California State University, San Bernardino

CSUSB ScholarWorks

2008

Self-stereotyping and vocational choice among Asian Americans

Tzuting Chang

SELF-STEREOTYPING AND VOCATIONAL CHOICE

AMONG ASIAN AMERICANS

_____

A Thesis

Presented to the

Faculty of

California State University,

San Bernardino

_____

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

in

Psychology:

Industrial/Organizational

_____

by

Tzuting Chang

December 2008

SELF-STEREOTYPING AND VOCATIONAL CHOICE

AMONG ASIAN AMERICANS

A Thesis

Presented to the

Faculty of

California State University,

San Bernardino

---

by

Tzuting Chang

December 2008

Approved by:

Dr. Mark Agars, Chair, Psychology   Date 10/21/08

Dr. Janet Kottke

Dr. Matt Riggs

ABSTRACT

Unlike other racial/ethnic minority groups, Asian
Americans are often labeled as the "model minority". They
are often perceived as intelligent, wealthy, and
submissive by the general public. They are also portrayed
as math and science geeks due to an extremely high
representation in the Investigative/Realistic fields
compared to other racial/ethnic groups, including
Caucasians. Although positive stereotypes are typically
believed to be beneficial, the false social depiction has
a strong influence on their behavior and self-perceptions.
The limited research about Asian Americans has provided
evidence that the model minority stereotype affects
performance, self-identity, attitude, and limited
advancement at the workplace. No empirical evidence has
considered how these stereotypes might influence
vocational choice, however, the vocational pattern among
Asian Americans may be a function of self-stereotyping
around the model minority stereotypes. The underlying
purpose of this study was to examine how the social
portrayal of Asian Americans, with social identity as the
moderator, may impact their career preferences for
Investigative/Realistic professions. The role of Asian
Americans' self-efficacy in math/science was also explored

in the self-stereotyping process. The results revealed
that although strong stereotype beliefs in model minority
did not impact Asian Americans directly, the interaction
between social identity and stereotype beliefs was the key
that lead Asian Americans into having high self-efficacy
and choosing Investigative/Realistic vocational
professions. Familial influence on career choices was
analyzed in the exploratory analysis. Potential negative
consequences of being influenced by stereotypes were also
evaluated. Although no evidence was found for the negative
consequences, the findings offered clear support for the
role of model minority self-stereotyping. Implication and
future research were discussed.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

Stereotypes are ideas or images about members of a particular group which are often untrue or only partially true. Compared to explicit racism, racial stereotypes may seem harmless, but they may actually have prolonged consequences for minority group members. In contrast to the stereotypes associated with minorities such as African Americans and Hispanics, which frequently appear to be negative, Asian Americans experience a different side of this subtle discrimination. Asian Americans are perceived as the "model minority" due to their growing financial capability, rising social standing, and low crime rate and mental health issues within the community (Wong & Halgin, 2006). Along with these changes have come positive stereotypes. Though Asian Americans seem to be benefiting from these misconceptions, the model minority stereotypes can actually have a powerful impact on behavior and self-perceptions among this particular target group.

Although both negative stereotypes and positive stereotypes have strong influences on minorities' behaviors and self-defined identities, the outcomes of the model minority stereotypes may not be seen immediately nor

predicted easily. In fact, many in the general public do not even consider the model minority concept harmful because it is not often discussed. In contrast, effects of African American and Hispanic stereotypes are commonly found in the press. There is a body of research that confirms the existing stigma of negative stereotypes among African Americans and Hispanics, but discussion of the disadvantages of positive stereotypes among Asian Americans require close attention to be noticed.

How are Model Minority Stereotypes Unique?

In contrast to the model minority image that Asian Americans are labeled with, negative stereotypes associated with African Americans often means that group members are more often blamed for their lack of job abilities and financial success compared to other ethnic minorities (Tomkiewicz, Brenner, & Adeyemi-Bello, 1998). As a result, they may be perceived as inferior and incompetent (Gayles, 2006). When the U.S. government decided to implement Affirmative Action policies in 1965, social status of African Americans faced another challenge. The purpose of Affirmative Action was to induce equality in education and workplace for African Americans. However, the effects of these policies backlashed as the

American society disapproved of the perceived aid that the government provided. Affirmative Action was viewed as a special treatment, which strongly opposed the merit system that the majority of the Americans believed in (Harrison, Kravitz, Mayer, Leslie, & Lev-Arey, 2006), meaning people should get what they deserve based on skills and hard work not on racial/ethnic identity (Thernstrom & Thernstrom, 1997; Zuriff, 2004). The sudden changes in hiring policies and college admission only solidified the negative stereotypes. African Americans as a whole become the scapegoat for the "unfairness" that occurred in the workforce and education (Crosby, Iyer, & Sincharoen, 2006). Even though decades have passed since the initial backlash of these policies, recent research demonstrates the stereotypical perceptions of African Americans persist. King and his colleagues (2006) found that Black job applicants' abilities were questioned and denied by Whites even when they indicated strong qualifications on their resumes. The results of another recent study showed lower correspondence between the ratings of successful manager characteristics and African American managers compared to Caucasian American managers and Asian American managers (Chung-Herrera & Lankau, 2005).

Hispanics are another minority group that is commonly stigmatized by negative stereotypes. Due to the rapid increasing number of Hispanic immigrants in the past decades, the majority of the Hispanic population struggle to maintain a stable financial standing. As a result, Hispanics are often associated with low-status jobs due to the overrepresentation in the landscaping business and the lack of advanced educational achievement (King et al., 2006). Hispanics have been characterized as less intelligent, noncompliant, and violent (Jackson, 1995). Hispanics also scored low correspondence to the successful-manager prototype compared to Caucasians and Asians (King et al., 2006). Hispanics comprise one of the largest minority groups in the U.S. (Jackson, 1995), yet still have difficulty breaking out from these perceptions.

As a result of the negative portrayal, biased and prejudiced perceptions suppress many resources and opportunities for African Americans and Hispanics to change their stereotypical image (Tomkiewicz, Brenner, & Adeyemi-Bello, 1998). Throughout history, many minority groups in America have had less influence on society, politics, and economy compared to the majority of the population (Chung-Herrera & Lankau, 2005). Therefore, the general public perceives both of these minority groups at

4

a lower end of the social spectrum because they fit their "expected" social status.

In contrast, the racial stereotypes encountered by Asian Americans create different challenges. Instead of being portrayed negatively, Asian Americans are labeled as the "model minority" due to their perceived success in education and certain professional areas. According to the Model Minority Hypothesis, many in the general public hold positive stereotypes about Asian Americans and assume Asian Americans to be more intelligent, wealthier, or harder working than other minorities (McGowan & Lindgren, 2006). With the beliefs of the model minority concept, others may suppose that Asian Americans benefit in many aspects such as housing, college admission, and most importantly job opportunities when compared to other minority groups. As a consequence, the general public may not notice the actual impact or outcomes and other behavior patterns associated with the model minority stereotypes among Asian Americans. Further, the influence that stereotypes have on minorities is not always short-term or momentary, and little is known about long term effects of living in the image of a "model minority". In fact, the actual effects of the model minority stereotypes have been understudied (Cocchiara & Quick,

2004). The processes and the long-term outcomes of positive stereotypes on behavior need to be investigated more closely because they are less obvious and less direct than negative stereotypes.

One area of interest is vocational choice. Career aspirations are not affected by momentary persuasions or short-lived situations; they are shaped by several long-term influences. For both U.S.-born and Asian-immigrant groups, past research has revealed that familial influence is one of the main determining factors that leads Asian Americans into choosing high-prestige occupations (Chinn, 2001; Tang, 2002; Leung, Ivey, & Suzuki, 1994). Asian parents usually support their children to obtain high-prestige jobs in order to strengthen their social status in the U.S. (Leung, Ivey, & Suzuki, 1994; Sue & Morishima, 1982). As a result, vocational choices among Asian Americans are quite narrow (Chinn, 2001; Tang, 2002, Leung, Ivey, & Suzuki, 1994; Chen, 2004; Kawai, 2005). However, could the model minority stereotypes also affect Asian Americans' vocational choice? Might high social expectations influence their career choices? To date, no research examining this relationship can be found. The current study evaluated the relationship between the common career

choices among Asian Americans and perceptions of the model minority stereotypes.

Model Minority-Its History and Current Status

Prior to the notion of the model minority, Asians were viewed as a threat to the West due to Japan's rising imperial power and the overall large Asian population size during the late 19th and the early 20th centuries (Kawai, 2005). The idea of the yellow peril was spread and acknowledged by the Western society, indicating that the yellow race was perceived as a great threat and would ultimately surpass Western power and overtake the world (Kawai, 2005). It was not until two articles that were published in 1966 in the *New York Times Magazine* and *U.S. News & World Report* that the Asian image began to change (McGowan & Lindgren, 2006; Kawai, 2005). Instead of explicitly describing Asians as a race that were ravenous for power, the American mainstream media transformed the image of Asian Americans only based on the success stories of Japanese- and Chinese-Americans. The articles mentioned how much Asians value education and emphasize close family ties (Kawai, 2003). The author from the *New York Times Magazine*, "Success Story, Japanese-American Style", described that Japanese Americans were establishing an

7

outstanding record and seemingly doing it without the support from the government despite the racial discrimination they experienced after wartime (Petersen, 1966). In the same year, another article featuring the success of Asian Americans was published in *U.S. News & World Report*. "Success Story of One Minority in U.S." entailed how Chinese Americans persevered through tough times working hard at any jobs and insisted their children to achieve high credentials ("Success Story of One Minority is U.S.", 1966). Each of these publications emphasized the strong determination of Asian Americans succeeding in a foreign land. The purpose of these publications was to secure the notion of the American Dream by sharing the successful outcomes that Asian immigrants accomplished in the United States during an uncertain and chaotic period in history (McGowan & Lindgren, 2006). Though the two published stories seemed to celebrate the hard work of Asian Americans, the media in effect created a false belief about this particular minority group through discriminatory intentions. Behind the praising words, the publications implicitly proposed the colorblind ideology which indicated the need and the possibility for minorities to pull their own weight in the society regardless of their racial background (Kawai,

2005). Corresponding with the reports, the college enrollment of Asian Americans was drastically increased two decades later (McGowan & Lindgren, 2006). In part due to the media coverage, the mainstream society developed the false beliefs of the model minority stereotype that contrasted the disparities in wealth and education level between Asian Americans and African Americans (McGowan & Lindgren, 2006). From this point on, Asian Americans had "won" the label of model minority which redefined the social status of the Asian community.

Ever since the media celebrated the success of Asian Americans in the 60's, they have been known for their academic achievement and financial stability (McGowan & Lindgren, 2006; Kawai, 2005; Wong & Halgin, 2006). The label "model minority" separates Asian Americans from most other minority groups—as they are frequently depicted as hardworking, passive, and intelligent (Chen, 2004; McGowan & Lindgren, 2006). Due to their academic success, Asian Americans are also often portrayed as science/math geeks or nerds (Chen, 2004; Tang, 2002). Compared to other ethnic groups (including Whites), Asian Americans are dominating the science and technology occupations--they are more than three times likely to become scientists and engineers (Chen, 2004; Tang, 2002). As a result of

achieving high credentials and securing stable professions, Asian Americans are now the ethnic group who rank the highest median household income (King et al., 2006). The unbalanced representation in the workforce and the socioeconomic scale among Asian Americans strengthens the public's perception of model minority. Racial/ethnic groups such as Whites, African Americans, Native Americans, and Hispanics hold stereotypical beliefs of model minority (Wong et al., 1998). All five groups believe that Asian Americans generally have greater motivation to do well in school, even better grades, and are more likely to succeed in professional careers than Whites (Wong et al., 1998). Paradoxically, the positive portrayal creates a new set of problems.

Though many racial/ethnic groups agree with the perceptions that they hold for Asian Americans, the positive stereotypes of Asian Americans do not apply to all Asian Americans. Wong et al. (1998) found no evidence supporting the claim that all Asian Americans have exceptional academic performance. In addition, far from the model minority image, not all Asian Americans share the same financial capability (*Mental Health: A Report of the Surgeon General*, 1999). Therefore, the model minority concept puts Asian Americans in an awkward position not

only because it creates a myth for the general public about Asian Americans, but it also creates distress for those who struggle to live up to this identity (Ho, 2003). Model minority stereotypes give all Asian Americans the same label and completely disregard the diversity among ethnic subgroups (Kawai, 2005; Wong & Halgin, 2006). The label itself does not differentiate between cultures of Chinese Americans and Japanese Americans, Vietnamese Americans and Cambodian Americans, or Pilipino Americans and Thai Americans (Kawai, 2005). The general public cannot see the Asian individuals who are not compliant with the positive identity because they are masked by the model minority label. The Asian community in reality is very heterogeneous in regard to socioeconomic status and educational background, and of course, not all Asian Americans share the same characteristics of the positive stereotypes. In fact according to a demographic report, only 10% of Southeast Asian Americans completed college-level education (*Mental Health: A Report of the Surgeon General*, 1999). To be more specific, 2 out of 3 Laotian-, Cambodian-, and Hmong-Americans adults had no high school education (*Mental Health: A Report of the Surgeon General*, 1999). In 1990, about 14% of the entire Asian American/Pacific Islander population struggled in

poverty (*Mental Health: A Report of the Surgeon General*, 1999). Based on the report, the resources and values to achieve the "model minority status" are evidently very different for the Asian American subgroups, and some are extremely scarce (Wong & Halgin, 2006). Like most stereotypes, the stereotypical image of Asian Americans overgeneralizes those characteristics and creates challenges for Asian minorities who struggle to reach the perceived educational success and financial capability.

In addition to the inaccuracy of the stereotypes, the so-called success of the model minority is frequently being compared with the negative portrayal of African Americans and Hispanics and even the dominating characteristics of mainstream Whites (Lew, 2006; Kawai, 2005), causing a deeper misunderstanding of the Asian community. Minorities in general are forced to face discrimination and prejudice, but the treatment that Asian Americans encounter is somewhat different (Wong & Halgin, 2006). Asian Americans are being treated unfairly due to the ambiguous double standard that the general public holds. Other than being compared to African Americans and Hispanics, Asian Americans are also compared to the high social status of Whites. People believe that Asian Americans have equal job opportunities as Whites because

of their high credentials and persistent hard work. The stereotypical characterization of Asian Americans that people hold is strongly biased and can actually become a disadvantage for the Asian community. Though Asian Americans should be qualified as one of the protected groups for affirmative action, the outsiders often exclude them from the policies because of the "overnight success" that Asian immigrants have in this country (Angelo, 1999). Asian Americans are also perceived as the non-typical civil rights representative because they are not "Black" enough, and yet are not "White" enough to be part of the mainstream society (Angelo, 1999). As a result, Asian Americans become the minority group that falls in between the social standards of African Americans and Whites, which creates difficulties in the work field in terms of hiring policies, career advancement, and career choice.

Overall, the current status of the model minority image is not only biasing the perceptions that others have of Asian Americans but also challenge for the Asian community as a whole. Most importantly, the stereotypes have a direct impact on Asian Americans' self-perceptions and behavior at an individual level, which is the focus of the current study.

Impact of Stereotypes on Behavior
and Self-Perceptions

Before discussing the relationship between the model

minority stereotypes, self-perceptions, and behavior,

there is a need to address the fundamental theoretical

framework of stereotypes. Philosopher Ricoeur (1991) once

stated that the human experience is "mediated by all sorts

of stories that we have heard". These stories are based on

myths or powerful societal representation. The myth of

stereotypes can be thought of as the reflection of social

reality beliefs, indicating that people's opinion and

knowledge can be manipulated by the social world (Gorham,

1999). The information that people share, such as what is

in the media, is often unproven or even false. The

publications in the 60s regarding Asian American success

maneuvered the public's perceptions of the particular

minority group without thoroughly comprehending the

authentic, diverse lifestyle in the Asian American

community. However, as long as the mainstream society

holds dominant opinions, people would believe in what they

see and hear (Gorham, 1999). People allow the societal

view to take control of their perceptions. In other words,

people believe in stereotypes because others around them

seem to believe in them. Stereotypes are activated through

the accessibility of certain stereotypical information embedded in long-term memory (Manstead & Newstone, 1995). Beyond race and ethnicity, stereotype activation can also be applied to other social groups such as gender, age, and occupations when judging others. To be more specific, when people are in close contact with a certain group member, the associated information about the group is activated and therefore becomes obtainable for judgment (Manstead & Newstone, 1995). The same piece of information can be recalled repeatedly on others who share similar identity (Manstead & Newstone, 1995).

Precisely, stereotypical judgment can be categorized into implicit and explicit processes from a personal beliefs and cultural knowledge level based on the dissociation model by Devine (1989). When one undergoes a stereotype activation implicitly, the judgment is usually instantaneous and without conscious control (Akrami, Ekehammar, & Araya, 2006). One way to explain implicit stereotype activation is that people usually are exposed to stereotypes before they have the ability and knowledge to verify their validity (Fiske, 1998). The activation therefore becomes automatic through recurring situations in various social contexts (Fiske, 1998). On the other hand, as people's personal beliefs become stable, they may

learn that their values either support or clash with certain stereotypes. Usually those who understand or acknowledge the false portrayal of stereotypes activate the process rather explicitly. Explicit processes are slow, however, and are activated under awareness (Akrami, Ekehammar, & Araya, 2006).

Other than being related to cultural knowledge and personal beliefs, stereotypes can be activated in social contexts as well. Most context-related stereotype activations are through self-categorization and social identity. Self-categorization theory indicates the process of identifying one's self and others as ingroups or outgroups through social interaction (Fiske, 1998). The ingroup similarities are emphasized in comparison to outgroup differences, thus creating a great contrast between groups (Fiske, 1998). People generally tend to feel comfortable about their own ingroup identity and exaggerate the dissimilar characteristics of outgroups. The dissimilarities then are evaluated and translated into a certain stereotypical behavior pattern or social status and thus eventually turn into discrimination, prejudice, or a more subtle form—stereotypes (Fiske, 1998). Although past research has demonstrated that targets' test performance can be undermined simply through

stereotype-primed situations (Steele, 1992; 1997; Steel & Aronson, 1995), Marx and Stapel (2006) argue that social identity and self-categorization are moderators in the relationship. According to their findings, it is not difficult for targets to feel threatened under a stereotyped-relevant condition because they can easily relate to those stereotypes because of their social identity. In other words, the situation activates the targets' social self first then leads to stereotype threat. Marx and Stapels' study explains stereotype activation at a contextual level, which is a function of how much one identifies with his/her social self. Specifically, the stronger one's identity with the social group, the stronger the impact of context on the individual.

Once stereotypes are learned, it is nearly impossible for one to completely repel activation, even with control and awareness. Whether a person is a target or a perceiver, the method of individuation can help deflect one from activating stereotypes therefore reduce harmful impact caused by stereotypes (Ambady et al., 2004). Providing personal information such as traits or family background individualizes the target, which weakens stereotypical judgment of perceivers.

Although there are ways to decrease stereotype activation, the impact that stereotypes have on behavior and self-perceptions, especially among Asian Americans, still need to be examined and understood. Specifically, our understanding of the impact of positive stereotypes is quite limited (Cocchiara & Quick, 2004). Thus the general public still perceives the model minority stereotypes as a benefit to Asian Americans, and much is to be learned through research. In actuality, individuals' high expectations carried out from the stereotypes have negative impacts on behavior among Asian Americans which affects their performance, self-image, and other implicit and long-term problems that they are forced to face in the workforce.

Positive stereotypes may undermine Asian Americans' performance when characteristics associated with the model minority are made salient. Past research has demonstrated the hypothesis of stereotype threat, indicating the underperformance of minorities when stereotypical characteristics are primed in a given situation even though they are fully capable of performing at the same level as other groups in a control condition (Steele, 1992; 1997). Stereotype threat not only affects performance but also increases anxiety level and blood

pressure for minorities (Blascovich, Spencer, Quinn, & Steele, 2001). However, the numerous research studies that verify the stereotype threat phenomenon primarily focus on African Americans and Hispanics and largely neglect Asian Americans out from this concept. In some studies Asian Americans are even categorized in the same group as Whites to measure stereotype threat among African Americans and Hispanics (Osborne, 2001). The positive image of being well-educated and intelligent seems to camouflage the potential stereotype threat that Asian Americans may experience. Specifically, fear of failing to confirm the characteristics of model minority may increase distress and anxiety which can possibly lead to poor performance (Cocchiara & Quick, 2004; Cheryan & Bodenhausen, 2000). Cheryan and Bodenhausen (2000) performed an experiment on 49 Asian American female college students. The students were given a quantitative abilities test under gender, ethnic identity, and control conditions. Results indicated that those who were randomly assigned to the ethnic identity condition performed more poorly than those in other conditions. Those participants who were in the ethnic identity condition also reported that they had difficulty concentrating on the tasks because they felt compelled to meet the stereotypical expectations. Hence

19

the model minority stereotypes may add on pressure for Asian Americans and undermine their performance. Stereotype threat is an unknown immediate response that Asian Americans have when they are forced to face the high social expectations of the model minority. However, long-term effects that are associated with the positive stereotypes must be explored.

The social self is closely linked with stereotype threat (Marx & Stapel, 2006). When an individual feels threatened by high expectations, the situation can lower the individual's sense of self-identity due to the lack of shared characteristics with his/her own ethnic group (Marx & Stapel, 2006). Thus, positive stereotypes may have a negative influence on self-identity. In addition to a situational-specific consequence such as stereotype threat, long-term negative self-beliefs can also be formed by the everyday misconceptions that others hold. Many Asian Americans experience inner conflict because they cannot live up to the positive portrayal of their own racial/ethnic group (Wong & Halgin, 2006). However, they still feel burdened to achieve the public's expectations. Therefore, there is a constant battle between the actual self and the societal portrayal of the model minority. In Lee's (1994) qualitative study about the pressure of

keeping up with the positive stereotypes, a young Asian woman expressed the awkwardness that she dealt with when she received bad grades in school. She said bad grades seemed to disfigure the model minority image for Whites. She also addressed the loss of self-identity when attempting to fit the perceived standards. If the same situation continuously reoccurs, the positive stereotypes may eventually cause damage on Asian Americans' self-image and self-worth, and lead Asian Americans to make life and career choices that are consistent with the Asian American portrayal even when they may be inconsistent with individual strengths.

Some Asian Americans actually have an ambivalent attitude toward the label, regardless of how long they have been in the U.S. (i.e. immigrants or U.S. citizens) (Oyserman & Sakamoto, 1997). The college student participants from Oyserman and Sakamotos' (1997) research study were concerned that such label would keep them out from the mainstream and would not recognize them as part of the American culture. They too were worried that Asian Americans would be tied down by the high expectations and biased perceptions. The participants who did not agree with the stereotypes thought of the positive portrayal as a poor representation of the entire Asian community. One

particular student even recalled that not everyone who he grew up seeing in the neighborhood fits the "model minority" type. They tried their best to avoid being labeled this way because they believed that there is a strong negative connotation and distortion behind the stereotypes even though they are positive. Interestingly, although these Asian American college students expressed the desire for staying away from the model minority stereotypes, there is still a high representation of Asian Americans in the science, technology, and engineering fields. There is an evident pattern that Asian Americans choose that type of profession. In year 2000, for instance, 10% of the nation's scientists and engineers were Asian Americans (National Science Foundation (NSF), 2000; Chinn, 2002) while there were only 3.6% Asian Americans in the U.S. population (Connelly, 2001; Chinn, 2002). This trend raises the question about the relationship between Asian Americans' career choices and the potential influence of the positive stereotypes. Asian Americans may in fact choose these stereotypical professional fields with minimal or no consideration of their actual personal interests or abilities.

The model minority stereotypes also have an impact on Asian Americans at a group level. In spite of the fact

that Asian Americans dominate the professions of science, technology, and engineering, research demonstrates that stereotypes prevent Asian American workers from entering the managerial positions, even in high-technology organizations (Chen, 2004; Wong et al., 1998). The ceiling effect can be seen in the under-representation of the managerial and executive positions for both Asian immigrants and U.S.-born Asian Americans (Fernandez, 1998). Some speculate that Asian Americans have limited potential for advancement because they are too passive to climb up the corporate ladder (Wong et al., 1998). Though it is uncertain whether Asian Americans are aware of the ceiling effect or not, we can still see the clear tendency of Asian Americans choosing science/technological/ engineering related professions. They are constantly challenged by the public's high expectations, yet a great number of them still continue pursuing the stereotypical careers and in a way fortifies the stereotypes. This specific decision making process leads to the purpose of the current study. The intention of this study is to examine the influence of stereotype beliefs, identity, and self-efficacy in Asian Americans' vocational choice.

Current Study

Based on the meta-analysis by Fouad and Byars-Winston (2005), cultural context among racial groups is an important determinant of vocational choice. "[F]rom a cultural frame of reference, work is a functional aspect of life in that individuals contribute their skills and labor to their cultural societies and the maintenance of their families" (Carter & Cook, 1992, p. 199). Work itself can be viewed as a cultural development, meaning that there is a collective belief of who should perform certain types of work. Hence, the perceptions of work may be very different across racial/ethnic groups based on their political, historical, and sociocultural backgrounds (Cheatham, 1990). Individuals of minority groups that have high representation in the unskilled professions tend to be significantly influenced by their own racial group's employment status when they are making a decision about their own career options due to perceived job-related resources and barriers (Fouad & Byar-Winston, 2005; Brown, 2002). Furthermore, members of minority groups are more inclined to make a vocational choice from a narrower range of occupations compared to Whites due to differences in social status and social expectations (Brown, 2002).

Although the literature clearly demonstrates the role of culture in vocational choice, there are two issues that were overlooked in this literature. First, the authors discuss the obstacles of racism and discrimination as part of the defined culture for minority groups, but the function of stereotypes was never addressed in the literature. Although stereotyping is a form of subtle racism, it is more of a cognitive activation than an actual behavior like discrimination (Fiske, 1998). Further, the meta-analysis (Fouad & Byar-Winston, 2005) did not incorporate self-perceptions in the study, but they should be included as part of cultural context since self-stereotyping is a pervasive social phenomenon that every racial/ethnic group experiences (Sinclair, Hardin, & Lowery, 2006). In the current study we are interested in whether self-stereotyping among Asian Americans may shape the way of an individual perceives his/her career options and capabilities. Second, the study focused mainly on minority groups who are struggling to break out from positions with negative social status (e.g. Hispanics and African Americans), and the limitations of positive stereotypes among Asian Americans in the high-skilled positions were not emphasized. Combining these two points defines the purpose of the current study—examining the

role stereotypes may have in the decision-making process in choosing science, engineering, or technology professions among Asian Americans.

The purpose of the current study is to examine the self-stereotyping process for its role in vocational choices. We argue that Asian Americans' beliefs in the notion of model minority may heighten their self-efficacy in math and science abilities, which may lead them into choosing those vocational paths. Stereotype-related self-evaluation is manipulated by the perceived expectations of others and influenced by one's own most prominent social identity (Sinclair, Hardin, & Lowery, 2006). The present study is in some ways testing the Pygmalion effect, which is a special case of self-fulfilling prophecy (Rosenthal & Jacobson, 1968). Pygmalion effect shows how a person's behavior or thoughts can be influenced by the expectations of a powerful figure even though the expectations may be false (Rosenthal & Jacobson, 1968). Being under the strong portrayal of the model minority for decades, Asian Americans may assimilate to an image of being highly capable in science and mathematical related professions despite inconsistencies with their true abilities. Even though many Asian Americans have negative feelings about the model minority

26

portrayal, it has been demonstrated that Asian American students perceived themselves as the model minority and believed that they are more likely to succeed in their careers compared to other racial/ethnic groups, including mainstream Caucasians (Wong, Lai, Nagasawa, & Lin, 1998).

There are several concepts that are incorporated as the components of the self-stereotyping process. The process begins with affirmative beliefs in the positive stereotypes. Individuals fall into the process of self-stereotyping because they first acknowledge and uphold the ideas of the model minority. In other words, Asian Americans who consider their own racial/ethnic group as a model minority should have strong and positive beliefs in the social portrayal of Asian Americans that may influence their self-perceptions.

There is substantial evidence that indicates the strong influence of self-efficacy on career decision-making (Brown, 2002). Those who hold optimistic beliefs in positive stereotypes should also form higher self-efficacy that Asian Americans are *supposed* to be intelligent and are fully competent of becoming a successful professional in investigative-type jobs. Based on Bandura's (1977) theory, self-efficacy is comprised of people's beliefs about their own abilities to perform

various tasks, which determines people's goals, emotion, motivation, and behavior. The influences of self-efficacy on an individual can be categorized into four different psychological functionings—cognitive, motivational, affective, and selection (Bandura, 1994). Selection, examined in the present study, is the idea that choice-making behavior is affected by self-efficacy. In the current research, we argue that self-efficacy mediates the relationship between model minority beliefs and choice-making behavior. In addition, the relationship between model minority stereotype beliefs and self-efficacy is hypothesized to be moderated by racial/ethnic identity because identity strength is linked to the potential impact of stereotype beliefs. Derived from the concept of stereotype consensus, self-stereotyping process is under the influence of social identity (Nosek, Banaji, & Greenwald, 2002; Greenwald et al., 2001; Rudman, Greenwald, & McGhee, 2001; Haslam et al., 1999; Haslam, 1997). The higher one associates with a social identity, he/she is more likely to conform to the expected homogeneity of the in-group from a standpoint of the out-group (Haslam et al., 1999; Haslam, 1997). Therefore, the impact that stereotype has on individual

behavior via the self-stereotyping process is dependent on one's social identity.

Lastly, we argue that Asian Americans with high self-efficacy as a result of positive beliefs in model minority stereotypes are more likely to prefer careers in the science, technology, and engineering fields. Based on the Holland's six job types (1985), (Investigative, Realistic, Artistic, Enterprising, Conventional, and Social), these stereotypical professions are categorized under Investigative and Realistic occupations (Holland, 1985). Several research studies have found that Asian Americans are more likely to choose Investigative and Realistic occupations (Tang, 2002; Park & Harrison, 1995; Leung, Ivey, & Suzuki, 1994). Since college majors tend to go hand in hand with vocational preferences, it is substantial to consider one's chosen major as a reference for this measure.

In summary, the proposed relationships are explained by Figure 1 below.
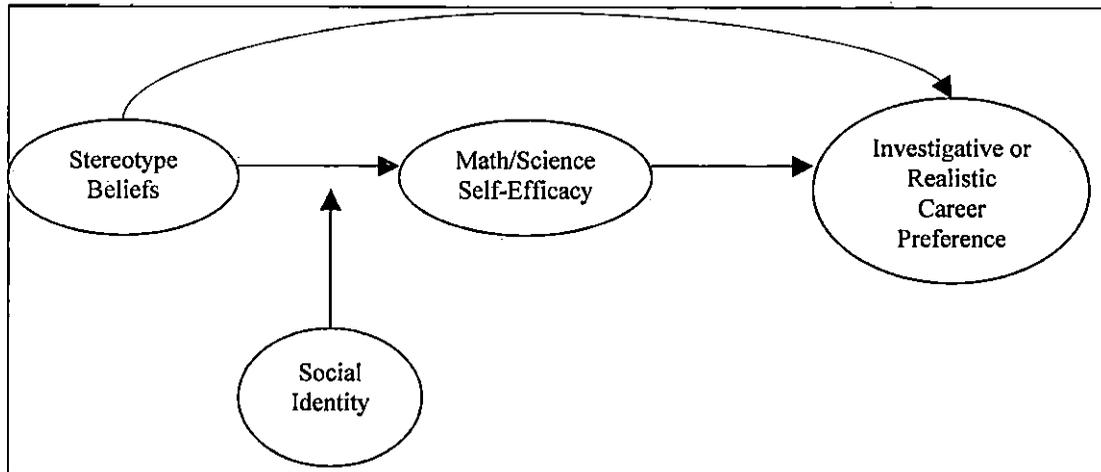
Figure 1. Model Minority Self-Stereotyping Process

Hypothesis 1: High Stereotype Beliefs for Asian Americans
will more likely to lead to Investigative/Realistic
career preference.

Hypothesis 2: Model minority stereotype beliefs will
predict Asian Americans' math/science self-efficacy.
The more positive the beliefs are, the higher
self-efficacy will be.

Hypothesis 3: There will a moderator effect of social
identity on the relationship between stereotype
beliefs and math/science self-efficacy. High social
identity will strengthen the relationship between
stereotype beliefs and self-efficacy in math/science,
and low social identity will lessen the relationship
between stereotype beliefs and self-efficacy in
math/science.

Hypothesis 4: The relationship between the interaction of

stereotype beliefs and social identity and

Investigative/Realistic vocational preference will be

mediated by math/science self-efficacy. High

math/science self-efficacy will predict Asian

Americans' vocational choice of pursuing in

Investigative/Realistic fields.

Exploratory Section

Based on the vocational choice in high-level job
fields described above, the self-stereotyping process
seems to be beneficial for Asian Americans due to the
effect of high self-efficacy, also along with stable,
decent career goals in hand. However, potential negative
consequences are concealed implicitly within the process.
Considering Asian Americans who self-stereotype are in
fact not given many options to explore different
interests, the actual capabilities to succeed in those
selected vocational fields are unknown and not guaranteed.
In addition, some of them may even face the distress of
failure earlier on in the process of becoming the chosen
professionals. Hence, this self-stereotyping process may
not be advantageous for Asian Americans.

In order to evaluate possible negative effects of positive stereotypes among Asian Americans, participants' perceived potential to achieve their career goal will be evaluated. Questions regarding their own perceptions of their academic status and intent to continue with their current majors will be included. The relationship between the perception and stereotype beliefs will be examined.

Furthermore, based on Barratt (2006), Investigative- and Realistic-type professions are considered to have high social status. Also, as mentioned previously in the paper, there is a body of research that demonstrates the impact of familial influence on young Asian Americans' career choices. For both U.S.-born and Asian-immigrant groups, past research has revealed that familial influence is one of the main determining factors that leads Asian Americans into choosing high-prestige occupations (Tang, 2002; Chinn, 2001; Leung, Ivey, & Suzuki, 1994; Sue & Morishima, 1982). Asian parents usually support their children to obtain high-prestige jobs in order to strengthen their social status in the U.S. (Leung, Ivey, & Suzuki, 1994; Sue & Morishima, 1982). It seems to be common for young Asian Americans to fulfill the desire of their parents due to the high value of filial piety embedded in Asian

culture. As a result, an additional model below will also

be tested for exploratory purposes.
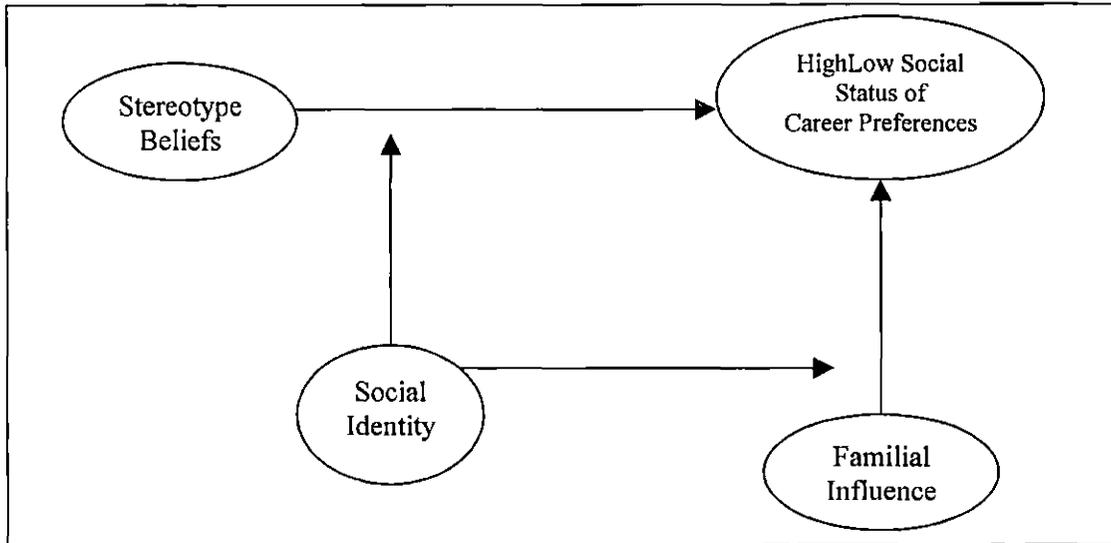
Figure 2. Familial Influence Diagram

This model will explore the variance of familial

influence in the model minority self-stereotyping process.

This exploratory model will examine the vocational choices

between low and high status professions which as expected

to be positively influenced by stereotype beliefs. It is

also believed that the relationship between stereotype

beliefs and low/high status career preferences will be

moderated by social identity. The impact of stereotype

beliefs on social status will be greater for individuals

with high social identity, and conversely the impact of

stereotype beliefs on social status will be smaller for

individuals with low social identity. In addition, familial influence will also be positively correlated with social status, and their relationship will also be moderated by social identity as well. The impact of familial influence on social status will be stronger for those with high social identity, and the impact of familial influence on social status will be weaker for those with low social identity.

CHAPTER TWO

METHOD

Participants

Asian American undergraduate students of all majors were recruited electronically. Professors of Engineering and other science departments from the University of California, Riverside, Irvine, and Los Angeles were contacted via email and were asked to assist with recruitment by forwarding the message to their students. Bulletins were posted on MySpace and FaceBook throughout the recruitment process as well to attract potential participants. The direct link to the online survey was attached in the email and the bulletins. Participants were also recruited through some Asian student clubs and word-of-mouth referrals. In total, 162 Asian American students clicked on the web link to the online survey, but 60 did not begin the survey at all. Through data screening, a total of 85 complete cases were included in the study, which consisted of 53 males and 32 females. The mean age for the sample was 21.30 years, with the range from 18 to 27 years. In terms of the particular Asian ethnicities, the participants consisted of Chinese (43.5%), Filipino (20.0%), Vietnamese (11.8%), Korean

(7.1%), Japanese (3.5%), Indian (3.5%), Thai (2.4%), Cambodian (2.4%), Indonesian (2.4%), and other Asian ethnicities that were not listed (4.7%). Out of the sample, 55.3% of the participants stated English as their first language, while the remaining 44.7% stated that English was not their first language. For their generation status, 64.7% of the participants were first generation Asian Americans, 23.5% were second generation, 3.5% were third generation and on, and 8.2% were immigrants themselves (i.e. international students). The majority of the students attended University of California, Riverside (67.1%). The sample group had a 60% of engineering/science/math majors, and a 40% of humanities, social sciences, and arts majors. In terms of years in college, 10.6% of the participants were in their first year of college, 11.6% were second, 14.1% were third, 38.8% were forth, and 24.7% were fifth and on.

Procedure

An online survey was conducted on SurveyMonkey.com. The web link that directed to the survey on Survey Monkey was attached in all emails and bulletins, which enabled participants to conveniently access the questionnaire. Prior to the actual survey, participants needed to

indicate informed consent and then to fill out demographic information such as age, gender, name of school, year of school, current major, and ethnicity. The majority of the survey consisted of a total of five Likert-type scales along with two open-ended questions and a multiple choice question.

In the main analysis portion of the questionnaire, Likert-type questions incorporated sub-scales such as Stereotype Beliefs, Social Identity, and Self-Efficacy for Science/Math. Participants were then requested to indicate their specific career interests upon graduation in an open-ended question format. In order to ensure consistency of the outcome, participants were also asked to specify their vocational preference again at the end of the section with an additional occupational list from the O*NET website in a multiple choice format.

For the exploratory component of the study, participants were asked to fill out self-reported GPA and units that they have completed. Finally they were asked to answer the last set of Likert-type questions regarding their perceived potential in succeeding in their majors and attaining their career goals and lastly familial influence on their decisions in choosing certain career

paths. Participants were thoroughly debriefed at the end of the study.

<center>Measures</center>

Stereotype Beliefs Scale

The Stereotype Beliefs Scale was a sub-scale originated from the Attitude Toward Asians (ATA) scale (Ho & Jackson, 2001). ATA was initially developed to assess various ethnic groups' attitudes toward Asian Americans. A total of 28 questions was in the original scale. The current study only used 16 items. These were the items that fit the content of the study. The first 11 items used (see Appendix *Stereotype Beliefs* Scale) were positive perceptions, and the remaining five were negative perceptions. The five negative perceptions questions were reverse coded. Questions regarding the positive perceptions were used because they describe the common characteristics of model minority. A small portion of the questions regarding the negative perceptions were chosen because these particular stereotypes are also frequently recognized as the shared features of Asian Americans in the literature. In addition, the chosen questions were worded in a neutral tone, which were more suitable for Asian American participants to respond rather than for

<center>38</center>

out-group members only. Participants were asked to indicate how much they agreed with the stereotypes on a scale of one (strong disagree) to seven (strongly agree). In Ho and Jacksons' study (2001), the 11 items of positive stereotypes had a Cronbach alpha of 0.87, and the remaining items of negative stereotypes had a Cronbach alpha of 0.95. The scale used in the current study had a Cronbach alpha of 0.81.

Social Identity Scale

Sexton's (2000) Social Identity Profile was used entirely as an overall measure of social identity. This measure consisted of 20 items. Instead of giving the participants a wide range of social identities (i.e. race/ethnicity, religion, physical characteristics, and social class) like the original scale, a list of Asian American subgroups was given. Participants were first asked to indicate the ethnic subgroup that they identify themselves the most with then to answer questions regarding their social identity using the chosen subgroup. The questions were on a scale of one (strongly disagree) to seven (strongly agree), which indicated the degree of how much the participants associate themselves with the Asian American identity. Eight items were reverse coded

(See Appendix *Social Identity Scale*). The current study yielded a Cronbach alpha of 0.91.

Self-Efficacy for Science Scale

The Self-Efficacy for Science Scale (SEFS) was used to measure participants' self-efficacy in science- and math-related knowledge (Andrew, 1998). Questions incorporated areas such as mathematics science, domestic applications, lifestyle, science principles, practical science, and applied physics (Andrew, 1998). Participants were asked to rate their confidence in performing each of the tasks successfully from a scale of one (not confident) to five (very confident). All 21 questions from the scale were used. The internal reliability was reportedly 0.90 when the scale was used in the original study (Andrew, 1998). In addition to the SEFS scale, an extra set of questions (see Appendix) were also included. The SEFS scale mainly focused on scientific phenomenon seen and happened in daily life but not scientific concepts learned in a classroom setting. Therefore, these added questions were necessary, which specifically targeted one's science/math self-efficacy from an academic standpoint. The last three questions were a modification of Academic Self-Efficacy Scale developed by Elias and Loomis (2000). Students were asked to indicate their confidence in

completing Engineering, Biochemistry, and Calculus with a grade of B. The final Cronbach alpha for the current study was 0.92.

Vocational Choice Measure

Vocational choice was measured in three ways—current major, open-ended question, and multiple choice question. Current major was asked in the beginning of the survey, which was placed in the demographic information section (see Appendix, *Demographic Information*). Vocational choice was then measured through an open-ended format (see Appendix *Vocational Preference, Open-Ended Question*), which was used as the main source for this measure. Participants were requested to indicate ONLY one specific position or a job field that they felt they would most strongly pursue. Following the open-ended question, participants were again asked to identify the most preferred job field from a list which was taken from O*NET (http://online.onetcenter.org/find/) (see Appendix *Vocational Preference, O*NET Job Families*). Even though college majors were not primarily used in this case, it was still utilized as a reference to supplement vocational choice in case of inconsistencies between the two formats of vocational choice provided by participants. Current major, the open-ended question, and chosen job field from

41

O*NET were then coded based on Holland's (1985) RIASEC

model and other similar criteria derived from Holland's

model (http://209.85.173.104/search?q=cache:4EHtx2v 7yjEJ:

www.career.uno. edu/pdfs/Career %2520 Interest%2520Game.

pdf+RIASEC&hl =en&ct= cl nk&cd=1&gl=us&client=firefox-a;

http://www.asij.ac.jp/Highschool/ guidance/Career/

riasecdoc.htm).

Three coding formats were used for this measure.

Current major, open-ended question, and the chosen job

field from O*NET were first coded based on a label of one

through six, assigning a number to each of the six job

types correspondingly (i.e. Realistic = 1;

Investigative = 2; Artistic = 3; Social = 4;

Enterprising = 5; Conventional = 6). The second coding

format, which was used in the actual analysis as the

dependent variable, was to code Realistic and

Investigative career preferences as one and the other four

preferred job types as two (i.e. Realistic or

Investigative = 1; Artistic, Social, Enterprising, or

Conventional = 2). Lastly, the open-ended question was

coded into a social status scale of one through nine

(Barratt, 2006), with one being the occupation that has

the lowest social status and nine has the highest. In

order to retain consistency, all three formats were coded

by two raters. Raters coded based on the same instruction and reference. The majority of the coding results matched between raters. Ones that did not match consistently appeared to be the same professions which were also originally ambiguous and overlapped in the RIASEC criterion used in the current study. The unmatched codings were discussed by the raters. Each rater justified her choice of coding for these particular professions, and agreements were reached after analyzing the nature of these jobs and re-categorizing them back into the most fit RIASEC.

Exploratory Section

Perceived Potential in Major and Vocational Choice Scale

The adaptation of the Perception of Career Potential and Intentions-to-Leave scales created by Jenkins, Nadler, Lawler, and Cammann, (1975) and Heilman, Block, and Lucas (1992), with Cronbach alphas of 0.79 and 0.88, was incorporated as a part of the exploratory study. The items were modified into the context of perceived potential and success in chosen major and vocational preference. These combined scales were labeled as Perceived Potential in Major and Vocational Preference. A total of six items were included. Each question was answered on a scale of one

(highly unlikely) to five (highly likely). The Cronbach alpha for this combined scale was 0.78.

Familial Influence Scale

The last part of the survey was completed with the Familial Influence Scale (see Appendix *Familial Influence*). The selected six items that were included in the questionnaire were originally created by Tang (2002). Each question was answered on a scale of one (strongly disagree) to seven (strongly agree). The questions used were directly focused on the familial influence that the participants experienced in their career choice decisions. The reliability was not stated in the original study, but items used in the current study had a Cronbach alpha of 0.77.

Social Status Coding

Social status of career preferences was used as the dependent variable for the exploratory section. It was coded from the opened-ended responses for vocational choice measure using the Barratt Simplified Measure of Social Status (BSMSS) (Barratt, 2006). The scale ranged from one to nine, with one as the professions with the lowest social status (i.e. janitor, house cleaner, and busboy) and nine as the professions with the highest

·

social status (i.e. physician, chemical and aerospace engineer, and attorney).

Reliabilities of the Adapted Scales

Stereotype Beliefs Scale, Self-Efficacy Scale, and Perceived Potential in Majors and Vocational Choice Scale were adapted from the original measures in order to better capture the purpose of the current study. The following is a table listing their reliabilities based on the items included in the survey.

Table 1. Reliabilities of the Adapted Scales

Item	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Reliability of Stereotype Beliefs			
SB 1	0.56	0.81	0.79
SB 2	0.56	0.81	0.79
SB 3	0.53	0.65	0.79
SB 4	0.55	0.68	0.79
SB 5	0.72	0.80	0.78
SB 6	0.69	0.78	0.78
SB 7	0.67	0.77	0.78
SB 8	0.46	0.63	0.80
SB 9	0.62	0.77	0.78
SB 10	0.56	0.74	0.79
SB 11	0.57	0.59	0.79
SB 12	0.25	0.38	0.81
SB 13	0.08	0.26	0.82
SB 14	0.07	0.47	0.83
SB 15	0.16	0.44	0.82
SB 16	0.05	0.39	0.83
Note: SB- Stereotype Beliefs			

Item	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Reliability of Self-Efficacy			
SE 1	0.57	0.84	0.92
SE 2	0.56	0.63	0.92
SE 3	0.43	0.56	0.92
SE 4	0.60	0.87	0.92
SE 5	0.65	0.78	0.92
SE 6	0.53	0.67	0.92
SE 7	0.56	0.64	0.92
SE 8	0.58	0.66	0.92
SE 9	0.45	0.58	0.92
SE 10	0.58	0.68	0.92
SE 11	0.27	0.55	0.92
SE 12	0.28	0.51	0.92
SE 13	0.56	0.65	0.92
SE 14	0.66	0.69	0.92
SE 15	0.50	0.63	0.92
SE 16	0.59	0.75	0.92
SE 17	0.58	0.73	0.92
SE 18	0.60	0.71	0.92
SE 19	0.61	0.77	0.92
SE 20	0.68	0.74	0.92
SE 21	0.55	0.65	0.92
SE 22	0.58	0.71	0.92
SE 23	0.58	0.63	0.92
SE 24	0.40	0.67	0.92
SE 25	0.35	0.53	0.92
SE 26	0.54	0.68	0.92
SE 27	0.52	0.79	0.92
SE 28	0.52	0.67	0.92

Note: SE- Self-Efficacy

Item	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Reliability of Perceived Potential in Major and Vocational Choice			
PP 1	0.44	0.38	0.76
PP 2	0.54	0.31	0.74
PP 3	0.64	0.52	0.73
PP 4	0.47	0.33	0.76
PP 5	0.54	0.50	0.75
PP 6	0.59	0.52	0.73

Note: PP- Perceived Potential

CHAPTER THREE

RESULTS

After the preliminary screening of the 162 individuals who entered the survey website, 60 people were excluded from the study because they entered the website but did not proceed with the survey. Using data from the remaining 102 participants, descriptive and frequency analyses of the variables were performed for data screening. Based on the criterion of $z > \pm 3.3$ for skewness and kurtosis, no univariate outliers were detected, and all variables appeared to be normal. A missing value analysis was also executed to examine the missing pattern of the data. Using the standard of $p < 0.01$, no significant missing pattern was found, and all incomplete cases were filtered from the analysis ($N = 85$). Mahalanobis Distance was also performed to examine the variables included in the main analysis (Social Identity, Stereotype Beliefs, and Self-Efficacy) and the exploratory analysis (Perceived Potential in Major and Vocational Choice) separately to identify any multivariate outliers. No multivariate outliers were found ($\chi^2 = 16.27$; $\chi^2 = 13.82$, $p < 0.001$).

Testing the Model Minority Self-Stereotyping
Process—Main Analysis

In order to test study hypotheses, techniques developed by Barron and Kenny (1991) were applied to analyze both the moderator and the mediator effects. In order to facilitate moderated regression, all variables were centered and interaction terms were created. Multiple hierarchical regression analyses were run to test each hypothesis, and the sequence of the analysis is described in the following.

For Hypothesis 1, the main effect of stereotype beliefs on Investigative/Realistic career preference was tested. Stereotype beliefs was entered as the IV, whereas Investigative/Realistic career preference was entered as the DV. Subsequently, Hypothesis 2 and 3 were tested to examine the main effect of stereotype beliefs on self-efficacy and the interaction between stereotype beliefs and social identity. To test Hypothesis 2 and 3, first, stereotype beliefs and social identity were entered as IVs with self-efficacy as the DV. Second, the *interaction* of stereotype beliefs and social identity was then added as an IV as well. Finally, Hypothesis 4 was tested for the mediating effect of self-efficacy. In accordance with the guidelines established by Barron and

49

Kenny (1991), a total of three steps were performed to examine the mediating effect. The first step of the mediation analysis examined the association between the IVs (stereotype beliefs, social identity, and stereotype beliefs X social identity) and the DV (Investigative/ Realistic career preference). For the IVs, stereotype beliefs and social identity were entered first. Then the interaction term of stereotype beliefs and social identity was added. The second step tested the relationship between the proposed mediator (self-efficacy) and the DV (Investigative/Realistic career preference). Lastly, the final step investigated the association between the DV and all the IVs. Self-efficacy was entered first as the IV. Stereotype beliefs and social identity were entered second. The interaction of stereotype beliefs and social identity then followed as the last IV entered. A Sobel test was performed afterwards to calculate the significance of the mediation.

Means, standard deviations, and correlations of the variables are presented in Table 2. Results are listed in the tables below in the order of the hypotheses. Graphs are also shown to illustrate the significant interactions found. Hypothesis 1 predicted the positive relationship between stereotype beliefs and Investigative and Realistic

career preference. The results showed that there was no main effect [$R = 0.14$, $R^2 = 0.02$, $F (1, 82) = 1.70$, $p = 0.20$] (see Table 2). Hypothesis 2 predicted the positive relationship between stereotype beliefs and math/science self-efficacy (see Table 3). This main effect was also not significant [$R = 0.09$, $R^2 = 0.01$, $F (1, 83) = 0.74$, $p = 0.39$], hence Hypothesis 2 was not supported. Hypothesis 3 predicted the moderator effect of social identity on the relationship between stereotype beliefs and math/science self-efficacy (see Table 4). Specifically, the relationship between stereotype beliefs and math/science self-efficacy was hypothesized to be strong for individuals with high social identity and weak for individuals with low social-identity. As predicted, there was a moderator effect of social identity between stereotype beliefs and self-efficacy [$F (1, 81) = 11.50$, $p = 0.001$] (see Table 4). Twelve percent of the variance in self-efficacy is accounted for by this interaction. Therefore Hypothesis 3 was supported. The graph of the interaction is shown in Figure 3. The direction of the graph reflects a fully crossed interaction and supports the moderated relationship in that, though there was a slight negative trend for low-identified individuals. The relationship between beliefs and efficacy was strong and

positive for individuals in the high-identified condition.
Values at ±1standard deviation for each variable are
presented in Table 5.

Finally, Hypothesis 4 predicted a mediating effect of
self-efficacy between the stereotype beliefs and social
identity interaction and vocational choice. The first,
second, and third steps of the mediation analysis are
presented in Table 6, Table 7, and Table 8, respectively.
A Sobel test was calculated to examine the significance of
the mediation. Before conducting the Sobel test, it was
essential to determine if the addition of self-efficacy
led to a reduction in the strength of association between
the interaction of stereotype beliefs and social identity
and Investigative/Realistic career preference. As the
results indicated, there was a decrease in the Beta
coefficient before and after self-efficacy was added in
the analysis (β = -0.31; β = -0.16) (see Table 6 and
Table 8). The Sobel test, using $p < 0.05$ criterion,
revealed a significant partial mediator effect for
self-efficacy (z = -2.63, p = 0.009), therefore,
Hypothesis 4 was supported.

Throughout the three steps of the mediation analysis,
the interaction between social identity and stereotype
beliefs was found significant. In Step 2 of Table 6, the

52

interaction between social identity and stereotype beliefs was found to significantly predict Investigative/Realistic vocational preference [F (1, 80) = 8.50, p = 0.005] (see Table 6). An additional 9.0% of the variance in Investigative/Realistic vocational preference is accounted for by the interaction. The interaction can be seen in Figure 4. The results shown in Figure 4 indicate a slight negative trend between stereotype beliefs and Investigative/Realistic vocational preference for those with high social identity. This shows that those with high stereotype beliefs and high social identity were more likely to choose Investigative/Realistic careers (Investigative/Realistic was coded as "1", while other four career types were collectively coded as "2"). On the contrary, the graph shows a positive linear trend between stereotype beliefs and Investigative/Realistic vocational preference for individuals with low social identity, meaning those with low stereotype beliefs and low social identity were less likely to choose Investigative/Realistic careers. Furthermore, in Table 7, a main effect of math/science self-efficacy was also found [R = 0.47, F (1, 82) = 22.53, p < 0.01]. The data indicated that 22% of the variance in choosing Investigative/Realistic vocational preference is accounted

for by Math/Science Self-Efficacy. This particular finding clearly showed the impact and effect of high math/science self-efficacy when selecting an Investigative/Realistic profession. This main effect may also imply its generalizability outside of the Asian American self-stereotyping process, which will be elaborated more in the Discussion section.

Table 2. Means, Standard Deviations, and Correlations among Variables

		Variables	M	SD	1	2	3	4	5	6
Study Variables	1	Stereotype Beliefs	5.01	0.7						
	2	Social Identity	4.9	0.94	0.56*					
	3	Self-Efficacy	3.78	0.74	0.1	0.09				
Exploratory Variables	4	Familial Influence	4.27	1.18	0.37*	0.33*	0.16			
	5	Perceived Academic Potential	3.89	0.73	0.07	0.17	0.29*	0.15		
	6	Social Status	7.78	1.09	-0	0.01	0.35*	0.28*	0.01	
	7	GPA	3.07	0.61	0.01	-0.03	0.28*	-0.1	0.26*	0.17

Note: *p< 0.05. Listwise N = 85. Scales: Stereotype Beliefs: 1-7;
Social Identity: 1-7; Self-Efficacy: 1-5; Familial Influence: 1-7;
Perceived Academic Potential: 1-5; Social Status: 1-9

Table 3. Main effect Stereotype Beliefs on Career Preference (N = 85)

	B	SE B	β	R	R²	F	P
Stereotype Beliefs	0.1	0.08	0.14	0.14	0.02	1.70	0.2

Note: Variable was centered   DV: Career Preference

Table 4. Summary for Hierarchical Regression Analysis for Interaction between Stereotype Beliefs and Social Identity on Self-Efficacy (N = 85)

Variable	Step 1	Step 2		Step 3		
	Stereotype Beliefs (SB)	Stereotype Beliefs (SB)	Social Identity (SI)	Stereotype Beliefs (SB)	Social Identity (SI)	SB x SI
B	0.10	0.11	-0.01	0.11	0.03	0.31
SE B	0.12	0.14	0.10	0.13	0.09	0.09
β	0.09	0.10	-0.01	0.10	0.03	0.35 *
Overall R²	0.01		0.01			0.13
R² change	0.01		0.00			0.12
F for change in R²	0.74		0.01			11.50
P	0.39		0.93			0.001*

Note: Variables were centered   DV: Self-Efficacy   *significant
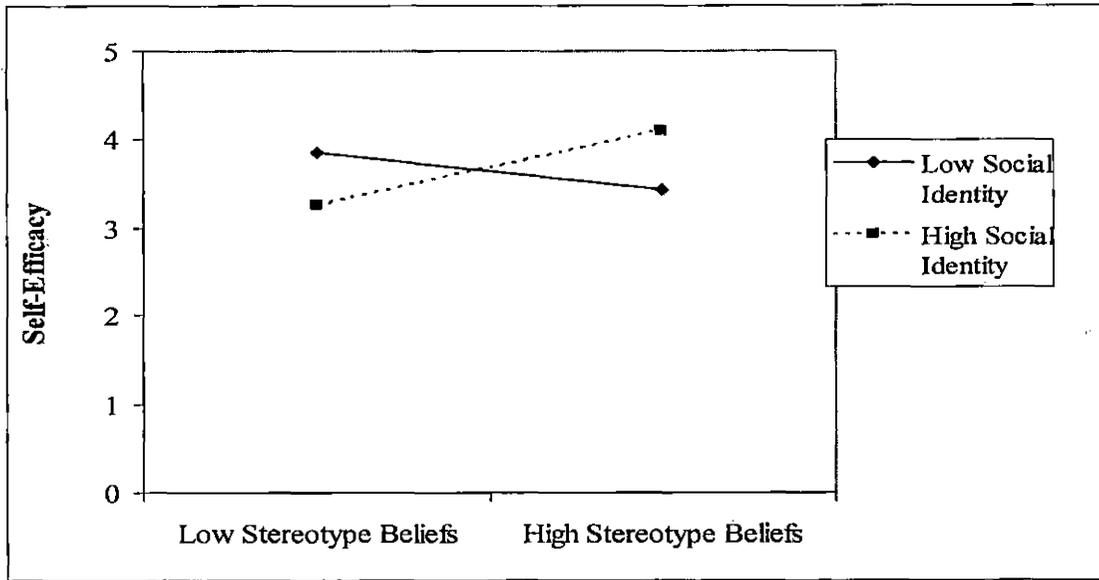
Figure 3. Social Identity x Stereotype Beliefs: Stereotype Beliefs, Moderator: Social Identity: Self-Efficacy

Table 5. The Numerical Comparison of Self-Efficacy for Stereotype Beliefs x Social Identity

		Social Identity	
		Low	High
Stereotype Beliefs	Low	3.85	3.27
	High	3.43	4.11

Note: Min: 1; Max: 5. Values are ±1 standard deviation above the mean.

Table 6. Summary for Hierarchical Regression Analysis for Mediator Effect of Self-Efficacy

Variables	Step 1		Step 2		
	Stereotype Beliefs (SB)	Social Identity (SI)	Stereotype Beliefs (SB)	Social Identity (SI)	SB x SI
B	0.12	-0.02	0.12	-0.05	-0.19
SE B	0.10	0.07	0.09	0.07	0.06
β.	0.17	-0.05	0.17	-0.09	-0.31*
Overall R²		0.02			0.12
R² change		0.02			0.09
F for change in R²		0.90			8.50
p		0.41			0.005*

Note: Variable was centered   DV: Career Preference   *significant

.

Table 7. Summary for Hierarchical Regression Analysis for Mediator Effect of Self-Efficacy

	B	SE B	β	R	R²	F	P
Self-Efficacy	-0.32	0.07	-0.47*	0.47	0.22	22.53	0.00*

Note: Variable was centered   DV: Career Preference   *significant

Table 8. Summary for Hierarchical Regression Analysis for
Mediator Effect of Self-Efficacy

Variables	Step 1 Self-Efficacy (SE)	Step 2 Self-Efficacy (SE)	Stereotype Beliefs (SB)	Social Identity (SI)	Step 3 Self-Efficacy (SE)	Stereotype Beliefs (SB)	Social Identity (SI)	SB x SI
B	-0.32	-0.33	0.16	-0.03	-0.29	0.15	-0.03	-0.09
SE B	0.07	0.07	0.08	0.06	0.07	0.08	0.06	0.06
β	-0.46*	-0.48*	0.22	-0.05	-0.43*	0.21	-0.07	-0.16
Overall R^2	0.22			0.25				0.27
R^2 change	0.22			0.04				0.02
F for change in R^2	22.53			1.97				2.33
p	0.00*			0.15				0.13

Note: Variable was centered   DV: Career Preference   *significant

Career Preference
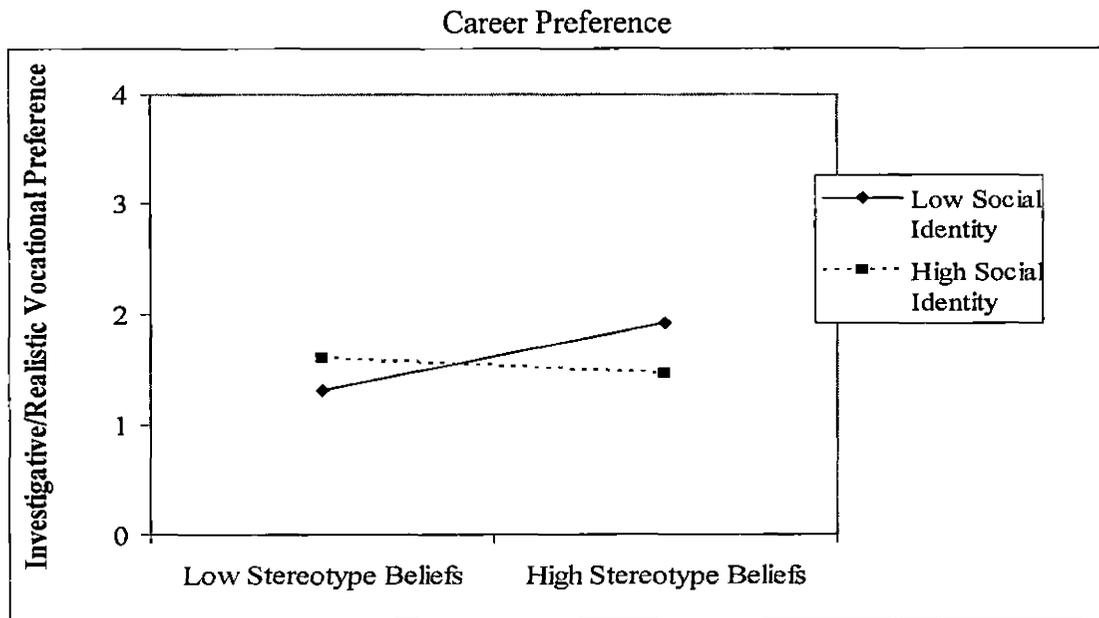
Figure 4. Social Identity x Stereotype Beliefs: Stereotype

Beliefs, Moderator: Social Identity:

Investigative/Realistic

Testing the Familial Influence
Model-Exploratory Section

Hierarchical regression analyses were also performed

to test the Familial Influence Model (see Figure 2). The

purpose of this exploratory analysis was to test the

effect of familial influence on choosing careers of high

social status. Stereotype beliefs and the proposed

moderator, social identity, were also incorporated into

the analysis. For the purpose of testing the interaction

effect, all variables were centered. Variables were

entered in three steps. Step 1 contained familial

59

influence and stereotype beliefs, step 2 added social identity, and step 3 added the interaction between stereotype belief and social identity and interaction between familial influence and social identity. The DV for this analysis was the social status of the chosen career preference.

The results are presented in Table 9. Results from Step 1 revealed a significant effect [R = 0.32, R^2 = 0.10, F (2, 81) = 4.60, p = 0.01], however, only Familial Influence (β = 0.34, p = 0.003) was significant. Step 2, which tested the addition of social identity did not produce a significant change [ΔR^2 = 0.001, F_{change} (1, 80) = 0.001, p = 0.97]. Step 3 of the hierarchical regression showed significant moderator effects [ΔR^2 = 0.08, F_{change} (2, 78) = 3.82, p = 0.03], but the coefficients revealed only a significant interaction between Stereotype Beliefs and Social Identity (β = 0.32, p = 0.01). The interaction is presented in Figure 5. The pattern of the graph indicates the negative relationship between social status and stereotype beliefs for those with low social identity. Conversely, the graph also shows that there was a positive relationship between social status and stereotype beliefs for those with high social identity. The numerical comparison, displaying values at

±1 standard deviation for each variable is presented in Table 10.

Table 9. Summary for Hierarchical Regression for Familial Influence Model

Variables	Step 1		Step 2			Step 3				
	FI	SB	FI	SB	SI	FI	SB	SI	FI x SI	SB x SI
B	0.32	-0.22	0.31	-0.22	0.01	0.28	-0.18	0.03	-0.13	0.42
SE B	0.10	0.18	0.11	0.21	0.14	0.10	0.20	0.14	0.10	0.15
β	0.34*	-0.14	0.34*	-0.14	0.01	0.31*	-0.11	0.03	-0.16	0.32*
Overall R^2		0.10			0.10					0.18
R^2 change		0.10			0.00					0.08
F for change in R^2		4.60			0.001					3.82
p		0.01*			0.97					0.03*

Note: Variables were centered   DV: Social Status of Career Preference   *significant
FI: Familial Influence   SB: Stereotype Beliefs   SI: Social Identity

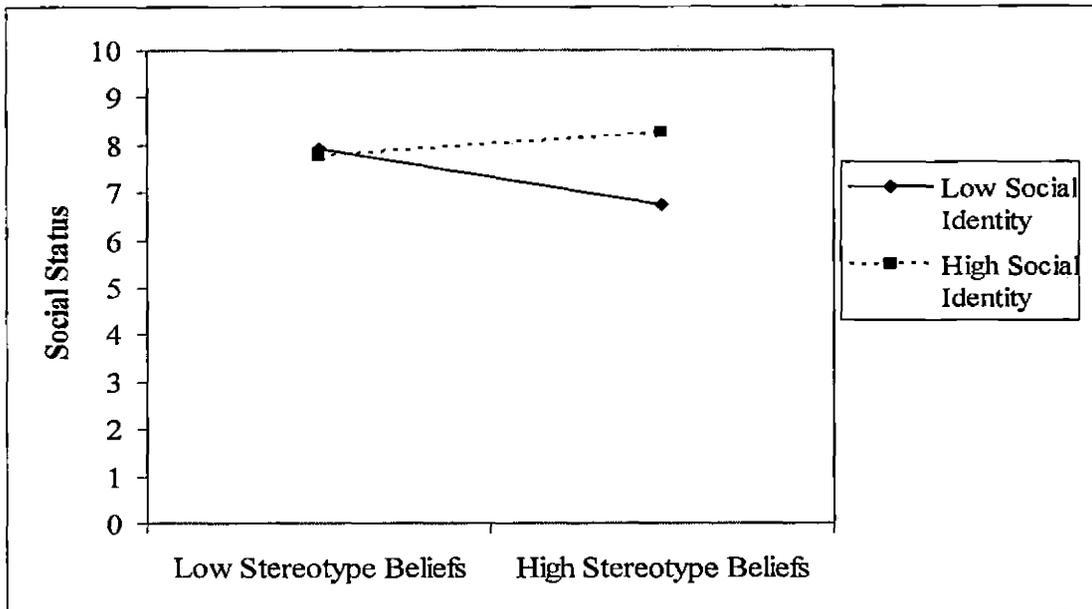Figure 5. Social Identity x Stereotype Beliefs: Stereotype
Beliefs, Moderator: Social Identity: Social Status

Table 10. The Numerical Comparison of Social Status for
Stereotype Beliefs x Social Identity

		Social Identity	
		Low	High
Stereotype Beliefs	Low	7.92	7.76
	High	8.25	6.73

Note: Min = 1; Max = 9. Values are ±1 standard deviation
above the mean.

Testing the Potential Negative Consequences
of Positive Stereotypes

As discussed, the negative consequences of the self-stereotyping process among Asian Americans are apparent, yet remain under-explored. To explore the possibility of the negative consequences, stereotype beliefs and perceived potential in one's major and vocational preference were used in the analysis. If model minority stereotypes have a negative impact on Asian Americans, then those with high stereotype beliefs in the Realistic/Investigative occupation group were expected to have lower perceived potential to succeed in their majors and vocational preferences than those with low stereotype beliefs. In other words, the relationship between the two should be negative. The reasoning behind this assumption is that those who had high stereotype beliefs and preferred to pursue careers in the Investigative/Realistic fields would not necessarily have the abilities, skills, and personal interest to achieve the high academic standard that math/science/engineering majors require. So even though individuals have high beliefs in their own stereotypes, they may perceive low potential in themselves for long-term success. What seems as the unattainable academic/career goals for those who have high beliefs that

63

Asian Americans should be in the Investigative/Realistic
fields may lead to emotional distress for some; hence, it
is a potential negative consequence yet to be explored.
Conversely, those who preferred careers in the Artistic,
Social, Enterprising, or Conventional fields may have high
perceived potential in attaining their career goals
because they had low stereotype beliefs, meaning that they
did not limit themselves in those stereotypical career
choices and had confidence to pursue in other vocations
that are considered "out of the norm" in the Asian
American community. Therefore, the relationship between
stereotype beliefs and perceived potential for individuals
in non-Investigative/Realistic group was also expected to
be negative.

In order to explore the potential negative
consequence of the model minority stereotypes, the
correlation between stereotype beliefs and perceived
potential in major and vocational preference was
conducted. The sample was split into two groups—those who
chose Investigative/Realistic professions and those who
chose Artistic, Social, Enterprising, or Conventional. The
correlations are listed in Table 11. The results indicated
a significant positive correlation for the
Investigative/Realistic group ($R = 0.34$, $p = 0.03$,

N = 42). Low values (scale ranged from one to five) for the perceived potential in major and vocational preference scale represented that the career goals were less attainable and the likelihood of changing major was high. Conversely, a high value indicated the high potential to succeed in the current major and the high likelihood of achieving the vocational choice. As stated above, the results showed a positive relationship between the Investigative/Realistic group and the participants' self-perceived potential in achieving their goals within the group, which means those with high stereotype beliefs perceived high potential for themselves in achieving their career goals. In order to test the significant difference between the two correlation coefficients, a Fisher r-to-z transformation was performed. As the calculation indicated, there was a significant difference between the two groups (z = 3.63, p = 0.0003).

Table 11. Correlation between Stereotype Beliefs and

Perceived Potential in Major and Vocational Choice

	Variables	Stereotype Beliefs
1	Perceived Potential	0.34*
2	Perceived Potential	-0.21

1 = Investigative/Realistic Group
2 = non-Investigative/Realistic Group
*significant

CHAPTER FOUR

DISCUSSION

The current study explored how the self-stereotyping
process may affect the vocational choice among Asian
American college students. The particular issue of how the
model minority stereotype may impact one's vocational
choice had not been investigated previously. The results
provided partial support for study hypotheses. Hypothesis
1 and 2 were not supported. For Hypothesis 1, there was no
relationship between stereotype beliefs and
Investigative/Realistic career preference, which indicated
that those who had high stereotype beliefs were not more
inclined to choose a vocation in the
Investigative/Realistic fields. The lack of support for
Hypothesis 1 was unexpected because the assumption was in
line with previous findings. For example, one recent study
demonstrated that stereotype beliefs was the most powerful
determining factor of Asian Americans' academic
persistence compared to other variables such as gender,
grade point average, generational status, and
acculturation (Patel, 2007). Even though Patel's (2007)
study did not directly focus on career preference, his
results showed the importance of stereotype beliefs in the

context that is similar to the current study. For Hypothesis 2, there was no positive relationship between stereotype beliefs and math/science self-efficacy. Individuals who had high model minority stereotype beliefs did not show a trend of heightened self-efficacy in math/science. The results were unexpected because Wong et al.'s (1998) study reported that Asian Americans, when compared to other ethnic groups, perceived themselves as more motivated, more prepared, and more likely to succeed in their careers.

The lack of significant main effects to support Hypothesis 1 and 2 are better understood by the significant interaction found between stereotype beliefs and social identity on math/science self-efficacy (Hypothesis 3). Based on the self-stereotyping literature, findings commonly showed that the strength of one's social identity with the ingroup stereotypes is highly crucial in self-stereotyping (Nosek, Banaji, & Greenwald, 2002; Greenwald et al., 2001; Rudman, Greenwald, & McGhee, 2001; Haslam et al., 1999; Haslam, 1997) because self-stereotyping is a result of the cognitive association of one's group membership (Levy, 1996; Simon & Hamilton, 1994; James, 1993; Hogg & Turner, 1987; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). The support for

Hypothesis 3 indicated that the relationship between

stereotype beliefs and math/science self-efficacy was

strong for individuals with high social identity and weak

for individuals with low social identity (see Figure 3).

When the variable stereotype beliefs was being looked at

singly, there was no main effect; however, when social

identity was added, the interaction of the two yielded a

significant relationship with self-efficacy. The results

demonstrated the importance of social identity in the

context of self-stereotyping: Asian Americans'

math/science self-efficacy is high only in the condition

where both stereotype beliefs and social identity were

high as well. In other words, heightened math/science

self-efficacy is influenced by the combination of

stereotype beliefs and social identity, not just

stereotype beliefs alone. In addition, the prominence of

social identity can also be seen in the interaction of

stereotype beliefs and social identity with

Investigative/Realistic vocational preference as the DV.

This finding aligns with Hypothesis 3 conceptually.

Supporting the literature of self-stereotyping (Nosek,

Banaji, & Greenwald, 2002; Greenwald et al., 2001; Rudman,

Greenwald, McGhee, 2001; Haslam et al., 1999; Haslam,

1997), the strength one's association with his/her social

group membership is hugely related to the self-stereotyping process.

The results also showed support for Hypothesis 4, the partial mediating effect of self-efficacy between the stereotype beliefs and social identity interaction and vocational choice. As mentioned previously, without social identity, stereotype beliefs alone would not have an impact in the self-stereotyping process. Hence, if social identity was taken out of the relationship, the partial mediator effect of self-efficacy would not be present. Heightened math/science self-efficacy only took place for individuals with both strong stereotype beliefs and social identity, which ultimately led to the pursuit of Investigative/Realistic professions. Referring to the same study by Shih et al. (1999), the mechanism that drove the improvement in Asian women's math performance after stereotypes were primed was unclear. However, applying the same concept to the present study, self-efficacy can be explained as the mechanism that drove the career decisions among Asian Americans when they possessed high stereotype beliefs and strong social identity. Another finding related to Hypothesis 4 indicated a positive relationship between self-efficacy and Investigative/Realistic vocational choice. Individuals with high self-efficacy in

math/science were more likely to choose a career path in the Investigative/Realistic fields. Past research has demonstrated similar findings of self-efficacy as a predictor of academic performance in science (Andrew, 1998). The current study integrated the concept by using the same self-efficacy assessment to predict one's vocational choice. Moreover, the Social Cognitive Career Theory (SCCT) (Lent, Hackett, & Brown, 1996) also fully exemplifies the support for Hypothesis 4. SCCT, developed based on Bandura's self-efficacy theory (1977), explains that educational and occupational choices are reflected in one's self-efficacy. Specifically, in Lent, Brown, and Larkins' study (1986), the results strongly showed unique variance of self-efficacy as a predictor for range of perceived vocational options in science and engineering fields. Thus, support found for Hypothesis 4 in the current study legitimately demonstrated the relationship between self-efficacy and Investigative/Realistic vocational preference.

Overall, there were two major findings in the main analysis. One was the importance of the interaction between social identity and stereotype beliefs in the self-stereotyping process among Asian Americans. Social identity not only strengthened the positive relationship

71

between stereotype beliefs and self-efficacy but also the relationship between stereotype beliefs and vocational choice. The other major finding in the main analysis was the mediating effect of self-efficacy, but only under the condition where social identity was included.

Exploratory Section

Although not hypothesized as part of the main analysis, familial influence was added to the study for exploratory purposes due to strong findings of it as a crucial factor in vocational choice among Asian Americans (see Figure 2) (Tang, 2002; Chinn, 2001; Leung, Ivey, & Suzuki, 1994; Sue & Morishima, 1982). Career choices were coded into social status using the Barratt Simplified Measure of Social Status (BSMSS) (Barratt, 2006). There were nine ratings on the scale, and each rating consisted of various job titles that were categorized under the corresponding level of social status. The scale ranged from one to nine, with one being the perceived lowest social status professions (i.e. janitor and busboy) and nine being the perceived highest social status professions (i.e. physician and engineer). Social status was included in the exploratory model because past research has shown that Asian Americans tend to have high educational

72

expectations and are more likely to choose career fields that have high earnings (Xie & Goyette, 2003). Choosing high social status professions is greatly related to familial influence because Asian parents usually support their children to obtain high-prestige jobs in order to strengthen their social status in the U.S. (Leung, Ivey, & Suzuki, 1994; Sue & Morishima, 1982). As proposed, the results revealed that there was a significant main effect of familial influence on choosing high-status professions. Familial influence was positively correlated with social status, indicating the strong impact of parental advice on career preferences among young Asian Americans. This was consistent with previous research (Tang, 2002; Chinn, 2001; Leung, Ivey, & Suzuki, 1994; Sue & Morishima, 1982). However, there was no interaction between familial influence and social identity on choosing high-status careers as assumed. These data tell us the independence between familial influence and social identity. In this case familial influence seemed to have a greater impact than one's social identity in career decision-making. The results implied that no matter how much Asian Americans identity themselves with the positive stereotypes, parental advice affects career choice more directly. In other words, children may be heavily influenced by their

parents to select certain stereotypical career paths
without having to identify themselves with model minority
stereotypes. The lack of significant interaction between
familial influence and social identity, however, did not
quite align with past research studies. In Tang et al.'s
(1998) study, it demonstrated the noteworthy relationship
between familial influence and acculturation.
Acculturation was used to investigate its relationship
with familial influence in career decision-making.
Acculturation refers to Asian Americans' adaptability and
conformity to the U.S. culture. Hence, those who have high
acculturation indicate they are more likely to have low
social identity with the model minority stereotypes. Past
research found that Asian Americans with high
acculturation were less likely to be influenced by their
parents and were less likely to pursue
Investigative/Realistic professions (Tang et al., 1998;
Leong & Chou, 1994). If that is the case, we may have
expected an interaction between social identity and
familial influence. Low social identity should strengthen
the relationship between familial influence and high
social status professions. Even though findings from
previous research were not quite consistent with the
results of the exploratory section, the difference between

acculturation and social identity of model minority

stereotypes needs to be considered. Acculturation is

related to social identity because both measure cultural

influence, but there are still variations between the two.

Acculturation examines one's adaptability of the American

culture as a whole, whereas social identity only evaluates

how much one agrees with and recognizes the model minority

stereotypes. Thus, this may explain the inconsistency of

the findings.

Moreover, there was no main effect of stereotype

beliefs on high-status career preference, nor was the

interaction between stereotype beliefs and social identity

significant. Both of these results consistently matched

with the results in the main analysis. Choosing

high-status professions only occurred among individuals

with both high stereotype beliefs and social identity.

Overall the impact of stereotype beliefs on social status

was greater for those with high social identity.

Conversely, the impact of stereotype beliefs on social

status was less for those with low social identity. Much

of this is consistent with the self-stereotyping

literature, where findings show that the strength of one's

social identity with the ingroup stereotypes is highly

crucial in self-stereotyping (Nosek, Banaji, & Greenwald,

2002; Greenwald et al., 2001; Rudman, Greenwald, McGhee, 2001; Haslam et al., 1999; Haslam, 1997).

Overall, findings of the exploratory section may imply problems for young Asian Americans during their career development because this trend of behavior may limit young Asian Americans' career exploration activities and also may reinforce outsiders' perspective on the Asian American community (Walsh & Osipow, 1983). Asian Americans may be heavily impacted by their parents' advice and overlook the importance of choosing professions based on their interests and competence. Asian children may feel obligated to fulfill their parents' desire when pursuing high social status careers such as doctors and engineers.

Negative Consequences of Positive Stereotypes

Potential negative consequences of the self-stereotyping process were also explored. It was proposed that those who are influenced by the model minority stereotypes may not always perform well in the majors corresponding to their chosen professions. As a result, the struggle to succeed in the Investigative/Realistic fields becomes a pressure and burden. Individuals who are experiencing such a circumstance were proposed to be among those with high

stereotype beliefs and chose Investigative/Realistic

careers. However, the analysis did not turn out as

expected. Even though the results indicated a significant

correlation between stereotype beliefs and self-perceived

potential in major and vocational choice, the relationship

was not negative. The results actually revealed that those

who chose Investigative/Realistic careers with high

stereotype beliefs perceived great potential for

themselves in achieving their career goals. The expected

negative consequences hence were not found in the current

study. This may be explained by the sample consisting of

more than 63% of college juniors and seniors, which means

that participants were close to completing their degrees.

Therefore, they perceived higher potential in themselves

in achieving their career goals because they already

finished the majority of the courses required for their

majors. Supporting this view, research has shown that as

students become older, they are more likely to make

practical and attainable vocational choices within a

pragmatic time frame (Seltz & Collier, 1977; Super & Hall,

1978) due to higher levels of self-efficacy in career

decision-making and urgent needs to explore career options

(Gianakos, 1996). Other research also reported that

nationwide 50% of the college freshmen expressed desire

for career guidance (Hannah & Robinson, 1990). However, the sample of the current study also consisted of 11% of college freshmen, suggesting that the possible trend of career uncertainty among the sample was not strong at all. There was another sampling issue that may explain the lack of finding in the potential negative consequences. Out of the entire sample, only one participant had an undeclared major. Based on literature, those with declared majors, compared to those with undeclared majors, showed more career certainty and greater involvement in exhibiting abilities and interests (Orndorff & Herr, 1996). Thus this suggests that the current demographics may be a limitation for investigating potential negative consequences of the model minority stereotypes. Other than sampling issues, the scale used in the current study (Perceived Potential in Major and Vocational Choice) lacked constructs that may demonstrate negative consequences more fully. Measures such as stress level or sense of obligation to family expectations could have been used in the current study to capture indications of negative consequences. Suggestions for this particular measure are discussed in detail in Future Research section.

Limitations

In addition to the sampling issues discussed previously, other limitations should be acknowledged. First, the social identity measure used in the present study only captured self-perception of being Asian Americans but neglected other areas such as assimilation to mainstream American culture (i.e. comfort level with English, behaviors, generational/geographic background, social interaction with one's own and others' ethnicity, etc). In order to improve the current social identity scale, future research can incorporate the Suinn-Lew Asian self-identity acculturation scale (SL-Asia, Suinn & Lew, 1987), which includes components given above. Incorporating this new scale may be able to deliver a more complete measure of social identity of Asian Americans. Second, data were collected via online surveys. The data collection method was convenient but may have caused validity threats for the results. For instance, online-survey has low verification of participants' identities. Threats and limitations may be improved or even eliminated if the survey was conducted using paper and pencil. In addition, not all the sub-groups of the Asian ethnicity were represented in the sample. The sample consisted of 44% of Chinese (N = 37), leaving some other

sub-groups such as Indonesian, Thai, and Cambodian with very small sample sizes. A better recruitment strategy may help future research of the related subject. Participants can be actively recruited from all Asian student organizations on various campuses to ensure a more even ethnicity distribution in the sampling plan. A majority of the participants in the current study were recruited from universities in southern California, but future research can expand the recruitment process nationally.

Future Research

The main implication of the current study is to provide evidence to show how the self-stereotyping process among young Asian Americans may lead to long-term negative consequences. However, the current study failed to do so. Future research needs to use a better measure to better capture participants' self-perceptions. Scales may include stress levels and sense of obligation for family of staying in the Investigative/Realistic majors. Scales may also incorporate items mining favorite subjects in school and willingness of exploring different career options. Different approach can be used as well. Follow-up interviews can be used to collect qualitative information

regarding their perceptions and attitudes about pursuing the chosen fields.

Another area that needs to be explored as part of the potential negative consequences of the self-stereotyping process is the separate experience of various Asian subgroups, especially the Southeast Asian American demographics. The two articles published in 1966 only targeted the success of Chinese and Japanese immigrants in the U.S. (Petersen, 1966; "Success Story of One Minority in U.S.", 1966). However, ever since the media created the image of the model minority, the general public has been holding the assumption that the stereotypes apply to all Asian Americans. According to reports, only 10% of the Southeast Asian American population completed college-level education, and the Asian community as a whole does not share the same financial privilege as the public perceives (*Mental Health: A Report of the Surgeon General,* 1999). Therefore, the specific impact of the model minority stereotypes needs to be studied among this specific target group in order to demonstrate the heterogeneity among Asian American subgroups. The negative consequences may be more pronounced to subgroups that do not match up with the stereotypical image of the Chinese and Japanese.

The significant interaction between social identity and stereotype beliefs was more likely to lead to high math/science self-efficacy and eventually preference in Investigative/Realistic. However, are the same stereotypes and the sense of identity among Asian Americans in the U.S. as strong as they seem in Asian countries? In contrast to the diverse American culture, Asians who are not exposed to the "melting pot" environment may not even be aware of the so-called model minority stereotypes. Thus, the generalizability of both stereotype beliefs and social identity among Asians in other countries is yet to be investigated. Previous research has already shown the consistent narrow career preferences among Asian students overseas and Asian Americans in the U.S. due to strong familial influence (Mei, 2002). Despite the apparent importance of familial influence in career decision-making, other potential factors that may have an impact on overseas Asian students' vocational choice still needs to be explored. Asian parents that immigrated to the U.S support their children to achieve high credentials because they feel pressured to succeed in the foreign country (Leung, Ivey, & Suzuki, 1994; Sue & Morishima, 1982). However, Asian parents in their native countries still show similar behavior even when they are not under

the same pressure as those in the U.S. Thus, it is important to examine whether the significant interaction of social identity and stereotype beliefs applies to the young Asians overseas. In addition, since the interaction between social identity and stereotype beliefs is crucial in career-decision making among Asian Americans, its significance should be explored in other areas such as stereotype threat, self-perceptions, attitudes, and sensitivity to discriminatory behaviors of others. The interaction can also be examined to learn if the stereotyping process occurs among the in-group. The combination of the two variables may show interesting findings that explain these social phenomena.

The present study investigated the self-stereotyping process among the Asian American population. However, future research should also examine the gender differences. According to certain Asian culture, daughters usually are given less resources because parents have lower expectations from them (Chinn, 2001). Parents only expect their daughters to be educated enough for marriage (Chinn, 2001). Gender differences were examined as a post-study analysis, and the results showed significant differences in math/science self-efficacy (p = 0.03). Males (M = 3.91) had a higher average in math/science

self-efficacy than females (M = 3.55). Other than self-efficacy, results also showed gender differences in career choices (p = 0.0001). Male participants (M = 1.33) also showed greater likelihood of choosing Investigative/Realistic careers than female participants (M = 1.78). Therefore, future research should explore if the differences in parental expectations have an effect on Asian women in career decision-making and how that may impact their self-efficacy in academic performance and pursuing high-prestige occupations.

Conclusion

The findings of the current study demonstrated the importance of social identity in the context of self-stereotyping, which was consistent with past research (Levy, 1996; Simon & Hamilton, 1994; James, 1993; Hogg & Turner, 1987; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; Nosek, Banaji, & Greenwald, 2002; Greenwald et al., 2001; Rudman, Greenwald, McGhee, 2001; Haslam et al. 1999; Haslam, 1997). Although strong stereotype beliefs in model minority did not impact Asian Americans' math/science self-efficacy directly, the interaction between social identity and stereotype beliefs was the key that led Asian Americans into having high math/science self-efficacy. The

interaction also showed the same effect on Investigative/Realistic vocational preference. Another major finding of this study was the mediating effect and the main effect of self-efficacy, which demonstrated how self-efficacy is related to career decision-making. The impact of self-efficacy found in the study was in ways consistent with Bandura's (1977) theory and its extension, the Social Cognitive Career (Lent, Hackett, & Brown, 1996). In particular, high self-efficacy may be a factor that determines one's career choice (Lent, Brown, & Larkin, 1986). Although no evidence was found for the negative consequences of the self-stereotyping process, the findings offer clear support for the role of model minority self-stereotyping.

The present study began with a discussion of the model minority stereotypes as part of the U.S. history, which has subsequently turned into long-term social perceptions that the general public holds for Asian Americans. The premise of the current study was to provide evidence for the model minority stereotype. Individuals' perceptions of one particular target group have a great impact on the members of the in-group. The social phenomenon not only permits others to make pre-judgments of Asian Americans but also leads Asian Americans to

self-stereotype in order to live up to the model minority image. The power of self-stereotyping is ambient and was demonstrated through the present study.

Asian Americans have narrow career paths due to familial influence and self-stereotyping. Career counseling may help Asian American students to explore a broader career path. In order to assist Asian Americans to make a better vocational choice, career counselors should be prepared to provide various career options that meet both family expectations and their personal interests (Leong, kao, & Lee, 2004). Career counselors should encourage students to express their personal career interests and overlook the social expectations. Career counselors should also support students in communicating with their parents about career-related decisions (Leong, Kao, & Lee, 2004).

APPENDIX

COMPLETE QUESTIONNAIRE

Complete Questionnaire

Demographic Information

Please identify your information below:

1. Age: _____   2. Gender (circle one): Male Female   3. School: _____

4. Major: _____

     5. Year in College (circle one): First Second Third Forth Fifth+

Social Identity Scale

Proceed with the survey *ONLY IF* you consider Asian American as your primary racial/ethnic identity. If you do not, please *discontinue* and thank you for your time.

Is English your first language? Yes No

Do you consider yourself as a(n): Immigrant/International Student First Generation

                                   Second Generation   Third Generation and on

Within the subgroups of Asian American given in the following, please choose ONE specific Asian ethnicity that you identify yourself the most with from the options below:

Chinese Japanese Korean Vietnamese Filipino Thai Lao Indonesian
Hmong Cambodian Indian Other: _____

Now complete the following questions by filling in the chosen ethnicity membership in the blank and using the scale below. Please indicate how much you agree with each of the following statement.

1	2	3	4	5	6	7
strongly disagree	disagree	disagree somewhat	neither agree nor disagree	Agree somewhat	agree	strongly agree

1. _____ I often think about being a(n) _____.

2. _____ Others tend to feel positively about _____.

3. _____ I am glad to be a(n) _____.

4. _____ I don't have much to contribute to the _____ community. (R)

5. _____ Being a(n) _____ has little to do with how I feel about myself. (R)

6. _____ There is very little discrimination towards _____.

7. _____ I am proud that I am a(n) _____.

8. _____ I don't fit in well with other _____. (R)

9. _____ Being a(n) _____ is central to my sense of who I am.

10. _____ I frequently notice instances of discrimination against _____. (R)

11. _____ I feel bad about being a(n) _____. (R)

12. _____ Other _____ usually accept me.

13. _____ My _____ identity is tied to nearly every other aspect of myself.

14. _____ In general, people have poor regard for _____. (R)

15. _____ Being a(n) _____ makes me feel positively about myself.

16. _____ I am a valuable member of the _____ community.

17. _____ Being a(n) _____ is not a significant part of me. (R)

18. _____ Others tend to treat _____ fairly.

19. _____ I wish I were not a(n) _____. (R)

20. _____ I usually feel good when I'm around other _____.

(R): Reverse coding

Stereotype Beliefs Scale

The following is a series of questions regarding certain perceptions of Asian Americans. Please indicate how much you agree or disagree with each statement using the scale below:

1	2	3	4	5	6	7
strongly disagree	disagree	disagree somewhat	neither agree nor disagree	Agree somewhat	agree	strongly agree

1.＿＿＿＿ Generally, Asian Americans are smart.

2.＿＿＿＿ Most Asian Americans are intellectually bright.

3.＿＿＿＿ The high intelligence of Asian Americans benefits America.

4.＿＿＿＿ Asian Americans increase the "brain power" of the United States.

5.＿＿＿＿ Asian Americans tend to be hardworking and diligent.

6.＿＿＿＿ Asian Americans are very self-disciplined in their work.

7.＿＿＿＿ Asian Americans should be admired for their willingness to work hard.

8.＿＿＿＿ Asian Americans tend to have close ties with their families.

9.＿＿＿＿ The diligence of Asian Americans should be upheld as an example to others.

10.＿＿＿＿ A strong commitment to family values characterizes many Asian Americans.

11.＿＿＿＿ The "togetherness" of Asian Americans' families should be upheld as a model for other Americans.

12.＿＿＿＿ Asian Americans should never represent the United States for anything, since they are not "true" Americans. (R)

13.＿＿＿＿ Asian Americans should think in more American ways. (R)

14.＿＿＿＿ Asian Americans make the job market too competitive. (R)

15.＿＿＿＿ The number of Asian American students on college campuses is growing at too fast a pace. (R)

16.＿＿＿＿ Asian Americans are overly competitive. (R)

(R): Reverse coding

90

Here are the items that were excluded:

- It is annoying when Asian Americans speak in their own languages.

- Asian Americans are gradually taking over the United States.

- There are too many Asian Americans in this country.

- Asian Americans should have stayed in their own countries where they belong.

- Asian Americans are buying up too much land in the United States.

- Asian Americans are out to drain American resources.

- Asian Americans are taking jobs that rightfully belong to U.S.-born Americans.

- Asian Americans are becoming more economically successful than they should be.

- One should always be wary of Asian Americans, as they are too intelligent.

- Through affirmative action programs, Asian Americans are taking jobs away from other Americans.

- Generally, Asian Americans look out only for themselves.

- One problem with Asian Americans is that they stick together too much.

Self-Efficacy for Science (SEFS) Scale

The following tasks demonstrate skills and knowledge related to science and math. Some come from an academic standpoint, and others come from observable facts in our daily lives. Indicate how confident you are to perform the following tasks by using the scale below:

1	2	3	4	5
Not confident	Slightly confident	confident	Adequately confident	Very confident

1. _____ Convert John's dietary intake of 2500 cal to kJ given that 1 calorie = 4.185 kJ.

2. _____ Calculate how much water you will need to make a 600 ml 1:20 solution of disinfectant for your toilet.

3. _____ Suck some water up in a straw and work out how to keep it in the straw.

4. _____ Convert a pressure reading of 120 mmHg into kPa given that 660 mmHg= 87.9 kPa.

5. _____ Estimate the cost of running a 800 W radiator for 6 hours a charge of 14 cents/KW.

6. _____ Dissolve sugar in a drink by changing the drink's temperature.

7. _____ Read a cake recipe and decide what the raising agents are.

8. _____ Determine why the rake you left out in the rain has gone rusty.

9. _____ Decipher a can labeled 'contains baked beans, sucrose and sodium chloride' to see if it contains salt and sugar.

10. _____ Decide whether oiling your bicycle will make it go slower or faster.

11. _____ Choose whether it would be sensible to wear smooth soled or ripple shoes to a wet football oval.

12. _____ Work out if a white spot on your overalls, caused by splashing it with bleach can be removed by machine washing.

13. _____ Give examples of an electrical conductor and insulator.

14. _____ Figure out why the aircraft moving away from you has a lower frequency compared with its frequency when overhead.

15.____ Decide whether covering a water filled saucepan with a lid will increase or decrease the time it will take to boil.

16.____ Make a paper dart and choose a shape that will make it fly faster.

17.____ Decide whether a still or windy day is better for drying your clothes.

18.____ Understand why water droplets are running down the inside of a misty window pane on a cold day.

19.____ Work out if a 120 V electric razor (bought in the USA) would work if plugged into your electrical powerpoint.

20.____ Calculate whether the 4 kW electrical circuit in your kitchen will enable you to run a 2.4 kW space heater, 600 W toaster, and a 1200 W kettle.

21.____ Calculate the changes in the thoracic cavity if the pressure in the lung changes from +1 mmHg to -8 mmHg with respect to normal atmospheric pressure of 760 mmHg.

Added Items

22.____ Explain the core theories of Physics to others.

23.____ Run a laboratory experiment by following the protocol.

24.____ Use the Valence Shell Electron Pair Repulsion model (VSEPR) to predict a molecular structure.

25.____ Identify major organs in a human body.

Added Items Based on Elias & Loomis' (2000) Academic Self-Efficacy Scale

26.____ Complete a course in Biochemistry with a grade of "B".

27.____ Complete a course in Engineering with a grade of "B".

28.____ Complete a course in Calculus with a grade of "B".

Vocational Preference

Open-Ended Question

What type of job field are you planning to pursue after completing your Bachelor's? For example, a doctor, a writer, or a civil engineer. If you do not have a specific job title in mind, you may indicate a general professional field that you want to pursue. Please indicate *ONLY ONE* career preference, either a specific job title or a field that you see yourself most likely to be in: _____

O*NET Job Families

Please read the entire list below first before you continue with the survey. It is a list of job families. Choose ONE that fits your career preference the most.

- o Architecture and Engineering
- o Arts, Design, Entertainment, Sports, and Media
- o Building and Grounds Cleaning and Maintenance
- o Business and Financial Operations
- o Community and Social Services
- o Computer and Mathematical
- o Construction and Extraction
- o Education, Training, and Library
- o Farming, Fishing, and Forestry
- o Food Preparation and Serving Related
- o Healthcare Practitioners and Technical
- o Healthcare Support
- o Installation, Maintenance, and Repair
- o Legal
- o Physical Science
- o Social Science
- o Military Specific
- o Office and Administrative Support
- o Personal Care and Service
- o Protective Service
- o Sales and Related
- o Transportation and Material Moving

Exploratory Section:

GPA

Please indicate your GPA and course units below:

GPA: _____   Units Completed: _____

Perceived Potential in Major and Vocational Preference Scale

Finally, we are interested to find out your perception of your academic standing and your future career goal. For the next few questions, rate how much you agree or disagree using the scale provided below:

1	2	3	4	5
Highly unlikely	unlikely	neutral	likely	Highly likely

1. _____ My career preference seems attainable with my academic performance in my college major.

2. _____ My career preference seems less attainable than it was before I began college.

3. _____ My chances of achieving my career goal are good.

4. _____ I am confident that my continued development as a student will lead to success in future career.

5. _____ I often think about changing my major.

6. _____ I will probably consider changing my vocational option soon.

Familial Influence Scale

1	2	3	4	5	6	7
Strongly disagree	disagree	disagree somewhat	neither agree nor disagree	Agree somewhat	agree	strongly agree

1._____ My parents or my other family members often discussed my career plans with me.

2._____ My parents or my other family members often encourage me to take a job that is financially secure.

3._____ My parents or my other family members often provide me various information of work world.

4._____ My parents forcefully make me follow their choice of occupation.

5._____ When there is a conflict between my parents' choice and my own choice for career, I often listen to theirs.

6._____ My family has the most influence on my occupational choice.

REFERENCES

Akrami, N., Ekehammar, B., & Araya, T. (2006). Category
and stereotype activation revisited. *Scandinavian
Journal of Psychology, 47,* 513-522.

Ambady, N., Paik, S. K., Steele, J., Owen-Smith, A., &
Mitchell, J. P. (2004). Deflecting negative
self-relevant stereotype activation: The effects of
individuation. *Journal of Experimental Social
Psychology, 40,* 401-408.

Andrew, S. (1998). Self-efficacy as a predictor of
academic performance in science. *Journal of Advanced
Nursing, 27,* 596-603.

Angelo, R. (1999, February, 08). I don't count as
'diversity'. *Newsweek, 113(6),* 13.

Bandura, A. (1977). Self-efficacy: Toward a unifying
theory of behavioral change. *Psychological Review,
84,* 191-215.

Bandura, A. (1994). Self-efficacy. *In V. S. Ramachaudran
(Ed.), Encyclopedia of human behavior, 4,*
(pp. 71-81). Academic Press, NY: Academic Press.

Barratt, W. (2006). The Barratt Simplified Measure of
Social Status (BSMSS).

Blascovich, J., Spencer, S. J., Quinn, D., & Steele, C.

    (2001) African Americans and high blood pressure: The

    role of stereotype threat. *Psychological Science,*

    12(3), 205-229.

Brown, D. (2002). The role of work and cultural values in

    occupational choice, satisfaction, and success: A

    theoretical statement. *Journal of Counseling &*

    Development, 80, 48-56.

Carter, R. T., & Cook, D. A. (1992). A culturally relevant

    perspective for understanding the career paths of

    visible racial/ethnic group people. In H. D. Lea & Z.

    B. Leibowitz (Eds.), *Adult career development:*

    Concepts, issues, and practices (2nd ed., p. 199).

    Alexandria, VA: National Career Development

    Association.

Cheatham, H. E. (1990). Africentricity and career

    development of African Americans. *The Career*

    Development Quarterly, 38, 334-346.

Chen, T. T. (2004). A longitudinal test and a qualitative

    field study of the glass ceiling effect for Asian

    Americans. Ph D. thesis, Pennsylvania State

    University.

Cheryan, S., & Bodenhausen, G. V. (2000). When positive stereotypes threaten intellectual performance: The psychological hazards of "model minority" status. *American Psychological Society, 11(5),* 399-402.

Chinn, P. W. U. (2002). Asian and Pacific Islander women scientists and engineers: A narrative exploration of model minority, gender, and racial stereotypes. *Journal of Research in Science Teaching, 39(4),* 302-323.

Chung-Herrera, B. G., & Lankau, M. J. (2005). Are we there yet? An assessment of fit between stereotypes of minority managers and the successful-manager prototype. *Journal of Applied Social Psychology, 35(10),* 2029-2056.

Cocchiara, F. K., & Quick, J. C. (2004). The negative effects of positive stereotypes: Ethnicity-related stressors and implications on organizational health. *Journal of Organizational Behavior, 25,* 781-785.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112(1),* 155-159.

Crosby, F. J., Iyer, A., & Sincharoen, S. (2006). Understanding affirmative action. *Annual Review of Psychology, 57,* 585-611.

Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology, 56,* 738-753.

Elias, S. M. & Loomis, R. J. (2000). Using an academic self-efficacy scale to address university major persistence. *Journal of College Student Development, 41(4),* 450-454.

Fernandez, M. (1998). Asian Indian Americans in the bay area and the glass ceiling. *Sociological Perspectives, 41(1),* 119-149.

Fiske, S. T. (1998). Stereotyping, prejudice and discrimination. In D. Gilbert & S. Fiske (Eds.), *The Handbook of Social Psychology: Vol. 2* (pp. 357-411). Boston: McGraw-Hill.

Fouad, N. A., & Byars-Winston, A. M. (2005). Cultural context of career choice: Meta-Analysis of race/ethnicity differences. *The Career Development Quarterly, 53,* 223-233.

Gayles, J. (2006). "Carrying it for the whole race": Achievement, race and meaning among five high achieving African American men. *Journal of African American Studies, 10(1),* 19-32.

Gorham, B. W. (1999). Stereotypes in the media: So what? *The Howard Journal of Communications, 10,* 229-247.

Greenwald, A. G., Banaji, M. R., Rudman, L. A., Farnham, S. D., Nosek, B. A., & Mellott, D. S. (2001). A unified theory of implicit attitudes, stereotypes, self-esteem, and self-concept. *Psychological Review, 109,* 3-25.

Hannah, L. K., & Robinson, L. F. (1990). Survey report: How colleges help freshmen select courses and careers. *Journal of Career Planning and Employment, 1(4),* 53-57.

Harrison, D. A., Kravitz, D. A., Mayer, D. M., Leslie, L. M., & Lev-Arey, D. (2006). Understanding attitudes toward affirmative action programs in employment: Summary and meta-analysis of 35 years of research. *Journal of Applied Psychology, 91(5),* 1013-1036.

Haslam, S. A (1997). Stereotyping and social influence: Foundations of stereotype consensus. In R. Spear, P. J. Oakes, N. Ellemers, & S. A. Haslam (Eds.), *The social psychology of stereotyping groups life.* (pp. 119-143). Oxford: Blackwell.

Haslam, S. A., Oakes, P. J., Reynolds, K. J., & Turner, J. C. (1999). Social identity salience and the Emergence of stereotype consensus. *Personality and Social Psychology Bulletin, 25,* 809-818.

Ho, C. & Jackson, J. W. (2001). Attitudes Toward Asian Americans: Theory and Measurement. *Journal of Applied Social Psychology, 31(8),* 1553-1581.

Ho, P. (2003). Performing the "oriental": Professionals and the Asian model minority myth. *Journal of Asian American Studies, 6(2),* 149-175.

Hogg, M. A., & Turner, J. C. (1987). Intergroup behaviour, self-stereotyping and the salience of social categories. *British Journal of Social Psychology, 26,* 325-340.

Holland, J. L. (1985). *Making vocational choices: A theory of vocational personalities and work environments.* Englewood Cliffs, NJ: Prentice Hall.

Jackson, L. A. (1995). Stereotypes, emotions, behavior, and overall attitudes toward Hispanics by Anglos. Research report #10. Based on a published article in *Personality and Social Psychology Bulletin.*

James, K. (1993). Conceptualizing self with in-group stereotypes: Context and esteem precursors. *Personality and Social Psychology Bulletin, 19,* 117-121.

Jenkins, G. D. Jr., Nadler, D. A., Lawler, E. E, & Cammann, C. (1975). Standardized observations: An approach to measuring the nature of jobs. *Journal of Applied Psychology, 60(2),* 171-181.

Kawai, Y. (2005). Stereotyping Asian Americans: The dialectic of the model minority and the yellow peril. *The Howard Journal of Communications, 16,* 109-130.

King, E. B., Madera, J. M., Hebl, M. R., Knight, J. L., & Mendoza, S. A. (2006). What's in a name? A multiracial investigation of the role of occupational stereotypes in selection decision. *Journal of Applied Social Psychology, 36(5),* 1145-1159.

Lent, R. W., Brown, S. D., & Larkin, K. C. (1986). Self-efficacy in the prediction of academic performance and perceived career options. *Journal of Counseling Psychology, 33(3),* 265-269.

Leong, F. T. L., Kao, E., & Lee, S. (2004). The
relationship between family dynamics and career
interests among Chinese Americans and European
Americans. *Journal of Career Assessment, 12 (1)*, 65-
84.

Leung, S. A. (1994). Factors affecting the career
aspirations of Asian Americans. *Journal of Counseling
& Development, 72(4)*, 404-410.

Lew, J. (2006). Burden of acting neither White nor Black:
Asian American identities and achievement in urban
schools. *The Urban Review, 38(5)*, 335-352.

Levy, B. (1996). Improving memory in old age through
implicit self-stereotyping. *Journal of Personality
and Social Psychology, 71*, 1092-1107.

Manstead, A. S. R. & Hewstone, M. (1995). *Blackwell
Encyclopedia of Social Psychology.* Blackwell
Publishing.

Marx, D. M., Stapel, D. A. (2006). Distinguishing
stereotype threat from priming effects: On the role
of the social self and threat-based concerns. *Journal
of Personality and Social Psychology, 91*, 243-254.

Mental Health: A Report of the Surgeon General (1999).
Retrieved November 3, 2007, from
http://mentalhealth.samhsa.gov/cre/fact2.asp

McGowan, M. O., & Lindgren, J. (2006). Testing the "model minority myth". *Northwestern University Law Review, 100(1)*, 331-377.

National Science Foundation. (2000). Women, minorities, and persons with disabilities in science and engineering 2000.

Nosek, B. A., Banaji, M. R., & Greenwald, A. G. (2002). Math = male, me = female, therefore math not = me. *Journal of Personality and Social Psychology, 83,* 44-59.

O*NET. (2008). Retrieved February 1, 2008, from http://online.onetcenter.org/find/

Orndorff, R. M., & Herr, E. L. (1996). A comparative study of declared and undeclared college students on career uncertainty and involvement in career development activities. *Journal of Counseling and Development 74,* 632-639.

Oyserman, D., & Sakamoto, I. (1997). Being Asian American: Identity, cultural constructs, and stereotype perception. *The Journal of Applied Behavioral Science, 33(4),* 435-453.

Patel, N. (2007). Predictors of academic persistence

decisions in a sample of Asian American undergraduate

students. *Dissertation Abstracts International:*

Section B: The Sciences and Engineering, 68(2-B),

1362.

Park, S. E., & Harrison, A. A. (1995). Career-related

interests and values, perceived control, and

Acculturation of Asian-American and

Caucasion-American college students. *Journal of*

Applied Social Psychology, 25(13), 1184-1203.

Petersen, W. (1966). Success story, Japanese-American

style. *The New York Times Magazine,* January 9,

pp. 20, 21, 33, 36, 38, 40, 41, 43.

Ricouer, P. (1991). Life in quest of narrative. In Wood,

D. (Ed.), On Paul Ricoeur: Narrative and

interpretation (pp. 20-33). New York: Routledge.

Rosenthal, R., & Jacobson, L. (1968). Pygmalion in the

classroom: Teacher expectations and pupils'

intellectual development. New York: Holt, Rinehart, &

Winston.

Rudman, L. A. Greenwald, A. G., & McGhee, D. E. (2001).
Implicit self-concept and evaluative implicit gender
stereotypes: Self and ingroup share desirable traits.
Personality & Social Psychology Bulletin, 27,
1164-1178.

Seltz, N. C., & Collier, H. V. (Eds.). (1997). *Meeting the
educational and occupational planning needs of
adults.* Bloomington, IN: Indiana University, School
of Continuing Education.

Sexton, J. D. (2000). The social identity profile:
Measuring how members of socially stigmatized groups
think and feel about their membership. Presented at
the annual meeting of the American Psychological
Society.

Shih, M., Pittinsky, T. L., & Ambady, N. (1999).
Stereotype susceptilbility: Identity salience and
shifts in quantitative performance. *Psychological
Science, 10,* 80-83.

Simon, B., & Hamilton, D. L. (1994). Self-stereotyping and
social context: The effect of relative in-group
status. *Journal of Personality and Social Psychology,
66,* 699-711.

Sinclair, S., Hardin, C. D., & Lowery, B. S. (2006).
Self-stereotyping in the context of multiple social
identities. *Journal of Personality and Social
Psychology, 90(4)*, 529-542.

Steele, C. M. (1992). Race and the schooling of black
Americans. *The Atlantic Monthly,* 68-78.

Steel, C. M. (1997). A threat in the air: How stereotypes
shape intellectual identity and performance. *American
Psychologist, 52,* 613-629.

Steele, C. M., & Aronson J. (1995). Stereotype threat and
the intellectual test performance of African
Americans. *Journal of Personality and Social
Psychology, 69,* 797-811.

Success story of one minority group in U.S. (1966). *U.S.
News and World Report,* December 26, pp 73, 74, 76.

Super, D. E., & Hall, D. T. (1978). Career development:
Exploration and planning. *Annual Review of
Psychology, 29,* 333-372.

Tang, M. (2002). A comparison of Asian American, Caucasian
American, and Chinese college students: An initial
report. *Journal of Multicultural Counseling and
Development, 30,* 124-134.

Tang, M., Fouad, N. A., Smith, P. L. (1999). Asian
    Americans' career choices: A path to examine factors
    influencing their career choices. *Journal of
    Vocational Behavior, 54,* 142-157.

Thernstrom, S. A., & Thernstrom, A. M. (1997). American in
    Black and White: One nation indivisible. New York:
    Simon & Schuster.

Tomkiewicz, J., Brenner, O. C., & Adeyemi-Bello, T.
    (1998). The impact of perceptions and stereotypes on
    the managerial mobility of African Americans. *The
    Journal of Social Psychology, 138(1),* 88-92.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D.,
    & Wetherell, M. S. (1987). *A self-categorization
    theory.* Hillsdale, NJ: Erlbaum.

Walsh, W. B., & Osipow, S. H. (Eds.). (1983). *Handbook of
    vocational psychology* (Vol. 1). Hiilsdale, NJ:
    Erlbaum.

Wong, F., & Halgin, R. (2006). The "model minority": Bane
    or blessing for Asian Americans? *Journal of
    Multicultural Counseling and Development, 34,* 38-49.

Wong, P., Lai, C. F, Nagasawa, R., & Lin, T (1998). Asian
    Americans as a model minority: Self-perceptions and
    perceptions by other racial groups. *Sociological
    Perspectives, 41 (1),* 95-118.

Xie, Y., & Goyette, K. (2003). Social mobility and the
    educational choices of Asian Americans. *Social
    Science Research, 33(3),* 467-498.

Zuriff, G. E. (2004). Is affirmative action fair? *American
    Psychology 59,* 124-125.