channel the effects of academic supports, academic self-efficacy,

outcome expectations, and goal progress (paths 35-38), and directly predict academic stress and satisfaction, and life satisfaction (paths 39-41). Lastly, independent and interdependent self-construals will be expected to predict levels of academic family shame directly (paths 42-43).

While each of the previously stated paths is a testable hypothesis, below are four main groups of hypotheses in this study.

### **Group I – Relations of personality and cultural variables to well-being outcomes**

**Hypotheses I-1:** Both emotional stability and extraversion would yield direct paths to the well-being outcome variables (i.e., academic satisfaction, academic stress, and life satisfaction; paths 19-24).

**Hypotheses I-2:** Both independent and interdependent self-construals would yield direct paths to the well-being outcome variables (paths 29-34).

### **Group II – SCCT variables to well-being outcomes**

**Hypotheses II-1:** Academic supports would produce direct effects on self-efficacy, outcome expectations, goal progress, academic satisfaction, and academic stress (paths 1-5), and family shame (path 35).

**Hypotheses II-2:** Self-efficacy would produce direct effects on outcome expectations, goal progress (paths 6-7), and family shame, (path 36).

**Hypotheses II-3:** Outcome expectations would produce direct effects on goal progress (path 8) and family shame (path 37).

**Hypotheses II-4:** Goal progress would produce direct effects on family shame (path 38), academic satisfaction, academic stress, and life satisfaction (paths 9-11).

### **Group III- Family shame to well-being outcomes**

**Hypotheses III-1:** Family shame would produce direct effects on academic satisfaction, academic stress, and life satisfaction. (paths 39-41).

### **Group IV-Multi-group Comparisons**

**Hypotheses IV-1:** All aforementioned variables would load onto their respective factors equally across Asian student groups.

**Hypotheses V-1:** The effect of academic supports on family shame would be invariant across the Asian student groups (path 35).

**Hypotheses V-2:** The effect of self-efficacy on family shame would be invariant across the Asian student groups (path 36).

**Hypotheses V-3:** The effect of outcome expectations on family shame would be invariant across the Asian student groups (path 37).

**Hypotheses V-4:** The effect of goal progress on family shame would be invariant across the Asian student groups (path 38).

**Hypotheses V-5:** The effect of family shame on academic satisfaction would be invariant across the Asian student groups (path 39).

**Hypotheses V-6:** The effect of family shame on academic stress would be invariant across the Asian student groups (path 41).

**Hypotheses V-7:** The effect of family shame on life satisfaction would be invariant across the Asian student groups (path 40).



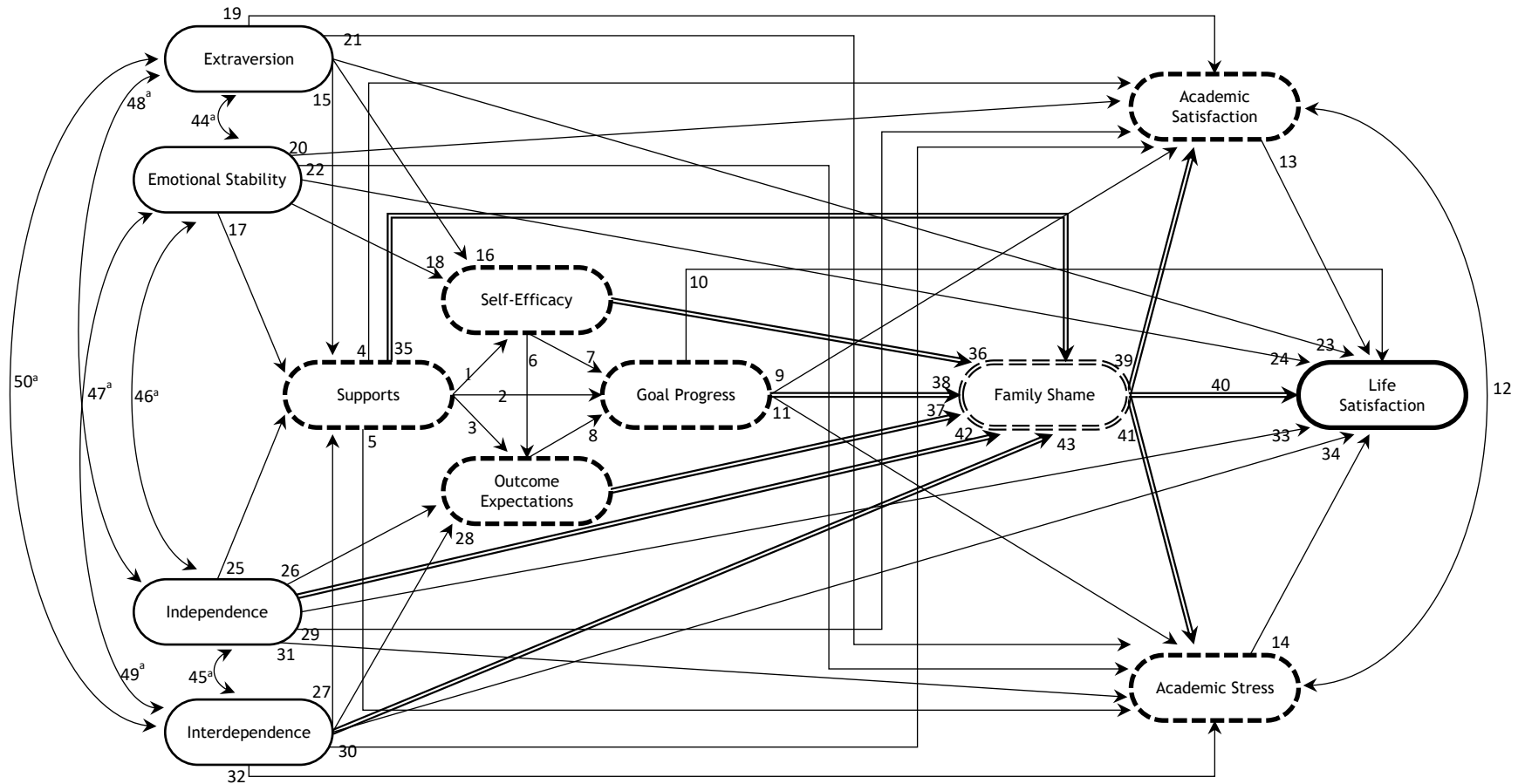


Figure 1. Hypothesized social-cognitive model of academic and global well-being for Asian American students in the U.S., and Asian students in Singapore. Variables in dashed borders are contextualized in the academic domain. Family Shame and its nine associated paths (35-43) are denoted by double lines. <sup>a</sup>Four exogenous variables are allowed to covary freely.

## Chapter II - Method

### Participants and Recruitment Procedure

Participants in the study included undergraduates and graduates studying at colleges in Singapore and in the northeastern region of the U.S. For both groups (i.e., Asian students in Singapore and Asian American students in the U.S.), inclusion criteria were: (a) being at least 18 years of age, (b) being of Asian descent, and (c) currently enrolled as an undergraduate or graduate student. An exclusion criterion was having an international student status in the students' current school of enrollment.

Recruitment included contacting the officers of organizations or faculty and staff of departments throughout universities and colleges to distribute the research announcement to listservs (e.g., Student Associations of different Asian ethnic groups, departments of Asian American studies), social media, and by means of the snowball method. The online survey was presented in English only. Participants were told that the study is designed to identify how they pursue and achieve their well-being. To ensure the quality of responses of the online survey, two validity check items were inserted. Participant responses to the survey were considered invalid and omitted from data analysis if they failed to correctly respond to both items.

Participants accessed the survey through a secure webpage where information about the study (i.e., anonymity and confidentiality, the right to withdraw, and potential benefits/harms from their participation) is provided. Informed consent was indicated by clicking *Next* to continue the survey after reading the cover letter. Those who completed the survey had the option of taking part in a random drawing to receive \$30, for every 30 completed surveys returned. To enter the drawing, participants were required to submit their e-mail addresses on a separate webpage after completion of the survey. Their e-mail addresses were not be linked to their survey responses.

In order to obtain the desired number of participants, an additional recruitment method, Qualtrics Panel (an online crowdsourcing service) was utilized. This is a subdivision of Qualtrics, which specializes in Web-based data collection to supply diverse, quality respondents to researchers who request their services on Qualtrics. This service operates similarly to Amazon's Mechanical Turk (MTurk) and has been found to produce quality responses both comparable and better than MTurk (Ibarra, Agas, Lee, Pan, & Bутtenheim, 2018; Heen, Lieberman, & Miethe, 2014). Both studies suggested that the efficiency and affordability of online sampling approaches provide a practical alternative for surveys that require samples for specific populations. For this survey, participants were paid an estimate price of \$7 per completed survey and directly paid through Qualtrics.

Based on an  $\alpha$  of .05,  $df$  of 446 for the hypothesized latent structural model, and statistical power of .80, minimum required sample sizes were calculated as 112 ( $\epsilon[\text{RMSEA}] = .04$ ) and 257 ( $\epsilon[\text{RMSEA}] = .05$ ). In the current study, attempts were made to recruit between 250 to 300 participants for both Asian student groups. Overall, 575 students were recruited, where 315 were Asian American students in the U.S., and 260 were Asian students in Singapore.

## **Measures**

A total of 12 instruments were used in the survey. Eleven instruments were adopted to measure the variables included in the model for each group, and an additional instrument (the Academic Family Shame subscale) was adapted by contextualizing its items in the academic domain. In this study, internal consistency estimates for scores from American Asian students ranged from .77 to .95, and those from Singaporean Asian students ranged from .72 to .94 (see Table 1).

**Life satisfaction.** The five-item Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) was used to measure this global well-being outcome. Sample items include “*In most ways my life is close to ideal,*” and higher scores reflect greater life satisfaction. Existing research has shown that the SWLS score has adequate psychometric properties (see Pavot & Diener, 2008, for a review).

**Academic satisfaction.** Participants’ satisfaction with their academic lives was assessed by an eight-item academic satisfaction scale (Sheu et al., 2014). A sample item is “*I feel satisfied with my decision to major in my intended field or with the process of choosing an academic major,*” and higher scores indicate greater academic satisfaction. Scores of academic satisfaction were found to associate positively with goal progress and life satisfaction (Hui et al., 2013; Ojeda et al., 2011; Sheu et al., 2016).

**Academic stress.** Based on the Perceived Stress Scale (PSS; Cohen & Williamson, 1988), Sheu et al. (2014) developed the 10-item Academic Stress Scale (ASS) by contextualizing its items in the academic domain. The ASS was used in this study to measure the degree to which a student perceives his or her academic life as stressful (e.g., “*How often have you felt nervous or stressed because of school work?*”). Higher ASS scores suggest higher levels of academic stress, which were found to be negatively correlated with academic goal progress, academic satisfaction, and life satisfaction among Taiwanese, Singaporean college students (Sheu et al., 2014).

**Academic goal progress.** This variable was assessed by a seven-item scale developed by Lent et al. (2005). Higher scores indicate greater progress toward academic goals such as “*Achieving/maintaining high grades in all of your courses.*” Research shows internal reliability estimates above .85 (as measured by the Cronbach’s alpha) for academic goal progress among

college students with different racial/ethnic backgrounds (Ezeofor & Lent, 2014; Ojeda et al., 2011).

**Academic self-efficacy.** This variable was assessed with two types of efficacy items developed by Lent et al. (2005). Instructions guide the respondent to answer to the degree to which they are confident they can complete the following tasks: academic milestones (five items; “*Complete the upper level required courses in your intended major or current course of study with an overall grade point average of B or better.*”) and coping with academic obstacles (seven items; “*Continue in your intended major or course of study even if you did not feel well-liked by your classmates or professors*”). Cronbach’s alphas of the academic self- efficacy score derived from previous research were greater than .85, and has had positive correlations with variables such as academic support, outcome expectations, goal progress, and satisfaction in college student samples (Ezeofor & Lent, 2014; Hui et al., 2013; Sheu et al., 2014; Sheu et al., 2016).

**Academic outcome expectations.** Participant’s perceptions of positive outcomes from receiving a college degree was assessed by a 10-item scale developed by Lent et al. (2003). These items include favorable outcomes such as “*have a career that is valued by my family.*” Cronbach’s alphas were found to be above .90 and the scale was positively correlated with academic goal progress, academic satisfaction, and life satisfaction among Asian students (Sheu et al., 2014).

**Academic supports.** This was measured by the degree to which one agrees or disagrees with each of the nine statements about supports college students may gather for their academic pursuits, such as “*Feel that close friends or relatives would be proud of me for majoring in my intended field or for continuing to explore possible majors*” (Lent et al., 2005). Cronbach’s

alphas have been found to be over .80 and associated positively with academic self-efficacy and academic satisfaction in college student samples (Hui et al., 2013).

**Independence and interdependence.** These two variables were measured by the Self-Constraint Scale (SCS; Hardin, Leong, & Bhagwat, 2004; Singelis, 1994). The 15-item Independence subscale includes items such as “*I do my own thing, regardless of what others think,*” and higher scores indicate greater values for control over one’s choices, independence, and separation from one’s interpersonal context. The 15-item Interdependence subscale consists of items such as “*My happiness depends on the happiness of those around me,*” with higher scores suggesting one’s values for group harmony and interpersonal relations. Cronbach’s alphas were reported to be .69 for independence and .73 for interdependence in a sample of diverse college students (Singelis & Brown, 1995). These variables were found to be positively associated with academic satisfaction and life satisfaction among Asian college students (Sheu et al., 2014).

**Extraversion and emotional stability.** The Extraversion and Emotional Stability subscales of the Big Five factor markers were adopted to measure these two personality traits (Goldberg, 1992). In each of the two subscales, 10 pairs of adjectives were presented with their opposites (e.g., “unenergetic/energetic” to represent the degree of one’s extraversion, and “guilt-ridden/guilt-free” for emotional stability) and respondents were instructed to select the number from a 9-point scale that best corresponds to how one would describe oneself *in general*. Higher scores suggest that respondents perceive themselves as more extraverted or emotionally stable for the respective scales. Cronbach’s alphas were found to be .80 for both scales (Goldberg, 1992) and found to be positively associated with academic satisfaction and life satisfaction among Asian college students (Sheu et al., 2014).

**Family shame in the academic domain.** The five-item Family Shame Subscale of the Interpersonal Shame Inventory (Wong et al., 2014) was adapted in this study (See Appendix C, p. 70). To maintain consistency in the modified academic satisfaction model, the term “academic” was used to qualify the experiences that may have induced the feelings of shame in the instructions and each item. Using this method to contextualize the scale in the academic domain will minimize the potential alteration of the scale’s original meaning. A sample item is “*These days, I wish I could become invisible because my **academic** shortcomings might bring disrepute to my family.*” Each item is rated on a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores indicate experiencing a higher sense of academic family shame. Cronbach’s alphas were found to be .97 in a sample of Asian Americans and to have positive correlations with suicide ideation and loss of face (Wong et al., 2014).

### **Research Design and Data Analyses**

**Single-Group analysis: Testing the hypothesized model.** An ex post facto design was used to test the modified academic satisfaction model between the Asian American and Singaporean student groups using a two-step latent structural equation modeling procedure. Within each group, the first step involved testing the measurement portion of the model, where all 12 latent factors were allowed to correlate freely with another, and the 33 item parcel scores as indicators were loaded on their respective factors. In the second step, the modified academic satisfaction model was imposed on the data for testing hypothesized relations (Figure 1) among the 12 latent constructs. To reduce the complexity in model testing and facilitate comparisons of findings derived from the two Asian student groups, the same item parcels as those in Sheu et al (2014, 2017) were used in the current study, rather than individual items.

Three fit indices, the comparative fit index (CFI), standard root-mean-square residual (SRMR), and root-mean-square error of approximation (RMSEA) were referenced to assess the model. The model would be retained if it meets at least one of the following criteria recommended by Hu and Bentler (1999):  $CFI \geq .96$ ,  $SRMR \leq .09$ , or  $RMSEA \leq .06$ . A model was considered to have excellent fit if it met either of the two-index joint criteria ( $CFI \geq .96$  and  $SRMR \leq .09$  or  $RMSEA \leq .06$  and  $SRMR \leq .09$ ), and acceptable if it met only one of the three cutoff values.

**Multi-Group comparisons: Testing measurement and structural equivalence.**

Regarding multi-group comparisons, measurement and structural equivalence were tested across the Singaporean and Asian American student groups. A two-step hierarchical approach was adopted, where the first step involves testing measurement equivalence and the second step, structural equivalence. The measurement model with equality constraints on the factor loadings of corresponding latent constructs between the two groups was compared to a model without these constraints. A nonsignificant chi-square difference indicates the presence of full metric invariance across the student groups, and results in carrying the equality constraints on the factor loadings across the groups in the second step.

When testing for structural equivalence, equality constraints were imposed on the structural paths that resulted as significant in either the Asian American sample (see Figure 2) or the Singaporean sample (see Figure 3) and the six covariances between the four exogenous variables. Structural paths that were nonsignificant in either sample were excluded because these path coefficients were statistically 0 in both samples. A significant chi-square difference between the samples suggests group differences in some paths or covariances in the structural model. If



significant, the test was followed by imposing an equality constraint on the corresponding path or covariance between the groups.

## **Chapter III – Results**

### **Preliminary Analyses**

An initial total of 819 responses to the online survey were obtained. Of these responses 244 had either 12 items (or 10% of the total items) or more missing from the questionnaire, or at the minimum, had a full scale of 5 items missing (e.g., all of life satisfaction scale). These 244 participants were excluded from this study. The resulting final sample used for analysis in this study had a total of 575 complete entries without missing values. Two recruitment methods were used in this study. One hundred and twenty-five participants (75 from the U.S. and 50 from Singapore) were recruited by contacting different organizations, faculty, and staff at selected universities. An additional 395 (240 were from the U.S., and 210 were from Singapore) responses were collected via Qualtrics Panel. Based on the full sample, descriptive statistics of the 12 study variables and their intercorrelations are presented in Table 1.

Table 1

*Intercorrelations Between Study Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	<i>M</i>	<i>SD</i>	$\alpha$
1. Life Satisfaction (1-7)	--	.42**	.04	<b>-.17**</b>	.44**	.33**	.40**	.47**	.35**	.26**	.40**	.34**	4.65	1.66	.85
2. Acad. Satisfaction (1-5)	.57**	--	.06	<b>-.14**</b>	.53**	.50**	.45**	.50**	.30**	.33**	.27**	.23**	3.82	.74	.93
3. Acad. Stress (0-4)	.02	.05	--	<b>.28**</b>	.06	-.00	.05	.13*	.17**	.27**	.15**	-.05	3.20	.54	.78
4. <b>Acad. Family Shame (1-6)</b>	<b>-.01</b>	<b>-.13*</b>	<b>.39**</b>	--	<b>-.32**</b>	<b>-.30**</b>	<b>-.23**</b>	<b>-.13*</b>	<b>-.11</b>	<b>.13*</b>	<b>-.13*</b>	<b>-.12*</b>	<b>2.67</b>	<b>1.45</b>	<b>.94</b>
5. Acad. Goal Progress (1-5)	.48**	.58**	.09	<b>-.12</b>	--	.63**	.50**	.43**	.30**	.18**	.29**	.22**	3.90	.69	.87
6. Acad. Self-Efficacy (0-9)	.34**	.44**	-.02	<b>-.15*</b>	.64**	--	.59**	.37**	.29**	.13*	.33**	.31**	7.53	1.50	.77
7. Acad. Outcome Expect (0-9)	.44**	.48**	.12*	<b>-.03</b>	.34**	.49**	--	.50**	.30**	.23**	.35**	.31**	7.60	1.67	.92
8. Acad. Supports (1-5)	.58**	.54**	.07	<b>-.09</b>	.40**	.26**	.41**	--	.37**	.34**	.39**	.23**	3.75	.73	.84
9. Independence (1-7)	.36**	.35**	.09	<b>.03</b>	.30**	.24**	.21**	.30**	--	.35**	.36**	.25**	4.80	.84	.81
10. Interdependence (1-7)	.22**	.22**	.08	<b>.02</b>	.14*	.07	.18**	.40**	.57**	--	.10	.11	4.76	.78	.80
11. Extraversion (1-9)	.24**	.22**	.15*	<b>.05</b>	.25**	.35**	.32**	.24**	.23**	.11	--	.44**	5.38	1.44	.87
12. Emotional Stability (1-9)	.41**	.36**	-.09	<b>-.13*</b>	.24**	.40**	.43**	.26**	.22**	.12	.43**	--	5.36	1.47	.85
<i>M</i>	4.75	3.71	3.23	<b>2.65</b>	3.63	7.25	7.23	3.71	4.77	.487	5.51	5.57			
<i>SD</i>	1.64	.75	.51	<b>1.60</b>	.71	1.44	1.37	.68	.80	.74	1.33	1.51			
$\alpha$	.85	.93	.77	<b>.95</b>	.81	.72	.88	.86	.84	.81	.87	.89			

Note. \* $p < .05$ , \*\* $p < .01$ . Correlations derived from Asian American students in the U.S. ( $n = 315$ ) are displayed above the diagonal; Correlations derived from Asian students in Singapore ( $n = 260$ ) are displayed below the diagonal. **Academic Family Shame** is bolded to identify the variable unique to this study in the modified academic satisfaction model.

Overall, students of both groups reported moderate levels of well-being outcomes (academic satisfaction and stress, and life satisfaction). A one-way multivariate analysis of variance, including all 12 variables listed in Table 1 as dependent variables, demonstrated a significant multivariate main effect for the students' country, Pillai's trace = .084,  $F(12, 562) = 4.295$ ,  $p < .001$ , partial  $\eta^2 = .084$ . While Box's M test was shown significant at  $p < .001$ , the lack of homogeneity on the covariance matrices between the groups should not be a concern because of the moderate to large sample sizes, and the robustness and low Type I error of Pillai's trace. Results of univariate analyses revealed that there were differences between the groups in self-efficacy, outcome expectations, and goal progress. That is, Asian American students scored higher on each of the three measures than Singaporean students. For self-efficacy, American students scored 7.53 compared to 7.25 for Singaporean students  $F(1, 575) = 11.163$ , partial  $\eta^2 = .009$ ,  $p = .024$ . For outcome expectations, American students (7.60) scored higher than Singaporean students (7.23),  $F(1, 575) = 19.493$ , partial  $\eta^2 = .014$ ,  $p = .004$ . Lastly, for goal progress, American students scored 3.90, and Singaporean students scored 3.63  $F(1, 575) = 10.649$ , partial  $\eta^2 = .037$ ,  $p < .001$ . While the univariate intercorrelations do not directly address the hypotheses of this study, the lack of significant correlations between family shame and the other variables in the Singaporean sample (as opposed to several significant correlations U.S. sample) may be important to note. Please refer to Table 1 for more details.

### **Testing the Modified Academic Satisfaction Model**

The hypothesized model as depicted in Figure 1 was tested for the two groups separately using the two-step structural equation modeling (SEM) technique with robust maximum likelihood estimation in Mplus 8.0. First, for the measurement portion of the model, each of the 33 indicator variables were loaded on its corresponding latent factor and the 12 latent factors were allowed to

covary freely with each other. According to model retention criteria, the measurement model produced acceptable fit and was retained for both samples. That is, the results for the Singaporean sample were S-B  $\chi^2(428) = 906.673, p < .001, CFI = .915, SRMR = .066, RMSEA = 0.065$  (.060, .071). For the Asian American sample, fit indices were S-B  $\chi^2(428) = 903.176, p < .001, CFI = .930, SRMR = .061, RMSEA = 0.059$  (.054, .065). All standardized factor loadings were significant and above 0.644 in each sample. These findings provided evidence for configural invariance (i.e., the same 12-factor structure) between the two samples. Next, the modified well-being model was imposed on the data for testing hypothesized relations among the 12 latent constructs in the second step, which also yielded acceptable fit for Singaporean students, S-B  $\chi^2(446) = 977.237, p < .001, CFI = .906, SRMR = .076, RMSEA = 0.068$  (.062, .073), and for Asian American students, S-B  $\chi^2(446) = 957.771, p < .001, CFI = .925, SRMR = .074, RMSEA = 0.060$  (.055, .065).

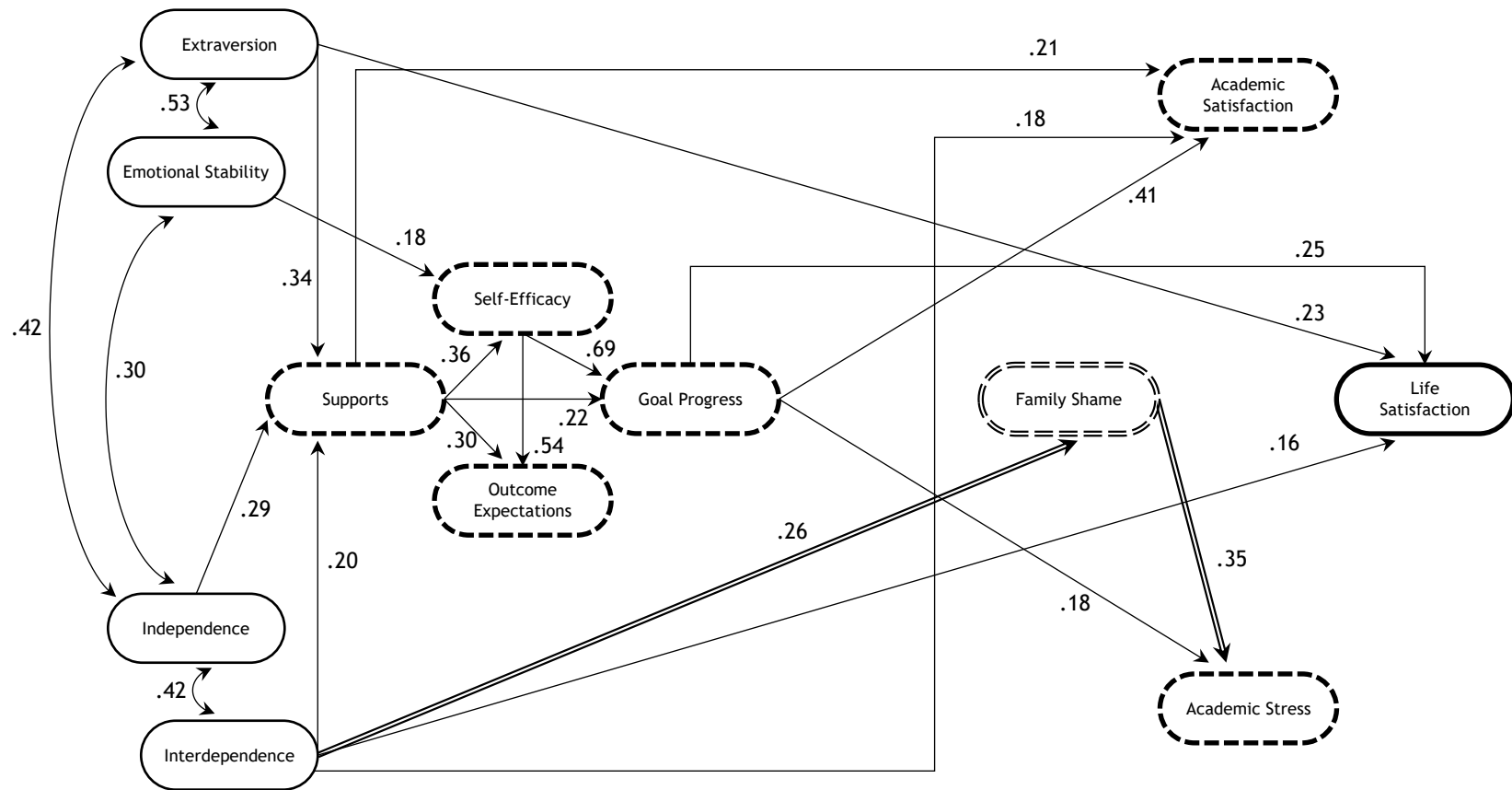


Figure 2. Social cognitive model of domain-specific and global well-being for Asian American college students  $n = 315$ . Variables in dashed borders are contextualized in the academic domain. Only significant ( $p < .05$ ) paths are shown, totaling 18 paths, and 4 covariances.

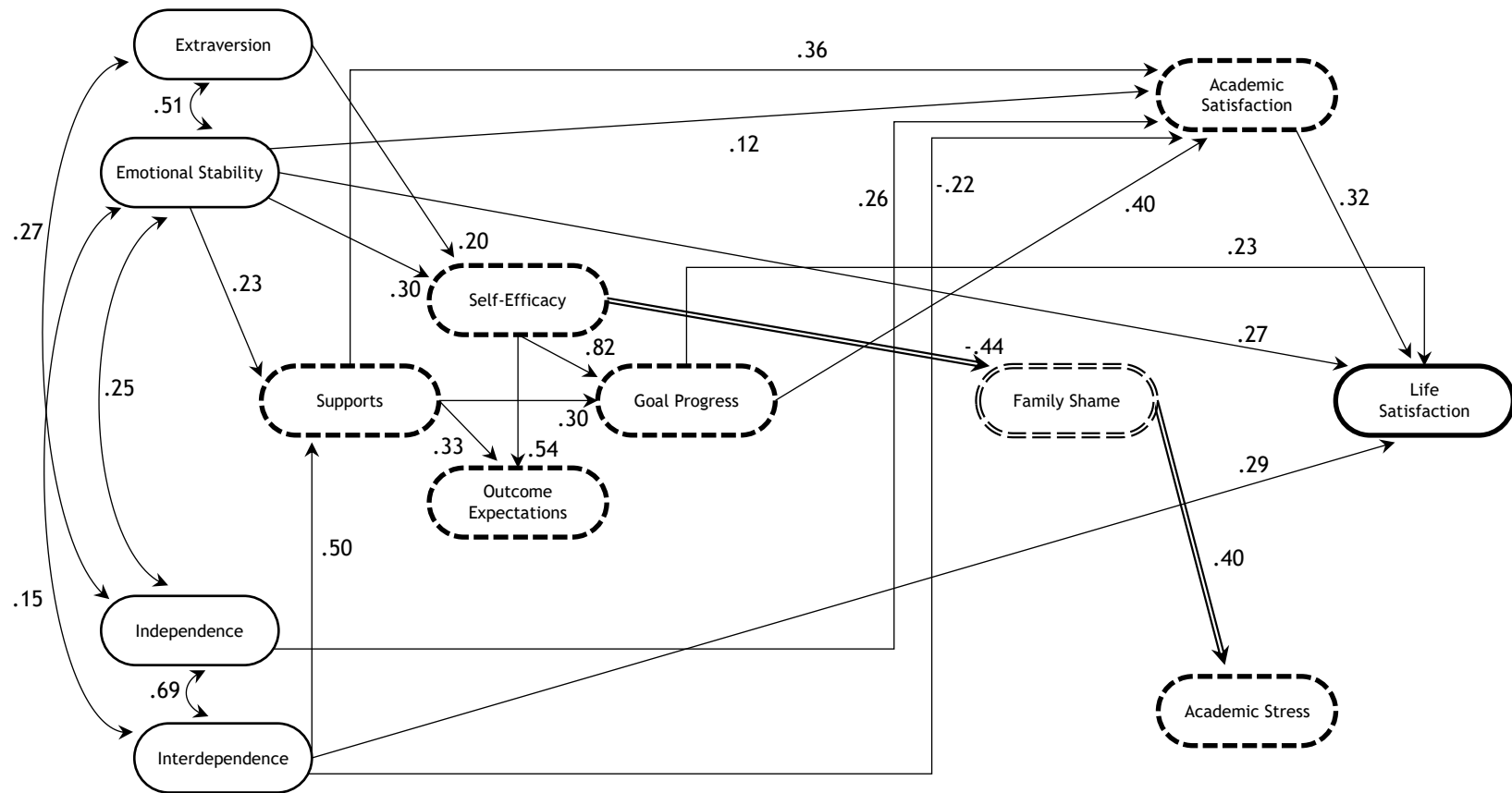


Figure 3. Social cognitive model of domain-specific and global well-being for Singaporean college students  $n = 260$ . Variables in dashed borders are contextualized in the academic domain. Only significant ( $p < .05$ ) paths are shown, totaling 19 paths, and 5 covariances.

For the Asian American sample (see Figure 2), academic supports produced significant paths to self-efficacy, outcome expectations, goal progress, and academic satisfaction. Within the academic domain, self-efficacy was predictive of outcome expectations and goal progress; goal progress also predicted academic satisfaction and stress, and life satisfaction. Interdependence and extraversion were found to have direct paths onto life satisfaction. Interdependence directly predicted academic satisfaction, but no personality or self-construal variables were directly linked to academic stress. Academic stress was found to be predicted by academic family shame and goal progress. Outcome expectations did not yield significant paths to goal progress or family shame. Contrary to the hypotheses about family shame, this variable did not play the mediating role in the relations of social-cognitive variables to well-being outcomes. It was, however, found to mediate the effect of interdependence on academic stress. Together, the model explained 36.5%, 29.0%, 57.0%, 60.9%, 18.5%, 40.1%, 23.5%, and 44.8% of the variances of supports, self-efficacy, outcome expectations, goal progress, family shame, satisfaction, and stress in the academic domain and of global life satisfaction, respectively for the American sample.

For the Singaporean sample, (see Figure 3), academic supports was a significant predictor of outcome expectations, goal progress, and academic satisfaction. Academic self-efficacy was predictive of goal progress, outcome expectations, and family shame. Academic stress was only predicted by family shame. Academic satisfaction, but not academic stress, predicted global life satisfaction. Academic satisfaction was also predicted by goal progress and both self-construal variables. Emotional stability was a predictor of academic supports, self-efficacy, academic satisfaction, and global life satisfaction, whereas extraversion only predicted self-efficacy. For the self-construal variables, interdependence had a positive path to life satisfaction, but



negatively predicted academic satisfaction. Independence only produced a positive path to academic satisfaction. Further, interdependence and emotional stability were found to predict academic supports. Interestingly, while self-efficacy significantly and negatively predicts family shame, family shame's variance (7.8%) was not significantly explained by the model. Family shame was found to be the only predictor of academic stress. Moreover, hypotheses about the mediating role of family shame were mainly found to be unsupported. For Singaporean students, 33.0%, 26.2%, 49.9%, 69.1%, 51.4%, 22.8%, and 55.8% of the variances of supports, self-efficacy, outcome expectations, goal progress, satisfaction and stress in the academic domain, and of global life satisfaction, were explained respectively by the model.

### **Significance of Indirect Effects**

Using the bootstrap method (Shrout & Bolger, 2002), the indirect effects associated with academic satisfaction and stress, and global life satisfaction were tested in each sample. To calculate bias-corrected 95% confidence intervals of estimates of indirect effects, the hypothesized model was tested on 10,000 bootstrap samples that were generated by randomly sampling with replacement from the original data set. Results are reported in Table 2.

For the Asian American sample (see Table 2, first panel), the effect of extraversion on academic satisfaction was channeled primarily through academic support and the self-efficacy–goal-progress link. Similarly, the impacts of interdependence were also channeled through these pathways. These findings reveal how academic supports might play an important mediating role in the relations of both extraversion and interdependence to academic satisfaction. Further, academic supports was predictive of academic satisfaction and satisfaction with life through the pathway of academic self-efficacy and goal progress. The only indirect effect associated with academic stress was from interdependence through family shame. Overall, the results continue

to support the key roles of academic self-efficacy and goal progress as mediators towards students' academic and life satisfaction.

For the Singaporean sample, the patterns of indirect effects were somewhat different than that for the Asian American sample (see Table 2, second panel). Overall, there were less significant indirect effects, and for those that existed, these were mainly towards life satisfaction, as opposed to academic satisfaction for the Asian American sample. Emotional stability was the only exogenous variable that had indirect effects, through self-efficacy and goal progress, on academic or life satisfaction. Unlike for the Asian American sample, academic supports did not play a major mediating role, but had indirect effects through goal progress toward academic satisfaction and life satisfaction. Conversely, self-efficacy had indirect effects towards life satisfaction and academic satisfaction, all through the goal progress. Goal progress was found to have its own indirect pathway to life satisfaction through academic satisfaction.

Table 2. Bootstrap Tests of Statistical Significance of Indirect Effects

Independent and mediator variables	Dependent variable	B (mean indirect effect) <sup>a</sup>	SE of mean <sup>a</sup>	95% CI mean indirect effect <sup>a,b</sup>
<i>Asian Americans</i>				
Supp → ASE → GP	SWLS	0.138	0.069	(0.017, 0.370)
ASE → GP	SWLS	0.177	0.076	(0.020, 0.408)
Inter → FamShame	AcaStress	0.055	0.022	(0.011, 0.130)
Extra → Supp	AcSatis	0.033	0.016	(0.003, 0.081)
Extra → Supp → GP	AcSatis	0.014	0.006	(0.001, 0.036)
Extra → Supp → ASE → GP	AcSatis	0.016	0.008	(0.004, 0.046)
Inter → Supp → GP	AcSatis	0.022	0.011	(0.003, 0.064)
Inter → Supp → ASE → GP	AcSatis	0.026	0.012	(0.007, 0.073)
Supp → GP	AcSatis	0.079	0.034	(0.008, 0.184)
Supp → ASE → GP	AcSatis	0.090	0.035	(0.027, 0.217)
ASE → GP	AcSatis	0.116	0.036	(0.041, 0.230)
<i>Singaporeans</i>				
Emo → ASE → GP → AcSatis	SWLS	0.034	0.018	(0.004, 0.104)
Supp → GP → AcSatis	SWLS	0.088	0.045	(0.007, 0.207)
ASE → GP	SWLS	0.193	0.069	(0.083, 0.529)
ASE → GP → AcSatis	SWLS	0.108	0.044	(0.024, 0.278)
GP → AcSatis	SWLS	0.272	0.097	(0.079, 0.672)
Emo → ASE → GP	AcSatis	0.045	0.020	(0.005, 0.117)
Supp → GP	AcSatis	0.113	0.046	(0.017, 0.261)
ASE → GP	AcSatis	0.140	0.040	(0.064, 0.275)

Note.  $n = 315$  for the U.S. sample.  $n = 260$  for the Singaporean sample. Emo = emotional stability; Inter = interdependence; FamShame = family shame; Supp = academic support; ASE = academic self-efficacy; GP = academic goal progress; AcaStress = academic stress; AcSatis = academic satisfaction; SWLS = life satisfaction. <sup>a</sup> Based on 10,000 bootstrap samples. <sup>b</sup> Bias-corrected 95% confidence intervals that exclude zero indicate significant indirect effects ( $p < .05$ )

## Comparisons Between the American and Singaporean Samples

A two-step process in multigroup structural equation modeling was used to conduct cross-national comparisons between Singaporean and Asian American student groups. The invariance on factor loadings in the measurement portion of the modified well-being model between Singaporean and Asian American samples were tested before equality constraints were applied to the structural portion. To accommodate the latent variables' lack of a natural metric, the first loadings of the item parcels onto their respective latent variables were fixed to 1. Thus,

equality constraints were imposed on 21 out of the 33 loadings and the 12 latent constructs were allowed to covary freely. A nonsignificant result of  $\Delta S-B \chi^2(21) = 31.567, p = .065$  suggests the presence of full metric invariance across both samples. Thus, the constraints on these factor loadings were carried to the next step.

*Table 3. Significant Differences on Unstandardized Structural Paths Between Groups*

Structural path	Asian American		Singapore		S-B $\chi^2_{diff}^a$
	B	SE	B	SE	
Extraversion → Academic Supports	.173***	0.037	0.059	0.046	4.810*
Extraversion → Life Satisfaction	.255***	0.255	-0.043	0.033	9.162**
Emo → Academic Supports	-0.004	0.037	.112**	0.046	4.125*
Independence → Academic Satis.	-0.027	0.062	.242***	0.09	4.110*
Interdependence → Academic Satis.	0.155**	0.059	-0.193***	0.088	10.367**
Interdependence → Family Shame	.579***	0.158	-0.107	0.257	4.112*
Self-efficacy → Family Shame	-0.266	0.177	-0.439*	0.221	9.489**

*Note.*  $n = 315$  for U.S. sample;  $n = 260$  for the Singaporean sample. Emo = Emotional stability. Satis. = Satisfaction. SE = standard error. <sup>a</sup> To adjust for lack of multivariate normality, the Satorra and Bentler's (2001) scaled difference chi-square test statistic was used to test the difference between the models with and without the constraint on the designated structural path. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

For structural equivalence, equality constraints were imposed on the structural paths that were significant in either Singaporean (see Figure 3) or American sample (see Figure 2). The structural paths that were not significant in both samples were excluded from the analysis. As a result, equality constraints were imposed on 25 structural paths and five covariances among personality and self-construal variables. The results for the models are reported as follows: with the 30 constraints,  $S-B \chi^2(1005) = 2007.682, p < .001, CFI = .900, SRMR = .098, RMSEA = 0.060 (.057, .064)$ , and without them,  $S-B \chi^2(975) = 1894.872, p < .001, CFI = .914, SRMR = .077, RMSEA = 0.057 (.053, .061)$ . Using Satorra and Bentler's (2001) scaled difference chi-square test statistic to adjust for lack of multivariate normality, this revealed that while the model with constraints had a satisfactory fit (at least one criteria met,  $RMSEA = 0.060$ ), it was significantly worse than the model without constraints  $\Delta S-B \chi^2(30) = 106.271, p < .001$ . To identify specific paths and covariances that differed between the two groups, the model with 30

constraints was then tested, individually, against the model without constraints. The results revealed seven structural paths that were not invariant (i.e., not the same) across groups (see Table 3), and the other 18 structural paths and five covariances were invariant across the Asian American and Singaporean samples. Such findings indicated that while the modified well-being model was applicable to these Asian student groups, the impact of the exogenous variables, and the path from self-efficacy to family shame, might differ depending on the countries they attend college in.

## Chapter IV – Discussion

To my knowledge, this is the first study to directly compare a modified academic satisfaction model between Asian American students in the U.S. and Asian students in Asia (i.e., Singapore). While some previous studies have compared two Asian samples, these were both within Asian countries, such as between Taiwan and Singapore, and within China. Results of the current study not only extend empirical support for the model to these two Asian samples, but also shed light on how a culturally specific variable (i.e., family shame) may operate across the groups. Sheu et al.'s (2014) study on Taiwanese and Singaporean students demonstrated that having both academic stress and academic satisfaction was useful in understanding how these two domain-specific well-being outcomes (one positive and one negative) may predict life satisfaction. In the current study, results supported some previous findings, expanding on how a modified well-being model could be applicable to Asian American students in the U.S. and Asian students in Singapore. The direct comparisons also shed light on how the country one lives in might function as a moderator in pathways through which students take to pursue well-being.

The results revealed both support for previous findings and new results. Several of the theorized paths were significant and consistent with existing research, such as how academic self-efficacy and goal progress filtered the effects of emotional stability on academic satisfaction and life satisfaction. In addition, personality and self-construal variables were found to covary with each other, except for emotional stability and interdependence in the Asian American sample. Similar to Sheu et al.'s (2014) Singaporean, Sheu, Liu, and Li's (2017) Chinese, Lent et al.'s (2005) predominantly White American, and Ojeda et al.'s (2011) Mexican American samples, outcome expectations was not predictive of goal progress for both the Asian American

and Singaporean samples in the current study. Such results may be because of a possibly stronger mediating role of academic self-efficacy than outcome expectations in channeling the relations of personality, self-construal, and academic supports to well-being outcomes. It is important to consider that inconsistent findings have been documented for outcome expectations, as this variable was found to be predictive of academic goal progress and academic satisfaction among Asian American college students (Sheu et al., 2016), and African undergraduate students in the U.S. (Ezeofor & Lent, 2014). Given these contradicting findings, future studies should not rule out outcome expectations in exploring well-being outcomes in similar samples.

For the current study, goal progress was shown to have a positive pathway to academic stress in the Asian American sample, unlike a negative one in previous Asian samples (e.g., Sheu et al., 2014; Sheu, Liu, & Li, 2017). This result differs in the direction of the pathway, and may be because of the cultural context the Asian students were studying in. As this study is the first to compare Asian students in a western and eastern cultural context, it also includes academic stress in the model for Asian American students. Previous studies that examined an SCCT well-being model with Asian American samples did not include academic stress (e.g., Sheu et al., 2016; Hui, Lent, & Miller, 2013), thus the current finding cannot be compared directly with other Asian American samples. It is possible that while Asian American students progress in their academic goals, this may increase the level of pressure and associated academic stress as opposed to relieving it. Further, while a positive direction was found from goal progress to academic stress, no significant pathway or correlation was found between academic stress and either academic satisfaction or life satisfaction. While these findings are intriguing, additional empirical scrutiny is needed to further clarify the nature of goal progress' positive relation to academic stress in the Asian American sample.

## **Personality Variables**

As for the personality variables, extraversion and emotional stability appeared to have direct and indirect associations with the well-being outcomes of academic satisfaction and life satisfaction, in different ways for these two Asian samples. For the Asian American sample, more extraverted students tended to have higher levels of academic satisfaction through garnering more support, increased self-efficacy, and more progress made toward their academic goals. More extraverted Asian American students were shown to be more satisfied with their life, as indicated by the direct path, which is consistent with Sheu et al.'s (2016) findings for Asian American students. It appears that emotional stability helped Asian American students improve their self-efficacy directly, which then increased progress towards goals, and ultimately led to higher academic stress and satisfaction, as well as life satisfaction.

For Singaporean students, the effects of the personality variables were also apparent in the model. More extraverted and emotionally stable students tended to have higher academic self-efficacy. Higher levels of confidence in academics also promoted progress in academic goals, which in turn predicted higher academic and life satisfaction. Moreover, self-efficacy predicted negative levels of family shame, and family shame predicted higher levels of academic stress. Higher levels of emotional stability appeared to have both direct and indirect impacts onto Singaporean students' academic and life satisfaction. In an indirect path, higher emotional stability appears to help Singaporean students with increased levels of academic and life satisfaction, and this was channeled through the self-efficacy and goal progress pathway. Unlike Sheu et al.'s (2014) results, which found that more extraverted Singaporean students tended to have lower academic satisfaction, the current findings show nonsignificant paths from extraversion onto the two well-being outcomes. This is more consistent with Lent et al.'s (2005)



results on a predominantly White American sample, which revealed no significant path(s) between extraversion and either domain-specific or global life satisfaction.

Unlike the Asian American sample in this study, Singaporean students' emotional stability, not extraversion, was linked to increased exposure to academic support. It is possible that for the Singaporean students, of the two personality variables in the model, emotional stability plays a more important role given the significant indirect and direct pathways onto academic and global satisfaction. It does, however, seem counterintuitive that emotional stability may be more important in a likely more collectivistic cultural context (i.e., Singapore) than for Asian Americans in the U.S. for this study. That is, previous research suggests that people in individualistic cultures tend to rely more on emotions to inform overall life satisfaction (Suh et al., 1998), but restraint of emotions could be deemed as a sign of maturity in some Asian cultures (Sheu & Fukuyama, 2007). Thus, this finding also warrants more investigation to better understand the role emotional stability may play for Singaporean students.

### **Self-Construal Variables**

For the effects of self-construal variables on well-being outcomes across Asian American and Singaporean samples, the current study provides partial support. Interestingly, for the Asian American sample, more interdependent *and* independent students appeared to have higher perceived academic support, which could then affect well-being outcomes. However, this pattern of both self-construal variables being a predictor of academic supports was not found in previous studies that examined Asian or Asian American students (Sheu et al., 2014; Sheu, Liu, & Li, 2017; Sheu et al., 2016), nor was it found in the current Singaporean sample. That is, the only self-construal variable found to predict academic supports in these studies was interdependence. This may demonstrate that for Asian American students in this study, the

importance of endorsing individualistic beliefs in an individualistic cultural context could be valuable in gaining academic resources, rather than either irrelevant or a detriment. Since this finding is new and not consistent with Sheu et al.'s (2016) Asian American sample, replication and further investigation are needed to better understand possible reasons as to how independence helps Asian Americans access to academic support. Regarding the effect of interdependence on well-being outcomes, these were filtered through academic support, self-efficacy, and goal progress, as well as directly to academic and life satisfaction for Asian American students.

Differing from the Asian American sample, the Singaporean group did not have a path from independence to academic supports. Instead, independence was found to only have a direct positive path to academic satisfaction for the Singaporean students. A possible explanation for this difference may be that because Singaporean students live in a more collectivistic cultural context, independence is not as helpful in garnering access to academic resources (compared to the Asian American students who live in a more independent cultural context). However, the path between independence and academic satisfaction implies the importance of independence, and how it can still potentially promote well-being outcomes more directly rather than through mediators.

For Singaporean college students, interdependence had direct impacts onto academic supports and both academic and life satisfaction for Singaporean college students. However, unlike the Asian American's positive link, the path between interdependence and academic satisfaction was negative for the Singaporean sample, a finding also seen in Sheu, Liu, and Li's (2017) Chinese samples. While interdependence had a direct negative path on academic satisfaction, interdependence's two positive paths onto academic support and life satisfaction

should not be downplayed. A possible reason for the mixed results of interdependence may be that Singaporean students who are more interdependent could have strong interpersonal connections, and consequently more access to academic support and higher life satisfaction. At the same time, these students may also feel less satisfied academically because of the high expectations or feelings of obligation to perform well for family or friends. An imperative consideration is that the bivariate correlation between interdependence and academic satisfaction is significantly positive, however, the path coefficient is negative, and thus could be a result of a suppression effect in the model. This negative path between interdependence and academic satisfaction requires more investigation in future studies to better clarify the nature of this relation. Overall, results indicated that similar to Sheu et al.'s (2016) study, collectivistic cultural values (or interdependence) were important in predicting well-being outcomes for Asian students.

### **Family Shame**

The addition of the family shame variable to the modified well-being model is unique to this study. Family shame was included in the model given its relevance to Asian populations. However, contrary to theoretical prediction, several paths associated with this variable were non-significant. One possible explanation for non-significant findings is the placement of the family shame in the model. That is, family shame was posited to mediate the effects of social-cognitive variables (self-efficacy, outcome expectations, and goal progress) on the well-being outcomes of academic stress and satisfaction, and life satisfaction. In the Asian American sample, the only role family shame played was mediating the effect of interdependence on academic stress, and family shame was not linked to any of the social-cognitive variables. Given mostly non-significant paths from social-cognitive variables to family shame, it may be useful to

reconceptualize family shame in the model as placed between the self-construal variables and social-cognitive variables or as an exogenous variable. Family shame may be more associated with interdependence and potentially have an effect on the academic supports, self-efficacy, outcome expectations and goal progress, rather than be a hypothesized consequent of these variables. Thus, reconceptualizing a model where interdependence exerts effects on family shame, which then exerts effects on the social-cognitive variables, and the well-being outcomes, may be more appropriate.

Furthermore, for the Singaporean sample, self-efficacy was the only variable to produce a significant path to family shame, and family shame had an effect onto academic stress. However, the indirect effect was non-significant from self-efficacy to academic stress. This was an interesting finding that may need replication in future research, given the fairly high path coefficients from self-efficacy to family shame, and family shame to academic stress. While this nonsignificant indirect effect warrants more investigation, the current study's results suggest that family shame is a standalone predictor and does not carry the effect of the other predictors in the model in the Singaporean sample. Consequently, as opposed to theorizing family shame as a mediator in the model, it is recommended to reconceptualize family shame as more of a predictor, and placed between self-construals and academic supports, or as an exogenous variable.

Contrary to research that examined a modified academic satisfaction model in Asian samples, (e.g., Sheu et al., 2014; Sheu, Liu, & Li, 2017) academic stress was not significantly predicted by most of the social cognitive variables or personality variables in this study. The exceptions are that in the Asian American sample, goal progress and family shame positively predicted academic stress, and in the Singaporean sample, only family shame positively

predicted academic stress. Therefore, the addition of family shame may have affected the other hypothesized relations with academic stress found in previous studies. A noteworthy finding is goal progress' positive path to academic stress in the Asian American sample. As stated in previous paragraphs, this may suggest that Asian American students could simultaneously feel stressed with their academic work as they progress, while feeling both academically satisfied and satisfied with life (as indicated by the significant paths to both satisfaction variables).

In terms of what was hypothesized to predict family shame, there was a difference between the Asian American and Singaporean groups. While the hypotheses postulated that there would be six paths from self-construals, supports, self-efficacy, outcome expectations and goal progress to family shame, and family shame would exert effects on the three well-being outcomes, only one path was significant in both Asian American and Singaporean samples. For Asian American students, only interdependence had a positive direct path onto family shame, and for Singaporean students, only self-efficacy had a negative direct path onto family shame.

In the Asian American sample, only interdependence had an effect on family shame—this may suggest that the impact of collectivism on Asian Americans may be more pressuring, and add to one's family shame of their academics if they value interdependence. For Singaporean students, only self-efficacy had a negative pathway to family shame. This implies that Singaporean students' confidence in academics may be stronger in reducing family shame than their adherence to collectivistic values, or possible pressure to perform well. A possible explanation for these differences may be that because Singapore is in Asia, interdependence can feel more normalized in their culture compared to America, thus having less of an effect on one's experience of family shame. As Asian Americans in the U.S. may experience more contradicting messages of success as an individual in western media, and collectivistic values

within family or friends of similar culture, the mixed messages may make the feelings of shame more present if an Asian American adheres to interdependent beliefs.

Overall, results demonstrated expected and unexpected findings, including the importance of the self-efficacy → goal progress link and some nonsignificant paths (e.g., those theorized to connect with family shame). The personality and self-construal variables seem to influence the two samples differently and should be considered when creating interventions for the respective populations. Findings not only shed some light on how this modified satisfaction model fits into these two populations but can also inform clinical interventions to help Asian American and Singaporean students' pursuit of well-being, respectively.

### **Clinical Implications**

Results of the study provide some clinical implications. Extending support to previous findings, this study offers support for the psychological mechanisms that help students pursue and maintain their well-being. Findings suggest that academic supports continue to play a key role in the model. Furthermore, the self-efficacy → goal progress link is also evidenced as an important social-cognitive pathway in the model. Results indicate the importance of having accessible resources to provide social networking opportunities, role models or mentors, and a sense of belonging in the academic field that students pursue. That is, effects of academic supports on self-efficacy and goal progress are found to promote well-being (consistent with previous studies). These results may allude that interventions made to foster a supportive network for students and target the development of efficacy beliefs and goal-setting, could be beneficial for students' well-being. Overall, practitioners should help both Asian American and Singaporean students by designing outreach efforts to promote access to academic support (e.g.,

formal workshops for interpersonal and confidence-building skills, more informal ways to introduce potential mentors/peers).

Findings also suggest that depending on the country a student attends school in, the key mediators that channel effects to well-being outcomes may be different. Specifically, for Asian American students, academic supports was shown to mediate effects from extraversion and interdependence through different pathways (involving self-efficacy and goal progress) to academic satisfaction. Thus, interventions that increase Asian American students' accessibility to academic resources can continue to support the positive effects of extraversion and interdependence to well-being outcomes. As for Singaporean students, a key mediator for effects onto academic and life satisfaction was goal progress. Goal progress was found to mediate effects from emotional stability, academic supports, and self-efficacy. Consequently, interventions that focus on key features of goal setting (e.g., making concrete, specific, realistic, achievable goals), may help increase progress towards those academic goals, and ultimately promote students' well-being. While these mediators may operate differently for the two populations, interventions that attend to academic supports and goal progress would be beneficial for both Asian American and Singaporean students. It is suggested that practitioners attend to academic supports and goal progress when working with students in either country, simultaneously being mindful about the psychological mechanisms that may aid well-being for the respective populations.

Consistent with the literature, interdependence was found to be a key variable in predicting Asian students' well-being directly and indirectly through its impacts on support, and/or self-efficacy and goal progress. As such findings have continued to be replicated, this indicates the usefulness for interventions catered to help Asian students explore cultural values in

a way that may help their academic pursuits. While the benefits of interdependence have been examined, there is a complexity of how this variable relates to well-being for the Asian American sample, interdependence was directly related to family shame (and consequently academic stress), and for the Singaporean sample, interdependence was directly related to lower academic satisfaction. These are key considerations for interventions practitioners may use when working with these students.

Clinicians may consider fostering students' understanding of their group-focused cultural orientation and how this may play a role in their pursuit of well-being. According to the findings, there is also a difference between Asian American students and Singaporean students in how interdependence may affect their pursuit of well-being. For practitioners working with Asian American students, both independence and interdependence were shown to be related to higher access of academic support, and interdependence was also directly related to higher levels of both academic and life satisfaction. At the same time, interdependence was also shown to directly relate to higher family shame, and indirectly relate to increased levels of academic stress. Despite the possible consequence of interdependence's positive relation to family shame and academic stress, it is suggested that practitioners promote both independent (for the increased accessibility to academic supports) and interdependent values (for the increased levels of academic and life satisfaction) to Asian American students. Concurrently, practitioners should help Asian American students also recognize and explore how interdependence may influence family shame, and the students' value and meaning of family shame.

When working with Singaporean students, practitioners should also encourage awareness of interdependence, as interdependence appears to be helpful in gathering academic support and having higher overall life satisfaction. Meanwhile, clinical interventions may also be beneficial



to help Singaporean students explore how interdependence could play a role in lowering their academic satisfaction. Simultaneously, findings suggest that practitioners can also encourage independence to a degree that is culturally appropriate, given that independence was positively related to life satisfaction for Singaporean students.

For personality traits, counseling services should aim to increase awareness of students' levels of extraversion and emotion. This awareness can in turn help students learn to better monitor emotions and recognize possible feelings of isolation. As such, having accessibility to a support network that helps increase awareness of these personality traits, may be beneficial for students who struggle to identify them. Practitioners can provide these services in group or individual counseling, as well as training to faculty or instructors to help identify individuals who may have risk factors (e.g., shyness, unstable emotions) and encourage students to seek these resources. Interventions aimed to help students build emotional coping strategies and foster connection with others can benefit both Asian American and Singaporean students. However, programs for helping with emotional stability may be more beneficial to Singaporean students given the multiple positive paths from emotional stability to academic supports, academic self-efficacy, academic satisfaction, and life satisfaction (whereas Asian Americans only have a path between emotional stability and self-efficacy).

### **Limitations and Directions for Future Research**

While the study sheds light on how a modified well-being model applies to Asian students in the U.S. and Singapore, several limitations should be acknowledged. First, the cross-sectional design precludes any causal and temporal inferences, as this can only be established with experimental and longitudinal studies. Future studies should incorporate longitudinal and experimental designs to further strengthen the causal links hypothesized in SCCT. Second, the

use of self-report measures introduces mono-method bias. As such, this line of research would benefit from using different sources of data other than self-report (e.g., GPA, test scores, teachers/friends/family report). Third, the possibility of suppression effects (e.g., the negative path from interdependence to academic satisfaction in the Singaporean sample) deserve more attention to clarify the nature of these relations. It is important to examine the hypothesized but nonsignificant paths (e.g., outcome expectations to goal progress, academic stress to life satisfaction), and further delineate how the inclusion of family shame (and where it is placed in the hypothesized model) may have affected these paths. The nonsignificant indirect effect found from self-efficacy to academic stress in the Singaporean sample deserves more empirical scrutiny as well. It would be helpful to examine in future studies to further clarify if this lack of an indirect effect was an anomaly to this study or can be replicated.

Additionally, while most of the paths associated with family shame were nonsignificant in the modified academic satisfaction model, family shame's direct path to academic stress indicates its cultural importance for Asian populations. It is imperative to note the extremity in the family shame scale's wording, which may make this variable more relevant to students who are failing or doing poorly in school. The self-selected samples in the study might not capture students who also had lower levels of goal progress, and therefore were also less likely to report higher degrees of family shame. Consequently, future studies should consider including students with a wider range of goal progress, as well as a more appropriate position for family shame (e.g., as a standalone predictor rather than a mediator) in the well-being model.

While this study compared the model between Asian American students in the U.S. and Asian students in Singapore, another large group of Asian students in the U.S. (i.e., Asian international students) were not included to capture some of their experiences in pursuing well-

being. The modified well-being model has yet to be tested on Asian international students, and therefore it is imperative to examine how a well-being model may apply and operate for international students studying outside their home country.

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## Appendix A. Recruitment Letter

Dear student:

My name is Jennifer Bordon, a doctoral student at the University at Albany – SUNY. I am conducting a research study with Dr. Hung-Bin Sheu on exploring how college students of Asian descent perceive and achieve their well-being (IRB Approval #18E353). We would like to invite students to participate, with a chance to win a \$30 gift card for every 30 surveys returned and completed.

We would truly appreciate it if you could either take the survey yourself if interested, or possibly forward this message to other students who may find it relevant. Students' responses would be very helpful in allowing us to learn more about Asian students' needs. Please note that your responses to the survey are anonymous and confidential; NO identifying information will be collected.

**Please click on this link or copy this link to a browser to access the survey:**

[insertlinkhere](#)

**The inclusion criteria for participants are as follows:**

- 1) 18 years of age or older**
- 2) Must be currently enrolled as an undergraduate or graduate student**
- 3) Identify as Asian**

If you are willing to help spread information about the survey, please send me a message (jjbordon@albany.edu), and feel free to contact me for any other questions.

Yours truly,  
Jennifer Bordon, M.A.  
Doctoral Student  
University at Albany, SUNY  
1400 Washington Ave.,  
Albany, NY 12203

## Appendix B. Informed Consent

Hello again, fellow student:

It appears you have decided to continue forward with your participation in helping us better understand Asian college students' pursuit of well-being. Thank you!

To reiterate, you must be:

- at least 18 years of age
- a current undergraduate or graduate student
- identify as Asian

After completing the questionnaire, you can enroll in a chance to win \$50 for every 30 questionnaires completed. This is done by submitting your e-mail address at the end of the survey (not linked to your survey responses).

All responses will be kept confidential and anonymous. You may withdraw at any time without penalty. All data is protected and secured, and results will be presented without identification of individual participants.

There are no foreseeable risks or discomforts from participating in this survey, other than the possibility of being reminded of how much you need to work on your own academic projects.

You can contact me at [jjbordon@albany.edu](mailto:jjbordon@albany.edu) if you have any questions about the study, or my academic advisor, Hung-Bin Sheu, at [hsheu@albany.edu](mailto:hsheu@albany.edu). If you have questions about your rights as a participant, the Office of Regulatory Research Compliance at the University at Albany can be reached at (518) 442-9050, or at [orrc@albany.edu](mailto:orrc@albany.edu).

I truly appreciate the generosity of your valuable time!

Warmly,

Jennifer J. Bordon, M.A.  
Doctoral Student  
Division of Counseling Psychology, University at Albany  
[jjbordon@albany.edu](mailto:jjbordon@albany.edu)

## Appendix C. Questionnaire

### Demographics

1. What nation(s) do you have citizenship in? \_\_\_\_\_
2. Are you attending school in the United States? Yes/No
  - i. Do you have an F-1 visa/are an international student? Yes/No
  - ii. Are you a domestic student? Yes/No
3. Are you attending school in Singapore? Yes/No
  - i. Are you an international student? Yes/No
  - ii. Are you a domestic student? Yes/No
4. Name of the university/college/school you attend: \_\_\_\_\_
5. Current course load?
  - a. How many classes are you taking this semester? \_\_\_\_\_
  - b. How many credit units are you taking this semester)
    - i. 1-3
    - ii. 4-6
    - iii. 7-9
    - iv. 10-12
    - v. 13-15
    - vi. 16-18
    - vii. 19-21
    - viii. Above 21
6. What is your sex?
  - a. Woman
  - b. Man
  - c. Other \_\_\_\_\_
7. What is your age? \_\_\_\_\_
8. G.P.A: \_\_\_\_\_
9. How do you self-identify in regards to race/ethnicity? (e.g., Chinese-American, Indian)?  
\_\_\_\_\_
10. From the list below, please choose which best describes your race/ethnicity:
  - a. Taiwanese
  - b. Indian
  - c. Filipino
  - d. Indonesian
  - e. Japanese
  - f. Chinese
  - g. Korean



- h. Pakistani
- i. Vietnamese
- j. Laotian
- k. Thai
- l. Malaysian
- m. Bengali
- n. Other\_\_\_\_\_

11. Class Standing:

- a. Freshman
- b. Sophomore
- c. Junior
- d. Senior
- e. Graduate

12. Work

- a. Full Time
- b. Part Time
- c. Not Working

13. Highest degree aspiration:

- a. Bachelor's
- b. Master's
- c. Ph.D/Professional

14. What is your current declared school/program?

- a. Journalism
- b. Engineering
- c. Education
- d. Business
- e. Arts
- f. Liberal Arts and Science
- g. Communications
- h. Undeclared
- i. Other, specify: \_\_\_\_\_

15. Are you first of your family to attend college? \_\_\_Yes \_\_\_No

16. Compared to other parts of your life (e.g., socializing, work exercise, leisure time), your academic life is

- a. Not important
- b. Moderately important
- c. Extremely important

### Extraversion and Emotional Stability Scale

Instructions: Each of the following items contains two opposite adjectives. For each item, please **circle** the number that best reflects how you would describe yourself *in general*.

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	Very		Moderately		Neither		Moderately		Very	
1. Introverted	1	2	3	4	5	6	7	8	9	9 Extraverted
2. Unenergetic	1	2	3	4	5	6	7	8	9	9 Energetic
3. Silent	1	2	3	4	5	6	7	8	9	9 Talkative
4. Unenthusiastic	1	2	3	4	5	6	7	8	9	9 Enthusiastic
5. Timid	1	2	3	4	5	6	7	8	9	9 Bold
6. Inactive	1	2	3	4	5	6	7	8	9	9 Active
7. Inhibited	1	2	3	4	5	6	7	8	9	9 Spontaneous
8. Unassertive	1	2	3	4	5	6	7	8	9	9 Assertive
9. Unadventurous	1	2	3	4	5	6	7	8	9	9 Adventurous
10. Unsociable	1	2	3	4	5	6	7	8	9	9 Sociable
11. Angry	1	2	3	4	5	6	7	8	9	9 Calm
12. Tense	1	2	3	4	5	6	7	8	9	9 Relaxed
13. Nervous	1	2	3	4	5	6	7	8	9	9 At ease
14. Envious	1	2	3	4	5	6	7	8	9	9 Not envious
15. Unstable	1	2	3	4	5	6	7	8	9	9 Stable
16. Discontented	1	2	3	4	5	6	7	8	9	9 Contented
17. Insecure	1	2	3	4	5	6	7	8	9	9 Secure
18. Emotional	1	2	3	4	5	6	7	8	9	9 Unemotional
19. Guilt-ridden	1	2	3	4	5	6	7	8	9	9 Guilt-free
20. Moody	1	2	3	4	5	6	7	8	9	9 Steady

## Academic Support Scale

**Instructions:** Many factors can either support or hinder a student's academic and social adjustment. Here we are interested in learning about the types of situations that may support your progress in your intended major or current course of study. Using the 1-5 scale, please **circle** the number that best reflects how much you agree or disagree with each of the following statements.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

### **At the present time, I...**

1. Have access to a "role model" (e.g., someone I can look up to and learn from by observing) in my academic department or on campus.
2. Feel support from important people in my life (e.g., teachers, family) for pursuing my current course of study.
3. Feel that there are people "like me" in this academic field.
4. Get helpful assistance from a tutor, if I felt I needed such help.
5. Get encouragement from my friends for pursuing my intended major or attending college.
6. Get helpful assistance from my advisor.
7. Feel that my family members support this decision to major in my intended field or to explore possible majors.
8. Feel that close friends or relatives would be proud of me for majoring in my intended field or for continuing to explore possible majors.
9. Have access to a "mentor" who would offer me advice and encouragement.

### Academic Satisfaction Scale

**Instructions:** Using the scale below, please **circle** the number that best indicates your level of agreement with each of the following statements.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

1. I feel satisfied with my current course of study.
2. I am comfortable with the educational atmosphere on campus.
3. For the most part, I am enjoying my coursework.
4. I am generally satisfied with my academic life
5. I enjoy the level of intellectual stimulation in my courses.
6. I feel enthusiastic about the subject matter in my classes.
7. I like how much I have been learning in my classes.
8. I feel satisfied with my decision to major in my intended field or with the process of choosing an academic major.

### Satisfaction with Life Scale

**Instructions:** Using the scale below, please **circle** the number that best indicates the extent to which you agree or disagree with each of the following statements.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree/Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. In most ways my life is close to ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life.
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

## Self-Construals

**Instructions:** Please **circle** the number that best reflects how much you agree or disagree with each of the statements below

Strongly Disagree	Disagree	Slightly Disagree	Undecided	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. I enjoy being unique and different from others in many aspects.
2. I feel comfortable using someone's first name soon after I meet them.
3. Even when I strongly disagree with group members, I avoid an argument.
4. I have respect for the authority figures with whom I interact.
5. I do my own thing, regardless of what others think.
6. I respect people who are modest about themselves.
7. I feel it is important for me to act as an independent person.
8. I will sacrifice my self-interest for the benefit of the group I am in.
9. I'd rather say "no" directly than risk being misunderstood.
10. Having a lively imagination is important to me.
11. I should consider my parents' advice when making education/career plans.
12. I feel my fate is intertwined with the fate of those around me.
13. I prefer to be direct and forthright when dealing with people I've just met.
14. I feel good when I cooperate with others.
15. I am comfortable with being singled out for praise or rewards.
16. If my brother or sister fails, I feel responsible.
17. My relationships are more important than my accomplishments.
18. Speaking up during a class (or a meeting) is not a problem for me.
19. I would offer my seat in a bus to my professor (or my boss).
20. I act the same way no matter who I am with.
21. My happiness depends on the happiness of those around me.
22. I value being in good health above everything.
23. I will stay in a group if they need me, even when I am not happy with the group.
24. I try to do what is best for me, regardless of how that might affect others.
25. Being able to take care of myself is a primary concern for me.
26. It is important for me to respect decisions made by the group.
27. My personal identity, independent of others, is very important to me.
28. It is important for me to maintain harmony within my group.
29. I act the same way at home than I do at school.
30. I go along with what others wants, even when I would rather do something different.

## Academic Self-Efficacy Scales

**Instructions:** The following is a list of major steps along the way to completing an undergraduate degree at your current school. Please indicate how much confidence you have in your ability to complete each of these steps in relation to your academic major or current course of study. Use the 0-9 scale below to indicate your degree of confidence.

No Confidence				Some Confidence				Complete Confidence		
0	1	2	3	4	5	6	7	8	9	

### How much confidence do you have in your ability to:

1. Remain enrolled in your intended major or a course of study over the next semester.
2. Remain enrolled in your intended major or a course of study over the next academic year.
3. Excel in your intended major or a course of study over the next semester.
4. Excel in your intended major or a course of study over the next academic year.
5. Complete the upper level required courses in your intended major or current course of study with an overall grade point average of B or better.

**Instructions:** Here we are interested in knowing how well you believe you could cope with each of the following barriers, or problems, that students could possibly face in pursuing an undergraduate degree. Please **circle** the number that best indicates your confidence in your ability to cope with, or solve each of the following problems.

No Confidence				Some Confidence				Complete Confidence		
0	1	2	3	4	5	6	7	8	9	

### How confident are you that you could:

1. Cope with a lack of support from professors or advisor.
2. Complete a degree despite financial pressures.
3. Continue in your intended major or a course of study even if you did not feel well-liked by your classmates or professors.
4. Find ways to overcome communication problems with professors or teaching assistants in your courses.
5. Balance the pressure of studying with the desire to have free time for fun and other activities.
6. Continue in your intended major or courses of study even if you felt that, socially, the environment in these classes was not very welcoming to you.
7. Find ways to study effectively for your courses despite having competing demands for your time.

## Goal Progress Scale

**Instructions:** Now we would like for you to rate each of the same goal statements in terms of *how much progress* you are making toward each of them at this point in time. That is, how effectively you feel you are meeting or working toward each goal at present, regardless of how important the goal is for you. Please **circle** the number that best reflects your answer to each statement.

No Progress At All 1	A Little Progress 2	Fair Progress` 3	Good Progress 4	Excellent Progress 5
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**How much progress are you making toward each of these goals at this point in time (i.e., so far this semester):**

1. Excelling in your academic major or current courses.
2. Completing all course assignments effectively.
3. Studying effectively for all your exams.
4. Remaining enrolled in your academic major or in current classes.
5. Completing academic requirements or other program requirements of your course of study satisfactorily.
6. Achieving/maintaining high grades in all of your courses.
7. Learning and understanding the material in each of your courses.

## Outcome Expectations Scale

**Instructions:** Please **circle** the number that best indicates the extent to which you agree or disagree with each of the following statements.

Strongly Disagree		Disagree		Unsure		Agree		Strongly Agree	
0	1	2	3	4	5	6	7	8	9

**Graduating with an undergraduate degree from your current school will likely allow me to:**

1. ...receive a good job (or graduate school) offer.
2. ...earn an attractive salary.
3. ...get respect from other people.
4. ...do work that I would find satisfying.
5. ...increase my sense of self-worth.
6. ...have a career that is valued by my family.
7. ...do work that can “make a difference” in people’s lives.
8. ...go into a field with high employment demand.
9. ...do exciting work.
10. ...have the right type and amount of contact with other people (i.e., “right” for me).



## Academic Stress

**Instructions:** The following questions ask about your feelings and thoughts for the past week. We would like you to respond to the questions base on your **school work and academic life**. Please circle the appropriate number to indicate how often you have felt or thought a certain way.

Never	Almost Never	Sometimes	Fairly Often`	Very Often
0	1	2	3	4

**How often have you had these feelings and thoughts when you reflect on your school work and academic life in the *past week*:**

1. ...upset because of something that happened unexpectedly in school that has a negative impact on your performance in class.
2. ...unable to control important things in your academic life.
3. ...nervous or “stressed” because of school work.
4. ...confident in your ability to handle problems related to school work.
5. ...confident in your ability to handle problems related to school work.
6. ...things are going your way in your academic life.
7. ...unable to cope with all the school work (e.g., projects, assignments, reports) that you had to do.
8. ...able to control irritations in your life that are related to school work.
9. ...being on top of things in your academic life.
10. ...being angered because of school work that is outside your control (e.g., uncooperative team member, work lost because of computer problems).
11. ...feeling that academic difficulties were piling so high that you could not overcome them.

### Adapted Family Shame Scale (Academic Context)

The following statements are about experiences of **shame**. Please indicate the extent to which you agree with these statements as they relate to your life recently. Each statement has two parts separated by the word “because.” In deciding on your rating, consider the extent to which **both** parts of the statement apply to you. You should focus on your **ACADEMIC** experiences, not how you think or feel in general.

Strongly Disagree 1	Moderately Disagree 2	Slightly Disagree 3	Slightly Agree 4	Moderately Agree 5	Strongly Agree 6
---------------------------	-----------------------------	---------------------------	------------------------	--------------------------	------------------------

1. These days, I wish I could disappear because my *academic* deficits might cause my family to lose face
2. These days, I feel like escaping because my *academic* defects might disgrace my family
3. These days, I feel like crawling into a hole because my *academic* deficiencies might dishonor my family
4. These days, I wish I could run away because my *academic* inadequacies might cause my family to look bad
5. These days, I wish I could become invisible because my *academic* shortcomings might bring disrepute to my family