

UNIVERSITY OF CALIFORNIA

Santa Barbara

Factors Influencing Chinese and Filipino American College Students'

Stereotypical Major and Occupation

A Dissertation submitted in partial satisfaction of the
requirements for the degree of Doctor of Philosophy
in Counseling, Clinical, and School Psychology

by

Soo Yun Uhm

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June, 2004

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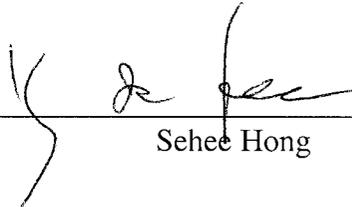
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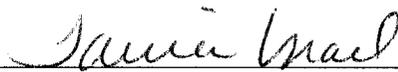
The dissertation of Soo Yun Uhm is approved.



Donald Atkinson



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Merith Cosden, Committee Chair

June 2003

This endeavor is dedicated to my mother and father, Kwon Bok Ja and Uhm Chun Il. May this bring both satisfaction and honor to the Uhm and Kwon families, and provide credence to your courageous journey across the sea.

Sooyun

ACKNOWLEDGEMENTS

It is with great pleasure and honor that I thank my committee members; I have truly looked forward to this day when I could acknowledge my gratitude. My committee members have taught and modeled for me exemplary behavior that reflects our professional triad—research, clinical, and teaching service. Though how it gets displayed diverges as each member has their own flair and personality, they share a common foundation of dedication, humor, compassion, and rigor. A special note to my co-chairs Dr. Atkinson and Dr. Cosden for their unfaltering roles in my professional development, their commitment to the profession and to students, and also for their supernatural response time. And MICHAEL (Dr. Brown): I will fondly remember our lively afternoon talks on scholarship and everything else under the sun.

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our talks, laughs, and dance moves; Chako, my dissertation and graduate school ad-lib, off the cuff group co-leader and also a proud member when noone showed up for group friend -- we did it!; Whitney, for leaving your comfort zone and going there; Joe, for our honest talks, advice, breakdowns, stats moments, and just good times. Mary, Mary, Pat, Kristina, and Jeanne for the exceptional roles you play in our lives. Vijay, Jalene, Donna, Isao, Paula, Ashley, Laura, Ron, and the Lozanos! -- you have given me more than you could know. And Suji & Sooyoung for your sweet spirit & goodness -- may you grow in your courage, compassion, and generosity.

VITA OF SOO YUN UHM
June 2004

EDUCATION

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Advisors: Donald R. Atkinson, Ph.D. & Merith Cosden, Ph.D.
- 7/03-6/04 **University of Washington (UW), School of Medicine**
Department of Psychiatry and Behavioral Sciences
Psychology Internship Program
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Science)
- 9/98-6/00 **M.A., Counseling Psychology; UCSB,**
Areas of Concentration: Asian American Mental Health,
Acculturation, & Ethnic Identity
- 9/97-6/98 **Foundation for Advanced Education in the Sciences (FAES)**
Graduate School at NIH, Bethesda, MD
- 8/90-5/94 **University of Maryland, College Park (UMCP)**
B.A. in Psychology, Minor in Women's Studies
- 8/92-6/93 **University of Lancaster, England**

OTHER EDUCATIONAL EXPERIENCE

- 9/99-6/00 **Teaching Seminars**
Asian American Studies Department, UCSB
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AWARDS

- 2003 Asian American Psychological Association's Dissertation Award
2003 University of California Graduate Division Travel Award
2003 Asian American Psychological Association's Travel Award
2003 Graduate Division Dissertation Fellowship
2002-2003 Ray E. Hosford Research Grant
2002 Graduate Division Dissertation Proposal Fellowship
1999-2000 University of California Graduate Research Mentorship Program
1998-1999 University of California Graduate School of Education Fellowship

GRANT EXPERIENCE

- 7/03-6/04 **Interdisciplinary Research Grant Seminar: NIMH R25 MH60486**
UW
Mentors: David Takeuchi, Ph.D; Deborah Cowley, M.D.
Participated in a National Institute of Mental Health (NIMH) training seminar that provides year-long support from the process of seeking the appropriate funding mechanism, to writing of the grant application, to mock review.
- 11/03-6/04 **Ethnic Minority Recruitment, Retention and Training (CEMRRAT) in Psychology Grant**
UW
Mentor: Kate Comtois, Ph.D.
Sought funding mechanism, emphasizing innovative start-up initiative, and writing grant to enhance ethnic minority recruitment, retention and training in psychology.

RESEARCH EXPERIENCE

- 9/03-present **Mental Health Specialists on Service Initiation and Retention for Ethnic Minorities, Children, and the Elderly**
Graduate Researcher; Dept. of Social & Health Services, Mental Health Division, Olympia WA
Supervisor: Judy Hall, Ph.D.
Assess cultural competence & mental health specialists' effects on service delivery to traditionally underserved

populations in Washington State using key informant research method & analyzing administrative data. Conceptualize study, conduct literature review, analyze data, and write “white” paper.

9/00-11/03

Counseling Lesbian, Gay, and Bisexual Clients

Graduate Researcher; UCSB

Supervisor: Tania Israel, Ph.D.

Investigated the experiences of counselor trainees in counseling lesbian, gay, and bisexual clients using qualitative & quantitative research methods. Duties included hiring, training, mentoring, and managing 4 Asian Pacific American (APA) undergraduates, managing 5-member graduate research team, transcribing interviews, analyzing data, and presenting and writing research findings.

3/02-6/02

Culture Specific Models of Men’s Sexual Aggression

Research Assistant; UCSB

Supervisor: Gordon Nagayama Hall, Ph.D.

Hired, trained, and mentored 9 APA undergraduate students for a NIMH national multi-site, cross-sectional and longitudinal research protocol, investigating culture specific models of sexual aggression among Asian American and European men.

9/00-8/01

Acculturation, Gender-Role Traditionality, and Japanese/Japanese American Women’s Perceived Career Barriers

Graduate Researcher; UCSB

Supervisor: Michael T. Brown, Ph.D.

Examined the relationships among the levels of behavioral and value acculturation, female gender role traditionality, and perceived career barriers of Japanese women. Duties included subject recruitment, data entry and analysis, and presentation of research findings.

- 9/98-8/00 **Do Interests Predict the Career Choice Behavior of Asian American College Students?**
Graduate Researcher; UCSB
Supervisor: Michael T. Brown, Ph.D.
 Investigated the career choice and behavior of Asian American college students utilizing behavioral acculturation, family involvement, and career interests as explanatory variables. Duties included assisting with study design, hiring, training, and managing 5 APA undergraduates, recruiting subjects, analyzing data, assisting with manuscript writing, and presenting research findings.
- 9/99-6/00 **Preferences for Multicultural Counseling Competencies**
Graduate Researcher; UCSB
Supervisor: Donald R. Atkinson, Ph.D.
 Investigated ethnicity, ethnic identity, and preferences for multicultural counseling competencies. Duties included recruitment of research assistants and participants, data analysis, and assistance with manuscript writing. Lectures on career issues and educational advancement strategies for ethnic minority community college and state university students were presented in exchange for participants' time.
- 11/96-8/98 **Neuropharmacology**
Research Assistant; National Institute of Mental Health (NIMH), Bethesda, MD
Supervisor: Dennis L. Murphy, M.D.
 Evaluated the behavioral and physiological effects of serotonin functioning to determine potential risk factors in neuropsychiatric disorders such as obsessive-compulsive disorder (OCD) through laboratory and clinical investigations. Duties included data management, analysis, and presentation, and manuscript editing and writing.
- 10/95-10/96 **Health correlates of low-income, African Americans**
Research Assistant; Healthy People 2000: Disability and Injury Prevention Program
U.S. Department of Health & Human Services (DHHS), Washington DC
Supervisor: Elaine Vowels, Ph.D.
 Performed field research by collecting and assessing data on African American DC residents with low SES, and physical

and/or mental disabilities. Assisted in writing and editing of bi-annual progress reports to Centers For Disease Control and Prevention (CDC). Coordinated community outreach programs (focus groups) for African American high school youths with cerebral palsy. Promoted partnership and collaboration with local and national agencies for the *Healthy People 2000* Initiative.

9/93-12/93

Human Papillomavirus (HPV) and its link to cancer
Research Assistant; Maryland C.A.R.E.S. Research Center
UMCP

Supervisor: Karen Gunther, R.N.

Researched women's health concerning Human Papillomavirus (HPV) and its link to cancer. Responsibilities included recruiting students for study, preparing patients', materials, and equipment needed for laboratory set-up and exam, administering questionnaires and debriefing patients following study.

8/91-12/91

Perceptions and Stereotypes

Research Assistant; UMCP

Supervisor: Lisa Aspinwall, Ph.D.

Conducted experiments researching perceptions and stereotypes of college students. Administered experiments to 500 students, gathered and analyzed data and debriefed students following study.

OTHER RELATED RESEARCH EXPERIENCE

7/03-12/03

Restructuring Jail: Effects on Therapy

Program Evaluator; King County Correctional Facility,

Seattle WA

Supervisors: Judith Kirkeby, Ph.D.; Larry Smith, Ph.D.

Document and evaluate via key informant interviews, modes of treatment, and content of psychotherapy provided to inmates by social workers, family therapists, and psychologists. Recommend guidelines to facilitate optimum inmate mental health care in the midst of systems change.

6/99-2/00

Systematic Treatment Selection (STS)

Process Rater; STS Lab, UCSB

Supervisor: Larry E. Beutler, Ph.D.

Rated videotapes of therapeutic processes between outpatient drug abusers and their assigned psychologists using various treatment interventions and theoretical orientations. This research was part of a large-scale investigation on STS, a method of matching and fitting interventions to patient and patient problems.

CLINICAL EXPERIENCE

1/04-6/04

Harborview Mental Health Clinic

Psychology Resident, Seattle, WA

Supervisor: Wayne Smith, Ph.D.

Provided short and long-term individual and group therapy for low-income populations with persistent and severe mental illness. Lead Dialectical Behavior Therapy Skills Group for borderline and suicidal/parasuicidal patients. Patients were referred from Harborview Medical Center's inpatient unit. Presenting problems included schizophrenia, borderline, and social phobia disorders. Consulted with case managers, nurses, social workers, and psychiatrists as necessary. Therapeutic modalities included dialectical-behavior and cognitive-behavior therapy.

7/03-12/03

King County Correctional Facility

Psychology Resident, Seattle, WA

Supervisor: Judith Kirkeby, Ph.D.

Provide short and long term individual and group therapy, and conduct suicide and risk assessment for diverse inmate populations. Presenting problems include anger management, PTSD, and interpersonal and family issues. Consult with officers (e.g., corrections, classifications, sergeants), nurses, social workers, and psychiatrists as necessary.

1/99-6/03

Ray E. Hosford Clinic

Counselor; UCSB

Supervisors: Susan Neufeldt, Ph.D.; Merith Cosden, Ph.D.; Francisco Montes, Ph.D.; Jerome Yoman, Ph.D.

Conducted comprehensive psychological assessment, and provided short term and long term therapy to diverse, adult,

outpatient clientele at a university-based community center. Presenting problems included mood disorders (depression & anxiety), personality disorders (borderline & narcissistic) and normative developmental issues (social skills deficits, interpersonal problems, low self-esteem). Consulted with psychiatrist as necessary. Therapeutic modalities included dialectical behavior, interpersonal, and cognitive-behavior therapy.

8/01-6/02

Eating Disorders Clinic

Counselor; UCSB

Supervisor: Louise Ousley, Ph.D.

Provided short term and long-term outpatient based therapy to university students and co-led the Eating Disorders group. Presenting concomitant concerns included suicide, rape, and drug/alcohol issues. Provided on-going consultation with concerned roommates and resident coordinators as needed. Worked as part of an interdisciplinary team with psychiatrists, physicians, school psychologist, and dietician. Supervised in psychodynamic and cognitive-behavioral interventions.

9/00-6/01

Counseling & Career Services

Practicum Extern; UCSB

Supervisors: Jeana Dressel, Ph.D. & Holly Bradbury, Ph.D.

Provided short term and long term individual and group counseling services to diverse undergraduate and graduate UCSB students and adult community members. Presenting problems included cultural adjustment, acculturation, and ethnic identity issues, life transitions, family issues, stress/time management, anger management, low self-esteem, depression, and anxiety. Co-lead Assertiveness Training Group and process observed Family Issues group. Consulted with Student Health psychiatrist and residential life staff as necessary.

11/97-8/98

Department of Neuropharmacology, National Institute of Mental Health (NIMH)

Clinical Assistant; Bethesda, MD

Supervisor: Dennis L Murphy, M.D.

Administered Structured Clinical Interviews (SCID) and various other assessments/scales for DSM-IV Axis I and II

Disorders for inpatients and outpatients with Obsessive-Compulsive Disorder (OCD).

OTHER RELATED CLINICAL EXPERIENCE

7/03-6/04 **Dialectical Behavior Therapy**
UW
Supervisors: Kate Comtois, Ph.D.; Marty Hoiness, M.D.
Participation in a two-day workshop, six month long weekly seminar (various members from Marsha Linehan's Behavioral Tech Transfer Group), and year-long weekly consultation.

TEACHING EXPERIENCE IN UNIVERSITY SETTINGS

Teaching Associate

Designed course syllabus, lectures, and examinations, and taught 25-40 students.

6/02-8/02 **Asian American Personality and Identity**
Undergraduate Course; UCSB

4/01- 6/01 &
1/02-3/02 **Asian American Families**
Undergraduate Course; UCSB

Teaching Assistant

Guest lectured and/or prepared discussion section lecture notes, facilitated discussion groups, constructed examinations, and graded assignments.

3/03-6/03 **Contemporary Issues in Asian American Communities**
Undergraduate Course; UCSB
Professor: John Park, Ph.D.

1/03-3/03 **Social and Affective Characteristics of Students with Learning Disabilities**
Graduate Course; UCSB
Professor: Merith Cosden, Ph.D.

9/01-3/02 **Advanced Practicum**
Graduate Course; UCSB
Supervisor: Merith Cosden, Ph.D.

- 9/99-12/99 **Asian American Personality and Identity**
Undergraduate Course; UCSB
Professor: Nolan Zane, Ph.D.
- 1/99-3/99 **Asian American Gender Relations**
Undergraduate Course; UCSB
Professor: Diane Fujino, Ph.D.
- 6/99-8/99 **Introduction to Counseling Psychology**
Undergraduate Course; UCSB
Supervisor: Susan Neufeldt, Ph.D.
- 1/94-5/94 **Women and Society (Undergraduate Teaching Assistant-Invited)**
Undergraduate Course; UMCP
Professor: Bonnie T. Dill, Ph.D.

OTHER RELATED TEACHING EXPERIENCE

- 3/97-8/98 **Asian Pacific Exchange (APX)**
Program Developer/Teacher, Washington DC
 Collaborated with area community leaders to co-design the first Asian-American studies program to educate Asian American high school students in MD, VA, and Washington DC. Agenda included Asian-American history, identity and gender issues, and implications of racism and oppression.
- 6/94-6/95 **The English Institute**
English Teacher; Taegu and Seoul, South Korea
 Developed and implemented English conversation program for new institute. Taught English to 90-adult, college, and high school students/day.

RESEARCH PAPERS:

- Brown, M.T. & Uhm, S.Y. Do Interests Determine the Career Choice Behavior of Asian Americans? Manuscript Submitted.
- Fraga, E, Atkinson, D.R., Wicker, L., Uhm, S.Y. Racial and Ethnic Acculturation Level and Preferences for Multicultural Counseling Competencies. Manuscript Submitted.

Israel, T., Brown, A., **Uhm, S.Y.**, Selvidge, M., Keeton, M. The Development and Measurement of Counselors' Attitudes toward Lesbian/Gay/Bisexual Clients: A Qualitative Investigation. Manuscript in Progress.

OTHER:

Uhm, S.Y., Harmon, A. (1997, Summer). Anxiety in Depression. Newsletter of the Depression & Related Affective Disorders Association, 4-6.

ABSTRACTS:

Uhm, S.Y., Strachan, E., Weaver-Randall, K., Hall, J. (2004, June). The Effects of Mental Health Specialists on Service Access and Utilization. Poster session presented at the bi-annual meeting of the Society for the Psychological Study of Social Issues, Washington D.C.

Uhm, S.Y. (2003, August). Factors Influencing Filipino and Chinese American College Students' Major: A Test of the Social Cognitive Career Model. Poster session presented at the annual meeting of the Asian American Psychological Association, Toronto, Canada.

Mori, S., Brown, M.T., Atkinson, D.R., Min, S., **Uhm, S.Y.** (2001, August). Acculturation, Gender-Role Traditionality, and Japanese and Japanese American Women's Career Barriers. Poster session presented at the annual meeting of the American Psychological Association, San Francisco, CA.

Uhm, S.Y. & Brown, M.T. (2000, August). Do Interests Determine the Career Choice Behavior of Asian Americans? Poster session presented at the annual meeting of the American Psychological Association, Washington, DC.

SYMPOSIUM PRESENTATIONS:

Kim, I., Lam, A., Mak, W., Packard, B., **Uhm, S.Y.**, Wong, E. (2003, August). Sister to Sister: Career Development for Asian American Women. Symposium conducted at the annual meeting of the American Psychological Association, Toronto, Canada.

Brown, A., Bui, U., Gutierrez, V., Min, S., Rhee, S., Schnell, J., Turner, J., **Uhm S.Y.** (2001, February). Round Table Reflections on LGBT Research. In T. Israel (Chair), Concepts of Community. Symposium conducted at the annual meeting of the University of California Lesbian, Gay, Bisexual, Transgender Association, Santa Barbara, CA.

PROFESSIONAL ACTIVITIES & COMMITTEES

- 7/03-
present **Diversity Advancement Committee; Member**
UW
- 3/04 **Asian American Psychological Association Convention; Poster Judge**
- 9/02-1/03 **Smoking Cessation Group; Consultant**
Santa Barbara County Department of Public Health
- 10/02 **Cross-cultural/Multicultural Supervision Training Videotapes; Consultant**
Invited by Clinic Director
UCSB
- 9/01-3/02 **Multicultural Counseling Psychology Faculty Search Committee;**
Student Member
UCSB
- 9/01-3/02 **International Students Program Committee; Outreach Counselor**
UCSB
- 9/99-6/01 **Curriculum Committee; Student Representative**
UCSB
- 9/98-6/99 **Society for the Psychological Study of Ethnic Minority Issues;**
Student Representative
UCSB

PROFESSIONAL ASSOCIATION MEMBERSHIP

American Psychological Association (APA)
Asian American Psychological Association (AAPA)
Society for the Psychological Study of Social Issues (SPSSI)
Society for the Psychological Study of Ethnic Minority Issues (Division 45)
Asian Pacific American Graduate Student Association (APGSA)

LANGUAGE SKILL

Conversational fluency in Korean

ABSTRACT

Factors Influencing Chinese and Filipino American College Students' Stereotypical Major and Occupation

by

Soo Yun Uhm

This study examined factors influencing Filipino and Chinese American college students' major, and the relationship between socio-cultural (i.e., behavioral acculturation, values enculturation, parental involvement, financial and prestige considerations), and psychological (i.e., interest and self-efficacy) factors, to college major of choice. Expressed interest (college major and occupational intention) and inventoried interest, along with inventoried self-efficacy were also examined. Using a partial replication and extension of Tang, Fouad, and Smith's (1999) study, 69 Filipino and 54 Chinese American students from a West Coast university were surveyed.

Major findings indicated that although there were no ethnic differences in choosing traditional college majors (scientific/technical/business) between

Filipino and Chinese American participants, a substantial number of them indicated majors in traditional fields. When both ethnic groups were combined, results indicated that once psychological factors were accounted for, socio-cultural variables did not significantly relate to traditional major of choice, with the exception of financial consideration. The addition of socio-cultural factors, however, was associated with an increase in participants' self-efficacy in traditional areas, increasing the odds of majoring in these areas. Thus, when both ethnic groups were combined, socio-cultural factors increased the predictive ability of self-efficacy. When ethnic groups were analyzed separately, however, results indicated that ethnicity differentiated the reason for their traditional choice; in general, the explanatory factors for Chinese Americans were socio-cultural in nature, while psychological factors, namely self-efficacy, accounted for Filipino Americans' traditional major of choice.

Ethnicity did not differentiate students' inventoried vocational self-efficacy in any of the six Holland types. There were also no ethnic differences on inventoried career interests, except for interests in the Enterprising theme. Both groups also indicated high measured interest and self-efficacy scores in nontraditional areas. Results indicated no significant socio-cultural differences between the two ethnic groups except for behavioral acculturation and parental satisfaction with participants' major.

Lastly, present findings demonstrated that Asian Americans did not indicate a high inventoried interest in Investigative fields even though they indicated a high expressed interest in this area. Chinese and Filipino Americans, however, displayed measured and expressed interest congruence in Enterprising and Social fields, respectively. Implications and directions for future research are discussed.

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Chapter I

Introduction

The ethnic/racial minority population in the United States has grown tremendously in the past few decades and is expected to continue to grow for the foreseeable future. At present, the ethnic/racial minority population accounts for more than a third of the United States (U.S.) population and this proportion is projected to grow to almost 50% by the year 2050 (Lee & Zane, 1998; US Census Bureau, 1992). Within the ethnic minority population, Asian Americans are the fastest growing group in the U.S., with a growth rate of more than 95% between 1980 and 1990 (Lee & Zane, 1998). It is projected that by the year 2050, the total number of Asian Americans will reach 9% of the total population (U.S. Bureau of Census, 1997).

Changes in ethnic demographics in the workplace are paralleling the racial and ethnic make-up of the U.S. The European American workforce is expected to grow by only 17%, while the Asian American workforce is expected to grow by 75% by 2005 (Fouad & Bingham, 1995), making it one of the fastest growing ethnic minority groups. This dramatic demographic shift in the labor force has demanded a cross-cultural examination, drawing attention to the need for psychologists to address career and vocational interests, behavior, and choice of Asian Americans. Although research on the career development of African Americans and Hispanic Americans has increased recently (Arbona, 1990;

Arbona & Novy, 1991; Dillard & Perrin, 1980; Hoyt, 1989), research on the career development of Asian Americans has not matched the growth or needs of this population (Leong, 1985).

Background of the problem

Model Minority Myth. The lack of attention to research on Asian American issues may be due in part to the “model minority” stereotype. Since the 1960’s, there has been considerable media coverage on Asian Americans as the minority group that has prevailed over racial discrimination, language barriers, and immigrant status to succeed academically, vocationally, and financially over other ethnic and cultural minority groups. Even more compelling, Asian Americans were publicized to have surpassed White Americans academically and/or financially (Fortune, 1986; New Republic, 1985; Newsweek, 1971; 1982, 1984; Peterson, 1966; New York Times Magazine, 1986; Time, 1983, 1985; US News & World Report, 1966, 1984). Although recent studies have challenged and scrutinized the methodology of these reports (Barringer, Takeuchi, & Xenos, 1990; Crystal, 1989; Hsia, 1988; Lee, 1998; Ong & Hee, 1994), the notion of “making it” as Asian Americans are believed to have done has distinct appeal, as many Americans cherish the principles of meritocracy. As a result, the remarkable achievements and stereotypical images remain dominant (Wong, Lai, Nagasawa, & Lin, 1998); Asian Americans are heralded as proof of the American dream, worthy of being

emulated at a time when other ethnic and cultural groups are falling below the national average in various areas (Cheng & Yang, 2000; Osajima, 2000).

Due to the unprecedented achievement and the media attention Asian Americans have received, many policy makers have objected to the notion that they should even be considered a minority group, entitled to government services and outreach programs (ETS, 1997; Leadership Education for Asian Pacifics and the University of California, Los Angeles, Asian American Studies Center, 1993; Nakanishi, 2000). As a result, there is a dearth of empirical studies on Asian Americans, and services offered to this “accomplished” population.

Recently, investigators have scrutinized the methodology used to conclude the “model minority” status to find an alarming picture of Asian Americans. When researchers account for 1) the number of family members working to contribute to the household income, 2) the geographical distribution, with Asian Americans residing in high cost, urban areas, 3) hours worked, and 4), educational attainment, there appears to be a cost to being Asian American. Studies also reveal a large gap between educational attainment, career availability, and income. Asian Americans are occupationally segregated, underemployed, underpaid, with little or no chance for occupational mobility (Hsia & Peng, 1998; Lee, 1999; Leong & Serafica, 1995). Also, the heterogeneity of the Asian American population has not been accounted for;

some Asian ethnic groups are faring below African American and Hispanic individuals in both the level of poverty and school drop out rates (Lee & Zane, 1998). Moreover, across various age groups, settings (e.g., community and counseling centers), self-reports, clinical observations and interviews, studies consistently reveal that contrary to the stereotype, Asian Americans experience higher levels of psychological distress than European Americans (Abe & Zane, 1990; Kuo, 1984; Okazaki, 1997; Pang, Mizokawa, Morishima, & Olstad, 1985; Sue, D., Ino, & D.M. Sue, 1983; Ying, 1988).

Unfortunately, due to the prevailing positive bias stereotypes, scholars have surmised that the general population may find Asian Americans suffering from psychological distress and/or school related problems inconceivable, hence impeding the diagnosis of needs and service delivery (Chun, 1980; Fukuyama, 1991; Minatoya & Sedlacek, 1981). In fact, restrictions have been posed in higher education, particularly in the most prestigious universities and colleges, which discourage Asian American applicants by setting unofficial quota limits, and requiring superior performances over other ethnic groups, including Whites (Hsia, 1988; Nakanishi, 2000; Sodowsky, Lai, & Plake, 1991). It is argued that positive stereotypes can be as detrimental as negative stereotypes due to the inappropriate, or the lack of, attention paid to Asian American students (Sue & Kitano, 1983), and due to the scant investigations regarding their cultural and structural barriers in the academic and vocational arenas (Nagasawa & Espinosa,

1992; Sue & Okazaki, 1990). Asian American students may be falling through the cracks in our educational system due to the distorted realities of the “model minority” myth. More specifically, to be dubbed as “whiz kids” in certain fields and not recognized or represented in other pursuits has implications for the career choice behavior of Asian American students. Leong and Hayes (1990), for example, found that European American students perceived Asian Americans as more likely to succeed as engineers or mathematicians but less likely to succeed in occupations that required more verbal skills. Contributing to the problem, these occupational stereotypes may even be endorsed by Asian Americans themselves if they internalize the stereotypes or become victims of the self-fulfilling prophecy.

Problems within the workplace have also been documented. In two studies involving more than 1,000 participants, Bell, Harrison, and McLaughlin (1997) indicated that Asian American U.S. citizens reported significantly more experience with workplace discrimination than European Americans. They noted that there were greater attitudinal similarity among Asian Americans, African Americans, and Hispanic Americans than between Asian Americans and European Americans. Sadowsky et al.’s (1991) Asian American sample also noted perceived racial discrimination significantly more than their Hispanic counterparts.

Asian Americans have also been compared to African Americans and European Americans with regards to job satisfaction. Because Asian Americans have demographic characteristics, such as educational attainment and income (variables known to correlate with job satisfaction) comparable to European Americans, it was assumed that Asian Americans would resemble European Americans in job satisfaction. However, analysis of data from 21 surveys representative of the U.S. labor force from 1972-1996 suggested the opposite (Weaver, 2000; Weaver & Hinson, 2000). Full-time employed Asian Americans reported job satisfaction more similar to African Americans than to European Americans, and the differences were noted even when age, education, occupation, and income were accounted for. Further, when the results of the analyses were divided into two sets, from 1972-1983 and 1984-1996, the results remained the same (Weaver & Hinson, 2000). Thus, it appears that employed Asian Americans' perception of job satisfaction failed to change in over two decades.

Occupational Constraints

Asian American students in higher education are overrepresented in the coveted science and technical areas (Hsia, 1988; NSF, 1990; Sue & Kirk, 1972, 1973). Studies have shown, however, that Asian American students may compensate for their limited English ability by placing their energy in math and science courses where verbal ability is not required or employed, as well as

utilizing other coping mechanisms (Hartman & Askounis, 1989; Sue & Zane, 1985). Asian Americans also consistently score lower than their counterparts in the verbal sections of scholastic aptitude tests (Hsia 1988; Leung, 1995). Moreover, Hsia (1988) demonstrated that the difficulty with verbal tasks is occurring not only with the immigrant Asian Americans but also with second and third generation Asian American students. These difficulties follow Asian Americans in the workforce; due to the real and perceived lack of verbal fluency required in management and leadership positions (Landau, 1995), Asian Americans are severely underrepresented in supervisory positions, even in stereotypical fields such as medicine. Thus, endorsing the positive ideology regarding this group will not only further marginalize and minimize those students who do not perform academically well or pursue the traditional fields, it also minimizes the difficult experiences of those representing the stereotypes. This may hinder the likelihood of this population from receiving appropriate academic and career services; educators and counselors are likely to overlook those students struggling with language or grappling with limited career alternatives. This may prevent career counselors and teachers from examining the possibility that like other youths, the vocational interests and choices of Asian Americans are variable and represent a great range.

Another reason for the lack of research productivity in this area is due to the fact that Asian American social scientists traditionally carry out this type of

research. Since Asian Americans typically do not choose occupations in the social sciences and instead opt for careers related to the physical or technical sciences, the lack of inquiry in this field is not surprising (Leong, 1985). The National Center for Education Statistics (cited in Hsia, 1988) indicated that between 1980 and 1981, 50% of U.S. Doctoral degrees were awarded to Asian Americans in the fields of engineering and the sciences and 24% of the degrees were awarded in the fields of social science and education. In 1989, a study conducted by the National Science Foundation (NSF) and the National Research Council (NRC) reported that only 5% of the doctoral degrees awarded to Asian Americans were in the social sciences, whereas 28% and 32% were awarded in the fields of engineering, and a combination of biological and physical sciences, respectively (cited in Leung, Ivey, & Suzuki, 1994).

There has been empirical documentation on the differential career development attributes (Leong & Gim, 1995), such as career interests and career choices of Asian American high school and college students, and employed Asian Americans, compared to European Americans. Park and Harrison (1995) evaluated the career related interests and values of Asian American and Caucasian American college students and found that Asian American students showed higher interest in the Investigative and Conventional categories and lower interest in the Social category of the Holland occupational types. Sue and Kirk (1972) found in their study of Chinese Americans at the University of

California, Berkeley (UCB) that Chinese American males, compared to other minority and White males, showed more interest in the physical sciences, skilled technical trades, and business occupations, while expressing less interest in the social services, sales, and verbal linguistic occupations. Fouad, Harmon, and Borgen's (1997) findings also resonate with the previous studies in which traditional career choices in the areas of engineering and physical sciences were overrepresented by currently employed Asian Americans. The findings indicate that Asian Americans were 2 times more represented in the Investigative area than European Americans, while European Americans were represented in Social occupations 2 times more than Asian Americans. The NSF's 1990 data on Asian American high school students confirmed this skewed interest. The data indicated that Asian American students had greater interest in scientific majors than European Americans, higher degree of aspiration to become engineers or physicians (one-third vs. one-tenth of European Americans) and were more likely to have taken calculus courses in high school, 2 times more than European Americans.

However, there appear to be contradictory findings in the career development literature. There is also research, which disconfirms the differential career development interests, indicating that some interest distributions of Asian Americans are similar to the mainstream population. Kwak (1980), in an unpublished dissertation, found Asian American youths'

vocational interests predominantly in the Investigative as well as in the Social areas. Leong (1982), in another unpublished study, found a similar distribution with his sample of Asian American students at the University of Maryland where interest patterns were predominantly in both the Investigative and Social areas. Although Leung, Ivey, and Suzuki (1994) found Asian Americans more likely than European Americans to consider Investigative occupations and less likely to consider Enterprising occupations, they found no ethnic differences for occupations classified as Social. They found that although Asian Americans in their sample were more attracted to occupations that involved analytic and logical skills and less attracted to occupations involving forceful communication and interpersonal skills (such as Enterprising occupations), Asian American students were indeed attracted to Social occupations that involved teaching, caring, and helping. Tang, Fouad, and Smith's (1999) study consisting of college students from various East Coast and Midwest universities corroborated the above findings, indicating that interest scores did not reveal a significant difference between the various Holland types. In fact, Conventional interests were most endorsed, followed by Enterprising interests. In Uhm and Brown (2000) there was a difference between the Holland categories of their Asian American sample from a West Coast university but not in the expected direction. Social interests were most endorsed, followed by Enterprising, and then Artistic interests. An unpublished dissertation (Tan, 1998) further supports

these finding in that in Tan's sample of college students from the Midwest, Asian American interests did not differ from the interests of European Americans.

To account for the discrepant findings reported in the above studies, there have been speculations that foreign born Asian Americans who arrived to study at the post-high school level have skewed the ratio of Asian Americans receiving doctorates in science and technical fields (Hsia, 1988; Leung, 1995), substantiating the argument that interests and choices of Asian Americans, particularly those native-born, may not be different from European Americans. At the very least, some of the longstanding views on the differential vocational interests of Asian Americans appear to be questionable.

After careful review, there seems to be inconsistencies with previous studies in which investigators have used the generic term "interest" when referring to both the participant's occupational intention and inventoried interest. Further complicating matters, a student's college major, occupational intention, or current occupation have all been used as measures of "expressed interest." Moreover, measured interests have been confounded in some studies in which competence, ability, and self-appraisal were included as part of one's interest. Thus, investigators have failed to discuss their findings in terms of these different and distinct constructs. A study by Leong (1982) underscores the importance of separating the constructs and reporting the findings accordingly.

Among a sample of Asian American students, 50% endorsed *expressed* interest whereas only 30% endorsed *measured* interest in Investigative careers. Even more drastic, 7% demonstrated *expressed* interest and 21% *measured* interest in Social careers. Relatedly, Kwak (1980) found that Asian American youths who scored high on Social interest in a career inventory had subsequently chosen occupational environments less congruent with their measured type, mostly in the Investigative environments and some in Enterprising. However, to determine interest, he used the summary codes of the Self-Directed Search (SDS; Holland, 1977) in which other factors, such as competency, were included.

Although the differential findings of measured interests remain questionable, the above studies on Asian American high school, undergraduate, and graduate student populations do support a constricted range of expressed career choice. One may argue the lack of urgency in studying a seemingly successful group in which the constriction centers on mostly Investigative (traditional) job membership, but there are implications and problems inherent in this overrepresentation. Wolfe and Betz (1981) found a strong association between congruence and traditionality of choice; subjects whose choices were in nontraditional career fields were significantly more likely to be making choices congruent with their personality type than subjects who chose traditional career fields. Researchers (Betz & Fitzgerald, 1987; Fitzgerald, Fassinger, & Betz,

1995) emphasize the necessity of career choice that is congruent with one's abilities and interests in order to maximize one's potential. Thus, Asian Americans' occupational constriction is disconcerting in light of the longstanding belief in the career development literature in interest-occupation congruence (Holland, 1985; Luzzo et al., 1997; Spokane, 1985; Spokane, Meir, & Catalano, 2000).

Congruence and Job Satisfaction

Holland (1985) emphasizes the importance of choosing a career congruent with interests for a satisfactory job experience. He states that vocational satisfaction, stability, and achievement depend directly on the congruence between an individual's personality and environment type. Meir and Tziner (2001) state that vocational interests are predictors of occupational performance, satisfaction, and stability. Kane, Healy, and Henson (1992) supported this theory in their sample of college students who were more likely to be satisfied with their job and perceive themselves to be more competent if their matches were congruent than those whose matches were incongruent. Similarly, Nafziger, Holland, and Gottfredson (1975) using SDS to assess personality types and subjects' current major to assess environment found that person-environment congruency predicted satisfaction. Luzzo (1995) also found that those students with an interest and occupation match were more likely to have greater knowledge of career decision-making principles and greater career

maturity. Alarming, Luzzo (1992) found that compared to all other ethnic groups in his study, (Hispanic, Caucasian, and African American) Asian American college students indicated the lowest level of vocational congruence.

A lack of fit between one's job environment and personality may eventually negatively affect overall life satisfaction. This is not surprising since Americans will spend most of their adolescent and adult lives honing their interests and abilities in order to find a suitable career to ultimately find and work in their corresponding job environment. This concept of finding the person-environment fit continues throughout the lifespan, altering, adjusting, and modifying skills and interests accordingly. For that reason, the incongruence between expressed or chosen career path and measured interest is troubling since the best predictor of life satisfaction is vocational satisfaction (M.T. Brown, personal communication, February, 10, 2000).

Almost all career theories have some aspect of matching the individual to their environment (Spokane, 1991; 2001; Spokane & Catalano, 2000). Self-expression, self-determination and self-fulfillment are considered fundamental in the world of work in individualistic societies such as the United States (U.S.). This is exemplified in vocational instruments, which measure interests or personality in order to find a corresponding work environment. However, for Asian Americans, accounting for external, socio-cultural factors may have greater implications for this match than personal interests or other intrinsic

factors. Implementing one's personality, interests, and self-concept through vocational choice may not apply to Asian Americans. Instead, for example, Asian Americans may achieve job satisfaction, and hence life satisfaction, by seeking prestigious occupations to advance their family as a unit, and by meeting financial and social expectations of their family and community. Moreover, Asians tend to value humility, reserve, social hierarchy, modesty, and harmony, traits that are often in conflict with Western values of gregariousness, social equality, competitiveness, and self-promotion (Uba, 1994). Displaying or feeling self-satisfaction is seen as a sign of weakness, lacking in maturity or development; in essence, social-cultural factors challenge even the notion and the construct of "satisfaction" for Asian Americans.

Socio-cultural and Psychological Values and Patterns

A. Harrison, H. Harrison, and Park (1997) posited that cultural values, beliefs, and worldview differences explicated the overrepresentation of Asian Americans in scientific and technical fields, and underrepresentation in social fields. Immigrants in general are prone to entering non-social fields because of their different frame of reference, inability to read nonverbal cues, lack of fluency and persuasiveness, and other sophisticated social skills. Even subsequent generations of Asian Americans may have deficits in social skills due to vast value differences between the two cultures, which may be narrowing their career opportunities. Uba (1994) asserted that the greater anxiety

experienced by Asian Americans stems from ambiguous social relationships, problems with English, and different norms and values between the Asian American culture and the Western culture. Asian Americans may be experiencing anxiety and conflict from opposing values such as restraint, obedience, and dependence typically valued in traditional Asian cultures vs. aggressiveness/assertiveness, spontaneity, and independence typically esteemed by the majority group (Leong, 1985; Sue & Kirk, 1972; Sue & Morishima, 1982; Toupin, 1980). Various empirical studies using objective and standardized personality instruments support the greater degree of social anxiety and social introversion reported by Asian Americans (Leong, 1985; Sue & Sue, 1974). Thus, in order to decrease their anxious feelings, Asian Americans may be motivated to opt for careers in structured, non-social disciplines.

Seminal investigations have directly examined personality and socio-cultural patterns of Asian Americans in relation to their vocational preferences. Sue and Kirk (1972; 1973a, 1973b) found patterns of social introversion and social discomfort in their sample of Chinese Americans and observed that they tended to withdraw from social contacts, possibly influencing their samples' career choice. Sue and Frank (1973) noted that Chinese American and Japanese American men were less likely than Whites to choose vocations that demanded "forceful self-expressions, interaction with people, and communication in oral or written form" and preferred "structured, logical, concrete, impersonal work

activities, (p. 141). Leung, Ivey, and Suzuki (1994) used the “personality hypothesis” to explain their samples’ interest in Investigative occupations and a lack of interest in Enterprising occupations. This hypothesis states that Asian American vocational interests are affected by their lack of interest in using social persuasion and interpersonal skills as those required in Enterprising occupations. Leong also (1985) found that Asian Americans tended to veer away from careers that involve a great deal of sociability.

Asian American work values across various populations have also been examined. Leong and Tata (1990) reported that in their sample of Chinese American children, money and task satisfaction were indicated as the most important determinants in career choice. Leong (1991), using Rosenberg’s (1957) occupational values scale, also compared work values of college students. He found that Asian Americans placed greater emphasis on extrinsic values and valued security more than European Americans. Leong and Hayes’s (1990) findings also confirmed these values of Asian American college students. Similar results were cited by Gim (1992) who used Neville and Super’s (1986) Values Scale to compare different ethnic groups and found that Asian Americans placed higher value on material factors than European Americans. Investigators also (Meredith, 1966; Sue, 1981; Sue & Kirk, 1972) found that Asian Americans, compared to other participants, were less oriented to

theoretical, abstract ideas and tended to favor concrete, immediate solutions, and practical applications.

Contrary to Gottfredson's Theory of Circumscription and Compromise, (Gottfredson, 1981) which states that when career choice compromise is needed, prestige type preferences will be compromised before sex type preferences, Leung (1993) and Leung and Plake (1990) found that in their Asian American college samples, they compromised sex type occupations over prestigious occupations. As their participants determined prestige to be more of an important factor than sex type, the authors denoted that the findings signify Asian Americans' need for highly prestigious occupations, which may explicate their occupational constriction. Unfortunately, the need for a prestigious occupation and the underemployment of many Asian Americans pose a particular challenge.

The underemployment of Asian Americans have been widely documented (Espiritu, 1997; Hsia, 1988; Leong, 1998; Yoon, 1997), resulting from the high educational attainment of Asian American immigrants from their homelands and subsequent generations in the U.S. For various reasons such as the inability to meet state licensing requirements for immigrants, language ability, discriminatory practices, and cultural factors, they have not been able to attain positions comparable to their experience (Hsia, 1988). Kincaid and Yum (1987) illustrate the importance of maintaining one's occupational prestige level.

They studied the consequences of migration to Hawaii for first-generation immigrants from Samoa, Korea, and the Philippines compared to native Japanese and European Americans. The researchers noted that Koreans experienced the most substantial drop in occupational prestige or the greatest degree of incongruity in occupational prestige. Samoans also experienced difficulties as this group indicated the greatest degree of stress. But surprisingly, only 5% of Samoans expressed dissatisfaction with their life while 43% of them said they were “very much satisfied”. In contrary, 21% of Koreans expressed dissatisfaction, the greatest level of all groups studied, and only 7% expressed satisfaction, again the lowest level of satisfaction of all the groups.

Rationale for the Study

It is important to note that the majority of our knowledge of Asian American vocational research is based on studies conducted in the early 70's, with data collected in the 60's (Sue & Frank, 1973; Sue & Kirk, 1972, 1973; Sue & Sue, 1973). Thus, much of our understanding of Asian American personality variables and attributes linked to career development have been investigated by a small pool of researchers using the same data set, taken from one geographical location, and conducted several decades ago (Leong & Gim-Chung, 1995; Leung, Ivey, & Suzuki, 1994). Moreover, almost all of the interest congruence research on Asian Americans is based on unpublished empirical investigations. A replication of these findings and current investigations are necessary to cross-

check Asian American vocational patterns and to determine if Asian American interests have held constant over the years. Research is also necessary to query into conflicting findings. For example, the National Center for Education Statistics (cited in Hsia, 1988) indicated that between 1980 and 1981, 36% of the degrees conferred to Asian Americans was in the field of law, an area cited ubiquitously in the Asian American vocational literature as being starkly underrepresented by Asian Americans (Leong, 1985, 1998; Minatoya & Sedlacek, 1981). Clearly, unexpected findings such as this and the potentially outdated studies beg the need for additional inquiry.

Moreover, relative to their needs, career development services and assistance for Asian American college students have gone largely unaddressed. The Asian American collegiate population has grown at a rate faster than any other ethnic group. From 1980 to 1988, college enrollment for Whites increased by 4.6%, 2.1% by African Americans, 44.2% by Hispanics, and 10.3% for Native Americans. However, for Asian Americans, college enrollment increased by 73.4% (Fouad & Bingham, 1995); almost 90% of Asian American high school graduates enrolled in college (Hsia, 1988). Once in college, studies have shown that Asian Americans expressed a greater demand than any other ethnic group for career and academic counseling (Tracey, Leong, & Glidden, 1986) and are more likely to seek career counseling than any other group (Brown, Minor, & Jepsen, 1991; Cheng, Leong, & Geist, 1993). Further,

although Asian American college students who seek counseling tend not to discuss emotional or “psychological” problems, they do focus on academic and career related problems (Gim, Atkinson, & Whiteley, 1990; Tracey et al., 1986). Studies have shown, however, that Asian American students are not likely to receive satisfactory vocational guidance (Brown et al., 1991).

The need to address Asian American students’ career issues may be analogous to the women’s vocational development movement of the last couple of decades; the underrepresentation of women in the fields of science, engineering, and math (Betz, 1997) has received fervent attention as scholars have argued that the lower participation rate of women in the science and technology fields raises concerns regarding equity and effective human resource utilization (National Science Foundation, 1984; Briscoe & Pfafflin, 1979; Pfafflin, 1984). Consequently, there has been a strong call to alter attitudes, study issues related to the “implications of equality,” and most saliently, set an agenda to further expand the role of women in the science and technology fields (Briscoe & Pfafflin, 1979). I propose the same urgency in studying the “inequity” of Asian American occupational distribution. Individual career pursuits, or a range of occupational choices, if wanted, should be available to be realized. Although there may be desire, there appears to be a lack of freedom to choose nontraditional careers for Asian Americans. Asian American students may be experiencing perceived or real limitations and lack knowledge of career

alternatives, thereby choosing or settling for stereotypical occupations. Family socialization, low social self-efficacy, lack of information about the world of work, and other cultural factors may be barriers to an array of career opportunities. Moreover, constraints not only stagnate the human potential, the labor force itself does not benefit from the full gifts and talents of satisfied and productive personnel.

Asian American Ethnic Group Differences

Studies have overwhelmingly demonstrated that Asian Americans as a group have not developed nor demonstrated verbal abilities parallel to their quantitative abilities, nor matched the verbal reasoning of their peers (Hsia, 1988; Leong, 1985). How then does one explain the surprisingly high rate of Asian Americans obtaining professional law degrees (Hsia, 1988)? Since the field of law requires verbal fluency and mastery, this finding contradicts speculations in the extant literature. What accounts for this difference? The explanation to the unanticipated rate of law degrees awarded to Asian Americans may be found by examining Asian American ethnic subgroups. Filipino Americans, unlike other Asian linguistic groups, consider their best language to be English. Also, Filipino Americans, unlike other Asian Americans, have not demonstrated a higher quantitative reasoning (cited in Hsia, 1988). Japanese Americans, most typically third, fourth or fifth generation Americans, have also demonstrated interest patterns similar to European

American counterparts and strong verbal reasoning (Hsia, 1988; Leong & Gim, 1995; Sue & Morishima, 1982). Hence, it is possible that Filipino Americans and Japanese Americans may be represented in the field of law, skewing the data. Hsia (1988) demonstrated that indeed Japanese Americans and Filipino Americans, because of their longer history in the United States and other cultural characteristics have an occupational distribution similar to that of the majority culture. Chinese Americans, mostly foreign born, were found concentrated in professional as well as the service sector while Korean and Vietnamese Americans, mostly foreign born and the most recent immigrants, were more likely to have found their occupational niche in small, self-owned, ethnic, or other business enterprises.

There has been a clarion call to conduct Asian American inter-ethnic research (Luzzo, 1992; Mizokawa & Ryckman, 1990; Sadowsky et al., 1991; Uehara et al., 1994; Zane, Takeuchi, & Young, 1993). Unfortunately, due to the difficulty of securing large sample sizes (Weaver & Hinson, 2000), reticence of Asian Americans being interviewed (Leong, 1985), and other contributing factors, almost all studies on Asian Americans have reported findings based on the group as a whole (Cheung & Snowden, 1990). It has often been said that lumping all Asian American ethnic groups in this umbrella category has not adequately represented or served this diverse group, representing 29 different ethnic groups with different immigration history, educational, economic, and

occupational attainment, English language ability, and cultural beliefs (Takaki, 1989). Unfortunately, the term Asian American has been used for convenience sake; researchers (Mizokawa & Ryckman, 1990) note that it is no more informative than labeling a participant White or Caucasian. Using this general term may be masking underlying ethnic differences and obscuring knowledge to be gained from cross-cultural research on Asian Americans. To illustrate: 1) in terms of academic attainment, the percentage of Asian Americans who graduated from high school ranged from 8% to 70% depending on the ethnic group considered (Hsia, 1988), 2) Indonesian, Chinese, and Japanese groups had average per capita income at or above the U.S. average, while 14 other Asian ethnic groups listed in the U.S. Census experienced poverty levels below the U.S. average (U.S. Census, 1988), and 3) attributions of academic success and failure also differed by Asian ethnicity (Mizokawa & Ryckman, 1990).

A study by Sodowsky, Lai, and Plake (1991) exemplifies inter-group differences; they studied the acculturation process of specific Asian American groups (Chinese, Japanese, Vietnamese, Korean, Asian Indians) and found significant effects for ethnicity and socio-cultural variables, including generational status, language, reason for immigration, and religion. They found Vietnamese and Japanese Americans on opposite sides of the continuum. The Vietnamese were found to be the least acculturated, the least likely to use English, and the most affiliated with their culture of origin, while the Japanese

Americans displayed tendencies on the other side of the continuum. They also found that although Chinese, Korean, and Asian Indian Americans were not different from Japanese Americans in acculturation levels, they used English significantly less than the Japanese Americans, noting that Japanese Americans more closely resembled European Americans in terms of their cultural values and language, followed by Korean Americans.

In addition, which ethnic group gets placed under the rubric “Asian American” varies depending on the researchers. Specifically, South Asians and Filipinos may or may not be considered Asian Americans, thereby excluded in investigations. The study cited above (Sodowsky et al. 1991) included Asian Indians, but often, scholars do not include this group in investigations; in fact, there are spirited debates within the community regarding the inclusion of Asian Indians as part of the Asian American diaspora. Filipino Americans are yet another Asian group often lumped in or out of the Asian category depending on the researchers. For example, Luzzo (1992) investigated ethnic group differences in college students’ career development and found significant ethnic differences in career decision-making attitudes and vocational congruence. Luzzo indicated that Filipino students displayed a significantly lower vocational congruence score than all other ethnic groups (Hispanic, Caucasian, and African American), followed by Asian Americans. It’s important to emphasize that the

two Asian American ethnic groups under investigation were “Asian American” and Filipino.

Uehara, Takeuchi, and Smukler (1994) conducted a study that directly addressed the problems of grouping all Asian Americans as one single entity. They studied the psychological functioning among Asian Americans and found that if Asian Americans are treated as a single ethnic category in data analysis, Asian Americans comprising of Japanese, Chinese, Vietnamese, Laotian, and Filipinos Americans had lower level of functioning than their White counterparts. However, when data were analyzed using separate ethnic subgroups, only Mien-speaking Laotians had significantly lower level of functioning, demonstrating the consequence of combining distinct ethnic groups into one category.

Recently, Tang, Fouad, and Smith (1999) offered results in which interests were not found to be related to career choice when socio-cultural variables were taken into account. However, in contrast to evidence found by Tang et al., Lattimore and Borgen (1999) and Uhm and Brown (2000) found the psychological variable of interest to demonstrate consistent and useful relations to Asian American career choice behavior.

The discrepant findings may be reconciled by comparing participant characteristics to those reported by Tang et al. Tang et al.’s Asian American sample evidenced ethnic characteristics that differed from those of the

participants in Uhm and Brown. The Tang et al. sample was largely Chinese with significant numbers of Vietnamese and Filipino participants. In Uhm and Brown, the sample was largely Filipino, with significant numbers of Chinese and Korean participants; the racial-ethnic composition of Lattimore and Borgen's Asian sample was unreported. Thus, important and unaccounted for variations in ethnic group membership may affect the relationship between career interests and career choices among Asian Americans.

Socio-cultural and Demographic Factors vs. Ethnicity

Culture-specific factors are within-group variables that have been cited as important moderators of career choice processes (Lent, Brown, & Hackett, 1994; Leung et al. 1994; Leong, 1985; Leong & Serafica, 2001). Asian Americans may be incorporating culture specific factors such as acculturation, enculturation, and parental pressure into their career decision, which contrary to the nominal classifications of ethnicity and race used in the past, enable researchers to account for the wide within-group variability found in the Asian American population (Leong & Gim-Chung, 1995; Sue, 1983; Sue & Zane, 1987). Asian Americans share cultural characteristics, values and worldviews (Uba, 1994); when demographic variables such as generational level, refugee status, and English ability are accounted for and socio-cultural factors considered, the ethnic label of Filipino, Vietnamese, Japanese, Chinese, and Korean may prove to be of secondary significance. Sue and Kirk (1973) found

that Japanese American men, contrary to Chinese American men, did not express greater interest than European American men in the physical sciences or lower interest in the social sciences. The authors attributed the difference between the two Asian American ethnic groups to differential rates of acculturation and assimilation into the mainstream American culture.

Salient and relevant demographic variables and moderating variables need to be established as important determinants of Asian American career interest and choice. In doing so, one may uncover the commonalities between ethnic groups as well as factors that make each ethnic group distinct. The inclusion of these moderating variables could also prevent overgeneralization and unnecessary stereotyping (Cross, Bazron, Dennis, & Isaacs, 1989) of Asian Americans since within-group differences are greater than between-group variations.

Many cross-cultural researchers note Asian American ethnic group differences (e.g. psychological functioning, educational attainment, immigration history); as a result of these differences, they, in effect, conclude that it is important to study each group separately. It is argued, however, that the utility of ethnic labels may be limited; researchers may not be able to capture or predict the behavior of Asian Americans using this construct alone. For example, the first wave of Vietnamese Americans consisted of their country's elite, much different in economic and educational attainment and even the means by which

they left Vietnam than subsequent waves of Vietnamese Americans (Kibria, 1993). They may actually be comparable to Korean immigrants from the 1980's, representing college educated, urban city dwellers looking for educational opportunities for their children, or recent Filipino immigrants with a strong command of the English language. Subsequent Vietnamese immigrants may be comparable to recent Korean immigrants from the lower economic strata, pushed out by the country's dwindling opportunities - comparable still to political dissidents from China. Relatedly, there are Asian Americans within each ethnic group that constantly wrestle with the push-pull factors of their dual-culture identity; some become marginalized, while others seemingly blend-in into the majority culture (Leong & Chou, 1994). Thus, behavioral outcome may not be elucidated using ethnic categorizations alone.

Moreover, as the U.S. becomes progressively more pluralistic and multicultural, an ever-increasing number of Asian Americans are identifying themselves as multi-racial or bi-racial. In fact, Asian Americans have the highest interracial marriage rate in the nation compared to White, African American, and Latino groups (Fujino, 1997). In particular, Japanese Americans (Kitano, Fujino, & Sato, 1998) and Filipino Americans (Root, 1997) have exceptionally high out-marriage rates. Since the Asian American multi-racial population is likely to proliferate, instead of excluding this group as is currently the practice due to a "confound" in ethnicity, researchers in the future must

contend with this diversity. With the inclusion of socio-cultural factors, scholars have the opportunity to consider a significant and emerging segment of the population. Likewise, a mono-racial member's unique set of circumstances and psychological make-up are intricate, rendering such markers as ethnicity possibly inadequate and ill-equipped to explain or predict diverse human behavior and functioning.

The extant career theories have been criticized for their lack of emphasis on socio-cultural variables such as cultural values, parental influence, and acculturation (Fouad & Bingham, 1995; Leong & Brown, 1995; Leong & Chou, 1994; Leong & Serafica, 2001). In support of this recognition to examine cross-cultural variables, it is hypothesized that social-cultural factors may account for the career choice behavior of Asian Americans. In order to rectify the different findings between Tang et al. (1999), Lattimore and Borgen (1999), and Uhm and Brown (2000), the sample's socio-cultural and psychological characteristics will be reviewed. Although Lattimore and Borgen did not report their sample's socio-cultural characteristics, Uhm and Brown's research participants appear to be less traditional in interests and choices compared to the Tang et al. sample; the Uhm and Brown's sample reported lower levels of parental involvement, higher levels of atypical interests, higher levels of atypical self-efficacy, less traditional occupational choices, lower Investigative interests, and higher interests in Artistic, Social, and Enterprising areas. Consequently, socio-cultural

and socio-psychological variations among Asian American individuals and subgroups may not only greatly impact career choices, they may override personal interests in career determination as reported by Tang et al. It is possible that the empirical relationship between inventoried interests and expressed career choices that was not found by Tang et al. but was found by Lattimore and Borgen, and Uhm and Brown may depend on the traditionality of Asian Americans studied. Tang et al. have suggested that Asian values may mediate the relation between career interests and career choice. Therefore, an important future study is to examine socio-cultural factors' role in mediating the career processes among Asian Americans.

Acculturation, Enculturation, Parental Involvement, Financial and Prestige Considerations

Over the years, substantial evidence has accumulated regarding the influence of values on an individual's career choice (Brown & Crace, 1996; Carter, 1991; Dawis & Lofquist, 1984). The role of values has been implicated in Asian Americans' career choice (Leong & Serafica, 1995; Sue & Kirk, 1972, 1973), but it has not been studied directly. Tang et al. (1999) discovered that acculturation, the level of assimilation to mainstream U.S. culture reported by their sample of Asian Americans, was directly related to typicality of career choice, and indirectly related to typicality of occupational self-efficacy. However, as Kim, Atkinson, and Yang (1999) point out, acculturation is a

complex phenomena in which acculturation involves processes of both assimilation to the U.S. culture and Asian values enculturation.

How researchers view the acculturation process, usually the process by which minority members are exposed to the dominant White culture, has evolved considerably. Park (1928) and Stonequist (1935) first laid the foundation for the study of acculturation, contending that a person with dual cultures would feel “marginal” in both cultures. They cited that a person straddling two cultures would inevitably suffer negative outcomes and consequences such as low self-esteem and low self-concept as a result of his or her membership to two or more cultures. This framework of second culture acquisition was eventually replaced; it was posited that positive dual culture functioning was attainable via majority culture acquisition and minority culture loss (assimilation), or majority culture rejection and minority culture retainment (Child, 1943). This linear framework has since been scrutinized, suggesting the use of the orthogonal model of acculturation to better account for the complexities and multidimensionality of second culture acquisition (Berry, 1990; LaFromboise et al. 1993). Berry (1990) and LaFromboise (1993) suggests that retaining the culture of origin and acquiring knowledge and competency of the majority culture are two separate dimensions.

Despite this recognition, there is currently no orthogonal operationalization of the acculturation process for Asian Americans (Kim &

Abreu, 2000). Although the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn, Richard-Figueroa, Lew & Virgil, 1987) is a uni-polar measure of mostly behavioral acculturation, it is the measure most often used in research with Asian Americans. Thus, it is difficult to extrapolate bicultural psychological functioning from this measure alone due to its inability to capture and operationalize the orthogonal acculturation construct. That is, an Asian American can report via an acculturation measure that they have acquired the behaviors of acculturation to U.S. mainstream culture, but the participant cannot report their retention, maintenance, or adherence to Asian cultural values. Further, Kim et al. (1999) articulate that values acculturation occurs much slower than behavioral acculturation. Due to the slower process of values acculturation, subsequent immigrant generations may acquire the behavioral components of acculturation but still retain the traditional value orientation of their ancestors.

As indicated, because the SL-ASIA (Suinn et al., 1987) used in the Tang et al. (1999) and Uhm and Brown (2000) studies is considered a measure of only the assimilation aspects to U.S. culture (Betancourt & Lopez, 1993; Cuellar, Arnold, & Maldonado, 1995; Kim et al., 1999), the results of these studies are, at best, only suggestive of a possible relationship between Asian cultural values and career choice; the direct role of cultural values in the career choice behavior of Asian Americans remains to be empirically investigated. As scholars (Brown

& Crace, 1996) have urged vocational counselors to place values at the center of the career counseling process, it is vital to place this variable under scrutiny.

Among the social and social psychological factors primarily implicated in Asian American career choice behavior are parental pressure, and financial and status considerations (Gim, 1992; Leong, 1985; Leong, 1991; Leong & Hayes, 1990; Leong & Tata, 1990; Leong et al.1994). Studies have also shown that Asian Americans exhibit higher levels of dependent decision-making styles (Leong, 1991), and tend to be more dependent, less autonomous, and more obedient to authority than Whites (Meredith, 66, Sue & Kirk, 1972, 1973, Uba, 1994). This tendency, combined with the propensity of traditional Asian parents to stress established occupations primarily in the scientific and investigative spheres, the likelihood of disregarding or dismissing other occupational alternatives appear high. Leong and Serafica (1995) described the directing influence of parents over the career choice of Asian American children from more traditional homes and suggested that career interests may not be highly correlated in such Asian Americans. Kim (1993) also discussed the difficulties Korean youths face and the ensuing familial conflict if the youths fail to meet their parents' career expectations. She notes that the parents' tend to channel their children into prestigious occupations with optimal financial rewards due to their strong desire for their children's security and to ensure their "success". Because respect and deference to one's parents is a strong trait in the Asian

culture (Uba, 1994), Korean American students have frequently followed their parents' wishes. However, some students who come to eventually realize that they do not enjoy their work, reported suffering from stress and mental health problems, or strained family dynamics (Kim, 1993). Kim indicates that "when their talents, interests, and lifestyles do not match those appreciated by their families and their community, Korean American youths are often left with little choice but to suppress them, and this suppression can result in serious problems" (Kim, 1993, p. 243). In support of this position, Gim (1992) showed that while real and ideal choices were correlated for their sample of European Americans, they were uncorrelated using their sample of Asian-American students. Further, Gim's study revealed that Asian-American students reported higher perceived parental pressure as an influence in their career choices than did their European American peers. Evanoski and Wu Tse (1989) corroborated the extant literature on the family's influence on Asian American youths, stating that Asian cultures stress the development of practical and marketable skills that carry high levels of social prestige. Further, they argued that in traditional Chinese and Korean families, the parents decide their children's career choice, with self-sufficiency, financial stability of their children, and desires to counteract the possible effects of discrimination in mind.

Although it is clear that there is a limited range of career choice for Asian Americans, what is not clear is the reason for such a restricted choice.

Other questions also need to be answered. For example, why do some Asian Americans choose vocations consistent with their measured interests and others deviate from them? The lack of empirical investigations, and often discrepant findings speaks to the complexity of identifying variables that predict Asian American career processes. Scholars are questioning current models and theories developed from European American middle class value orientations, with its absence of culturally specific variables as the standard by which Asian Americans are being evaluated (Leong & Serafica, 1995, 2001).

Leong's (1985) identification of three converging themes relevant to the career choices of Asian Americans (locus of control, social anxiety, and intolerance for ambiguity) are supported. The reviewed studies provide substantial evidence for Asian Americans' values regarding pragmatism, orientation for extrinsic needs, and desire for security. The data also support their need for structured environments, dependent decision-making approaches, and reserved communication styles as contributing factors to the limited vocational range of Asian Americans. More specifically, culture specific correlates such as economic considerations (Hsia, 1988), family influence or pressure (Leong & Gim, 1995), acculturation (Leong & Chou, 1994), and prestige (Leung et al., 1994) may be vital to their decision-making. Thus, testing the utility of cultural variables may shed some light on a substantial

segment of the Asian American population with constrained and/or incongruent career choice behavior.

There are important implications for career counselors providing guidance to Asian Americans. Counselors may need assistance when measured interests and expressed career paths reveal incongruency. Career counselors may become concerned with an Asian American student who appear motivated to find a job seemingly ill-fit with his/her interests, by placing a high priority on socio-cultural factors, above and beyond the need to find a career that's intrinsically satisfying. This study is needed to discern these complex factors in order to advise vocational counselors on the application of psychological and socio-cultural variables in the counseling setting, in order to ultimately provide relevant and culturally sensitive career counseling.

Purpose and Research Questions

Tang et al. (1999) investigated the career choices of Asian Americans by incorporating the Strong Interest Inventory, including the Skills Confidence Inventory, the Suinn-Lew Asian Acculturation Scale, and the Parental Involvement Scale. The purpose of the present study is to extend their model by testing the above variables with additional culture-based factors, and by examining Asian American inter-group and intra-group variability. This study will identify the variables contributing to Chinese and Filipino Americans' choice of college major, examine measured and expressed interest, ascertain the

need for specific Asian American ethnic group comparisons, expand our understanding of specific Asian American groups' career processes, and account for within-ethnic-group variability.

For Asian Americans, the ubiquitous vocational question of “who chooses which career and why” requires explication. The proposed study will test the influence of socio-cultural and psychological variables on career decision-making. Four general questions will be examined: 1) Are Chinese and Filipino American ethnic subgroups significantly different in their choice of college major? 2) Are Chinese and Filipino Americans constrained in their interest and self-efficacy as measured by the Strong Interest Inventory?, 3) Are Chinese and Filipino Americans constrained in their choice of college major?, 4) What factors account for the intra-group variance on choice of college major? Based on the existing literature on Asian American career choice, the following hypotheses are made:

Hypotheses

1. Chinese and Filipino American ethnic subgroups will not differ in their career interest as measured on the General Occupational Themes (GOTs) of the SII.
2. Chinese and Filipino American ethnic subgroups will not differ in their career self-efficacy as measured on the Skills Confidence Inventory (SCI) of the SII.

3. Ethnicity will be related to parental involvement, Asian values enculturation, behavioral acculturation, influence of financial consideration, and influence of prestige/status such that:
 - a. Relative to parents of Chinese American participants, Filipino American parents will be less involved in their career choice.
 - b. Relative to Chinese American participants, Filipino American participants will have higher behavioral acculturation.
 - c. Relative to Chinese American participants, Filipino American participants will have lower Asian values enculturation.
 - d. Relative to Chinese American participants, Filipino American participants will have lower influence of financial consideration on major of choice.
 - e. Relative to Chinese Americans participant, Filipino American participants will have lower influence of prestige/status on major of choice

4. The relationship between socio-cultural factors, self-efficacy, and interest predictors for Chinese and Filipino Americans will be such that:
 - a. Parental involvement will be positively related to inventoried self-efficacy and interest in traditional areas (Investigative and Conventional themes), and negatively related to inventoried self-

- efficacy and interest in nontraditional areas (Social, Enterprising, and Artistic themes).
- b. Behavioral acculturation will be positively related to inventoried self-efficacy and interest in nontraditional areas (Social, Enterprising, and Artistic themes), and negatively related to inventoried self-efficacy and to interest in traditional areas (Investigative and Conventional themes).
 - c. Values enculturation will be negatively correlated to inventoried self-efficacy and interest in nontraditional areas (Social, Enterprising, and Artistic themes), and positively correlated to inventoried interest and self-efficacy in traditional areas (Investigative and Conventional themes).
 - d. Financial considerations will be negatively correlated to inventoried self-efficacy and interest in Social and Artistic themes, and positively correlated to inventoried interest and self-efficacy in Investigative, Enterprising, and Conventional themes.
 - e. Influence of prestige will be negatively correlated to inventoried self-efficacy and interest in Social and Artistic themes, and positively correlated to inventoried interest and self-efficacy in Investigative, Enterprising, and Conventional themes.

5. The relationship between socio-cultural factors, self-efficacy and interest predictors will be to traditional career choice for Chinese and Filipino Americans such that:
 - a. Traditional career choice will be positively related to Investigative and Conventional interest and self-efficacy.
 - b. Traditional career choice will be negatively related to Social, Artistic, and Enterprising interest and self-efficacy.
 - c. Traditional career choice will be positively related to Asian values enculturation, parental involvement, influence of financial consideration, and prestige.
 - d. Traditional career choice will be negatively correlated with behavioral acculturation.

6. The relationship between socio-cultural variables for Chinese and Filipino Americans will be such that:
 - a. Behavioral acculturation will be negatively correlated to values enculturation, parental involvement, influence of financial consideration, and influence of prestige/status.
 - b. Asian values enculturation will be positively correlated to parental involvement influence of financial consideration, and influence of prestige/status.

- c. Parental involvement will be positively correlated to Asian values enculturation, influence of financial consideration, and influence of prestige/status.
 - d. Influence of financial consideration will be positively correlated to influence of prestige/status.
7. The relationship between ethnicity and choice of college major in scientific/technical fields will be tested; Chinese Americans will be significantly more likely to choose traditional college majors than Filipino Americans.
 8. Psychological factors (i.e., career interest and career self-efficacy) and ethnicity will be related to choice of college major. However, ethnicity's relationship to choice of college major will attenuate when psychological variables are factored in.
 9. Socio-cultural factors, psychological factors, and ethnicity will be related to choice of college major. However, there will be no relationship between ethnicity and choice of college major when socio-cultural and psychological variables are factored in.
 10. Although psychological variables will be significantly related to the criterion for both ethnic groups, relative to Chinese Americans, Filipino Americans' inventoried interest and self-efficacy in traditional themes will demonstrate a greater increase in the odds of majoring in traditional

majors. Although socio-cultural variables will be significantly related to the criterion for both ethnic groups, relative to Filipino Americans, Chinese Americans' values enculturation (high enculturation), parental involvement (high parental involvement), and financial consideration (high financial consideration) will demonstrate a greater increase in the odds of majoring in traditional majors.

Exploratory Research Question

1. What is the relationship between traditionality and participants' own satisfaction with their major, perceived parents' satisfaction with their major, and expressed self-interest with their major?

Chapter II

Methods

Participants

Participants were undergraduates who self identified as Chinese or Filipino American, from the University of California, Santa Barbara. Biracial and multiracial Chinese or Filipino Americans were not included in the analysis. Participants' major of choice was classified as either traditional or non-traditional (criterion) for Asian American college students (see Table 6). Since categories of the criterion variable must be mutually exclusive (Rose, Chassin, Presson, & Sherman, 2000), participants who indicated double majors in both traditional and non-traditional majors were also excluded from analysis.

After accounting for the exclusionary criteria mentioned above, the analysis consisted of 123 undergraduate participants (42 men, 81 women; see Table 1). The age range of the Filipino Americans participants was 18-25 ($M = 20.09$, $SD = 1.51$) and 18-24 for Chinese Americans ($M = 20.13$, $SD = 1.48$). Almost all of the participants were either first or second-generation Asian Americans. Tables 2 and 3 describe the participants in terms of their generation level, class, age, grade point average (GPA), socio-economic status (SES), and Scholastic Aptitude Test (SAT) total, SAT math and verbal scores; T-tests revealed significant difference between the two ethnic groups on SAT math (t

(75) = -2.70, $p < .01$). Tables 4 and 5 indicate participants' majors and occupations by Holland types.

The required number of participants for logistic regression analysis was determined using guidelines suggested by Concato, Peduzzi, Holford, and Feinstein (1995). They indicated that the ratio of subjects to parameters should be approximately 10:1. Using these assumptions, a maximum of nine predictors and 123 participants in the present study were deemed to be within the guidelines.

Instruments

Demographic questionnaire. A questionnaire was developed to collect information on the following variables: age, sex, grade point average, Scholastic Aptitude Test (SAT) scores, year in college, ethnic group, religious affiliation, generational status in this country, and SES. The SES of the student was coded employing Stevens and Cho's (1985) Socioeconomic Index (SEI) derived from the income and educational attributes of the 1980 labor force in which a higher score indicates a higher level of occupational and/or economical prestige. The higher SEI of the parents' current occupation was used. The SEI is the most widely used SES index because of its ability to sidestep psychometric problems and describe the socioeconomic distances between occupations (Stevens & Cho, 1985). See copy of the demographic questionnaire in the Appendix, p. 117.

Strong Interest Inventory. To assess Asian American vocational interests, the Strong Interest Inventory (SII; Harmon, Hansen, Borgen, & Hammer, 1994) was used. The SII has been identified as the best operational definition of Holland's (1985) occupational interest themes (Rounds, 1995) and is the most popular and widely used interest assessment (Carter & Swanson, 1990; Donnay, 1997; Harmon et al., 1994; Haverkamp, Collins, & Hansen, 1994).

The SII was developed initially in 1974 then revised in 1994. During the development of the 1994 SII, data were collected from over 55,000 people in 50 occupations during 1992 and 1993. The SII employs 325 items to assess preference for occupational interest, activities, hobbies, leisure activities, school subjects, and types of people. The respondent indicates whether they "like, dislike" or are "indifferent" to each of the items. The SII profile includes three scales: six General Occupational Themes (GOTs), 25 Basic Interest Scales (BIS), and 211 Occupational Scales (OS) that compare the respondent to people who are satisfied with their job in various occupations.

For this study, the GOTs were used to indicate interest. The GOT scores cover six broad dimensions, which indicate the participant's overall view of career and life interests. Scores on the six GOTs are produced as a result of scoring the SII corresponding to Holland's six vocational personalities: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. A

“Like” response to one of the items constituting a Theme raises a person’s score, a “Dislike” response lowers the score and an “Indifferent” response has no effect on the score. High scores suggest the general range of activities the participant will enjoy, the type of occupational environment he will find most comfortable, and the kinds of people who are most like the participant. Each GOT is composed of 20 or more items (Realistic = 23, Investigative = 20, Artistic = 33, Social = 23, Enterprising = 22, Conventional = 21).

Test re-test reliabilities for 2-week, 30-day, and 3 year periods for GOTs, BIS, and OS ranges from .73 to .95 (Hansen & Campbell, 1985). More specifically, the test-retest reliability of the GOTs over a 3-6 month period ranged from .84 to .92. Harmon et al. (1994) indicated a test-retest (3 month interval) Cronbach’s alpha of .95 for women and .96 for men. Internal consistency reliability coefficient for the six GOTs ranged from .90 for the Social theme to .94 for the Artistic theme. The reliability coefficients of the GOTs are as follows: Realistic = .93, Investigative = .91, Artistic = .94, Social = .90, Enterprising = .90, Conventional = .90 (Harmon et al., 1994). Further, there is considerable evidence for the validity of the GOTs to predict occupational group membership according to theoretical expectations (Donnay 1997; Donnay & Borgen, 1996, Harmon et al., 1994). The total score for each of the six scale scores, which ranges from 25 to 75, were used in the study. See copy of the SII in the Appendix.

Skills Confidence Inventory. The Skills Confidence Inventory (SCI; Betz, Borgen, & Harmon, 1996a), a component of the SII, was used to operationalize self-efficacy. The SCI was developed from an initial item pool of 151 items, in a sample of over 1,800 employed adults and college students. Six, 10-item scales based on item analyses resulted in the final version of the SCI. The SCI was normed on samples of 1,147 employed adults and 706 college students.

The 60-item instrument uses a Likert scale to measure individual's self-efficacy in performing various activities and school subjects. Using Holland's hexagon typology (Betz, 1994), each scale consists of 10 activities, tasks, or school subjects classified into 6 Holland types (see SII). The scale score ranges from 1 indicating "no confidence at all" to 5 indicating "complete confidence" with the higher score indicating higher self-efficacy in each of the 6 Occupational Themes.

Values of coefficient alpha ranged from .84 to .87 in the normed college sample and from .84 to .88 in the normed employed adult sample (Betz et al., 1994). Betz (1994) reported the average internal consistency reliability of the six scales (General Confidence Themes) of .92. Betz, Harmon, and Borgen, (1996b) report the construct validity with GOTs indicating correlations ranging from .44 (Enterprising) to .63 (Artistic). Test-retest reliability in a sample of college students over a 3-week interval were: Realistic = .83, Investigative = .86,

Artistic = .85, Social = .87, Enterprising = .84, Conventional = .84 (Parsons & Betz, 1998). Concurrent validity was obtained in which employed adults reported significantly higher confidence levels than did college students (Betz et al., 1996b). Betz et al. (1996b) also noted a relatively higher correlation between self-efficacy and interest in the same theme. Scores for each scale are the mean response across the 10 items. The average of each of the six subscale scores, which ranges from 1-5, were used in the study. See copy of the SCI in the Appendix, p. 117.

Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA). The Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA) is the most widely used instrument for assessing Asian American acculturation (Kim & Abreu, 2000). The SL-ASIA (Suinn, Rickard-Figueroa, Lew, & Vigil, 1987), modeled after the Acculturation Scale for Mexican Americans (ARSMA; Cuellar, Harris, & Jasso, 1980) indicates the level of assimilation to mainstream U.S. culture evidenced by Asian Americans. A factor analysis of the SL-ASIA was conducted and compared with the factors found in the ARSMA (Suinn, Ahuna, & Khoo, 1992). The SL-ASIA contains three factors similar to the ARSMA including reading/writing/cultural preference, ethnic interaction, and generational identity. Additional factors on the SL-ASIA were found by Suinn et al. (1992), including affinity for ethnic identity and pride, and food preference.

The SL-ASIA consists of 21 multiple-choice items, which assess various dimensions associated with acculturation, such as language preference (4 questions), one's own and one's parents' racial identity (4 questions), cross- and same-racial friendships (4 questions), generational and geographic background (3 questions), and various cultural behaviors and attitudes (6 questions). Scale scores range from 1, reflecting lower acculturation (or high Asian identity), to 5, reflecting higher acculturation (or high American identity) (Suinn et al., 1992; Suinn et al., 1987). The 21 responses are summed and divided by 21 for an acculturation score, 1 being the lowest level of western acculturation whereas 5 is the highest level of western acculturation.

The measure demonstrated high internal consistency reliability across different Asian American college samples with Cronbach's alphas ranging from .88 to .91 (Suinn et al., 1987; Atkinson & Gim, 1989; Suinn et al., 1992). The scores on the instrument have been found to correlate appropriately and highly with acculturation indices such as years attending school in the U.S., $r = .61$, years living in the U.S., $r = .56$, self-rating of acculturation, $r = .62$; all significant $p < .001$, demonstrating concurrent validity (Suinn et al., 1992). The mean of the total score, which ranges from 1-5, was used in the study. See copy of the SL-ASIA in the Appendix.

Asian Values Scale. The Asian Values Scale (AVS) was developed to examine the degree to which a respondent endorses specific value orientations

that have been associated with East Asian culture. The measure (Kim, Atkinson, & Yang, 1999) consists of 36 questions describing 12 Asian value dimensions that was originally derived from 112 preliminary items and 14 Asian value dimensions. Items (36) in which first-generation Asian Americans significantly differed from European Americans were selected.

The measure samples a wide range of acculturation dimensions including values and attitudes toward educational achievement, family/relational orientation, expression of emotions, and communication style. Kim et al. reported exploratory factor analysis which indicated a six-factor structure with the following alpha coefficients: a) conformity to norms = .69, b) family recognition through achievement = .62, c) emotional self-control = .47, d) collectivism = .54, e) humility = .57, and f) filial piety = .38.

Respondents indicate the extent of agreement with each value statement on a 7-point Likert scale ranging from 1 (strongly disagree) to 4 (neither agree or disagree) to 7 (strongly agree). The overall AVS had an internal consistency of .82 and a 2-week test-retest reliability of .83. Concurrent validity was demonstrated with the collectivism subscales of the Individualism and Collectivism Scale (INDOL; Triandis, 1995) and discriminant validity was demonstrated with behavioral acculturation of the SL-ASIA in a confirmatory factor analysis (Kim et al., 1999). As recommended by Kim et al. (1999) only the total score was used due to the unacceptably low coefficient alphas of the

subscales. The total score is an average of all the scale scores and ranges from 1-7. See copy of the AVS in the Appendix, p. 113.

Modified Parental Involvement Scale. A modification of Tang et al. (1999) Family Involvement scale (FIS) was employed to measure the extent to which participants perceived their parents to be pressuring certain occupational fields or path in the participant's career decision-making process. The original scale consisted of eight items reflecting the type of parent involvement in the career decision-making process that might be expected to occur in Asian American families and had a reported internal consistency reliability of .59. An explanation of how the items for the original scale were developed was unreported by Tang et al.

Fukunaga (1999) modified the Tang et al. scale to produce the Parental Involvement Scale (PIS) by: 1) revising items so that they could be answered on a continuum (1 = "strongly agree" to 5 = "strongly disagree"), 2) revising items to reduce ambiguity and increase clarity, 3) changing items to first person statements, 4) dropping one unreliable item and adding two others, and 5) focusing items on the involvement of parents as opposed to other family members.

Uhm and Brown (2000) modified the PIS by adding five more items (14 questions total) thought to be related to the types of parent involvement expected in Asian

American families. Three unreliable items were dropped from the PIS resulting in a total of 11 items. A Cronbach's Alpha of .81 was obtained for the Uhm and Brown version of the PIS. The average of the total score, ranging from 1-5, was used in the study. See copy of the PIS in the Appendix, p. 112.

Influence of Financial Consideration. Influence of Financial Consideration was assessed using the following question: "To what degree did financial consideration (e.g. more employment opportunities, better salary) influence your choice of major? The item is on a 5-point continuum scale from "Not at all" to "Completely."

Influence of Status/Occupational Prestige. Influence of Status/Occupational Prestige was assessed using the following question: "To what degree did the status or occupational prestige of a certain job influence your choice of a major? The item is on a 5 point continuum scale from "Not at all" to "Completely."

Self-satisfaction with Major. Self-satisfaction with Major was assessed using the following question: "How satisfied are you with your current choice of major?" The item is on a 5 point continuum scale from "Not at all" to "Completely."

Perceived Parent's Satisfaction with Major. Perceived Parent's Satisfaction with Major was assessed using the following question: "How

satisfied do you think your parents are with your choice of major? The item is on a 5 point continuum scale from “Not at all” to “Completely.”

Personal Interest in Major. Personal Interest in Major was assessed using the following question: “To what degree did your personal interests influence your choice of a major? The item is on a 5 point continuum scale from “Not at all” to “Completely.”

Choice of College Major. Students’ major was assessed using the following question: “What is your declared major or the major you intend to declare?” Prior to data analysis, each college major was coded according to the participant’s primary Holland code, using the Holland Classification System (Holland, 1985). Holland types were also coded to indicate traditional (e.g., engineering, accounting) or nontraditional (e.g., linguistics, Psychology) major of choice for Asian Americans based on the extant literature.

Occupational Choice. Students’ occupational choice was assessed using a two-part question: “List all the occupations you are considering right now; please be as specific as possible. Which occupation is your first choice?” Prior to data analysis, each of the participants’ first choice occupation was coded according to the participant’s primary Holland code, using the Holland Classification System (Holland, 1973; 1985).

Procedure

Data were collected by distributing the demographic questionnaire, the SII, including the GOT and SCI, the SL-ASIA, PIS, and the AVS to a purposively drawn sample of Asian American college students from the University of California, Santa Barbara. The participants were solicited from all departmental list serves, Asian American clubs and groups, and to Asian American students in introductory Asian American lecture classes satisfying university general education (GE) requirements in the area of ethnic and racial diversity as well in introductory social and physical science classes. The author also identified seven instructors who taught introductory GE courses through course catalogs and contacted them by email, introducing the study and asking for their cooperation in announcing the availability of the study. After participants were screened for eligibility by phone, they were given appointment dates and times to partake in the study in one uninterrupted session. The author and/or research assistants monitored the sessions, and surveys were administered in groups of two to twenty. As an incentive, the author provided a lecture on Asian American, counseling, or career development issues, depending on the interests of the instructor and audience. Participants were also entered into a drawing of cash and gift prizes, totaling \$300. The survey return rate could not be determined due to the nature of the current's study's data collection (i.e.,

completion of surveys by every participant during their appointment times, after they were solicited and screened for ethnicity).

Chapter III

Results

The current section presents the results in the order of the previously stated 10 hypotheses and exploratory research questions. Broadly, the following tests were conducted: 1) independent sample t-tests for ethnic group differences on psychological and socio-cultural factors, 2) correlation tests among psychological and socio-cultural factors, 3) logistic regression analyses to determine ethnic group differences in college major traditionality, and to determine traditionality model fit by both combining ethnic groups and by examining the fit separately by ethnic group, and 4) independent sample t-tests and logistic regression analysis on exploratory research questions.

As mentioned previously, descriptive data for the participant characteristics are shown in Tables 1-6.

Table 1

Descriptive Statistics on Participant Characteristics

	<u>n</u>	<u>%</u>
Gender		
Male	42	34
Female	81	66
Ethnicity		
Chinese American	54	44
Filipino American	69	56

Table 2

Descriptive Statistics on Generation level and Class Standing

	Chinese American		Filipino American	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Generation Level				
First Generation	24	44	18	26
Second Generation	28	52	49	71
Third Generation	1	2	1	1
Fourth Generation	1	2	1	1
Class Standing				
Freshmen	14	26	14	20
Sophomore	13	24	15	22
Junior	9	17	26	38
Senior	18	33	14	20

Table 3

Differences between Chinese and Filipino Americans on Demographic Variables

	Chinese American			Filipino American			<u>t</u>
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>N</u>	<u>M</u>	<u>SD</u>	
Age	53	20.13	1.48	69	20.09	1.51	-.17
SES	52	55.63	23.71	67	54.25	19.60	-.34
GPA	53	2.95	.46	63	2.94	.33	-.08
SAT Total	49	1170.41	128.63	50	1133.60	126.95	-1.43
SAT Math	41	616.27	76.33	36	570.14	73.14	-2.70**
SAT Verbal	40	570.58	93.08	36	555.42	92.72	-.71

SES = socioeconomic status; GPA = Grade Point Average; SAT = Scholastic Achievement Test;
 * $p < .05$, ** $p < .01$

Table 4

Differences between Chinese and Filipino Americans on Majors by Holland Type

Major	Chinese American				Filipino American			
	Single Major		Double Major		Single Major		Double Major	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Realistic	1	2	2	3	4	6	4	5
Investigative	18	33	19	31	21	30	21	24
Artistic	5	9	5	8	5	7	8	9
Social	13	24	8	29	30	44	43	49
Enterprising	16	30	18	29	8	12	8	9
Conventional	0	0	0	0	4	6	4	5

Table 5

Differences between Chinese and Filipino Americans on Occupations by Holland Type

Occupation	Chinese American		Filipino American	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Realistic	5	9	6	9
Investigative	8	15	15	22
Artistic	1	2	4	6
Social	4	7	10	15
Enterprising	12	22	11	16
Conventional	2	4	5	7

Table 6

Differences between Chinese and Filipino Americans on Criterion Variable

			Chinese		Filipino	
	<u>N</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Major of Choice						
Traditional	48	39	22	41	26	38
Non-traditional	66	54	27	50	39	57

The first hypothesis stated that Filipino Americans and Chinese Americans will not significantly differ in their career interests as measured by the GOT of the SII. Independent sample t-tests were partially supportive of this hypothesis. No significant ethnic group differences were found for any of the mean GOT scores, with the exception of the GOT-E theme, $t(121) = -1.96, p < .05$, (see Table 7). Chinese Americans ($M = 53.28, SD = 8.61$) indicated higher interest in E types of occupations relative to Filipino Americans ($M = 49.90, SD = 10.49$).

Table 7

Differences between Chinese and Filipino Americans on

Psychological Variables: Interest - General Occupational Themes (GOT)

	Chinese American			Filipino American			t
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>N</u>	<u>M</u>	<u>SD</u>	
Realistic	54	44.19	8.70	69	44.42	10.03	.14
Investigative	54	44.94	9.43	69	44.71	10.51	-.13
Artistic	54	52.04	8.43	69	52.55	10.79	.29
Social	54	50.67	10.18	69	53.83	11.23	1.61
Enterprising	54	53.28	8.61	69	49.90	10.49	-1.96*
Conventional	54	48.30	10.67	69	48.46	9.89	.09

* $p < .05$

The second hypothesis stated that Filipino Americans and Chinese Americans will not significantly differ in their career self-efficacy as measured by the SCI of the SII. As shown in table 8, independent sample t-tests revealed no significant mean differences in SCI scores between the two ethnic groups, indicating that Chinese and Filipino Americans reported no differences in self-efficacy levels with regards to all six career occupational themes.

Table 8

Differences between Chinese and Filipino Americans on
Psychological Variables: Self-Efficacy - Self Confidence Inventory (SCI)

	Chinese American			Filipino American			t
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>N</u>	<u>M</u>	<u>SD</u>	
Realistic	54	3.01	.70	69	3.08	.85	.49
Investigative	54	3.08	.69	69	3.03	.90	-.30
Artistic	54	3.35	.61	69	3.54	.84	1.50
Social	54	3.55	.70	69	3.75	.78	1.45
Enterprising	54	3.31	.67	69	3.38	.79	.55
Conventional	54	3.33	.70	69	3.23	.72	-.72

The third hypothesis posited that ethnic group differences would be found on the following socio-cultural variables: parental involvement, Asian values enculturation, behavioral acculturation, influence of financial consideration, and influence of prestige/status. Specifically, it was hypothesized that:

- a. Relative to parents of Chinese American participants, Filipino American parents will be less involved.
- b. Relative to Chinese American participants, Filipino American participants will have higher behavioral acculturation.

- c. Relative to Chinese American participants, Filipino American participants will have lower Asian values enculturation.
- d. Relative to Chinese American participants, Filipino American participants will have lower influence of financial consideration on major of choice.
- e. Relative to Chinese American participants, Filipino American participants will be less influenced by prestige/status on major of choice

Only the hypothesis regarding behavioral acculturation was supported by independent t-test analyses; Chinese Americans ($M = 3.10$, $SD = .44$) evidenced lower behavioral acculturation relative to Filipino American ($M = 3.27$, $SD = .44$) participants, $t(119) = 2.16$, $p < .05$. Chinese Americans and Filipino Americans did not significantly differ in their level of parental involvement, $t(121) = -1.87$, $p < .05$, values enculturation, $t(118) = -.77$, $p < .05$, influence of status/prestige, $t(120) = -.86$, $p < .05$, nor on the influence of financial considerations, $t(121) = -.49$, $p < .05$, in choosing their college major (see Table 9).

Table 9

Differences between Chinese and Filipino Americans on Socio-cultural Variables

	Chinese American			Filipino American			t
	N	M	SD	N	M	SD	
Behavioral Acculturation	53	3.10	.44	68	3.27	.44	2.16*
Values Enculturation	53	4.47	.41	67	4.41	.38	-.77
Parental Involvement	54	2.89	.63	69	2.67	.69	-1.87
Financial Consideration	54	2.67	1.33	69	2.55	1.30	-.49
Prestige/Status	53	2.92	1.25	69	2.72	1.28	-.86

* $p < .05$

The fourth hypothesis examined the relationships among the socio-cultural, self-efficacy, and interest predictors. Specifically, it was hypothesized that:

a. Parental involvement will be positively related to inventoried self-efficacy and interest in traditional areas (Investigative and Conventional themes), and negatively related to inventoried self-efficacy and interest in nontraditional areas (Social, Enterprising, and Artistic themes).

b. Behavioral acculturation will be positively related to inventoried self-efficacy and interest in nontraditional areas (Social, Enterprising, and Artistic

themes), and positively related to inventoried self-efficacy and interest in traditional areas (Investigative and Conventional themes).

c. Values enculturation will be negatively correlated to inventoried self-efficacy and interest in nontraditional areas (Social, Enterprising, and Artistic themes), and positively correlated to inventoried interest and self-efficacy in traditional areas (Investigative and Conventional themes).

d. Financial considerations will be negatively correlated to inventoried self-efficacy and interest in Social and Artistic themes, and positively correlated to inventoried interest and self-efficacy in Investigative, Enterprising, and Conventional themes.

e. Influence of prestige will be negatively correlated to inventoried self-efficacy and interest in Social and Artistic themes, and positively correlated to inventoried interest and self-efficacy in Investigative, Enterprising, and Conventional themes.

Some of the above hypotheses were supported while others were not. As hypothesized, participants' parental involvement was significantly correlated with their inventoried self-efficacy and interest in the Investigative theme ($r = .19, p < .05$; $r = .24, p < .01$; respectively), as well as in their self-efficacy and interest in the Conventional theme ($r = .27, p < .01$; $r = .22, p < .05$; respectively). Greater parental involvement in the participants' career development, the higher the students' self-efficacy and interest were in

Investigative and Conventional career areas. However, participants' parental involvement was not significantly related to their interest and self-efficacy in Social and Artistic areas. Unexpectedly, participants' parental involvement was positively related to their Enterprising interests ($r = .20, p < .01$); however, there was no relationship to Enterprising self-efficacy.

Correlation results supported the hypothesis that behavioral acculturation was positively related to inventoried self-efficacy in Artistic ($r = .20, p < .05$) and Enterprising ($r = .18, p < .05$) themes; the higher the participants' behavioral acculturation was to U.S. norms, the higher the students' self-efficacy was in Artistic and Enterprising career areas. There was no statistically significant relationship among behavioral acculturation and self-efficacy scores in Investigative, Conventional, and Social areas. In terms of a relationship between behavioral acculturation and GOT interests, no statistically significant relationship was found for either traditional (Investigative and Conventional themes) or nontraditional (Artistic and Social themes) areas.

Correlation results supported the hypothesis that participants' values enculturation was positively correlated with their inventoried interest in the Investigative ($r = .22, p < .05$) and Conventional ($r = .21, p < .05$) themes, and positively related to inventoried self-efficacy in the Conventional ($r = .18, p < .05$) theme; the higher the participants' enculturation of Asian values, the higher their interest was in Investigative, interest in Conventional career areas, and self-

efficacy in Conventional areas. However, participants' Asian values enculturation was not significantly related to their nontraditional career interest areas, and Investigative and Enterprising self-efficacy areas.

Correlation results supported the hypothesis that participants' financial considerations related significantly to their inventoried self-efficacy in the Artistic ($r = -.20, p < .05$) and Social ($r = -.24, p < .01$) themes; the greater the influence of financial considerations in making their decision of college major, the lower their self-efficacy were in Artistic and Social career areas. Results failed to support the hypothesis regarding the Enterprising theme. The influence of finances negatively correlated with participants' Enterprising self-efficacy ($r = -.23, p < .05$) and revealed no significant relationship to Enterprising interest; the higher the influence of financial consideration on choice of major, the lower the participants' self-efficacy in Enterprising career areas. Also, there were no significant relationships between influence of finances, and inventoried interest and self-efficacy in Investigative and Conventional areas, and interest in Social and Artistic areas.

Correlation results supported the hypothesis that influence of prestige on the participants was negatively correlated to their Social interest ($r = -.21, p < .05$) and self-efficacy ($r = -.19, p < .05$); higher influence of prestige in making college major decisions corresponded with the participants' lower interest and self-efficacy in social career areas. Results failed to show any statistically

significant relationship between influence of prestige and inventoried interest and self-efficacy in Investigative, Artistic, Conventional, and Enterprising areas.

The fifth hypothesis examined the relationships between the predictor variables (i.e., socio-cultural, self-efficacy, and interest influences) and the dependent variable traditional career choice through correlational analyses. Specifically, it was hypothesized that traditional career choice will be: 1) positively related to Investigative and Conventional interest and self-efficacy, 2) negatively related to Social, Artistic, and Enterprising interest and self-efficacy, 3) positively related to Asian values enculturation, parental involvement, influence of financial consideration, and prestige, and 4) negatively correlated with behavioral acculturation.

As hypothesized, participants' traditional major of choice correlated positively with their Investigative ($r = .34, p < .01$) and Conventional ($r = .49, p < .01$) interest, and Investigative ($r = .27, p < .01$) and Conventional ($r = .40, p < .01$) self-efficacy. There was a negative correlation between choice of major and Artistic interest ($r = -.20, p < .05$), Artistic self-efficacy ($r = -.30, p < .01$), and Social self-efficacy ($r = -.25, p < .01$). However, there was no significant relationship between traditional major of choice, and Social and Enterprising interests. There was also no significant relationship between traditional major of choice and Enterprising self-efficacy.

As hypothesized, participants' traditional major of choice was positively related to their parental involvement ($r = .24, p < .05$), influence of financial consideration ($r = .43, p < .01$), and prestige ($r = .33, p < .01$). However, contrary to the hypothesis, participants' traditional major of choice was not significantly related to behavioral acculturation or Asian values enculturation.

Hypothesis six looked at the relationship among socio-cultural variables. Specifically, behavioral acculturation was hypothesized to be negatively correlated to values enculturation, parental involvement, influence of financial consideration, and influence of prestige/status. Asian values enculturation was hypothesized to be positively correlated to parental involvement, influence of financial consideration, and influence of prestige/status. Parental involvement was hypothesized to be positively correlated to Asian values enculturation, influence of financial consideration, and influence of prestige/status. Influence of financial consideration was hypothesized to be positively correlated to influence of prestige/status.

As hypothesized, participants' behavioral acculturation was negatively correlated with their Asian values enculturation ($r = -.25, p < .01$), parental involvement ($r = -.32, p < .01$), and financial consideration ($r = -.23, p < .05$). However, contrary to the hypothesis, participants' behavioral acculturation was not significantly related to influence of prestige. As hypothesized, participants' Asian values enculturation was positively related to their parental involvement (r

= .30, $p < .01$), and financial consideration ($r = .26$, $p < .01$). However, there was no statistically significant relationship between participants' values enculturation and influence of prestige. As hypothesized, participants' parental involvement was positively related to financial consideration ($r = .29$, $p < .01$) and influence of prestige ($r = .23$, $p < .01$). And as hypothesized, the influence of financial consideration of the participants was positively related to the influence of prestige on their career choice ($r = .67$, $p < .01$). The correlations for the predictor and outcome variables are found in Table 10.

Hypothesis seven looked at the relationship between ethnicity and choice of college major in scientific/technical fields (model 1); Chinese Americans were hypothesized to be significantly more likely to choose traditional choices of college majors than Filipino Americans. The results of the logistic regression analysis was conducted, failing to support this hypothesis, $X^2(1, N = 114) = .28$, $p > .05$; there were no ethnic group differences on the likelihood of choosing a traditional major (see Table 11).

Table 10

Correlation Matrix of Predictor Variables and Outcome Variable

	1	2	3	4	5	6
1) GOT-Realistic	1.00					
2) GOT-Investigative	.65**	1.00				
3) GOT-Artistic	.33**	.31**	1.00			
4) GOT-Social	.31**	.36**	.51**	1.00		
5) GOT-Enterprising	.25**	.25**	.28**	.28**	1.00	
6) GOT-Conventional	.33**	.45**	.08	.21*	.46**	1.00
7) SCI-Realistic	.66**	.45**	.41**	.31**	-.02	.04
8) SCI-Investigative	.53**	.74**	.30**	.22*	.02	.20*
9) SCI-Artistic	.20*	.13	.61**	.33**	-.04	-.27**
10) SCI-Social	.02	.15	.21*	.53**	.09	-.02
11) SCI-Enterprising	.10	-.01	.14	.12	.15	-.15
12) SCI-Conventional	.33**	.36	-.06	.05	.19*	.52**
13) Behavioral Acculturation	.03	-.07	.14	.08	-.09	-.17
14) Values Enculturation	.19*	.22*	-.14	.02	.12	.21*
15) Parental Involvement	.13	.24**	-.03	.03	.24*	.22*
16) Financial Consideration	.11	.15	-.14	-.14	.14	.15
17) Prestige/Status	.01	.02	-.13	-.21*	.08	.04
18) Major Choice	.20*	.34**	-.20*	-.12	.17	.49**

GOT = General Occupational Themes; SCI = Self-Confidence Inventory;

* $p < .05$, ** $p < .01$

Table 10 (cont'd)

Correlation Matrix of Predictor Variables and Outcome Variable

	7	8	9	10	11	12
7) SCI-Realistic	1.00					
8) SCI-Investigative	.57**	1.00				
9) SCI-Artistic	.49**	.34**	1.00			
10) SCI-Social	.28**	.26**	.43**	1.00		
11) SCI-Enterprising	.27**	.25**	.46**	.52**	1.00	
12) SCI-Conventional	.28**	.39**	-.10	.03	.26**	1.00
13) Behavioral Accultu	.13	.10	.20*	.17	.18*	-.05
14) Values Enculturation	.04	.11	-.10	-.09	-.12	.18*
15) Parental Involvement	-.00	.19*	-.02	-.02	-.05	.27**
16) Financial Consideration	-.10	-.03	-.20*	-.24**	-.23*	.06
17) Prestige/Status	-.06	-.05	-.17	-.19*	-.05	.05
18) Major Choice	.01	.27**	-.30**	-.25**	-.18	.40**
	13	14	15	16	17	18
13) Behavioral Acculturation	1.00					
14) Values Enculturation	-.25**	1.00				
15) Parental Involvement	-.32**	.30**	1.00			
16) Financial Consideration	-.23*	.26**	.29**	1.00		
17) Prestige/Status	-.17	.14	.23**	.67**	1.00	
18) Major Choice	-.16	.19	.24*	.43**	.33**	1.00

GOT = General Occupational Themes; SCI = Self-Confidence Inventory;
 * $p < .05$, ** $p < .01$

Table 11

Logistic Regression Analyses for Psychological and Socio-cultural VariablesPredicting Traditional Majors: Chinese and Filipino AmericansCombined - Models 1 - 3

	<u>X²</u>	<u>df</u>	<u>B</u>	<u>SE</u>	<u>OR</u>
1) Ethnicity	.28	(1, N = 114)	-.20	.38	
2) Psychological	43.41***	(6, N = 111)			
Interest (GOT)					
I			-.03	.04	
E			.01	.03	
C			.06	.04	
Self-Efficacy (SCI)					
I			.98	.54	
E			-1.21**	.46	.30
C			1.36**	.53	3.88
3) Addition of Socio-cultural	69.25***	(9, N = 111)			
GOT-I			-.08	.06	
GOT-E			-.02	.04	
GOT-C			.10*	.04	1.10
SCI-I			1.63*	.75	5.11
SCI-E			-1.29*	.55	.27
SCI-C			1.65**	.64	5.19
Values Enculturation			-.77	.89	
Parental Involvement			.11	.53	
Financial Consideration			1.19***	.29	3.28

I = Investigative; E = Enterprising; C = Conventional; GOT = General Occupational Themes;

SCI = Self-Confidence Inventory;

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

The eighth hypothesis sought to determine whether the ethnicity variable would contribute to the variance of participants' choosing traditional and nontraditional college majors above and beyond that of the psychological factors (i.e., career interest and career self-efficacy). More specifically, it was hypothesized that once psychological variables were accounted for, the strength of the relationship between ethnicity and participants' career choice would attenuate. The ethnicity variable, however, was dropped from analysis in models 2 and 3 due to its failure to show a significant relationship to the criterion variable in model 1 (hypothesis seven).

In order to examine hypothesis nine, the relationship between psychological factors and traditionality was examined using logistic regression analysis (model 2). Investigative, Enterprising, and Conventional themes from GOT and SCI measures were chosen to represent psychological predictors, and to replicate previous studies on Asian American career choice. Participants' interest and self-efficacy scores from the GOT and SCI measures, as a whole, were significantly related to their traditional choice of college major, $X^2(6, N = 111) = 43.41, p < .001$. Individual significance tests for each of the 6 psychological predictors were conducted. Odd Ratio estimates the change in the odds of membership in the target group for a one-unit increase in the predictor. Participants' SCI-Enterprising ($B = -1.21, OR = .30, p < .01$), and SCI-Conventional ($B = 1.36, OR = 3.88, p < .01$) scores were significantly related to

traditionality (see Table 11). Thus, when controlling for the other predictors, a one-unit increase in Enterprising self-efficacy decreased the odds of choosing a traditional major by a factor of .3; and a one-unit increase in Conventional self-efficacy increased the odds of choosing a traditional major by almost four times.

Using logistic regression (model 3), hypothesis nine also sought to examine the relationships among socio-cultural factors (i.e., behavioral acculturation, values enculturation, parental involvement, financial and prestige considerations), and psychological factors to participants' choice of college major in traditional fields. Univariate tests using socio-cultural variables were conducted, indicating that participants' behavioral acculturation and prestige consideration were not significantly related to traditionality in participants' choice of college major. Thus, as recommended by Rose et al. (2000), a parsimonious model excluding behavioral acculturation and prestige consideration was used.

Accounting for socio-cultural variables (model 3) increased the model fit, $X^2(9, N) = 111 = 69.25, p < .001$, indicating the predictive value of incorporating both psychological and socio-cultural variables. Table 11 displays the individual significance tests; GOT-Conventional ($B = .10, OR = 1.10, p < .05$), SCI-Investigative ($B = 1.63, OR = 5.11, p < .05$), SCI-Enterprising ($B = -1.29, OR = .27, p < .05$), SCI-Conventional ($B = .1.65, OR = 5.19, p < .01$), and financial consideration ($B = 1.19, OR = 3.28, p < .001$) scores were significantly

related to traditional choice of college major. Thus, when controlling for the other predictors, the higher the participants' Conventional interest and self-efficacy scores, and the influence of financial consideration, the more likely they were likely to choose traditional majors. And the higher the participants' self-efficacy score in the Enterprising area, the less likely were they to choose traditional majors. More specifically, each unit of increase in Conventional interest areas, increased the odds of choosing a traditional major by a factor of 1.1; a unit of increase in Investigative self-efficacy increased the odds of choosing a traditional major by a factor of 5.1; for each one-unit increase in Conventional self-efficacy, the increase in the odds of choosing a traditional major was by a factor of 5.2; and for each unit of increase in financial consideration, the odds of choosing a traditional major increased by a factor of 3.3.

Hypothesis 10 sought to compare Chinese and Filipino American ethnic groups, rather than combining them, in order to account for unique contributions by ethnicity to traditional major of choice. Therefore, models 2 and 3 were repeated comparing Chinese and Filipino Americans' choice of major (see Table 12). As hypothesized, participants' interest and self-efficacy scores, as a whole, were related to traditional majors for both Chinese $X^2(6, N = 49) = 19.28, p < .01$ and Filipino $X^2(6, N = 65) = 40.11, p < .001$ Americans. Filipino Americans' individual self-efficacy themes in Investigative ($B = 1.96, OR =$

7.06, $p < .05$), Enterprising ($B = -3.27$, $OR = .04$, $p < .01$), and Conventional ($B = 2.79$, $OR = 16.22$, $p < .01$) areas were significantly related to their traditional college major. Thus, for each unit of increase in self-efficacy in Investigative areas, the odds of choosing a traditional major increased by approximately 7 times, a one-unit increase in Enterprising self-efficacy areas was related to a .04 decrease in the odds of choosing a traditional major, a unit of increase in Conventional self-efficacy increased the odds of choosing a traditional major approximately 16 times. However, contrary to the hypothesis, Chinese Americans' self-efficacy themes in Investigative, Enterprising, and Conventional failed to predict their traditional college major. Filipino Americans' inventoried interest themes also failed to predict traditionality once self-efficacy was accounted for, with the exception of the Enterprising theme ($B = .15$, $OR = 1.07$, $p < .05$).

Table 12

Logistic Regression Analyses by Ethnicity for Psychological VariablesPredicting Traditional Majors: Models 4 & 5

Chinese American	X^2	df	B	SE	OR
4) Psychological	19.28**	(6, N = 49)			
Interest (GOT)					
I			.03	.06	
E			-.05	.05	
C			.07	.05	
Self-Efficacy (SCI)					
I			1.06	.95	
E			-.66	.75	
C			.91	.74	
Filipino American	X^2	df	B	SE	OR
5) Psychological	40.11***	(6, N = 65)			
Interest (GOT)					
I			-.13	.07	
E			.15*	.06	1.07
C			.03	.06	
Self-Efficacy (SCI)					
I			1.96*	.89	7.06
E			-3.27**	1.08	.04
C			2.79**	1.12	16.22

I = Investigative; E = Enterprising; C = Conventional; GOT = General Occupational Themes;
 SCI = Self-Confidence Inventory;

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

As hypothesized, participants' socio-cultural factor scores, as a whole, were related to traditional majors for both Chinese $X^2(3, N = 48) = 31.49, p < .01$ and Filipino $X^2(3, N = 63) = 11.61, p < .01$ Americans (see Table 13). Partially supporting the hypothesis, Chinese American participants' parental involvement ($B = 1.74, OR = 5.71, p < .05$) and financial consideration scores ($B = 1.92, OR = 6.79, p < .001$) predicted their traditional major of choice. Thus, for each unit of increase in parental involvement, the odds of choosing a traditional major increased almost 2 times, for each unit of increase in financial considerations, the odds of choosing a traditional major increased almost 7 times. For Filipino Americans, however, their parental involvement and financial consideration scores failed to predict traditionality. Moreover, although participants' enculturation level was significantly related to traditionality for both ethnic groups, for Chinese Americans, a one-unit increase in their enculturation level ($B = -3.32, OR = .04, p < .05$) *decreased* the odds of choosing a traditional major of choice, whereas for Filipino Americans, it *increased* the odds of choosing a traditional major of choice ($B = 1.91, OR = 6.72, p < .05$). Thus, a unit increase in enculturation decreased the odds of majoring in traditional areas by a factor of .04 for Chinese Americans; for Filipino Americans, on the other hand, the estimated odds of choosing traditional majors were almost 7 times greater for a one-unit increase in enculturation levels.

Table 13

Logistic Regression Analyses by Ethnicity for Socio-cultural Variables

Predicting Traditional Majors: Models 6 & 7

Chinese American	<u>X²</u>	<u>df</u>	<u>B</u>	<u>SE</u>	<u>OR</u>
6) Socio-cultural	31.49***	(3, N = 48)			
Values Enculturation			-3.32*	1.51	.04
Parental Involvement			1.74*	.80	5.71
Financial Consideration			1.92***	.55	6.79
Filipino American	<u>X²</u>	<u>df</u>	<u>B</u>	<u>SE</u>	<u>OR</u>
7) Socio-cultural	11.61**	(3, N = 63)			
Values Enculturation			1.91*	.91	6.72
Parental Involvement			.09	.44	
Financial Consideration			.42	.24	

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

Exploratory Logistic Regression Analyses

The previously stated hypotheses test theoretically derived explanatory variables in order to find the most parsimonious accounting of Filipino and Chinese American college students' career choice behavior. Although not previously tested, examining Asian Americans' own satisfaction, perceived parents' satisfaction, and self-interest with their major may also help account for the overrepresentation of Asian Americans in traditional fields. For example,

Tang et al., (1999) have posited that Asian Americans may be choosing scientific/technical careers even though they may not be personally interested in these choices due to family influences or pressures. Testing the relationship between the participants' own interest and satisfaction, as well as their parents, may provide additional information on the career process of Asian Americans.

Table 14 displays ethnic differences on the exploratory variables. Only perceived parents' satisfaction with participants' major significantly differed by ethnicity ($t(121) = 2.42, p < .05$); Filipino American parents were more satisfied with participants major than Chinese American parents. As shown in Table 15, as a whole, participants' self-satisfaction with their major, perceived parent's satisfaction with major, and self interest in major was significantly related to their traditional college majors, $X^2(3, N = 114) = 35.11, p < .001$ (model 8); each predictor of the model, participants' self-satisfaction ($B = -.66, OR = .52, p < .05$), perceived parents' satisfaction ($B = 1.18, OR = 3.27, p < .001$), and self-interest in major ($B = -1.15, OR = .32, p < .01$) were also significantly related to the criterion variable. Thus, a one-unit increase in the satisfaction with their major of choice decreased the odds of choosing a traditional major by a factor of .52; a one-unit increase in having personal interest in their major of choice decreased the odds of choosing a traditional major by approximately 3 times, while a one-unit increase in having perceived parents' satisfaction with their

choice of major increased the odds of choosing a traditional major by a factor of .32.

Table 14

Differences between Chinese and Filipino Americans on Influences and Satisfaction with Major

	Chinese American			Filipino American			t
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>N</u>	<u>M</u>	<u>SD</u>	
Self-Satisfaction with Major	53	20.13	1.48	69	20.09	1.51	1.37
Parents' Satisfaction with Major	54	3.69	.84	69	3.91	.98	2.42*
English Fluency	54	1.72	.60	69	1.62	.52	-.99
Difficulty of English Influence on Major	54	1.17	.64	69	1.14	.58	-.20
Expressed Interest Influence on Major	54	3.93	.84	69	4.10	.88	1.12

* $p < .05$

Table 15

Logistic Regression Analyses for Exploratory Variables Predicting Traditional Majors: Chinese and Filipino Americans Combined - Model 8

	<u>X²</u>	<u>df</u>	<u>B</u>	<u>SE</u>	<u>OR</u>
8) Exploratory Variables	35.11***	(3, N = 114)			
Self-satisfaction			-.66*	.34	.52
Parents' Satisfaction			1.18***	.29	3.27
Personal Interest			-1.15**	.37	.32

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

Summary of Results

Participants were predominantly 1st and 2nd generation Asian Americans; more Chinese Americans, however, self-identified as a 1st generation American than Filipino Americans. Although there was a significant SAT math difference between the two ethnic groups, there were no significant differences in English language ability, GPA, SES, or SAT verbal scores. Results indicated no significant socio-cultural difference between the two ethnic groups, except in their behavioral acculturation level. Although there was a significant ethnic group difference in parents' satisfaction with participants' major, there were no

differences regarding other influences on participants' major of choice, including difficulty with English, personal interests in their major of choice, students' report of their English fluency, or self-satisfaction with their major of choice.

The current sample also revealed no ethnic group differences in choosing majors in the scientific/technical/business areas. A significant number of both Filipino and Chinese American participants indicated majors in traditional fields. Moreover, although participants indicated lower inventoried interest in Investigative occupations relative to the other career themes, they chose majors in this area at a high rate of frequency. Participants' ethnic membership did not differentiate students' inventoried vocational self-efficacy in any of the six Holland types. Participants in the present study endorsed highest self-efficacy in the Social area, followed by Artistic, relative to the other Holland areas.

There were no significant ethnic group differences in inventoried interest types except in the Enterprising area, with Chinese Americans indicating greater interest in this area than Filipino American counterparts. There was also a significant difference in expressed Enterprising interest with Chinese Americans majoring in this field 3 times more than Filipino Americans. Chinese Americans majored in this area at almost the same frequency as Investigative fields. Thus, Chinese Americans displayed measured and expressed interest (both by major and occupation) congruence in the Enterprising area. Filipino

Americans, on the other hand, majored in Social fields significantly more than Chinese Americans, almost twice that of Chinese Americans. Filipino Americans also double majored at a high rate, and almost exclusively in Social majors. Moreover, Filipino Americans' highest measured self-efficacy, relative to the other Holland types, was in the Social theme, and they also displayed self-efficacy and interest congruence in the Social theme.

In terms of the predictive ability of interests and self-efficacy in general, self-efficacy not interests significantly increased or decreased the odds of majoring in traditional areas for Chinese and Filipino American participants. Specifically, when interest was accounted for, self-efficacy in Enterprising and Conventional areas related to traditionality. Although the role of self-efficacy was salient for Chinese and Filipino Americans' career choice, when self-efficacy was accounted for, their interests in Investigative, Enterprising, and Conventional (traditional) areas failed to significantly relate to traditional college majors.

Socio-cultural factors increased self-efficacy's predictive ability for the present sample; the addition of socio-cultural factors increased the odds of majoring in traditional areas. Although Investigative self-efficacy failed to predict traditionality, it significantly related to the criterion with the addition of socio-cultural variables, increasing the odds of choosing a traditional major. For

inventoried interests, however, the addition of socio-cultural factors remained negligible.

Participants' behavioral acculturation level failed to relate to college major traditionality. And, although participants' Asian values enculturation, parental involvement, and prestige consideration were initially related to traditional career choice, these factors failed to predict traditionality when inventoried self-efficacy was taken into account. Financial consideration's predictive ability on traditional major choice, however, remained statistically significant.

Separate ethnic group analyses revealed unique contributions to traditional major of choice. Individual self-efficacy themes in Investigative, Enterprising, and Conventional areas were significantly related to Filipino Americans' traditional college major. However, self-efficacy themes in the aforementioned areas failed to predict Chinese Americans' traditional college major. Instead, socio-cultural factors, namely, parental involvement, financial consideration, and enculturation predicted Chinese Americans' traditional major of choice. For Filipino Americans, with the exception of enculturation, parental involvement and financial considerations failed to predict traditionality. Moreover, although Asian values enculturation was significantly related for both ethnic groups, for Chinese Americans, enculturation levels decreased the odds of

choosing a traditional major of choice, whereas for Filipino Americans, it increased the odds of choosing a traditional major of choice.

Lastly, it was hypothesized that socio-cultural variables would mediate and account for ethnic differences in traditional major types. However, because there were no ethnic group differences on traditionality, it was not possible to test this hypothesis.

Chapter IV

Discussion

The present study tested the effects of ethnic, psychological, and socio-cultural factors on Asian American students' choice of college major. Specifically, this study examined two Asian American ethnic groups, Chinese and Filipino Americans, in order to: 1) test Lent et al.'s (1994) Social-Cognitive Career Model (SCCT) against Tang et al.'s (1999) socio-cultural model, 2) extend Tang et al.'s model by incorporating additional socio-cultural variables, and 3) describe and account for between-ethnic group variability in expressed major of choice vs. inventoried interest and self-efficacy. Findings will be discussed in terms of the determinants of Chinese and Filipino Americans' career choice, ethnic similarities and differences, and cohort effect and perceived discrimination. Limitations, implications for theory and training, and future research directions will follow this discussion.

Determinants of Career Choice

Interest and Self-efficacy vs. Socio-cultural Factors.

Tang et al. (1999) reported that socio-cultural factors, not psychological, predicted participants' career choice, suggesting a possible paradigm shift away from the focus on interest and self-efficacy in the career development of Asian American college students. Findings from the present study, however, support social-cognitive theory's emphasis on the role of self-efficacy in vocational

choices (Bandura, 1986, 1997; Lent et al. 1994) and Lent et al.'s Social Cognitive Career Theory (SCCT) of career choice development, which postulates that contextual factors influence self-efficacy. Participants' values, parental influence, and prestige consideration shaped and contextualized self-confidence in the current study. Further, although participants' Asian values enculturation, parental involvement, and prestige consideration were initially related to traditional career choice, these factors failed to predict traditionality when inventoried self-efficacy was taken into account, adding support for the SCCT model.

The over-representation of Asian Americans in traditional fields, however, was supported in the present study. Filipino and Chinese Americans in this sample chose majors in Investigative areas at a high rate of frequency, replicating previous studies in which Asian American students were found to be segregated in investigative/technical fields (Fouad et al., 1994; Hsia, 1988; Kwak, 1980; Leong, 1982; Leung et al., 1994; NSF, 1990; Sue & Kirk, 1972, 1973). Corroborating Leong and Tang et al.'s (1999) speculations, traditional majors were chosen despite participants' lower inventoried interest in this area relative to the other career types. Also, Filipino and Chinese Americans in the present study indicated their highest self-efficacy in Social areas, followed by Artistic, which supports Tang et al.'s finding of their sample's highest inventoried self-efficacy in Social areas. Furthermore, contrary to SCCT,

Investigative self-efficacy did not relate to traditionality, and self-efficacy in Enterprising areas decreased the odds of majoring in areas in which business economics were largely represented. Challenging the currently understood notion that (expressed) “interests” inherently develop in areas in which one has high self-efficacy (Lent et al., 1994), participants displayed expressed interest in traditional areas despite high self-efficacy in nontraditional areas; self-efficacy had no relationship to traditionality. Lastly, supporting past empirical evidence on the importance of financial and extrinsic considerations (socio-cultural model) on the career choice behavior of Asian Americans (Evanoski & Wu Tse, 1989; Gim, 1992; Leong, 1991; Leong and Hayes, 1990; Leong & Tata, 1990), the present study found that financial consideration’s predictive ability on traditional major choice remained statistically significant even when interest was taken into account.

Taken as a whole, the present study demonstrates the significance of both socio-cultural factors and psychological variables, providing support for both sets of scholarly conjectures and theories. By examining ethnic groups separately, additional information can be garnered regarding the extent of the utility of these competing models, and possible contributions to the discrepancy in the extant literature can also be elucidated.

Ethnic Group Differences.

Separate ethnic group analyses revealed unique contributions to traditional major of choice. Individual self-efficacy themes in Investigative, Enterprising, and Conventional areas were significantly related to Filipino Americans' traditional college major. However, self-efficacy themes in the aforementioned areas failed to predict Chinese Americans' traditional college major. Instead, socio-cultural factors -- namely, parental involvement, financial consideration, and enculturation -- predicted Chinese Americans' traditional major of choice. For Filipino Americans, parental involvement and financial considerations failed to predict traditionality. As hypothesized, Filipino Americans, possibly because of western influences in their country of origin, reflect more of the European American career development pattern, as evidenced by their higher acculturation level relative to their Chinese American counterparts.

Thus, depending on ethnic group affiliation, the predictive ability of self-efficacy and socio-cultural factors on traditionality differed, indicating important socio-cultural and socio-psychological variations among Asian Americans. Hence, both the fundamental view that career choice processes stem from within, and the new model that challenges this predominant western view, are supported. It appears that divergent findings in the past may have stemmed from a lack of ethnic specificity (and Holland type) in the extant literature.

Although both psychological and socio-cultural variables influence Chinese and Filipino American career choice behavior, their role is specific to the particular ethnic group under investigation as well as the particular career choice. Therefore, in order to prevent a myopic stance toward the career choice processes of “Asian” Americans, it is critical to study specific ethnic groups and refrain from lumping distinct groups under the umbrella term “Asian American.”

Expressed vs. Measured Interest, and Ethnicity.

Expressed and measured interests, particularly in the Enterprising areas, are of concern due to inconsistent results (low vs. high interests) in previous investigations among Asian Americans (Fouad, Harmon, & Borgen, 1997; Hsia, 1988; Kwak, 1980; Lattimore & Borgen 1999; Leong, 1982; Leung, Ivey, & Suzuki, 1994; Park & Harrison, 1995; Tang, Fouad, & Smith, 1999; Sue & Kirk, 1972). The present study’s findings implicate previous studies’ failure to designate not only specific ethnic labels as a possible reason for the spurious results, but also their failure to specify the types of interest (i.e., expressed, measured, occupational intention). Further complicating matters, a student’s college major, occupational intention, or current occupation have all been used as measures of “expressed interest.” Moreover, measured interests have been conflated in studies in which competence, ability, and self-appraisal were included as part of one’s interest.

To illustrate, Chinese American students in the current sample chose Enterprising majors more than did Filipino American students. Chinese Americans also endorsed high measured interests in Enterprising fields. Chinese Americans thus demonstrated the measured and expressed interest match deemed important by career specialists for a productive and fruitful career. Interestingly, although Filipino Americans did not endorse measured or expressed major of choice intention in this area, both Filipino and Chinese Americans indicated occupational intentions (occupations they plan to pursue) in Enterprising areas at similar rates. Although Filipino and Chinese American students both indicated similar occupational intention, their measured and expressed interests diverged, which highlights the importance of examining ethnic groups and specifying the construct of “interest.” The lack of precision in previous researchers’ use and operationalization of terms such as “interest” when referring to both the participant’s occupational intention and inventoried interest, along with the lack of ethnic specificity in the field, could help account for the extant literature’s seeming discrepancies regarding Asian Americans’ vocational choice segregation.

Socio-cultural factors and Ethnic Group Differences.

Contrary to previous conjectures that Filipino Americans would have a greater command of the English language due to linguistic and cultural familiarity from their native country (Hsia, 1988), there were no ethnic

differences between the two sample groups in English language and SAT verbal ability. Results demonstrated significant SAT math difference, however, with Chinese Americans outperforming their Filipino American counterparts. Although this finding supports previous studies indicating the strong quantitative reasoning ability of Chinese American students (Hsia, 1988), Chinese American students in the present study did not use coping mechanisms - - such as majoring and taking courses in the math and the sciences significantly more than Filipino American students -- in order to compensate for their limited English ability, as has been suggested by Hartman and Askounis (1989) and Sue and Zane (1985). The only significant socio-cultural factor that differentiated the two ethnic groups was behavioral acculturation, in which Chinese American students were less acculturated than Filipino Americans. Although there is no previous research on ethnic difference to corroborate this evidence, it does support previous speculations (Hsia, 1988). Contradicting previous findings by Tang et al. (1999), although the same measure of behavioral acculturation was used in the present study, behavioral acculturation was the only socio-cultural variable that did not significantly relate to traditional choice of college major; other socio-cultural factors were considered more salient by the present sample of participants. The dissenting evidence may again implicate the importance of ethnic specification; Tang et al.'s sample consisted primarily of Chinese and Vietnamese participants, including a substantial number of Korean and Filipino

students, and a potpourri of other Asian ethnic groups (e.g., Hmong, Japanese), while the present study consisted only of two Asian ethnic groups.

Supporting the distinction between acculturation and enculturation, participants' acculturation level correlated with measured self-efficacy, and enculturation level correlated with measured interest. It appears that being able to behave congruently with U.S. norms is associated with one's confidence in work domains, while maintaining traditional Asian values is associated with work interests. These findings have important implications, as past research assumed the values of Asian American samples using behavioral acculturation measures alone. Moreover, the role of enculturation in choice of traditional majors differed by ethnicity – for Filipino Americans, increased level of enculturation was associated with *increased* likelihood of majoring in traditional fields, whereas for Chinese Americans, increased level of enculturation was associated with *decreased* likelihood of majoring in traditional fields. In other words, the more traditional Asian values Filipino Americans endorse, the more likely they are to major in traditional fields, while the more traditional Asian values Chinese Americans endorse, the less likely they are to major in traditional fields. There is a need to qualitatively ascertain and denote these differences, as it appears that endorsing Asian values is meaningfully divergent and bears different connotations for Filipino and Chinese Americans. Scholars have noted the importance of examining acculturation and enculturation as

distinct processes (Kim et al., 1999). Indeed, the present study found that not only did enculturation and acculturation differentially relate to career choice behavior, but that the association between these cultural adaptation processes and career behavior varied across the two ethnic groups. Findings underscore the need to study the influences of both acculturation and enculturation across Asian ethnic groups.

Surprisingly, Chinese American students chose Enterprising majors more than did Filipino American students, despite their lower acculturation level. This finding is unexpected, as researchers (Hsia, 1988; Leong 1985, 1991; Sue & Kirk, 1972, 1973) have speculated that this is a field that Asian Americans, particularly ones demonstrating lower behavioral acculturation to mainstream American ideals, have not traditionally endorsed because it requires social interactions and forceful communication skills. Indeed, contrary to scholarly assumptions, participants in the present study who had more parental involvement, lower acculturation level, and higher SAT math scores were more likely to choose this career area.

In addition to the methodological problems and the lack of ethnic specificity indicated previously, the present findings may also suggest a cohort effect, which may account for the discrepancy in past studies. Even though findings from the seminal studies of the 60's and 70's are still cited, it is possible that Asian American students' career choice behavior has changed

considerably since then. As will be discussed in the next section, the present study demonstrates that Asian American students who are less acculturated may be gravitating towards business and enterprising endeavors due to career choice barriers and perceived discrimination.

Cohort Effect and Perceived Discrimination.

Contrary to the “model minority” stereotype, Asian Americans face unique challenges in the workplace (Fernandez, 1998). Occupational barriers, along with cultural and structural factors, contributed to one-third of the high-tech start up companies in the U.S. in the past decade to be founded by Asian Americans (Park, 1996). Also, contrary to the widely held notion that fluent English language and interpersonal skills are associated with enterprising endeavors, many immigrant cultural groups (e.g., Jewish, Korean) have historically entered this secondary labor market due to concerns about their lack of English ability, tension and discordance between their own and the dominant culture’s behavior and values, and to ensure financial stability (Min, 1984, 1996; Yoon, 1997; Zhou & Gatewood, 2000).

Likewise, Chinese Americans’ expressed interest in Enterprising fields may be reflective of their consideration of perceived discrimination and perceived security in their career decision-making process. Although Chinese and Filipino American students in this sample indicated equivalent levels of English proficiency, Chinese Americans indicated lower acculturation level and

tended to be 1st generation Americans. Uba (1994) asserted that Asian Americans experience anxiety due to value differences, ambiguous social relationships, and language problems. However, the bimodal occupational distribution of Chinese Americans in the U.S., combined with a lower acculturation level, and a general trend in endorsing higher Asian values and parental involvement in the present sample, Chinese American students may also be alleviating their anxiety by steering away from occupations with ambiguous financial returns by choosing Enterprising endeavors.

Although concepts such as discrimination and glass ceilings may not be salient for college students, participants' parents, or other family and community members, may have experienced or observed difficulty because of their own or other in-group members' career choice. Perceptions of career obstacles, combined with the tendency for Chinese Americans in this sample to make decisions interdependently -- displaying lower behavioral acculturation, and significantly endorsing the importance of their parent's satisfaction with their major -- implicate the family's awareness of barriers to their career choice behavior.

Lastly, in addition to the effects of perceived discrimination and a possible cohort effect, a recent phenomenon that may be contributing to the present study's findings is that it is currently believed that Asian American college students are over-represented in almost every professional and academic

training program, including business (J.S. Park, personal communication, June, 12, 2003). This recent trend, combined with the real and perceived limited mobility in many occupational areas (Sue & Okazaki, 1990), further supports the need to examine empirically the career choice behavior of contemporary Asian American populations and move beyond the possibly antiquated findings from previous decades.

Limitations

Despite the significance of its findings, there were several limitations to the present study. The first limitation is the generalizability of the sample beyond the college population. Researchers have noted the need to cross-validate findings with a community sample as well as with older adults working in their occupation of choice (Leong, 1998). Another area of concern may be the lack of variability in levels of acculturation and enculturation; college populations by their very presence in higher educational institutions may be highly acculturated and enculturated. Moreover, although individuals may behave according to U.S. norms, values acculturation may take several generations (Kim et al., 1999).

Another limitation of the study may be the use of the Holland classification scheme and the need to understand the culture of the academic programs of each individual university. For example, majors in psychology are typically classified as Social. But in the university from which the current

participants were drawn, it is well known to be an Investigative type due to the heavy emphasis in experimental research (M. Kemp, personal communication, March 7, 2003). The present author, however, classified psychology as a Social type to remain consistent with the Holland system. As a result, grouping participants' career choices according to Holland type may be inherently skewed.

Implications for Training

The current study's findings have significant implications for career counselors and psychologists providing vocational counseling to Asian American college populations. Most significantly, the Strong Interest Inventory (SII) needs further testing with Chinese and Filipino American student populations; there appears to be a lack of support for using the SII *interest* measure with both groups of clients. Highlighting Asian American ethnic diversity, there is, however, support for the use of the SII *self-efficacy* measure, particularly with Filipino American college students. Also, although the two groups did not significantly differ with regards to the socio-cultural variables, except for behavioral acculturation, all socio-cultural factors were in the expected direction, with Filipino Americans tending to have values, behaviors, and considerations of occupational choices more closely resembling those of Whites, relative to Chinese Americans. The need to consider socio-cultural factors, particularly with Chinese American students, was corroborated; parental

pressure, behavioral and values acculturation levels, and parents' satisfaction with the client's major, appear to affect career decision making among Chinese American college students. Extra care may need to be taken to ensure that Chinese Americans appreciate the pros and the cons of their career choices, and understand the nature of the career development process.

Being informed of cultural frameworks is essential to the delivery of effective services for culturally diverse and distinct Asian American populations. In essence, the results of the current study, Tang et al.'s (1999) study, and the analysis of Leong and Chou (1994), suggest that interest and self-efficacy assessment, however valid, may not be sufficient for these Asian ethnic populations.

Although there were differences in the types of factors and decision points considered in the career decision-making process by the two Asian ethnic groups, it behooves career counselors to view all therapeutic interactions as potentially cross-cultural, given that there are 29 Asian ethnic groups alone. Given counselors' unique cultural backgrounds and those of the clients, a host of diverse factors (e.g., family and community experience, gender, ethnicity, sexual orientation, disability) can potentially interact. The counselors' cultural reference point impacts how they see, interpret, and react to the world; it influences their communication styles, values, and beliefs, which ultimately affect career conceptualization and formulation. Although it is almost

impossible to master the intricate issues of every minority group, challenging the universality of the counselors' perspectives is an important and viable step. Counselors who are aware of their own stereotypical views of Asian Americans' career interests (e.g., science/technical) are in a better position to tailor treatments and interventions as necessary for the Asian American individual. Thus, when working with clients, it is crucial for counselors to assess worldviews: 1) how similar or discrepant they are, 2) how this contributes to clients' understanding of their career process and choice, and 3) how it may affect career guidance, which is usually based on Western assumptions.

Further, although culture-specific frameworks and interventions are important, attention to individual variation is necessary to avoid inappropriate and stereotypical applications of culture. Thus, it is important for counselors to factor variables such as acculturation level, ethnic identity, and family involvement into case conceptualization and interventions to earn or maintain credibility with clients. For example, in order to establish credibility, therapeutic alliance, and positive outcomes with a client particularly foreign to viewing careers as a means to self-actualization and a natural extension of one's individuality, extra steps may need to be taken to orient the client to the career choice process, and frame career and psychological aspirations as well as difficulties in a culturally relevant manner.

Unlike other ethnic groups, Asian American high school, undergraduate, and graduate students are choosing college majors and jobs that do not correspond with their expressed interests; or, as demonstrated by Filipino American students in this sample, they have chosen incongruent double majors. This mismatch is disconcerting, given that interests incongruence is predictive of job dissatisfaction, which is ultimately connected to the level of life satisfaction. Asian American students may be struggling between autonomy and the interdependence that is culturally sanctioned by their family when deciding on their careers. On the other hand, in a population for whom self-actualization and finding life meaning in their work is deemed irrelevant, there may not be comparable costs involved. Displaying or feeling self-satisfaction is traditionally seen as a sign of weakness, a lack of maturity or development; in essence, the significance of social-cultural factors for both Chinese and Filipino Americans challenge the very notion of “satisfaction”. Thus, it is important to be flexible and provide different career frameworks, discussing consequences and alternatives, precisely because so little is known about the mismatch between interests and choice in Asian American populations in general, and even less in specific Asian ethnic groups.

Using “Dialectics” can help Chinese and Filipino clients reconcile cultural conflicts between adhering to their culture of origin and adopting the dominant culture by helping them validate sometimes contradictory parts of

themselves. For example, when client's goals seemed to require culturally incompatible responses, being able to come to a "synthesis," by pointing out the validity and strengths to both sides, can lead to flexible and effective styles. Infusing cross-cultural constructs into counselors' protocols can advance vocational service delivery.

Counselors should refrain from a "one size fits all" mentality and eliminate disparities in care by determining the applicability of vocational psychological principles and relevance to individuals who fall outside of the theory and practice in which they were developed. Since the number one predictor of life satisfaction is vocational satisfaction, it is imperative that counselors prevent misguidance or "inappropriate" career interventions by coming to understand the myriad of factors that Asian American students consider (Leong 1993). Career counselors are advised to integrate interest and self-efficacy results with socio-cultural assessments of enculturation, family background, and financial consideration in career decision-making for a comprehensive career appraisal, conceptualization, and intervention plan. It appears that the importance of using both culturally specific (emic) as well as culturally valid (etic) approaches will optimize the search for a comprehensive career conceptualization and assessment of Asian Americans (Leong & Brown, 1995; Leong & Hardin, 2002).

Providing appropriate and relevant career counseling is also vital, as this will provide a potential backdoor approach to Asian Americans' underutilization of psychological services and earlier rate of termination. As competent and credible treatment is obtained around this "safe" issue, Asian Americans may be more likely to seek services for more serious psychological issues. In essence, providing effective and useful vocational services may be a medium through which we can access a reluctant population in great need of psychological treatment.

Implications for Theory

Leong and Brown (1995) have called on researchers to contemporaneously examine culturally specific (emic) and culturally valid (etic) variables both to account for American minorities' career development and to develop a unifying theoretical framework for ethnic minority career research. Testing Lent et al.'s (1994) postulation regarding the mediating role of self-efficacy between interest and choice, the present study used an etic (culturally valid) approach that predicted career choice for both Asian ethnic groups, indicating the valence of this theoretically derived career model. Testing Asian values enculturation, parental involvement, prestige consideration, and financial considerations' role in the present sample's career trajectory, the present study's emic (culturally specific) approach also demonstrated a significant relationship to career choice traditionality. Thus, the utility of the social-cognitive model,

with the addition of socio-cultural factors, was supported; socio-cultural factors increased the predictive ability of self-efficacy when examining Asian Americans as a group, and differentiated the salience of self-efficacy when specific Asian groups were compared. Notably, the current study further specified which culturally specific and culturally valid dimensions are relevant for which specific Asian American ethnic groups.

Exploratory findings further allude to the importance of examining both culturally specific and culturally valid approaches since participants' self-satisfaction with their major, perceived parental satisfaction with major, and self-interest in major were significantly and strongly related to traditional college major. Contrary to SCCT and Holland's theory, however, an increase in the satisfaction with and interest in their major of choice decreased Chinese and Filipino Americans' likelihood of choosing a traditional major, while endorsing perceived parental satisfaction with their choice of major increased the likelihood of choosing a traditional major

Thus, the culture-specific variables tested provided additional predictive, explanatory, and differential power to the Western-based career choice approach, which on its own had been heralded as lacking applicability to Asian Americans' career choices. As Leong and Hardin (2002) state, although culture-specific variables may be used independently of existing models, or also by testing their utility against mainstream European-based models, maximum

utility is obtained from the integration of both approaches in order to build theory, and ultimately to inform research. Hence, these initial steps and findings from the present study will be instrumental in constructing and tailoring a cultural-accommodation model, and fill in gaps in the current theoretical models of career choice development using culturally specific variables (Leong & Hardin, 2002; Leong & Serafica, 2001).

Directions for Future Research

The present study is only one of a few empirical investigations on the career interest and choice of specific Asian American ethnic groups. It is also one of a handful of empirical investigations addressing the need to isolate constructs such as expressed and measured interest, and the only study to differentiate expressed interest further, by examining intentional career plans vs. current major of choice. Moreover, although cultural values have been cited as important determinants of career choice processes for Asian Americans, this is the first study to evaluate Asian behavioral acculturation and Asian values enculturation. Thus, a replication of the current study and an examination of these factors in other Asian American ethnic groups are both needed. It behooves future investigators to specify their construct under study (e.g., Holland type, present major or future career goals, expressed or measured interest), and provide the ethnic make-up of their participants under investigation.

In the present study, all of the socio-cultural factors were in the expected direction. Filipino Americans indicated higher acculturation, lower enculturation, lower parental involvement, less influence of prestige/status or financial consideration on their major of choice, and less expressed traditional interest relative to Chinese Americans. The only significant socio-cultural factor that differentiated the two ethnic groups was behavioral acculturation. It was, however, the only socio-cultural variable that did not significantly relate to the choice of a traditional college major. To explore this phenomenon, future researchers may explore populations with greater socio-cultural variability, particularly by studying community-based samples and individuals already working in their present occupations.

In terms of the weak relationship between parental involvement and traditionality, the centrality of self-efficacy in Asian American career choice may corroborate postulations by Lent et al. (1994). On the other hand, the lack of relationship may indicate problems with the measure itself. The measure includes items indicating whether the participants' parents "provide career information, or discuss career plans" with them. Open and horizontal communication such as this is not typical of traditional Asian American families (Uba, 1994), and vastly differs from other items in the same measure, one of which asks participants if they felt "pressured" to enter certain fields. Thus, if families discuss career plans and provide information, (vs. pressuring students to

choose majors parents are satisfied with), this would in actuality signify a higher rate of acculturation. In less acculturated families, parents' career goals for their children may be understood, explicitly told, or even chosen for them despite students' objections.

Although the parental involvement measure failed to relate to traditional majors once other factors were accounted for, exploratory analysis indicated that perceived parental satisfaction with students' choice of major was related to an increase in the odds of choosing a traditional major. Having interest in and satisfaction with their major significantly decreased participants' odds of majoring in a traditional area, while perceived parental satisfaction with participants' majors significantly increased their odds of majoring in a traditional area. Furthermore, as expected, Filipino Americans, a significantly more acculturated group, perceived higher parental satisfaction with their major relative to Chinese Americans. For this reason, parental satisfaction and parental involvement warrant future investigation.

Researchers may also investigate the practice of double majoring. Although Filipino and Chinese Americans double majored at almost equal frequency, Filipino Americans majored in both Investigative and Social Types, two distinctly different areas. In fact, Filipino Americans double majored almost exclusively in Social majors. This finding also supports past research (Kwak, 1980; Leong, 1982; Leung et al. 1994) in which Asian American college

students surprisingly chose Social interests parallel to Investigative interests; the researchers' unexpected results may be because Filipino Americans made up a large proportion of their sample. Additionally, double majoring, particularly in contrasting areas, is a worthy area to investigate because in the present study, participants who majored in both traditional and nontraditional fields ($n = 9$) were dropped from analysis due to the assumptions required of logistic regression. To address the limitations of quantitative measures such as this, qualitative analyses are vital; investigations in this area using both methods may provide a rich understanding of how a student decides between two diverse majors or arrives at a compromise by choosing both.

Along with investigations on ethnic differences, empirical studies on gender differences and/or the career development of Asian American women are needed. Traditionally, Asian American women's experiences differ due to the predominantly patriarchal nature of their respective Asian countries (Yang, 1991). Women's career trajectories, pressures for vocational stability, and the meaning of work may be vastly different from those of their male counterparts. Whether Asian American women's vocational choice can still be characterized by our traditional understanding of their experiences must be empirically tested.

The current investigation revealed a large proportion of both ethnic groups majoring in science, technical, and business occupations at a relatively liberal arts institute. Future investigators may wish to examine universities

known for their academic rigor, particularly in the sciences, as Asian Americans are represented in prestigious Ivy League universities, pre-med programs, and other rigorous science universities at an unprecedented rate (Hsia, 1988; Lee, 1998). Investigating the occupational constriction of students from these institutions may provide further insight into the roles of parental involvement and behavioral acculturation, for example, in their choice of major.

Longitudinal studies are also necessary, as occupational constriction may not become salient or apparent without an established career. As discussed previously, Asian Americans' representation in the private enterprising sector increased in part to career stagnation. In other words, there is a great difference between majoring in an Enterprising area, and choosing and remaining in that area throughout the course of one's career. Specifically, Asian American college students may perceive the relative financial stability of Enterprising ventures, and major in them without any notion of possible future hindrances to their career development. Current research, however, points to a formidable glass ceiling: Asian Americans' careers often stall as they reach for middle management, despite illustrious university careers (Tang, 1997). In fact, Asian American managers have the highest rate of voluntary departures (Lee, 1999). Although Asian Americans are overrepresented in the professional work force, they represent only 1% of senior management positions. Asian cultural values (e.g., displaying deference to superiors and failing to question them, passive and

indirect communication styles) and occupational stereotypes have frequently been cited as obstacles to ascension in the corporate world. Although Asian American college students are overrepresented in business fields, it remains to be determined whether they can advance into supervisory and management positions. Research is needed to identify factors that impede and facilitate their advancement.

Lastly, as previously discussed, a significant segment of both Chinese and Filipino Americans did not necessarily choose their occupations or majors based on their interest. Investigations into the long-term effects of this mismatch in terms of job productivity, job stress and transience, and life satisfaction are greatly needed (Chiu & Kosinski, 1995; Leong, 2001).

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