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FORMATION OF EDUCATIONAL ASPIRATIONS AMONG ASIAN AMERICAN STUDENTS

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FORMATION OF EDUCATIONAL ASPIRATIONS AMONG ASIAN AMERICAN STUDENTS

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Dedication

This is dedicated to my parents who made education a priority for me.

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Formation of Educational Aspirations among Asian American Students

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This study explores how Asian Americans' educational aspirations are different from other racial groups as well as uncovers differences among Asian American subgroups. This study developed a hypothesized model on the formation of educational aspiration. Among factors affecting educational aspirations that were derived from the literature review, students' academic effort and performance, students' perceived academic self-efficacy, and support received from students' significant others were hypothesized to have direct effects on students' educational aspirations. In addition, students' perceived self-efficacy and academic effort were hypothesized to have indirect effects on students' educational aspirations through students' academic performance. Students' demographic and socio-economic characteristics were controlled to examine if they had any direct and indirect effects on educational aspirations.

In order to test validity of the hypothesized model on educational aspiration, this study adopted structural education modeling (SEM) to analyze the High School Longitudinal Study of 2009 (HSLS:09). As a result, the hypothesized model was confirmed because of its adequate model fit. In addition, this study found that Asian American students' educational aspirations were different from other racial groups. First, neither academic effort nor performance affects Asian Americans' educational aspirations whereas both affect aspirations significantly in the entire sample. Second,

there was a positive effect of academic self-efficacy on Asian Americans' educational aspirations whereas efficacy did not affect aspirations in the entire sample. Third, there was a positive effect of support with college information from significant others on Asian Americans' aspirations, which was not statistically significant in the results of the entire sample. This indicates that Asian American students' educational aspirations are more influenced by subjective or perceived factors such as academic self-efficacy and support with college information received from significant others, rather than objective indicators such as academic performance and academic effort.

Moreover, there are differences in aspirations by Asian American ethnic subgroups even after controlling for other variables. Compared to Filipino Americans, all other four Asian American subgroups show significantly higher educational aspirations. The findings of this study help to understand how high school students' educational aspirations are formed in general by examining the conceptual model with the entire data. In addition, the findings help to fill the gap in the literature about debunking the model minority myth about Asian American students by proving that they are heterogeneous.

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Chapter One: Introduction

The struggles that Asian American students have experienced in schools have been less likely to be studied than those of other ethnic minority groups of students in American higher education (Siu, 1996; Teranishi, 2002; Wong, 1980). This is not only because the Asian American population seems relatively small on a national level compared to other racial/ethnic groups such as African Americans or Hispanic students, but also because there is a perception that Asian American students successfully achieve academic goals and may be overrepresented in higher education relative to other groups (Teranishi, 2002). Additionally, Asian American students have been perceived as a model racial/ethnic minority group since the mid-1960's (Louie, 2004). Focusing on their high educational aspiration and academic achievement, the model minority myth for Asian American students suggests that this group is a bright example of hard work and patience and should serve as an example that other minority groups should follow (Li & Wang, 2008). However, several findings indicate that these perceptions about Asian Americans are inaccurate for two reasons: (1) the size of the Asian American population is growing and (2) not every Asian American student achieves academic success (Anderson, 2003; Lee & Hall, 1994; U.S. Census Bureau, 2011).

First of all, Asian Americans have been the fastest growing ethnic population in America in terms of percentage increases since the 1980's (Lee & Hall, 1994; U.S. Census Bureau, 2011). Over the decade between 2000 and 2010, the Asian American population experienced the fastest rate of growth, an increase of 43%, as well as the

second largest numeric change (4.4 million), growing from 10.2 million in 2000 to 14.7 million in 2010 (U.S. Census Bureau, 2011). In addition, compared to Caucasians and African Americans, the Asian American population gained the most in share of the total population, moving up from about 4% in 2000 to about 5% in 2010 (U.S. Census Bureau, 2011). Along with Hispanic Americans, Asian Americans are expected to have the highest rates of increase, with annual growth rates exceeding two percent until 2030 (Anderson, 2003). This demographic data points to the importance of the growing population of Asian Americans for policy makers, researchers, and practitioners.

Furthermore, even though Asian Americans have demonstrated the largest increases in higher education enrollment, more Asian American students now come from low-income families and fewer are attending their first-choice institutions than in past years (Anderson, 2003). Specifically, in 2005, 52% reported attending their first-choice school, a significant decline from the 68% reported in 1974 (Chang, et al., 2007). While Asian American students are considered a high-achieving model minority group in general, previous research has shown that academic success is not guaranteed for every Asian American student. In particular, they need to overcome additional barriers for academic success, such as a lack of language proficiency, acculturation, and/or enculturation (Kao, 1995; Teranishi, 2002).

Moreover, previous findings suggest that Asian American students cannot be aggregated as a model minority because there is a huge discrepancy in students' family income, social and cultural capital, and academic achievement among Asian American ethnic subgroups (Teranishi, 2002; Teranishi et al., 2004). For example, following the

Vietnam War, immigrants, refugees, and asylees came to the U.S. mainly from Southeast Asia. These recent immigrants, who include Vietnamese, Hmong, Cambodians, and Laotians, have shown lower socioeconomic status, lower academic achievement, and less likelihood of attending college than their counterparts (Teranishi et al., 2004). In contrast, immigrants from Taiwan, China, and Korea, who have relatively higher socioeconomic status, are much more likely to outperform the other subgroups and be admitted to top-tier institutions (Louie, 2004). Accordingly, educational experiences of the rapidly growing Asian American student population need to be examined more closely in order to evaluate the validity of the model minority myth, especially focusing on differences in ethnic subgroups.

This study was aimed at examining Asian American high school students' educational aspirations, focusing on how they differ from other racial groups as well as within Asian American subgroups. *Educational aspiration* refers to students' desire to achieve high levels of education (Hanson, 1994; Kao & Tienda, 1998), and it has a notable impact on their subsequent educational attainment, such as high school graduation, college enrollment, and college degree completion (Mickelson, 1990).

The concept of educational aspirations is often distinguished from the concept of *educational expectations*, which is similar but considered a more realistic self-assessment of the students' likelihood of achieving their desired level of education (Mickelson, 1989). In other words, educational aspirations are considered to be more abstract, representing an idealistic preference for the future, whereas expectations are more realistic because the expectation is based on other considerations beyond students'

hopefulness (Furlong & Cartmel, 1995). When aspirations and expectations are compared, expectations are likely to be lower than aspirations (Hanson, 1994; St-Hilaire, 2002). Since the aspiration is developed prior to the expectation, it also affects the formation of expectations and the subsequent decision process. Therefore, this study adopted educational aspiration, which is the prior concept, to analyze Asian American students' academic experiences.

In order to examine educational aspirations, the middle school and high school years are important because many educational organizations and the U.S. Department of Education recommend that students begin planning for college as early as sixth grade (American Association of School Administrators, 1992; National Association of College Admission Counselors, 2004; National Association of Secondary School Principals, 2002; U.S. Department of Education, 2001). The early postsecondary planning gives students the opportunity to take the necessary middle and high school courses to prepare them for postsecondary education, and align their educational goals with their current course taking and educational planning. Accordingly, this study focused on Asian American students at the high school level.

Previous research suggests that Asian American students have a higher level of aspirations compared to other racial groups of students because of positive effects from family, teachers, and peers (Goyette & Xie, 1999; Teranishi, 2002; Teranishi et al., 2004). Asian American students' high educational aspirations are assumed to contribute to their high academic performance (ACT, 2011; Kim, Atkinson, & Yang, 1999; Teranishi, 2002; Teranishi et al., 2004). However, more research is still needed to

examine the specific relationship between the effects of family and peers on Asian American students' educational aspirations, to explore other factors influencing their aspirations, and to investigate any differences in aspirations among Asian American subgroups.

In the following sections, the background of the study and problem statement is discussed, which explains the importance of examining the target population of this study, Asian American high school students. Next, the details of the study are described, including the purpose of the study, research questions, and an overview of the methods. Finally, the anticipated significance and limitations of the study are explained.

BACKGROUND OF THE STUDY

Importance of high school students' educational aspirations for their college readiness

This study examined Asian American high school students' educational aspirations because they strongly affect their pathways to post-secondary education (Noeth & Wimberly, 2002). As the high school dropout rate has declined and the rate of enrollment in post-secondary institutions has increased, there have been efforts to improve the college readiness of high school students (Wimberly & Noeth, 2005). *College readiness* refers to the level of preparation a student needs to be ready to enroll and succeed in postsecondary institutions (Baker, Clay, & Gratama, 2005).

According to the literature about college readiness, academic performance and experiences during secondary education significantly determine whether students attend

colleges, which colleges they attend, how they perform academically in colleges, and their chances of persisting to degree completion (Wimberly & Noeth, 2005). College readiness requires students to have college awareness (Baker, Clay, & Gratama, 2005), which positively affects students' educational aspirations (Noeth & Wimberly, 2002). The literature suggests that college awareness activities should begin no later than middle school (Wimberly & Noeth, 2005; Tierney, Colyar, & Corwin, 2003; Martinez & Klopott, 2005). College awareness activities include teaching students about the advantages of attending college as well as providing information about college access.

According to Wimberly and Noeth (2005), students' aspirations increase when parents support their children's aspirations. Students also benefit when secondary schools create an educational plan with postsecondary goals, such as middle and high school courses needed to prepare for postsecondary training, standardized assessments that students need to take, available pre-college programs, college finance plans, and college admission steps. In addition, students need to develop support networks with significant others such as family, peers, teachers, and school counselors that influence perceptions about postsecondary education and aspirations to attend college (Tierney, et al., 2003). Since college awareness activities need to be ongoing throughout students' experiences during middle and high school, their educational aspirations also need to be examined from the secondary education level. More details about educational aspirations are discussed in the literature review chapter.

History of Asian American immigrants

This study discusses the heterogeneity in educational outcomes among Asian American subgroups. Specifically, it examines the discrepancies in Asian American high school students' educational aspirations among different ethnic subgroups. The origin of the heterogeneity among Asian Americans can be explained by their immigrant history.

The early Asian Americans arrived in the U.S. in the eighteenth century. They included Filipino seamen who left the Spanish galleon trade and formed communities in southeastern Louisiana in the mid-1760s, as well as Asian Indians who arrived on English and American vessels in the 1790s as part of the India trade and served as household servants of sea captains in Massachusetts or fared worse as indentured servants or slaves in Pennsylvania (Hune, 2002; Okihiro, 1994). However, the number of these early settlers was limited so that very little has been known about them (Hune, 2002).

The descendants of most contemporary Asian Americans started arriving in the U.S. in increasing numbers in the second half of the nineteenth century and the early twentieth century (Okihiro, 1994). Specifically, during the second half of the nineteenth, nearly one million Asian men and women came to the U.S. as unskilled workers in order to help develop the western states. The vast majority of the 370,000 Chinese (1840s to 1880s), 400,000 Japanese (1880s to 1920), and 180,000 Filipinos, 7,000 Koreans, and 7,000 Asian Indians (1900s to 1930) were laborers (Chan, 1991). Being in a low social class, they experienced racial discrimination, economic exploitation, limited political and civil rights, and immigration restrictions that hindered family reunification (Chan, 1991).

A large number of Asian American immigrants came to the U.S. during the mid-twentieth century. These Asian immigrants benefited from an improved civil rights environment and new economic and political opportunities, including the elimination of legal forms of racial discrimination and affirmative action policies, which had been eroded since the eighteenth century. Both the National Origin's Act of 1924 and the McCarran-Walter Act of 1952 granted U.S. residency to Asian immigrants, but a racial quota for Asians existed that was 100 times smaller than that for European immigrants (Kutler, 2003). However, in 1965, influenced by the Civic Rights Movement, which rallied against racial/ethnic discrimination, President Johnson signed the Immigration Act of 1965. The Act allowed more immigrants from third world countries to enter the U.S., including Asians, who had traditionally been hindered from entering America. The Act also entailed a separate quota for refugees (Graham, 1995; Kutler, 2003). Under the Act, 170,000 immigrants from the Eastern Hemisphere were granted U.S. residency, with no national limitations. These immigrants were granted residency because of their skills and professions, or for family reunification, and not based on their countries of origin (Lee & Hall, 1994). The large numbers of Chinese, Filipinos, Koreans, and Asian Indians gained residency after the Act of 1965. The immigrants, who were professionals in fields in short supply in the U.S., such as scientists, doctors, nurses, or high-tech specialists, were preferred for residency under the Act.

In addition, under the 1975 Indochina Migration and Refugee Assistance Act, the 1980 Refugee Act, and the 1987 American Homecoming Act, the large number of Asian immigrants who were refugees of U.S. military involvement in Southeast Asia arrived in

the U.S. (Graham, 1995). Those include about one million Vietnamese, Cambodian, and Laotian immigrants. Most of them had unprivileged backgrounds and limited social networks to hinder their adjustment as well as suffering from trauma from the war (Yang, 2004).

The Asian countries are now a primary source of U.S. immigration, providing about one-third of the nation's annual quota and making the Asian American population an integral part of the economic, cultural, and political life of the U.S. As a result of the post-1965 arrivals, more numbers of Asian American immigrants with different immigration purposes arrived in U.S. Accordingly, contemporary Asian Americans are more heterogeneous, representing a vast array of homelands, class backgrounds, languages, and religions (Kutler, 2003). Specifically, Asian American immigrants who arrived after the Act of 1965 were mostly professionals who possessed a higher socio-economic status compared to those who arrived before the Act of 1965, who were mostly unskilled manual workers. Moreover, Asian American immigrants who arrived after the more recent series of Refugee Acts had a lower socio-economic status than other Asian American immigrants.

The history of Asian American immigrants implies that current Asian American students have different family backgrounds depending on their ancestors. Since family background characteristics, such as parental income, education, occupations, have a great impact on children's educational experiences (Berzin, 2010; Noeth & Wimberly, 2002), there should be discrepancies in educational outcomes among Asian American

subgroups. Accordingly, this study focuses on discrepancies among ethnic subgroups in terms of educational aspirations.

PROBLEM STATEMENT

Asian Americans as a model minority

In the U.S., Asian Americans are perceived as model minorities, a term that refers to a racial/ethnic group that has attained educational and economic success through their hard work and determination (Bell, Harrison, & McLaughlin, 1997; Cheng, 1997; Kawai, 2005; Lowe, 1996; Tuan, 1998; Okihiro, 1994; Osajima, 1988; Takaki, 1989; Wong & Halgin, 2006; Wu, 2002). The term model minority was first used in the 1966 *New York Times* article, "Japanese-Americans: A Success Story" by the sociologist William Peterson (Cheng, 1997; Fong, 2002). According to this article, Asian Americans were considered as positive and bright, and they were rewarded because they were generally stereotyped as a successful, law-abiding, and high achieving group compared to other racial minority groups (Kim et al., 2001). Since then, the model minority label has been applied to all Asian Americans regardless of their ethnic subgroups (Friedman & Krackhardt, 1997; Min, 1995; Thatchenkery, 2000; Thatchenkery & Cheng, 1997). Because of the model minority myth, Asian American students have been expected to achieve educational success (Goyette & Xie, 1999; Jose & Huntsinger, 2005; Louie, 2004; Teranishi, 2002; Teranishi et al., 2004). On the other hand, the model minority myth has been used as a divisive tool against other racial minority groups (Chang et al., 2007; Li & Wang, 2008; Teranishi, 2002; Teranishi et al., 2004; Yang, 2004).

In fact, Asian Americas have been considered likely to succeed because their attainments on a limited number of quantitative indicators of education, occupation, and income are higher than any other racial minority group and at least comparable to those of white Americans (Kao, 1995; Kao & Thompson, 2003). Specifically, in terms of educational outcome indicators, Asian Americans are the most highly educated group in the U.S., surpassing Caucasian Americans (Newburger & Curry, 2000). 49% of Asian Americans have a bachelor degree or higher, compared to 35% of Caucasian Americans, 15% of African Americans, and 9% of Hispanics (U.S. Census Bureau, 1997).

In primary and secondary education, Asian American students often score similarly to whites and higher than other racial minority groups on reading and verbal tests, and they also outperform whites in terms of their overall average grades and standardized test scores in math (Kao, 1995; Kao & Thompson, 2003). Furthermore, Asian American students have been found more likely to be assigned to more demanding tracks in school and show lower dropout rates across the levels of education from elementary school to college, compared to other racial minority groups of students (Gamoran & Mare, 1989). They have the highest school graduation rate compared to other ethnic groups (U.S. Census Bureau, 2007a). In addition, studies based on Asian American data presented in aggregate forms have shown Asian Americans' high rate of college enrollment, especially in prestigious institutions (Yang, 2004). Accordingly, Asian Americans have been known as too successful and hardworking to be considered a disadvantaged minority.

However, on the negative side, the model minority myth has been cited as a positive label that turned into a barrier to upward mobility. The recent studies about Asian Americans have shown the problems of the model minority myth -- it hinders rather than helps their positive outcomes. Moreover, many scholars find it hard to justify the validity of the model minority myth (Bell, Harrison, & McLaughlin, 1997; Chang et al., 2007; Li & Wang, 2008; Teranishi, 2002; Teranishi et al., 2004; Yang, 2004). For example, in the workplace, there is a lack of Asian Americans in executive positions due to racial prejudice and a lack of communication and leadership skills (Min, 1995).

In education, a growing body of literature has linked internalizing model minority pressure with students' greater psychological distress and lower academic performance (Goyette & Xie, 1999; Kim et al, 2001; Louie, 2004; Teranishi, 2002; Teranishi et al., 2004; Yang, 2004). In addition, since Asian Americans are heterogeneous in terms of their homelands, class backgrounds, languages, and religions, differences in educational experiences among Asian American ethnic subgroups have been also examined. For example, in terms of academic performance, the general rank order is as follows: Asian Indian and Japanese students tend to do the best, followed by Chinese and Koreans, then Filipinos, and then other Southeast Asians (Goyette & Xie, 1999). Also, South Asian students tended to have the highest math performance, followed by Chinese, Southeast Asians, Koreans, Filipinos, and Japanese. In addition, research has found that there are discrepancies in expectation for degree attainment among Asian American subgroups (Goyette & Xie, 1999). While many South and East Asian American groups, such as Asian Indians and Japanese, have been successful in receiving high school, bachelors,

and advanced degrees, most Southeast Asian Americans, including Hmong, Cambodians, and Laotians, never finished high school (U.S. Census Bureau, 2010). Also, there are differences among Asian American ethnic subgroups in enrollment in highly selective institutions: 38% for Korean and 35% for Chinese Americans compared to 19% for Filipino Americans (Teranishi et al., 2004). Although the model minority myth assumes academic success for all Asian Americans, there are discrepancies in educational outcomes by their ethnic subgroups. Accordingly, more research needs to be done to examine Asian Americans' educational experiences more closely to call the model minority myth into question.

Educational aspirations and Asian American students

In this study, Asian American high school students' academic experiences are examined in terms of their educational aspirations. *Educational aspiration*, which is an early impression of one's own academic abilities and expectations about the highest level of education one will attain (Furlong & Cartmel, 1995), has been documented as the first step in the pipeline of educational and occupational attainment. Therefore, examining secondary school students' educational aspirations can predict their future educational and occupational attainment. It allows us to develop early interventions for those students whose educational aspirations need to be encouraged.

Regarding the influence of the model minority myth on Asian American students, the perception is that Asian American students successfully achieve academic goals and are overrepresented in higher education (Louie, 2004; Teranishi, 2002). Since Asian

American students as a model minority stand for a bright example of hard work and educational success, they are assumed to have high educational aspirations. Accordingly, few studied have explored factors that would hinder their educational aspirations. However, we need to examine their aspirations more closely because academic success, which is affected by aspirations, is not guaranteed for all Asian Americans, as the model minority myth has assumed (Kao, 1995; Teranishi, 2002).

For example, although Asian Americans have shown the largest increases in higher education enrollment, many of them are low-income and first-generation college students. Students from a low-income and first-generation background face obstacles that include low academic expectations, lack of adequate academic preparation, lack of family support, and cultural conflict between home and college community (Thayer, 2000). In addition, fewer Asian American students are attending their first-choice institutions than in past years, for example, 52% reported attending their first-choice school in 2005 whereas the 68% reported in 1974 (Anderson, 2003; Chang, et al., 2007). This data implies that there may be obstacles that prevent them from transferring aspirations to the educational decision making process. Accordingly, we need to examine Asian Americans' educational aspirations from the middle and high school so that we can reduce disadvantages from family backgrounds as well as help them realize their aspirations.

In addition, academic success cannot be guaranteed for all Asian American students because there is a huge discrepancy among Asian American ethnic subgroups in terms of family background and academic performance (Teranishi, 2002; Teranishi et al.,

2004). For example, Southeast Asian students have shown lower socioeconomic status, lower academic achievement, and less likelihood of attending college and have held the fewest higher degrees than their counterparts (Um, 2003; Ima & Rumbaut, 1995; Portes & Rumbaut, 2001; Teranishi et al., 2004; Ying & Akutsu, 1997). According to previous research, Southeast Asian students may experience complex problems related to issues of poverty, peer pressure, drug use and/or alcohol abuse, behavior problems, low socioeconomic status, and possibly trauma experienced within their native lands prior to their exodus to the U.S. (Hickey, 2007). Since these environmental factors, which vary by Asian American ethnic subgroups, may lower their educational aspirations as well as achievements, we should not ignore them.

Lack of quantitative research

Many researchers have examined Asian American students' academic experiences, especially focusing on the heterogeneity among their ethnic subgroups, through qualitative research methodologies. The findings have extended the understanding of Asian Americans' educational experiences. Specifically, they uncovered the effect of the model minority myth on Asian American students by examining marginalized groups of students who were academically underprepared. In addition, these findings have asked for more attention to the heterogeneity among Asian American ethnic subgroups.

However, few quantitative studies provide a general understanding of the heterogeneity in educational experiences among them because of a lack of appropriate

datasets. Since Asian Americans were aggregated as one group in many survey datasets, it has been difficult if not impossible to examine the discrepancies in educational outcomes among ethnic subgroups. Even though there is a limited number of datasets that disaggregate Asian American subgroups, such as the Cooperative Institutional Research Program's (CIRP) 1997 survey developed by the Higher Education Research Institute (HERI) and the National Education Longitudinal Study of 1988 (NELS:88) developed by National Center for Education Statistics (NCES), both are outdated and do not address the contemporary issues around Asian Americans in education. Other currently-released datasets are aggregating the Asian American population, making it impossible to examine any differences in academic achievement and college aspirations by Asian American subgroups. This implies the need for datasets and studies that can disaggregate Asian American samples.

PURPOSE OF THE CURRENT STUDY

Research questions

The purpose of the current study is to understand Asian American high school students' educational aspirations. Specifically, it examines how their educational aspirations are different from other racial groups as well as uncovers differences among Asian American subgroups. Based on the findings of the previous literature and theoretical speculation, the current study constructed a structural equation model of high school students' educational aspirations. In this structural model, educational aspirations are affected by several related factors, such as demographic characteristics, perceived

academic efficacy, support from significant others, and academic experiences. Furthermore, in order to examine heterogeneity in educational aspirations among ethnic subgroups, a structural equation model is controlled by Asian American ethnic subgroups. The research questions are as follows:

1. Are educational aspirations affected by students' academic effort, academic performance, perceived academic self-efficacy, support with college information from significant others, and students' demographic and socio-economic characteristics?
2. Do students' academic effort, perceived academic self-efficacy, support with college information from significant others, and students' demographic and socio-economic characteristics mediate the effects of each factor on educational aspirations?
3. Are Asian American high school students' educational aspirations different from those of other racial groups?
4. Do the estimates of factors affecting educational aspirations are affected by Asian American ethnic subgroups?

In order to answer these questions, a dataset titled the High School Longitudinal Study of 2009 (HSLS:09) was analyzed. The HSLS:09 can contribute to addressing current issues, especially regarding the heterogeneity among Asian American students, because it disaggregates Asian American ethnic subgroups: Chinese, Filipino, Southeast Asian, South Asian, and Other Asian. Since the research goal is to test theoretical

propositions about educational aspirations as well as to figure out which factors are affecting aspirations and how these factors are linked, structural equation modeling (SEM) was adopted to analyze the HSLS:09 within an analytic model based on the existing body of literature. By adopting a structural equation modeling of the HSLS:09, this study first examine if a conceptual framework of educational aspirations, which was developed based on the literature, is valid in the data. Specifically, in the conceptual framework, educational aspirations are assumed to be affected by students' demographic characteristics, parents' socio-economic status, students' academic performance, perceived academic self-efficacy, and support received from significant others. Next, by applying the conceptual framework to multiple racial samples, this study examines how Asian American high school students' educational aspirations are different from those of other racial groups. In addition, with only Asian American samples, this study examines if factors influencing Asian American students' educational aspirations vary by ethnic subgroups.

Significance and contribution

The findings of this study help to understand how high school students' educational aspirations are formed in general by examining the conceptual model with the data. In addition, by examining discrepancies in Asian American students' educational aspirations by their ethnic subgroups, the findings help to fill the gap in the literature about debunking the model minority myth. Specifically, this study examines if

there are discrepancies in Asian American students' educational aspirations by their ethnic subgroups.

Asian American students have been described as a model minority, which refers a bright example of hard work and academic success and a bright example that other minority groups should follow (Sowell, 1981). Since this study found heterogeneity in educational aspirations among Asian American subgroups as hypothesized, the findings can help to fill the gap in the literature about debunking the model minority myth that not every Asian American student would enjoy the privilege conferred by the myth. This study explains how Asian American students' educational aspirations are different depending on their socio-economic status, academic self-efficacy, academic experiences, or immigrant history as well as if there are any differences in aspirations among Asian American subgroups. The findings are also able to support the idea that Asian American should not be aggregated.

The anticipated audiences of this study include educational policymakers; high school educators such as high school teachers and counselors; high school administrators; college admissions officers; college student affairs professionals; and researchers studying about educational aspiration in general, high school students' academic experiences, or Asian American students. The findings from this study may help them to focus more attention on and design better interventions for Asian American students, who have been overlooked in American education.

Definition of terms

The term *Asian Americans* in this study refers to U.S.-born citizens, immigrants, and refugees whose roots can be traced to East Asia, Southeast Asia, the Malay Peninsula and Archipelago, and the Indian subcontinent.

The term *educational aspiration* in this study refers to students' desire to achieve high levels of education (Hanson, 1994; Kao & Tienda, 1998). It is often distinguished from educational expectation, which is similar but considered a more realistic self-assessment of one's likelihood of achieving the desired level of education (Mickelson, 1989); in contrast, educational aspiration is considered to be more abstract, representing an idealistic preference for the future (Furlong & Cartmel, 1995).

The *model minority myth* describes the perception that Asian Americans as a group have succeeded in America and overcome discrimination through their hard work, intelligence, and emphasis on educational achievement (Teranishi et al., 2004; Wong, 1980).

A brief outline of the following chapters

Four more chapters follow. Chapter 2 reviews the literature on theoretical explanations and recent research related to this study. Specifically, the literature on high school students' educational aspirations is reviewed first in order to develop the conceptual framework for this study. Next, research on Asian American high school students' academic experiences and educational aspirations is reviewed. Chapter 3 presents the methods of this study including research questions, methodology, data,

variables, and measures in order to examine characteristics of Asian American high school students' educational aspirations. Chapter 4 reports the results of the in-depth analysis of data. Chapter 5 draws from the literature to analyze the study's findings and concludes the dissertation with implications for practice and research as well as recommendations for future study.

Chapter Two: Literature Review

In the following sections, a body of literature related to this study is reviewed. First, in order to obtain a general idea about the target population, an overview of Asian American students' academic success and educational aspirations is discussed based on previous research. Next, the model minority myth about Asian American students, which was built based on their academic experiences, is criticized. This review of scholarship debunking the model minority myth supports the importance of the current study, which examines the heterogeneity among Asian American ethnic subgroups. Last, theoretical explanations and empirical research about educational aspirations are discussed. Based on this literature, a conceptual model of educational aspirations is developed at the end of this chapter. This conceptual model is adopted to examine what factors affect the formation of educational aspirations, how Asian American students' aspirations are different from other racial groups, as well as if educational aspirations varies by Asian American ethnic subgroups.

Academic Success and Educational Aspirations of Asian American Students

The academic experiences of Asian American students are considered as positive and rewarding because these students are generally stereotyped as a successful, law-abiding, and high achieving group compared to other racial minority groups (Kim et al., 2001). Asian Americans have been considered successful because their attainments on a limited number of quantitative indicators of education, occupation, and income are higher

than any other racial minority groups and at least comparable to those of white Americans (Kao, 1995; Kao & Thompson, 2003).

Specifically, in terms of educational outcome indicators, Asian American students often score similarly to whites and higher than other racial minority groups on reading and verbal tests; they also outperform whites in terms of their overall or average grades and standardized test scores in math (Kao, 1995; Kao & Thompson, 2003). Also, Asian American students have been found to be more likely to be assigned to more demanding tracks in school and show lower dropout rates across the levels of education from elementary school to college, compared to other racial minority groups of students (Gamoran & Mare, 1989). In addition, studies based on Asian American data presented in aggregate forms have shown Asian Americans' high rate of college enrollment, especially in prestigious institutions (Yang, 2004).

In terms of educational aspirations, Asian American students have been reported to have a higher level of aspirations compared to other racial groups of students (Gamoran & Mare, 1989; Goyette & Xie, 1999; Kim et al., 2001). For example, the National Center for Education Statistics (NCES) reported that in 1980, 61% of Asian American but only 37% of white high school seniors expected to attend a four-year college. Similarly, in 2011, about 84% of Asian American high school graduates aspired to earn at least a bachelor's degree, with almost 60% aspiring to continue their formal education beyond a four-year degree, whereas around 40% of Hispanic, African American, and white students aspired to a graduate or professional degree (ACT, 2011).

According to annual reports from ACT, this tendency of Asian American's higher educational aspirations has been consistent over several years.

While few studies specifically focused on Asian American students' educational aspirations, researchers have reported that Asian American students' high academic performance was positively related to their high educational aspirations (Goyette & Xie, 1999; Louie, 2004; Teranishi, 2002; Teranishi et al., 2004). In addition, Asian American parents tend to have higher educational aspirations for their children than do white parents, which are assumed to positively affect children's educational aspirations (Goyette & Xie, 1999; Teranishi, 2002; Teranishi et al., 2004). Beyond the influence from parents, Wong (1980) suggested that Asian American students generally perceived high educational aspirations from their teachers regarding their future, and Goyette and Xie (1999) implied a positive effect of peers on Asian American students' educational aspirations. However, more research is still needed to examine the specific relationship between the effects of family and peers on Asian American students' educational aspirations as well as to investigate other factors influencing on their aspirations.

Asian American students as an aggregated group have shown high academic achievement and educational aspirations. Their academic success created a conceptualization, which is the model minority myth. In the following sections, the literature about the model minority myth is reviewed first, in order to attempt to debunk this myth based on previous research findings.

ASIAN AMERICAN STUDENTS: THE MODEL MINORITY

Asian Americans' high educational aspirations and attainments help them develop their human capital, which prepares them to be competitive in a labor market (Jose & Huntsinger, 2005). Accordingly, Asian Americans have achieved successful upward mobility, which is shown in their low unemployment rates; the high rate of professional and relatively high-paying occupations in computer, science, engineering, and medical fields; and the higher median household income than national averages (Goyette & Xie, 1999; Sakamoto & Xie, 2006). For these reasons, Asian Americans are considered as superior to other minorities; they are academically and economically more successful than African Americans and Hispanics, even sometimes as successful as whites (Goyette & Xie, 1999; Jose & Huntsinger, 2005; Louie, 2004; Teranishi, 2002; Teranishi et al., 2004).

The model minority myth promotes the idea that Asian students will succeed academically under any circumstance because their families push them toward academic excellence regardless of environmental factors. In addition, the myth expects that Asian Americans understand and support the U.S. system of education as well as have access to more resources for educational success than others (Wong, 1980). Proponents of the model minority myth suggest that the reasons for their success are traditional Asian cultural values and family structures (Goyette & Xie, 1999). Under Confucian ideals, which emphasize respect for elders, deferred gratification, and discipline and are influential in many East and Southeast Asian cultures, most Asian American parents teach their children to value educational achievement, respect authority, and show self-

control (Sakamoto & Xie, 2006). In addition, since Asian American parents tend to view school failure as a lack of will, Asian American students tend to be more independent and work hard in school (Kao & Thompson, 2003; Kim et al., 1999).

Proponents of the myth also argue that Asian Americans are more obedient to authority, respectful of teachers, smart, good at math and science, hardworking, cooperative, well behaved, and quiet, and these characteristics have led to their success (Louie, 2004). Thus, their pathway to success is viewed as a model for other groups to follow. In other words, Asian Americans' emphasis on investment in education, combined with a strong work ethic, has allowed Asian Americans to have socioeconomic achievement equal to or greater than that of other racial groups (Sowell, 1981). According to this view, there is no need to focus on Asian American students' educational experiences because they already have high level educational aspirations and achievement, which will bring them academic and career success.

However, recent studies about Asian Americans have shown the problems of the model minority myth -- it hinders rather than helps their positive academic experiences. Moreover, many scholars find it hard to justify the validity of the model minority myth (Chang et al., 2007; Li & Wang, 2008; Teranishi, 2002; Teranishi et al., 2004; Yang, 2004). These researchers have attempted to demystify the myth in order to better understand Asian American students' educational experiences and needs. These criticisms about the myth's downsides and lack validity are discussed in more detail in the following section.

Heterogeneity among Asian American subgroups

One of the criticisms about the model minority myth is the assumption that Asian Americans are a homogeneous group. However, the term Asian American covers a variety of national, cultural, and religious heritages. Indeed, Asian Americans represent more than 30 subgroups that differ in language, cultures, and religion. The four major groups of Asian Americans are East Asian, such as Chinese, Japanese, and Korean; Pacific Islander; Southeast Asian, such as Thai and Vietnamese; and South Asian, such as Indian and Pakistani (Pang, 1990). Although there are similarities among the various subgroups, they have different origins, immigrant histories, and acculturation strategies (Chiu, 2007a; Goyette & Xie, 1999; Teranishi et al., 2004).

Regarding immigrant histories, while some current Asian Americans are descendants of nineteenth century immigrants, most of them have a more recent immigration background. Changes in immigration laws since 1965 have allowed a substantial increase in immigration from Asian and Pacific countries, and, since then, Asian Americans have become the fastest growing racial group in the U.S. However, the model minority myth neglects this history and the characteristics of selective immigration patterns of Asian Americans. The 1965 Immigration Act admitted a greater number of educationally and economically successful Asian American professionals, who were supposed to contribute to American society (Lee & Hall, 1994). Accordingly, Asian

American immigrants after this Act tended to have a high level of education and income in general.

However, some immigrants have a different immigrant history; for example, they are refugees from countries torn apart by war and have low socio-economic status (SES) (Teranishi et al., 2004). It implies that the racial designation Asian American does not guarantee their educational success. Rather, like many other Americans, the academic success of Asian American students is associated with family income and the levels of parental education (Goyette & Xie, 1999). In addition, there exists a disparity between foreign-born Asians living in this country and American-born Asians who are often quite acculturated (Chiu, 2007b; Goyette & Xie, 1999; Kim et al, 2001; Lee & Hall, 1994; Louie, 2004; Yang, 2004).

Since many scholars have begun considering this heterogeneity among Asian American subgroups, differences in educational experiences among these subgroups have been also studied. For example, Asian Indian and Japanese students tend to show higher academic performance than other Asian American ethnic subgroups (Goyette & Xie, 1999). However, particularly in math perform ace, South Asian students tended to have the highest math scores, followed by Chinese, Southeast Asian, Korean, Filipino, and Japanese. In addition, the probability of high school graduation and college degree attainment varies among Asian American subgroups (Goyette & Xie, 1999). Many South and East Asian American groups, such as Asian Indians and Japanese, have been successful in receiving high school, bachelors, and advanced degrees. On the other hand, most Southeast Asian Americans, such as Hmong, Cambodians, and Laotians, never

finished high school (U.S. Census Bureau, 2010). Also there are discrepancies in enrollment in highly selective institutions among Asian American ethnic subgroups. For example, those who show high academic performance in high school as well as high level of family's socio-economic status also show high enrollment rate in selective institutions, such as 38% for Korean and 35% for Chinese Americans; whereas Filipino Americans show only 19% (Teranishi et al., 2004).

In general, previous research asserted the high educational aspirations of all Asian American students compared to other racial groups. For example, 58% of white students expected to graduate from college, while all Asian American subgroups reported a higher rate of expectation. Specifically, Southeast Asians showed the highest rate of expectation to graduate college, and the lowest rate was 68% for Southeast Asians, which was still higher than the percentage of white students (Chang et al., 2007). Another study found that South Asian students tended to express the highest educational aspirations, followed by Korean, Japanese, Chinese, Filipino, and Southeast Asian students, and the differences in aspirations were statistically significant (Chang et al., 2007).

Aside from degree of aspirations, Chang et al. (2007) also examined different factors affecting educational aspirations by Asian American ethnic subgroups. For example, for all of the six Asian American ethnic subgroups of students in the study, receiving high educational expectations from parents was positively related to students' higher educational aspirations. However, a positive effect of high math achievement on aspirations was shown only in Chinese and Filipino students. Also, a positive association between enrollment in academic programs (compared with vocational programs) in high

school was found in the Korean and Southeast Asian samples. For the effects of school characteristics, Chinese students attending a school with a competitive climate were likely to have higher educational aspirations, whereas Filipino, Japanese, and Southeast Asian students attending a school with a low socioeconomic composition were likely to have lower educational aspirations. For Korean and South Asian students, school characteristics did not affect their educational aspirations (Chang et al., 2007).

These findings imply that there exist differences in educational experiences, such as academic success, aspiration for degree attainment, enrollment in highly selective institutions, and educational aspirations, among Asian American ethnic subgroups. However, the model minority myth ignores the heterogeneity of Asian American groups and their significantly varied levels of educational experiences. Accordingly, for decades researchers studying Asian Americans have been discussing the importance of datasets disaggregating Asian American subgroups and ethnicity-specific research on Asian Americans in order to understand their unique characteristics (Goyette & Xie, 1999; Teranish et al., 2004).

Invisible Asian American students

The model minority myth shapes a positive generalization of Asian Americans, which can negatively affect the educational experiences of Asian American students because it can mask individuality and conceal existing problems (Yang, 2004). Asian American students who may need additional assistance are likely to be ignored because of high expectations towards these students (Chang et al., 2007; Li & Wang, 2008). In

fact, because they do not often articulate their needs, Asian American students are often described as an invisible minority group (Li & Wang, 2008).

In some cases, teachers have misinterpreted silence by Asian American students as meaning that they comprehend the subject matter, even though they may not (Yang, 2004). In a study of perceptions of educators, they underestimated the different academic achievement levels of Asian Americans and stereotyped Asian American students as being a homogeneous group without unique needs. Furthermore, interviews of teachers, administrators, and counselors from an urban high school frequently revealed favorable perceptions of Asian Americans, whom they perceived as well prepared, focused, and eager to learn (Wong, 1980).

A downside of the myth is that Asian American students who are not high academic achievers are often subject to certain exceptions and pressures that can cause feelings of low self-worth and low self-esteem (Yang, 2004). In a study, an Asian low-achieving student felt embarrassed about seeking help for academic difficulties despite failing out of numerous classes because of the pressure imposed by the model minority myth (Li & Wang, 2008). In this study, we can assume that Asian American students may not like to be referred to as a model minority. Rather, they recognize the unfair burden, expectation, and pressure placed on them simply because of their race. There is also a growing body of literature that has linked internalizing model minority pressure with greater psychological distress and lower academic performance (Goyette & Xie, 1999; Louie, 2004; Teranishi, 2002; Teranishi et al., 2004; Yang, 2004).

Additional barriers to Asian American students

Asian Americans are also reported to have additional obstacles, such as language barriers and cultural differences (Jo, 2007; Jose & Huntsinger, 2005). It has been reported that 79% of Asian American students speak a language other than standard English at home (CARE, 2010). Even though the overall English proficiency of all Asian American students is high, additional need for language instruction in schools varies dramatically when disaggregated by ethnicity because of the differences among Asian American ethnic subgroups (CARE, 2010). These language differences are often ignored or misunderstood by educational settings (Goyette & Xie, 1999). Moreover, studies have shown that bilingual and bicultural students often encounter harassment or other derogatory treatment from classmates (Chang et al., 2007), which suggests that language diversity alone makes it challenging for students to create valuable educational experiences. Even though additional assistance is needed for bilingual and bicultural students, the model minority myth may discourage Asian American students from seeking any help and rather encourage them to hide their personal problems. In fact, previous research has found that Asian Americans are less likely to seek assistance, whether it is for academic, physical, or mental health needs, even though they may have serious issues (Goyette & Xie, 1999).

The stereotype can also be used to denigrate other racial groups. Educators may use the stereotype to create a racial hierarchy within schools that presents Asian American students as being ideal students, which may produce interracial resentment among students from other racial groups; this is because comparisons between Asian

Americans and other groups imply failure for the other groups. Specifically, the model minority myth creates a stereotype of all Asian American students as hard-working, silent, and persevering without complaint while all other minority students are not hard-working, complain, and have an inferior culture (Louie, 2004). Indeed, creating false images of Asian Americans can lead Asian American students to be harassed by their peers in school (Teranishi, 2002).

In addition, the model minority myth fails to capture the more complex representation of Asian Americans in the education system. The model minority myth shows that Asian American students are over-represented in the U.S. higher education, but in actuality, the CARE: National Commission on Asian American and Pacific Islander Research in Education (2010) recently found that the increasing presence of Asian Americans in higher education parallels similar increases of other racial minority groups. Further, Asian American student populations concentrate in a small percentage of certain states and institutions, giving a false impression of high enrollment in higher education overall (Louie, 2004). In addition, a considerable number of Asian American students were enrolled in community colleges rather than in four-year institutions (CARE, 2010).

Lack of validity of the myth

The validity of the myth has been questioned not only because of disadvantages from the model minority myth, but also because of the heterogeneity of the Asian American population, which the myth cannot explain (Suzuki, 2002). Some claim that

Asian American students are smarter than other groups; others believe there is something in Asian culture that breeds success, perhaps Confucian ideas that stress family values and education (Brand, 1987). However, this overall finding is mostly for students in later elementary, middle, and high school, but not necessarily in the transition to school or in college. With the transition to school, there is an early advantage for Asian American preschoolers and kindergarteners, but it is not necessarily maintained in the first grade (Kao & Tompson, 2003; Suzuki, 2002).

In addition, the origin of the myth impairs its validity. As mentioned above, the term model minority was first used popularly in a January 1966 issue of *The New York Times Magazine* in an article entitled "Success Story: Japanese American Style" and written by the sociologist William Peterson. According to this article, Japanese culture with strong family values and work ethic facilitated Japanese to become a successful minority and to succeed in assimilation into mainstream American culture. Peterson's another article in *U. S. News and World Report* in 1960, images of hard-working, silent, and successful Chinese Americans were often contrasted with the louder, violent, and more visible civil rights struggles of African Americans and other groups during this time (Kao, 1995). The model minority myth is not valid to explain their success because the myth was adopted and used not to praise the success of Asian Americans, but to disparage other minority groups and therefore entrench white hegemony.

Since the model minority myth fails to explain Asian Americans' educational experiences as discussed above, more research specifically focusing on this issue is needed. The current study suggests examining Asian American high school students'

educational aspirations, which would predict their future educational attainments. The next part explains the concept of educational aspirations based on multiple theoretical models and examines factors influencing educational aspirations. Specifically, in the following section, previous research about educational aspirations is discussed in order to develop a conceptual model of educational aspirations. This conceptual framework is used in the analysis to examine if there are any differences in Asian American students' aspirations from other racial groups. Next, this conceptual framework is also used to examine if there is any heterogeneity in aspirations among Asian American subgroups by applying the framework to each Asian American ethnic subgroup.

THEORETICAL AND EMPIRICAL EXPLANATIONS OF EDUCATIONAL ASPIRATIONS

Educational aspirations as a predictor of middle and high school students' educational success

Empirically, various studies have shown that, controlling for individual and family factors, higher aspirations are significant predictors of educational and occupational outcomes by young people (Gutman & Akerman, 2008). Educational aspirations are early impressions of one's own academic abilities and expectations about the highest level of education to attain (Furlong & Cartmel, 1995). Also, educational aspirations have been documented as the first step in the pipeline of educational and occupational attainment. Past research has established that educational aspirations predict student outcomes such as academic grades, educational attainment, college enrollment, and occupational prestige (Campbell, 1983; Dubow et al., 2009; Marjoribanks, 2003).

Similarly, studies have shown that positive educational aspirations increase expectations for the future, including expectations to complete a college degree and attain a stable occupation (Dubow et al., 2001; Kao & Thompson, 2003).

In fact, previous research shows that students who believe that they will achieve greater academic success are more likely to do so than their less optimistic peers, especially when facilitating social and academic factors exist (Ou & Reynolds, 2008). In this way, students' educational aspirations can influence what they learn in school, how they prepare for their postsecondary lives, and their ultimate academic and career attainment (Dubow, Boxer, & Huesmann, 2009). Accordingly, educational aspirations have a potentially critical influence on students' academic and occupational trajectories, such as college or career choice (Armstrong & Crombie, 2000 , Boxer et al., 2011; Gottfredson, 1981).

Specifically, as educators and policymakers have been improving college readiness for high school students since the 1980s, educational aspirations of middle and high school students have played an important role (Callan et al., 2006). College readiness refers to the level of academic preparation a student needs to be ready to enroll and succeed in postsecondary institutions (Baker, Clay, & Gratama, 2005). Since previous research suggests that students' high educational aspirations positively affect their college awareness, which increases college readiness (Callan et al., 2006; Wimberly & Noeth, 2005), educators and policymakers have urged high school students to plan their post-secondary educations for the past decades (Wimberly & Noeth, 2005).

In order to encourage the positive effect of educational aspirations on students' educational success, the literature suggests that college awareness activities should begin no later than middle school (Wimberly & Noeth, 2005; Tierney, Colyar, and Corwin, 2003; Martinez and Klopott, 2005). Specifically, college awareness activities for encouraging aspirations in middle and high schools include creating an educational plan with postsecondary goals in courses, preparing students for standardized assessments that students need to take, education students about available pre-college programs, college finance plans, and college admission steps (Wimberly & Noeth, 2005; Martinez & Klopott, 2005).

Given the significance of educational aspirations at the secondary school level, this study focuses on Asian American high school students' educational aspirations. In order to examine educational aspirations, researchers have relied on multiple theoretical models, which is briefly discussed below. Based on these multiple theoretical explanations, a conceptual framework is created, which is used as an analytic model for this study.

College choice model: predisposition and educational aspirations

Educational aspirations can be explained by the predisposition stage in the college choice model developed by Hossler and Gallagher (1987). According to this model, the college choice process is developed through three stages: predisposition, search, and choice. According to Hossler and Gallagher (1987), the predisposition stage is when students determine whether they will continue their education past high school

graduation, which is synonymous with college aspirations. Based on their college aspirations, students begin to gather information about colleges (search stage) and decide on a choice set of colleges to which they will apply (choice stage). In this model, students' background characteristics, such as students' academic ability and parental encouragement, have been found to have strong influences on predisposition (Hossler & Stage, 1992; Kao & Tienda, 1998).

However, Hossler and Gallagher (1987) admitted that their existing studies with the college choice model may have been inadequate for low-income and ethnic minority groups so that more research on the college choice process for minority groups was needed. The three stages of the college choice model did not examine the experiences and challenges of minority, low-income, or urban students (Hossler & Stage, 1992; Kao & Tienda, 1998; Smith & Fleming, 2006). Specifically, previous research cannot explain whether low-income and ethnic minority groups face any challenges in their predisposition stages as well as whether the development of educational aspirations is different for minority and majority students (Hossler, Braxton, & Coopersmith, 1989; Hossler, & Gallagher, 1987). Since the target population of this study is Asian American students, a body of literature is needed to examine the college choice process of Asian American students. This allows us to address if the process is different from a traditional college choice model developed by Hossler and Gallagher (1987), specifically in the first phase of the model where students create and develop their academic aspirations and predisposition. Still, the college choice model implies that students' academic ability

would positively affect students' educational aspirations. This supposition has been supported by an empirical study (Wimberly & Noeth, 2005).

Status Attainment Model: Socio-economic Status and Educational Aspirations

Previous research on students' educational aspirations has demonstrated that socio-economic status (SES), which is a measure of structural constraints, is a significant predictor of educational aspirations (Owens, 1992; Rojewski & Kim, 2003; Rojewski & Yang, 1997; Solorzano, 1991; St-Hilaire, 2002; Trusty, 1998). The relationship between SES and educational aspirations is derived from status attainment theory, which suggests that the initial factor that influences individual status attainment is one's family of origin. This theory was first established by Blau and Duncan's (1967) process of stratification model, which found that a son's status attainment was more influenced by his own education than his father's education and occupation, but his education was mostly predicted by his father's education and occupation (Blau & Duncan. 1967). In other words, SES affects students' occupations indirectly through their education; therefore, education is a mediating factor between occupational attainment and SES.

According to the status attainment model, SES indicated by parents' educational achievement and occupational status affects children's academic and occupational attainment. For example, Trusty (1998) found that in the national sample of 14,673 participating students from the National Education Longitudinal Study of 1988, the most significant predictor of educational aspirations and expectations was SES. In addition, Rojewski and Kim (2003) established that the effect of SES on educational aspirations

also predicts college-bound, work-bound, and unemployed status for high school graduates. In particular, the majority of work-bound and unemployed students who had low educational aspirations was in the lowest two SES quartiles, whereas the majority of college-bound students whose educational aspirations were high was in the highest two SES quartiles (Rojewski & Kim, 2003; Whiston, S.& Keller, 2004). Owens (1992) arrived at similar results in that work-bound or military-bound students in the sample came from larger families in the lower SES strata, and college-bound students in the sample came from smaller families in the higher SES strata. In sum, several researchers have found evidence that parents who have a higher level of education or a more prestigious career can serve as a strong role model for children (Rojewski & Kim, 2003; Raty, Leinonen, & Snellman, 2002; Rojewski & Yang, 1997; St-Hilaire, 2002; Trusty, 1998; Wong et al., 1998). Consequently, the status attainment model implies that family SES would positively affect students' educational aspirations (Wimberly & Noeth, 2005).

However, while previous studies were in agreement regarding the relationship between SES and educational achievement as well as the defining role of SES in predicting educational aspirations, a few authors addressed the theoretical relationship between SES and educational aspirations. Lent, Brown, and Hackett (1996) approached this limitation through the framework of social cognitive learning theory (SCT). Using a sociological perspective, they argued that SES itself did not directly affect students' educational aspirations. Instead, cultural expectations and stereotypes related to socio-economic class influenced students' feelings of self-efficacy, which would eventually affect their aspirations (Lent et al., 1996). Specifically, based on cultural stereotypes by

SES, students would develop an internalized set of educational choices, and their aspirations would be formed within a restricted set of choices (Lent et al., 1996). The relation between SES and educational aspirations is examined in more detail in the following section.

Social Cognitive Theory (SCT): family and peer support and educational aspirations

Since educational aspirations cannot be thoroughly explained only by the family SES shown in the status attainment model, there is another body of literature based on social cognitive theory (SCT). This research attempts to describe educational aspirations within more complex interactions among different factors on both individual and structural levels (Bandura, 1986). According to SCT, human agency and decision-making processes arise from a complex interplay of personal factors, such as cognitive processes, affective processes, and behavior, as well as environmental factors, such as structural constraints (Bandura, 1986). In SCT, any decision-making processes are based on *self-efficacy*, which is defined as personal judgments of one's capabilities to attain goals (Bandura, 1989). In terms of education, the concept of self-efficacy is closely related to that of educational aspirations. According to SCT, students are using the social factors around them to make decisions about their futures, including their educational and occupational careers; in addition, the likelihood of certain decisions depends on self-efficacy, which is influenced by modeling in interpersonal relationships (Ali, McWhirter, & Chronister, 2005; Bandura, 1989). Bandura (1997) emphasized that the effect of

modeling is greater if the person who engages in the modeling behavior is a significant other of a student, such as a parent, as well as if a student perceives a degree of similarity between herself or himself and the role model, such as being the same age or the same gender. For example, through the modeling process, if parents and peers attain a high level of education, a student also perceives a high possibility of achieving the same level of education (Cheng & Starks, 2002; Joo, Bong, & Choi, 2000). This theory suggests the importance of family and peer influence on students' educational aspirations.

Consequently, the social cognitive theory model implies that students' self-efficacy and social support from significant others would positively affect students' educational aspirations, an implication that has been supported by an empirical study (Wimberly & Noeth, 2005). Accordingly, these two factors are be included to create the conceptual framework for this study; the following three research hypotheses are drawn from the SCT model:

H1 - (c). Students' educational aspirations are affected by their perceived academic self-efficacy.

H1 - (d). Students' educational aspirations are affected by support received from significant others, such as parents, teachers, school counselors, and peers.

H1– (e). Students' demographic and socio-economic characteristics, support from significant others and academic self-efficacy mediate the effects of current academic performance on students' educational aspirations.

The effects of school experiences

Although family SES and social support discussed by the two theoretical models above explain students' educational aspirations in many respects, both models are criticized because they focus on individual-level factors (Pascarella, 1984). Specifically, the status attainment model heavily relies on parent characteristics and SCT examines students' interpersonal relationships with parents and peers, which provide little insight into school-related factors.

Previous research had found an association between students' school experiences and educational aspirations. For example, if students have positive experiences in high school and show a high level of school involvement, these factors may increase educational aspirations (Hossler & Stage, 1992). Yazzie-Mintz's (2006) report on findings from the High School Survey of Student Engagement (HSSSE) suggested that female students' higher educational aspirations are due to their higher engagement than male counterparts across behavioral and emotional levels. In addition, students' academic achievement in high school showed a direct effect on their educational aspirations (Ganzach, 2000). Also, school quality and curriculum have shown a significant impact on educational aspirations. A rigorous high school curriculum has a positive influence on educational aspirations (Hossler & Stage, 1992). Previous research has proved that the most important preconditions of college attendance are receiving the academic skills necessary to meet college qualifications and graduating from high school (Adelman, 2006; Swail, Redd, & Perna, 2003). Especially, the effects of school-related factors on

educational aspirations are more important than family or friends' influence for racial minority and low-SES students (Way & Robinson, 2003).

Accordingly, students' academic experiences in schools are included to create the conceptual framework for this study and the following research hypothesis is drawn from this theoretical model:

H1 - (b). Students' educational aspirations would be affected by their current academic efforts and performance at school.

Based on the literature review, the conceptual model of educational aspirations has been hypothesized, which is displayed in Figure 1.

CONCEPTUAL FRAMEWORK OF THE CURRENT STUDY

Figure 1 displays the conceptual model for educational aspirations, which is based on the literature review above. This conceptual model was used in the analysis to examine the formation of educational aspirations with the total sample, to compare Asian Americans' educational aspirations with other racial groups, and to examine differences within Asian American subgroups.

Figure 1. Hypothesized conceptual model of the formation of educational aspirations

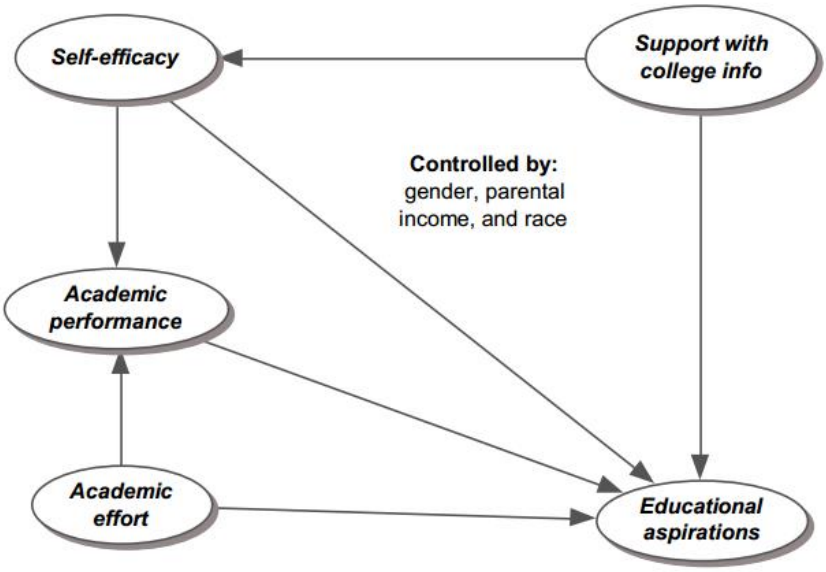


Figure 1 represents the hypothesized relationships that the current analysis investigates. Among factors affecting educational aspirations that were derived from the literature review, students' academic effort and performance, students' perceived academic self-efficacy, and support received from students' significant others are hypothesized to have direct effects on students' educational aspirations. In addition, students' perceived self-efficacy and academic effort are hypothesized to also have indirect effects on students' educational aspirations through students' academic performance. Students' demographic and socio-economic characteristics are controlled to examine if they have any direct and indirect effects on educational aspirations.

Chapter Three: Research Design and Methods

This study examines how Asian American high school students' educational aspirations are formed as well as how factors affecting their aspirations are different among Asian Americans ethnic subgroups through quantitative research methodology. The analyses in this study are conducted in three steps. First, the conceptual framework for the formation of educational aspirations (Figure 1), which was developed based on the review of literature, is tested with data in order to evaluate the validity of the model. After confirming the validity of the conceptual model, this study examines how the structural model of educational aspirations is analyzed based on the entire sample of data. By controlling race variables, it examines how Asian American students' educational aspirations are different from those of other racial groups of students. Third, the same structural model of educational aspirations is analyzed based on the Asian American sample data in order to examine if the formation of educational aspirations is different for Asian American students. By controlling Asian American subgroup variables, it examines if there are any differences in educational aspirations among Asian American subgroups. These three steps of analyses are guided by the following research hypotheses.

RESEARCH HYPOTHESES

H1. The conceptual framework based on the literature is validated by the data.

H1 - (a). Students' educational aspirations are affected by students' demographic and socio-economic characteristics.

H1 - (b). Students' educational aspirations would be affected by their current academic efforts and performance at school.

H1 - (c). Students' educational aspirations are affected by their perceived academic self-efficacy.

H1 - (d). Students' educational aspirations are affected by support received from significant others, such as parents, teachers, school counselors, and peers.

H1– (e). Students' demographic and socio-economic characteristics, support from significant others and academic self-efficacy mediate the effects of current academic performance on students' educational aspirations.

H2. Asian American students' educational aspirations are different from those of other racial groups of students.

H3. There is heterogeneity in students' educational aspirations by Asian American subgroups.

H3 - (a). The conceptual model of educational aspiration based on the literature is also validated by the Asian American sample data.

H3 - (b). The level of Asian American students' educational aspirations is different by their ethnic subgroups when controlling for other variables.

RESEARCH DESIGN

Quantitative research seeks to establish relations and explain the causes of changes in measured social facts (Muijs, 2004). Quantitative research is a theory validation procedure (Denzin & Lincoln, 2000). It is a process through which conceptual theories are validated, refined, or invalidated as a result of applications to real-life datasets. Quantitative research analyzes information obtained from samples, which represent the population, through statistical procedures. The strengths of quantitative methods are that they produce factual, reliable outcome data that are usually generalizable to some larger population. Accordingly, researchers can derive generalizations and representations from quantitative research, which would provide new knowledge to the existing literature (Kachigan, 1991; McMillian & Schumacher, 2006).

Despite the importance of quantitative research, recent quantitative studies examining Asian American high school students' educational experiences have faced challenges in finding secondary data on the heterogeneity among their ethnic subgroups. They have relied on primary quantitative data sources because of a lack of appropriate secondary datasets (Chhuon & Hudley, 2008). Secondary data refer to information in data has already been collected (Denzin & Lincoln, 2000). Since secondary data have been collected by some other organization, group, or individual at some prior time, researchers can experience the benefits of time efficiency, cost effectiveness, data quality and increased sample size compared to using primary data (Kiecolt & Natham, 1985). Specifically, when researchers use secondary data, they do not need to spend time designing the research study and collecting primary data, which will save considerable

time and costs. In addition, research findings that result from secondary data analyses may have a high degree of validity and reliability because reputable data collection organizations have the resources necessary to field surveys using sampling methods and sample sizes that allow for reliable and valid population estimates. Also, secondary data provide a large sample size, which would bring greater flexibility in examining identified subgroups, especially small segments of the population; improved reliability; and generally credible results.

Because of a lack of quantitative secondary data with disaggregated Asian American subgroups, very few quantitative studies have provided a general understanding of the heterogeneity in educational experiences among Asian American subgroups. For the same reason, Asian American high school students' educational aspirations, which may vary by ethnic subgroups, have not been examined. Since Asian Americans have been aggregated as one group regardless of their origin of ethnic subgroups in most of the survey data, it has been difficult, if not impossible, to examine the discrepancies in educational aspirations among Asian American ethnic subgroups. However, unlike other existing survey data, a recently released dataset—the High School Longitudinal Study of 2009 (HSLS:09)—disaggregated Asian American subgroups. Accordingly, the HSLS:09 was adopted in this study. More specific information about the HSLS:09 dataset is followed.

DATA AND SAMPLE

This study used the High School Longitudinal Study of 2009 (HSLS:09), which was collected in the Spring of 2009 by the U.S. Department of Education's National Center for Education Statistics (NCES). The HSLS:09 is a nationally representative, longitudinal study of 21,400 9th graders in 900 schools who will be followed through their secondary and postsecondary years. The HSLS:09 administered a survey to students, parents, teachers, school counselors, and administrators.

In the base-year survey of HSLS:09, students were sampled through a two-stage process. First, stratified random sampling and school recruitment resulted in the identification of 1,850 eligible schools. A total of 900 of these schools participated in the study, resulting in a 55.5 percent (weighted) or 50.0 percent unweighted school response rate. In the second stage of sampling, students were randomly sampled from school ninth-grade enrollment lists, with 25,200 eligible selections (or about 30 per school). Of the 25,200 eligible students, 21,400 students participated, or about 86 percent (weighted) of eligible selected fall ninth-graders participated (Ingels et al., 2011).

The target population at the school level was defined as regular public schools, including public charter schools, and private schools, in the fifty United States and the District of Columbia, providing instruction in both 9th and 11th grade. The target population of students was defined to include all ninth-grade students who attended the study-eligible schools in the fall 2009 term. For most purposes, the student is the unit of analysis. Data at the school, classroom, or home level may be attached to the student record as contextual data. The parent was self-selected, using the criterion that the

responding parent should be the one most knowledgeable about the ninth-grader's current situation.

Of the students participating, approximately 98 percent were surveyed in in-school sessions, and 2 percent outside school. In-school sessions were 90 minutes in length, with 15 minutes for instructions and setup, 35 minutes for the student questionnaire, and 40 minutes for the two-part, 40-question adaptive algebraic reasoning assessment. Parent and school staff surveys (administrator, counselor, mathematics teacher, science teacher) were designed for computerized administration in either of two modes—web-based self-administration, or CATI (computerized interviewer-administration) (Ingels et al., 2011).

Each case in the HSLS:09 is counted relative to its representation in the population; analyses based on weighted data produce findings that represent the target population. Weights are used when estimating characteristics of the population even though entire population does not provide data. Weights adjust for differential selection probabilities and for bias associated with nonresponse by adjusting for differential nonresponse. In order to adjust different possibilities of sections among samples, weights in the HSLS:09 correct for differential nonresponse. Because of the weighting strategy taken accounted into the HSLS:09, the findings can make nationwide generalization, which is a key benefit of the HSLS:09 data. Weights in the HSLS:09 were created depending on level of analysis, which is either school or student level, and source of data, such as student survey, parent survey, teacher questionnaires, etc.

The HSLS:09 focuses on understanding students' trajectories from the beginning of high school into postsecondary education, the workforce, and beyond. Specifically, major areas of the HSLS:09's interest are (a) students' academic (especially in math and science), social and interpersonal development, (b) students' transitions from middle school to high school to postsecondary education and/or to work, (c) baccalaureate and sub-baccalaureate attainment – information, access, application, financial aid, choice, matriculation, persistence, completion, (d) how family background and parental involvement affect educational choice, persistence, and attainment, (e) characteristics of high schools and postsecondary institutions and their impact on student outcomes, and (f) how broader contexts of education are related to education and labor market outcomes. The specific topics of the HSLS:09 include students' middle school experience (courses, grades), school activities, coursework and informal activities in science, technology, engineering, and math (STEM), plans for the future as well as uncertainty about plans (coursework, tests, college), influence of family and of peers on post-secondary plans.

In sum, the HSLS:09 focuses on how students plan and make decisions about postsecondary options, mostly but not solely, in regards to STEM courses, majors, and careers. The HSLS:09 surveyed students, parents, teachers, school counselors and school administrators as well. Specifically, the HSLS:09 aims to examine how parents, teachers, counselors, school administrators, and students construct choice sets for students, and how these are related to students' characteristics, attitudes, and behavior. It also aims to investigate how students select postsecondary institutions and possible careers and how parents and students plan financing for postsecondary experiences.

Regarding postsecondary planning, the survey instruments for students include their academic interests, academic behavior (e.g., attendance, study habits), attitudes and beliefs (e.g., self-efficacy, academic aspiration), and social and cultural experiences. For parents' survey instruments, it includes demographics, sources and quality of information regarding college planning and financing, educational expectations, discussions about postsecondary options and careers, and support and resources for academic pursuits at home. For administrators' survey instruments, it includes school planning for transition to postsecondary education. For counselors' survey instruments, it includes how students enter pathways for postsecondary education and/or the workforce.

One of the main advantages of the HSLS:09 data is the potential length of its coverage. Even though the HSLS:09 produces not only a nationally representative dataset but also state representative datasets for each of ten states, the HSLS:09 itself is currently cross-sectional because it has only the first wave of the datasets. However, three additional datasets from the same respondents are scheduled to be released: the first follow-up surveys, which was administered in the spring of most students' 11th grade year (2012), and the second follow-up surveys, which was administered in the spring of the students' expected graduation year (2013) in order to record students' postsecondary options and plans, and the third follow-up surveys, which will be administered in 2015 to learn about students' postsecondary experiences. Because students' postsecondary planning and decision-making in 9th grade is linked to subsequent behavior, this study will be able to examine how decisions in 9th grade impact students' high school

trajectories in future. Moreover, since HSLS:09 is a baseline and more surveys are scheduled, this study can be used for comparison in the future research.

Another advantage of the HSLS:09 data is that it disaggregated Asian American students by their sub-ethnic groups. One of the challenges of conducting empirical studies about Asian Americans in higher education is a lack of datasets disaggregating Asian American students by ethnicity even though heterogeneity in Asian American subgroups has been already established. Although there is a limited number of disaggregating datasets, such as the Cooperative Institutional Research Program (CIRP) 1997 data developed by Higher Education Research Institute (HERI) and the National Education Longitudinal Study of 1988 (NELS:88) developed by National Center for Education Statistics (NCES), both are outdated to address current issues of Asian Americans in higher education. Other currently-released datasets are aggregating the Asian American population, which prevents researcher from examining any differences in academic achievement and college aspirations by Asian American subgroups. However, the HSLS:09 divided Asian American population into five ethnic subgroups; Chinese, Filipino, Southeast Asian, South Asian, and Other Asian. This approach allows this study to examine heterogeneity in academic aspirations and college expectations among Asian American subgroups.

MEASURES

Dependent variable

The dependent variable, the 9th graders' educational aspiration, is measured by one question in the survey. It asks student's desire to achieve high levels of education, which reflects the levels of education which students want to achieve. It is a five-point-scale ordinal variable that takes the value of 1 if students will not attend any college, 2 if students want to attend two-year institutions, 3 if students want to attend four-year institutions, and 4 if students want to continue pursuing master's degree, and 5 if students want to complete more advanced and professional degrees (e.g. Ph.D., M.D., etc.) after colleges. About 20% of students did not provide any information about aspirations because they did not know their educational plan after high school. These students who did not report their aspirations were excluded from the structural equation modeling of educational aspirations.

Independent Variables

Based on the literature reviewed, the independent variables that are hypothesized to affect students' educational aspirations and expectations are as followed: background characteristics such as students' gender, race/ethnicity, parental income, students' academic performance, academic effort, perceived academic self-efficacy, and support with college information that students can receive from their significant others. More specific explanations are followed.

Background characteristics

Various factors related to minority status are reproduced throughout the social structure and create barriers to high educational attainment (Bourdieu & Passeron, 1973). In this study, the primary predictor of interest is race and ethnicity, categorized as White, African American, Hispanic, other race, and Asian American, with Asian subgroups including Chinese, Filipino, Southeast Asian, South Asian, and other Asian. This disaggregated race variable allows this study to examine how Asian American students' college aspirations and expectations are different from those of other racial groups as well as how aspirations of Asian American students differ by their ethnic subgroups. For the entire sample, white is considered as a reference group to examine differences among racial groups. For the Asian American sample, Filipino is a reference group because in the previous literature on factors contributing to the success of Asian American's educational achievement, the Filipino group was often excluded for its lower educational outcomes compared to those of Whites and other Asian American ethnic subgroups (Teranishi et al., 2004). Filipino students also show the lowest level of educational aspirations in HSLS:09 as shown in Table 4. Since the Filipino Asian student group has been considered as not qualified to be part of model minority, selecting them as a reference group determines how Filipino students' educational aspirations are different from those of other Asian American ethnic subgroups. In addition, student's gender is also included in order to see if there are any differences in educational aspirations between male and female students.

As a proxy for the student's socioeconomic background, parental income is used in the study. The household income is measured by a 13-point scale ranging from the value 1 for "$15,000 or less" to the value 13 for "more than $235,000."

Academic performance

Academic performance is measured by the sum score of the final letter grades of math and science in the 8th grade. Each grade is recoded as 1 for "Below D", 2 for "D", 3 for "C", 4 for "B", and 5 for "A."

Academic effort

For current academic efforts, a latent variable is created, indicating the number of hours that students spend working on homework and studying for (a) math, (b) science, and (c) other classes. Each of the three variables is measured by a 6-point scale that takes the value of 1 if students spend less than one hour, 2 if students spend one to two hours, 3 if students spend two to three hours, 4 if students spend three to four hours, 5 if students spend four to five hours, and 6 if students spend five or more hours. The reliability among these three observed variables is .79.

Support with college information from significant others

Students' perceived social support they received from significant others is a latent variable with categorical indicators. Specifically, it is measured by the five items in the survey. Student were asked if they had talked about going to college since the beginning of the school year 2008-2009 with their significant others, including (a) mother or female

guardian, (b) father or male guardian, (c) friends, (d) teachers, and (e) school counselors. Each item is a dichotomous variable, coded as 1 if they had talked about their college plans and 0 if they had not. The reliability among these five observed variables is .61.

Academic self-efficacy

Students' perceived academic self-efficacy in achieving academic success is measured by one latent variable, which is measured by six questions from the survey. Students were asked how much they agreed with the following statements: (a) you are confident that you can do an excellent job on tests in the math course, (b) you are certain that you can understand the most difficult material presented in the textbook used in the math course, (c) you are certain that you can master the skills being taught in the math course, (d) you are confident that you can do an excellent job on assignments in the science course, (e) you are certain that you can understand the most difficult material presented in the textbook used in the science course, and (f) you are certain that you can master the skills being taught in the science course. Each item is coded as 4=strongly agree, 3=agree, 2=disagree, and 1=strongly disagree. The reliability among these six observed variables is .83.

Table 1 displays definitions and numerical codes of key variables and Table 2 displays factor loadings and reliability of the factors (Cronbach's alpha) for latent variables.

Table 1. Key variable definitions and numerical codes

Variable	Description and Codes
Independent variables	
Support with college information from significant others	Perceived social support a latent variable, which is measured by the following five items. Student were asked if they had talked about going to college since the beginning of the school year 2008-2009 with their significant others, including (a) mother or female guardian, (b) father or male guardian, (c) friends, (d) teachers, and (e) school counselors. Each item is a dichotomous variable, coded as 1 if they had talked about their college plans and 0 if they had not. The reliability of social support is .61
Academic self-efficacy	Perceived self-efficacy on academic success is a latent variable. The latent variable is measured by the following six observed variables: how much do you agree with (a) you are confident that you can do an excellent job on tests in math course, (b) you are certain that you can understand the most difficult material presented in the textbook used in math course, (c) you are certain that you can master the skills being taught in math course, (d) you are confident that you can do an excellent job on assignments in science course, (e) you are certain that you can understand the most difficult material presented in the textbook used in science course, and (f) you are certain that you can master the skills being taught in the science course. Each item is coded as 4=strongly agree, 3=agree, 2=disagree, and 1=strongly disagree. These three questions were asked for both math and science courses that the respondents took in Fall 2009. The reliability of self-efficacy is .830.

Table 1 (Continued)

Academic performance	Academic performance is measured by the sum score of the final letter grades of math and science in the 8th grade. Each grade is recoded as A=5, B=4, C=3, D=2, Below D=1.
Academic effort	For current academic efforts, a latent variable is created by the number of hours that students spend working on homework and studying for math, science, and the rest of classes is used. Each of three variables is measured by an each 6-point scale that takes the value of 1 if students spend less than one hour, 2 if students spend one to two hours, 3 if students spend two to three hours, 4 if students spend three to four hours, 5 if students spend four to five hours, and 6 if students spend five or more hours. The reliability of academic effort is .79.
Race/ethnicity	Race and ethnicity is categorized as White, African American, Hispanic, other race, and five Asian subgroups including Chinese, Filipino, Southeast Asian, South Asian, and other Asian such as Korean or Japanese. These variables are dichotomous which represent 1=yes for certain race/ethnicity category and 0=no. For overall sample, White is a reference group for comparison; and for Asian American sample, Filipino is a reference group.
Gender	1= female and 0=male students

Table 1 (Continued)

Parental income	Parental income is used in the analysis. The household income is measured by a 13-point scale: 1= less than or equal to $15K, 2=Family income > $15K and <= $35K, 3=Family income > $35K and <= $55K, 4=Family income > $55K and <= $75K, 5=Family income > $75K and <= $95K, 6=Family income > $95K and <= $115K, 7=Family income > $115K and <= $135K, 8=Family income > $135K and <= $155K, 9=Family income > $155K and <=$175K, 10=Family income > $175K and <= $195K, 11=Family income > $195K and <= $215K, 12=Family income > $215K and <= $235K, 13=Family income > $235K
Dependent variable	
Educational aspiration	Educational aspiration is measured by one question asking student's desire to achieve high levels of education, which reflects the levels of education which students want to achieve. It is a five-point-scale ordinal variable that takes the value of 1 if students will not attend any college, 2 if students want to attend two-year institutions, 3 if students want to attend four-year institutions, and 4 if students want to continue pursuing master's degree, and 5 if students want to complete more advanced and professional degrees (e.g. Ph.D., M.D., etc.) after colleges. Students who answered that they did not have any educational plan after high school were excluded from the structural equation modeling.

Table 2. Factor loadings and reliability of latent variables

Observed variables	Latent variables
	Academic self-efficacy
(a) You are confident that you can do an excellent job on tests in the math course	.741
(b) You are certain that you can understand the most difficult material presented in the textbook used in the math course	.750
(c) You are certain that you can master the skills being taught in the math course	.768
(d) You are confident that you can do an excellent job on assignments in the science course	.708
(e) You are certain that you can understand the most difficult material presented in the textbook used in the science course	.714
(f) You are certain that you can master the skills being taught in the science course.	.734
Cronbach's alpha	.830
	Academic effort
(a) Hours working on math homework and studying for math class	.855
(b) Hours working on science homework and studying for science class	.861
(c) Hours working on homework and studying for the rest of your classes	.828
Cronbach's alpha	.791

Table 2 (Continued)

	Support with college information from significant others
(a) You have talked with about going to college with mother or female guardian since the beginning of the school year 2008-2009.	.650
(b) You have talked with about going to college with father or male guardian since the beginning of the school year 2008-2009.	.680
(c) You have talked with about going to college with friends since the beginning of the school year 2008-2009.	.644
(d) You have talked with about going to college with teachers since the beginning of the school year 2008-2009.	.624
(e) You have talked with about going to college with school counselors since the beginning of the school year 2008-2009.	.591
Cronbach's alpha	.612

DATA ANALYSIS

This study attempted to answer the following research questions: (1) Are educational aspirations affected by students' academic effort, academic performance, perceived academic self-efficacy, support with college information from significant others, and students' demographic and socio-economic characteristics? (2) Do students' academic effort, perceived academic self-efficacy, support with college information from

significant others, and students' demographic and socio-economic characteristics mediate the effects of each factor on educational aspirations? (3) Are Asian American high school students' educational aspirations different from those of other racial groups? (4) Do the estimates of factors affecting educational aspirations are affected by Asian American ethnic subgroups?

In order to explore the formation of educational aspirations of Asian American 9th graders as well as how the formation of educational aspirations varies among Asian Americans by their ethnic subgroups, this study analyzed data drawn from the 2009 High School Longitudinal Study (HSLS:09) sponsored by the U.S. Department of Education's National Center for Education Statistics (NCES). This study adopted structural equation modeling (SEM), which answered the four research question. This study used a statistical software package Mplus 6.12 for SEM analyses and the rest of statistical analyses including descriptive statistics, and reliability and factor analysis was conducted by using IBM SPSS Statistics 20.

The use of SEM offers a number of advantages over other quantitative methodologies. First, SEM allows both measurement and structural modeling. In the measurement models, SEM accounts for the measurement errors of each factor to improve the accuracy of parameter estimates so that I can develop more accurate factors influencing Asian Americans' educational aspirations (Bollen, 1989). In addition, the relationships between factors can be tested in the structural modeling. Second, SEM allows the simultaneous regression of multiple dependent variables on multiple independent variables and examines both direct and indirect effect between them, so that

I can examine the formation of Asian Americans' educational aspirations with multiple factors at one time. Third, SEM assesses the overall model fit so I can confirm if the model of Asian American students' educational aspirations is well applied to the data.

A structural model is one which specifies the posited causal relations of the estimated constructs (Bollen, 1989). The structural relationship can be expressed as an equation as follows:

$$\eta = B*\eta + \Gamma*\xi + \zeta,$$

where η represents the vector of endogenous constructs, which refers to perceived academic *self-efficacy* (η_1), current *academic performance* (η_2), and *educational aspirations* (η_3) in the analysis. Each of endogenous construct has own equation, so there are three equations in the analysis. ξ represents the vector of exogenous constructs, which refers to *support with college information that students received from significant others* (ξ_1) and *academic efforts* (ξ_2) in the analysis. B represents the matrix of coefficients for the effects of the endogenous constructs on one another, Γ represents the matrix of coefficients for the effects of the exogenous constructs on the endogenous constructs, and ζ represents the vector of residual errors in the equations and random disturbance terms.

Figure 2 displays a path diagram of the hypothesized conceptual framework of the formation of educational aspirations, which in a form of an analytic model for SEM. Figure 3 displays four sets of equations for the structural model.

Figure 2. Path diagram of the hypothesized conceptual model

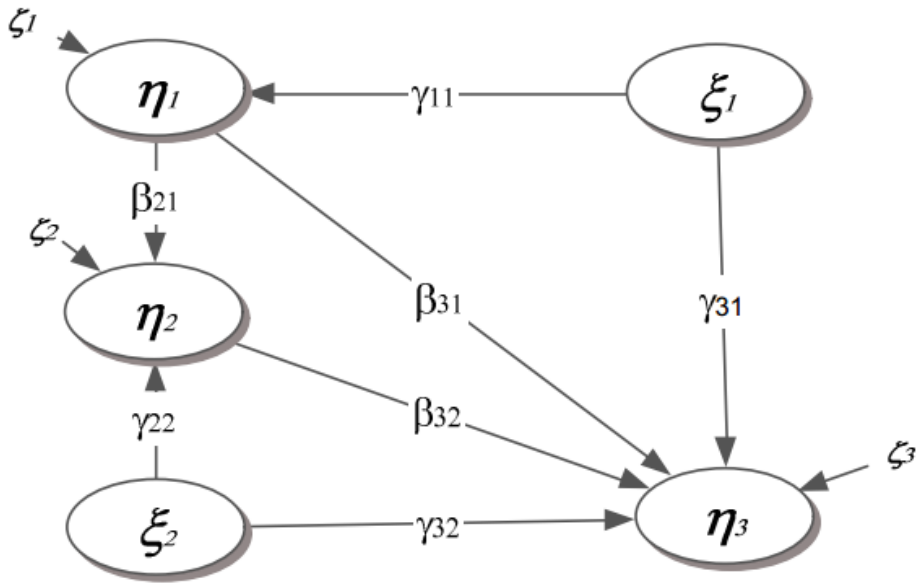


Figure 3. Equations for the structural model

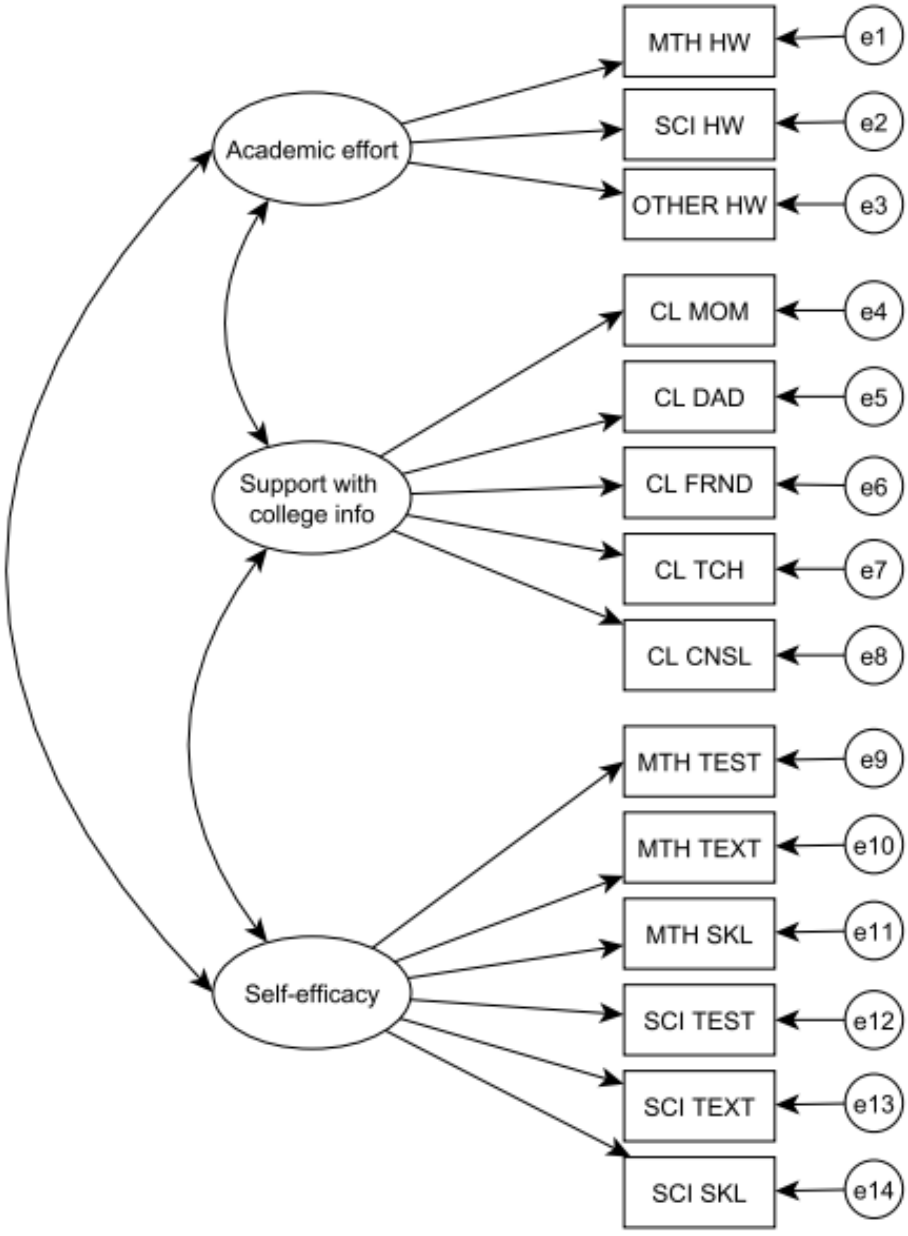
$$\eta_1 = \gamma_{11}*\xi_1 + \zeta_1$$
$$\eta_2 = \beta_{21}*\eta_1 + \gamma_{22}*\xi_2 + \zeta_2$$
$$\eta_3 = \gamma_{31}*\xi_1 + \gamma_{32}*\xi_2 + \beta_{31}*\eta_1 + \beta_{32}*\eta_2 + \zeta_3$$

To answer the research questions, a structural equation model was specified to investigate the direct and indirect effects among latent variables. Also, this study employed a two-step approach of structuring equations. With the two-step approach, a measurement and structural models are developed and tested separately (Kline, 2011).

The first step was a validation of the measurement model, which was conducted through confirmatory factor analysis (CFA). The CFA is a form of factor analysis used to assess the number of factor and the loadings of variables. The CFA emphasizes proposing a set of theoretical relationships, and then tests them against the data to confirm the existence of the hypothesized structural model. The CFA allows researchers to investigate the variance-covariance matrix implied by the model against the variance-covariance matrix of the actual data (Bollen, 1989).

For model specification, a measurement model for CFA specified the number of underlying latent constructs and observed variables indicating each latent construct. Model specification refers to the task of translating the conceptual model into a mathematical system of equations. The measurement model in this study is depicted in Figure 4.

Figure 4. Measurement model of educational aspirations



Using CFA methodology, this study attempted to test the measurement model in order to confirm the factor loadings, identify relationships between observed indicator variables and latent constructs, and evaluate the goodness of fit of the model. In the

measurement model, three latent variables (academic effort, self-efficacy, and support from significant others) and associated observed indicators were included. To generate the parameter estimates, the weighted least squares means and variance adjusted (WLSMV) estimation was employed. The WLSMV allows researchers to apply sampling weights to the analysis as well as include categorical observed indicators in the model (Asparouhov & Muthén, 2003; Kaplan, Kim, & Kim, 2009). Since this study uses a weighted data as well as observed indicators of the latent variable "Support from significant others" are categorical variables, the WLSMV estimation is the most appropriate approach for the SEM analyses. In order to evaluate a goodness of the fit of the measurement and structural models in this study, the model chi-square statistics, the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker-Lewis index (TLI) were examined.

There are two SEM models in this study, one was applied to the entire sample to evaluate a conceptual model of educational aspirations as well as to examine how Asian Americans' educational aspirations are different from those of other racial groups. And the other SEM model was applied only to the Asian American sample in order to examine if there were any differences in aspirations by Asian American ethnic subgroups in the same SEM model.

After ensuring the goodness of fit of the measurement and structural models to the data, the direct, indirect, and total effects of the structural model were examined. An independent variable in the structural equation model can have both a direct and an indirect effect on a dependent variable. An indirect effect is the mediated relationships

between two variables resulting from the transmission of successive changes through a path of multiple links (Asparouhov & Muthén, 2003). The total effect is calculated by summing the standardized direct effects and indirect effects.

LIMITATIONS

This study uses the secondary multivariate data, which was collected from survey responses. A limitation of this study is that survey data have missing information, which may prevent accurate analysis. Missing data is a problem in multivariate data because a case is excluded from the analysis if it is missing data for any variable included in the analysis. Especially for small sample size, excluded cases might affect the analytic results. At the second step of the analysis, this study used the only Asian American sample, which is less than 10% of the entire sample. In order to solve this problem, a diagnostic test was conducted to examine a pattern of missing information in the data. The most of missing information came from the dependent variable "educational aspirations" which included both system-missing and those who answered "I do not have any aspirations yet." Since this variable did not have a missing at random (MAR) pattern, the missing values of educational aspirations were excluded through a listwise deletion. For the rest of the variables, full information maximum likelihood (FIML) estimation was adopted, which allows appropriate incorporation of the cases with missing data.

This study also has another limitation. The HSLS:09 is designed as longitudinal data . However, since only the base-year data has been released at the time of study, HSLS:09 itself is a cross-sectional, which is another limitation of this study. The ultimate

goal of this study is to examine Asian American high school students' educational aspirations and how they affect their post-secondary plans. However, this study cannot examine how Asian American students' educational aspirations affect the actual post-secondary decision-making process because the decision will occur when they graduate high schools, which the HSLS:09 did not contain. For example, even for some students who have kept high educational aspirations during entire high school, there are possibilities that high aspirations would not to be transferred to their choice of post-secondary options for any reasons. This limitation can be solved by conducting future study because several follow-up surveys and data are scheduled to be released, which are administered to the same sample at their 11th grade year in 2012 (released in 2014), at their expected graduation year in 2013 (released in 2015), as well as in 2015 (released in 2016) when they would finish choosing their post-secondary path.

Another limitation of this study is that it used respondent self-reporting data, as respondents' answers were recorded at face value without being independently verified. Self-reported data sometimes reflect individuals' idealizations of themselves rather than actual realities, or a bias towards responses that are deemed to be more socially acceptable than their alternatives (Burkhauser et al, 2002). In order to solve this problem, this study tried to clean the responses by students who were not taking the survey seriously by analyzing internal consistency measures in the survey. It added validity and reliability of the results.

The last limitation of this study is that HSLS:09 was designed to examine students' academic experiences in STEM fields. Accordingly, latent constructs self-

efficacy, academic effort, and academic performance in this study were measured with math and science related questions. Students' self-efficacy and academic effort and performance on other subjects, such as English or History, were not included in this data. Therefore, interpretation about findings related these two latent should be made with extra caution.

Chapter Four: Results

This chapter presents the results of preliminary and primary analyses. The preliminary analysis provides descriptive statistics of the demographics of respondents and all observed variables. It examines means, standard deviations, and inter-correlations among the variables.

This study used a confirmatory factor analysis (CFA) in a measurement model to define and measure students' educational aspirations as a multidimensional construct. This study uses structural equation modeling (SEM) to examine the relationships among the latent variables, which are measured by individual observed indicator variables, and the other observed variables.

All statistics were drawn on weighted data including descriptive statistics in order to produce findings that can represent the target population. There are four available sampling weights in the HSLS:09—student, parents, teachers, and school weights—and this study adopted student sampling weights. In accordance with the Institute of Education Sciences (IES)' requirement on sharing findings, the unweighted sample sizes were rounded to the nearest 50.

PRELIMINARY ANALYSIS

Demographics of respondents

Table 3 displays demographic characteristics of the HSLS:09 student sample. 50.3% of the HSLS:09 student respondents are male and 49.7% are female. The

race/ethnicity breakdown is as follows: 51.8% are white, 22.2% are Hispanic, 13.5% are Black, 3.5% are Asian, and 8.7% are other race. Among Asian American subgroups, South Asian Americans are 2.1% of the total student sample, South East Asian Americans are 1.9%, Chinese Americans are 1.6%, Filipino Americans and Other Asian Americans are 1.2%, respectively.

Table 3. Descriptive characteristics of the HSLS:09 student sample

		N	%
Gender	Male	10,900	50.3
	Female	10,500	49.7
Race/ ethnicity	Asian/Pacific Islander	1,700	3.5
	Chinese	350	1.0
	Filipino	250	1.1
	South East Asian	400	1.1
	South Asian	450	.9
	Other Asian	250	1.2
	Black or African American	2,200	13.5
	Hispanic	3,550	22.2
	White	11,900	51.8
	Other race	2,100	8.7
Total		21,400	100.0

NOTE: All statistics are drawn from the weighted data; The unweighted sample sizes are rounded to the nearest 50 in accordance with the Institute of Education Sciences (IES)' requirement.

Table 4 displays a distribution of students' educational aspiration, which is a dependent variable of this study. Since two separate SEM analyses were conducted in each of the total and the Asian American samples, educational aspirations are shown separately for the total sample (N=21,400) and for the Asian sample (N=1,700) as well.

Table 4. Distribution of educational aspirations of the HSLS:09 student sample

Educational Aspiration	Total sample		Asian sample	
	N	%	N	%
High school or less	2,700	14.7	100	5.8
Complete an associate degree	1,450	7.3	100	6.7
Complete a bachelor's degree	3,500	16.1	200	13.3
Complete a master degree	4,500	20.3	300	19.2
Complete a doctorate degree	4,600	19.9	600	30.4
Do not know yet	4,600	21.7	400	24.7
Total	21,400	100.0	1,700	100.0

NOTE: All statistics are drawn from the weighted data; The unweighted sample sizes are rounded to the nearest 50 in accordance with the Institute of Education Sciences (IES)' requirement.

Overall, educational aspiration was higher in the Asian American sample than in the total sample. About 14.7% of the total students reported that they did not want to go to colleges after graduating high school, whereas only 5.8% of Asian American students did not want. The number of students who wanted to complete a bachelor's degree was a slightly higher in the total sample than in the Asian American; 16.1% and 13.3%, respectively. However, the number of students who wanted to complete a graduate degree

(either master or doctorate degrees) was higher in the Asian American sample than in the total sample: 49.6% and 40.2%, respectively. For both the Asian American and the total samples, over 20% of students reported that they did not know their educational aspirations yet. Since this study focuses on how a level of students' educational aspirations is formed, the students who did not know their educational aspirations were excluded from the SEM analyses.

Table 5 displays a statistical summary with means and standard deviation of educational aspirations by demographics for those who reported valid aspirations. Those who did not report any levels of educational aspirations were excluded.

Table 5. Means and standard deviation of educational aspirations by demographics

		N	%	Mean Aspirations	SD
Sex	Male	8,500	50.5	3.11	1.43
	Female	8,300	49.5	3.48	1.40
Race /ethnicity	Asian/Pacific Islander	1,300	3.3	3.82	1.26
	• Chinese	300	1.0	3.95	1.12
	• Filipino	200	1.0	3.34	1.34
	• South East Asian	300	1.0	3.50	1.35
	• South Asian	400	1.0	4.44	0.91
	• Other Asian	150	1.0	3.70	1.26
	Black or African American	1,800	14.2	3.36	1.53
	Hispanic	2,600	21.1	3.02	1.51
	White	9,350	52.2	3.36	1.34
	Other race	1,600	8.0	3.38	1.44
Total		16,800	100.0	3.30	1.43

NOTE: Students who did not report educational aspirations are excluded; To calculate means, educational aspirations are coded as 1=high school or less through 5=complete a doctorate degree. All statistics are drawn from the weighted data; The unweighted sample sizes are rounded to the nearest 50 in accordance with the Institute of Education Sciences (IES)' requirement.

Female students had higher educational aspirations than their male counterparts (female: M=3.48, SD=1.40, male: M=3.11, SD=1.43). Asian American students showed higher educational aspirations than any other racial groups (M=3.82, SD=1.26). It followed with other race (M=3.38, SD=1.44), white (M=3.36, SD=1.34), black (M=3.36,

SD=1.53), and Hispanic (M=3.02, SD=1.51). Out of the Asian American sample, South Asian Americans showed the highest educational aspirations (M=4.44, SD=.91), as follows Chinese Americans (M=3.95, SD=1.12), Other Asians (M=3.70, SD=1.26), South East Asian (M=3.50, SD=1.35), and Filipino (M=3.34, SD=1.34).

Descriptive statistics

After filtering invalid responses, the final dataset consisted of the total 16,300 students and the valid number of Asian American sample is 1,300. Table 6 and Table 7 show the total sample and the Asian American sample. In order to calculate means and standard deviation of the three latent variables, *support with college information, academic self-efficacy, and academic effort*, sum scores of the values of each observed item associated with a latent variable were used.

Table 6. Descriptive statistic of the variables for the total sample

Variables	Mean	S.D.	Min.	Max.	N
Educational aspiration	3.31	1.42	1.00	5.00	16,300
Support with college info.	2.31	1.36	.00	5.00	16,300
Academic self-efficacy	16.96	3.36	6.00	24.00	16,300
Academic effort	4.95	2.22	3.00	18.00	16,300
Academic performance	7.93	1.73	2.00	10.00	16,300
Parental income	4.23	2.85	1.00	13.00	16,300
Gender (female)	.50	.50	.00	1.00	16,300
White	.51	.52	.00	1.00	16,300
Black	.14	.14	.00	1.00	16,300
Hispanic	.22	.22	.00	1.00	16,300
Asian	.04	.08	.00	1.00	16,300
Other race	.08	.04	.00	1.00	1,300
Chinese Asian	.02	.01	.00	1.00	1,300
Filipino Asian	.01	.50	.00	1.00	1,300
Southeast Asian	.02	.52	.00	1.00	1,300
South Asian	.02	.14	.00	1.00	1,300
Other Asian	.01	.22	.00	1.00	1,300

NOTE: All statistics are drawn from the weighted data; The unweighted sample sizes are rounded to the nearest 50 in accordance with the Institute of Education Sciences (IES)' requirement.

Table 7. Descriptive statistics of the variables for the Asian American sample

Variables	Mean	S.D.	Min.	Max.	N
Educational aspiration	3.81	1.27	1.00	5.00	1,200
Support with college information	2.42	1.32	.00	5.00	1,200
Academic self-efficacy	17.82	3.25	6.00	24.00	1,200
Academic effort	5.85	2.85	3.00	18.00	1,200
Academic performance	8.67	1.63	2.00	10.00	1,200
Parental income	5.13	3.26	1.00	13.00	1,200
Gender (female)	.49	.50	.00	1.00	1,200
Chinese Asian	0.23	0.42	.00	1.00	1,200
Filipino Asian	0.14	0.34	.00	1.00	1,200
Southeast Asian	0.27	0.44	.00	1.00	1,200
South Asian	0.23	0.42	.00	1.00	1,200
Other Asian	0.14	0.34	.00	1.00	1,200

NOTE: All statistics are drawn from the weighted data; The unweighted sample sizes are rounded to the nearest 50 in accordance with the Institute of Education Sciences (IES)' requirement.

The Asian American sample showed lager mean values on all of the variables of interest in this study. Asian Americans' educational aspirations were higher than those of the total (Asian: M=3.81, SD=1.27, total: M=3.31, SD=1.44). The mean of academic self-efficacy was higher for Asian American students compared to that of the total students (Asian: M=17.82.81, SD=3.25, total: M=16.96, SD=3.36). In addition, Asian Americans put more amount of academic effort compared to the total students (Asian: M=5.85, SD=2.85, total: M=4.95, SD=2.22). Similar to academic effort, Asian American

students showed higher academic performance than the total students (Asian: M=8.67, SD=1.63, total: M=7.93, SD=1.83). The mean of support with college info from significant others was higher for Asian Americans than that of the total student sample (Asian: M=2.42, SD=1.21, total: M=2.31, SD=1.36).

Correlations among research variables

Table 8 shows correlations along with means and standard deviations for all variables and Chronbach's alpha statistics for latent variables. In order to examine correlations of latent variables, the standardized factor scores with a mean of 0 and standard deviation of 1 were used. Also, since race/ethnicity categories were exclusive each other, correlations among racial groups were not listed in this table. Pearson' correlation coefficients were calculated to test the degree of linear association among the variables as well as to examine multicollinearity among latent variables. Kline (2011) suggests that any correlation coefficients *r* exceeding .80 indicate a multicollinearity, which means that those variables may be redundant. The correlation matrix in Table 8 suggests that there was no redundant variable in the hypothesized model.

Table 8. Summary of descriptive statistics and bivariate correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Aspirations	-						
(2) Support	.28	-					
(3) Self-efficacy	.29	.19	-				
(4) Acd. effort	.17	.16	.10	-			
(5) Acd. performance	.20	.14	.19	.08	-		
(6) Income	.23	.11	.10	.10	.15	-	
(7) Gender (female)	.13	.12	-.13	.06	.07	-.01	-
(8) White	.04	.02	.02	-.04	.11	.29	-.02
(9) Black	.02	-.01	.03	.01	-.07	-.18	.03
(10) Hispanic	-.11	-.04	-.07	-.01	-.09	-.22	-.01
(11) Asian	.07	.01	.05	.08	.04	.06	(.00)
(12) Other race	.02	.04	.01	.01	-.02	-.03	.00
(13) Chinese Asian	.08	.00	.06	-.07	.06	.15	.07
(14) Filipino Asian	-.01	.03	.02	-.01	.01	.03	.01
(15) Southeast Asian	-.02	(.00)	.03	-.02	.04	-.04	-.02
(16) South Asian	.16	.01	.07	.16	.08	.07	.04
(17) Other Asian	.03	(.00)	.00	(.00)	.04	.06	.02
Mean	3.31	.00	.00	.00	7.93	4.23	.50
S.D.	1.42	1.00	1.00	1.00	1.73	2.85	.50
Chronbach's alpha	-	.61	.83	.79	-	-	-

NOTE: All statistics are drawn from the weighted data; The unweighted sample sizes are rounded to the nearest 50 in accordance with the Institute of Education Sciences (IES)' requirement; $p<.01$ for all correlation coefficients, except for four correlations in parentheses.

Since most of Pearson's correlation coefficients were statistically significant at 1% error level, variables were significantly correlated with other variables, except for four relationships between Asian and gender (r=.00, p>.05), between Southeast Asian and support with college information (r=.00, p>.05), between other Asian and support with college information (r=.00, p>.05), and between other Asian and academic effort (r=.00, p>.05). These insignificant correlations were in parentheses in Table 8. There were mostly moderate relationships with a correlation coefficient below .05. The strongest relationships among dependent and independent variables were one between aspiration and self-efficacy (r=.29, p<.01), followed by one between aspiration and support with college information (r=.28, p<.01), one between aspiration and academic performance (r=.20, p<.01), and one between aspiration and academic effort (r=.17, p<.01). Since these relationships were all positive, it suggests that students who received more support with college information from significant others, had higher self-efficacy, showed higher academic performance, and put more academic efforts, are likely to have a higher level of educational aspirations.

STRUCTURAL EQUATION MODELING

Measurement Model

A validation of the measurement model in this study was conducted with confirmatory factor analysis (CFA). The CFA analyzed a measurement model underlying a full structural equation model (SEM). It is generally used as a preliminary test of hypotheses when researchers have some knowledge of the underlying latent variable structure and factor relationships. Although CFA was not the ultimate analysis in this study, a viable measurement model needed to be established prior to evaluating the structural relationships among the latent variables (Brown, 2006). Using CFA, a researcher is able to determine whether the pattern of variance and covariance in the real data is consistent with a hypothesized model (Kline, 2005). After the measurement model shows an acceptable goodness of fit, the structural model can be tested.

This study hypothesized that there were three factors to be confirmed in the measurement model, *support with college information from significant others, academic self-efficacy, and academic effort*. The measurement model is depicted in Figure 4.

Using the CFA approach, this study examined the factor loadings to each latent variable and identifies relationships between observed indicator variables and latent variables, and evaluated the goodness of fit of the measurement model. To implement the CFA, this study adopted the weighted least squares means and variance adjusted (WLSMV) estimation using Mplus 6.1. The WLSMV allows researchers to apply sampling weights to the analysis as well as include categorical observed indicators in the

model (Asparouhov & Muthén, 2003; Kaplan, et al., 2009). Since this study used a weighted data as well as observed indicators of the latent variable support with college information from significant others were categorical variables, the WLSMV estimation was the most appropriate approach for the SEM analyses.

The model fit indices examined how well a model fitted the data. The indicators of goodness of fit typically measure the difference between observed values and expected values of a model. The fit of the hypothesized model was evaluated by using four indices, the model chi-square (χ^2), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker-Lewis index (TLI). Table 9 displays the summary of the model fit indicators.

The model chi-square tests the null hypothesis that the hypothesized model fits the analyzed covariance matrix perfectly. If the chi-square equals zero with a p-value is larger than .05, the model perfectly fits the data, which means that the predicted correlations and covariance equal their observed counterparts (Kline, 2011). In this study, the chi-square for the CFA measurement model was 801.45 with 70 degrees of freedom, and it was statistically significant (χ^2=801.45, df=70, p<.01). The measurement model, therefore, rejected the null hypothesis at the 5% error level. This suggests that the measurement model did not fit the data based on the chi-square model fit index.

Table 9. Summary of fit indicators: the measurement model

Models	χ^2	df	*p*	CFI	TLI	RMSEA
Measurement model	801.447	70	.000	.971	.960	.050
Cutoff criteria for good model fit	Small χ^2 with $p > .05$			>.90	>.90	<.05

NOTE: All statistics are drawn from the weighted data.

However, there are some problems with relying on the model chi-square as the only model fit index (Brown, 2006; Kline, 2005). The hypothesis tested by the model chi-square is likely to be implausible because the model chi-square is sensitive to the sample size. The larger sample sizes generally lead to higher values of chi-square, and reject the model even when differences between observed and predicted covariance are slight. Problems with the model chi-square index can be solved with using other supplemental model fit statistics such as RMSEA, CFI, and TLI. Brown (2006) categorizes these fit indices into absolute fit, parsimony correction, and comparative fit, and advises researchers to consider and report at least one index from each category when evaluating the fit of models.

The root mean square error of approximation (RMSEA) assesses the extent to which a model fits reasonably well in the population as opposed to testing whether the model holds exactly in the population. The RMSEA is sensitive to the number of model parameters but is relatively insensitive to a sample size than a model chi-square. The RMSEA value of 0 indicates a perfect fit, and RMSEA values less than .05 suggest a good model fit. Models with RMSEA values over .10 should be rejected. In this study, the RMSEA value of the measurement model is .05, and it is not statistically significant

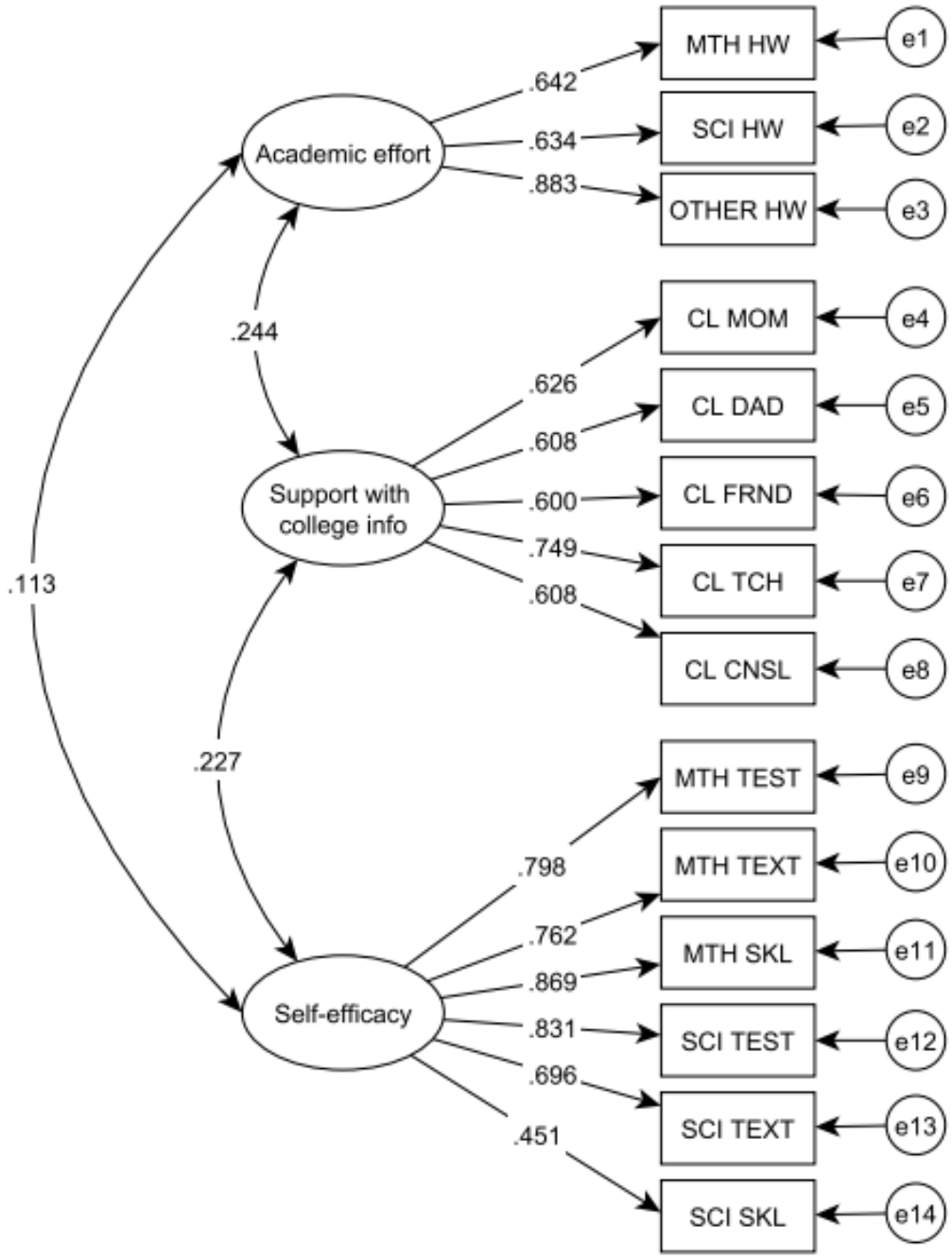
(RMSEA=.05, *p*>.05). The RMSEA statistics with non-significant probability are considered as an acceptable model fit. Therefore, with RMSEA, the measurement model fits the observed data well.

The comparative fit index (CFI) has a range of possible values from 0 to 1 and the Tucker-Lewis index (TLI) can fall outside the range of 0 to 1. In the CFI and TLI, values close to 1 suggest a good model fit and values below .90 suggest that researchers need to reconsider their solution (Brown, 2006). In the measurement model in this study, the CFI value was .97 and the TLI value was .96, which suggested that this measurement model had a good model fit to process the structural model.

According to the model fit indices discussed above, the measurement model fits the observed data well. Although the model chi-square suggested that the model estimates do not sufficiently reproduce the sample variances and covariance, this may be caused with a large sample size in this study. All other indices including RMSEA, CFI, and TLI indicated a good model fit. Therefore, a post-hoc model modification is not conducted for the measurement model because of the good model fit.

Figures 5 shows unstandardized coefficients for the measurement model. All of the loadings of the measured variables on the latent variables are statistically significant at the 1% error level ($p < .01$). This suggests that the observed variables serve as reliable indicators of the three latent variables, *support with college information, academic self-efficacy, and academic effort*.

Figure 5. Coefficients of the measurement model of educational aspirations



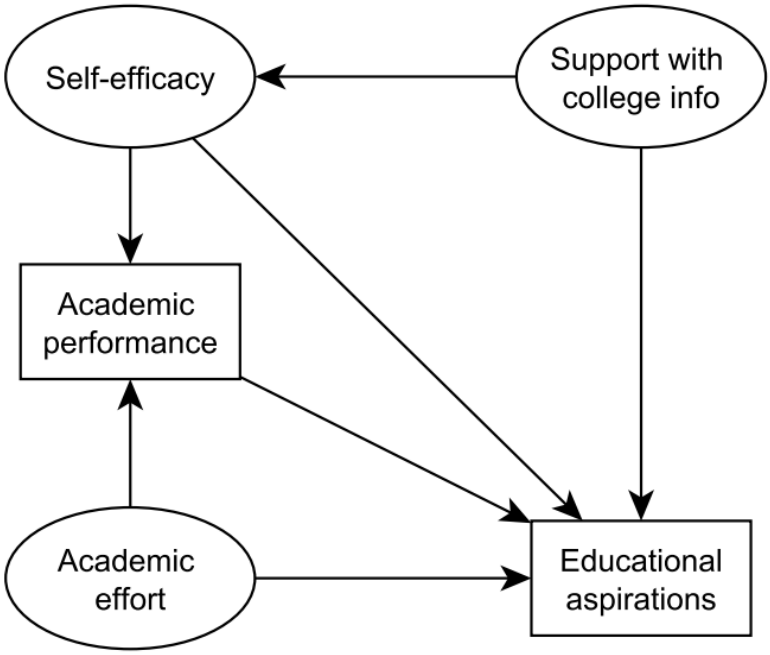
NOTE: All statistics are drawn from the weighted data.

Structural Model

After confirming that the measurement model with three latent variables—support with college choice from significant others, academic self-efficacy, and academic effort—adequately fitted to data, a structural model was examined to understand relationships between the latent variables and observed variables such as academic performance and student aspirations. The structural model specifies the direct and indirect relationships among latent and observed variables and describes the amount of unexplained and explained variance (Kline, 2011). The structural models were examined using Mplus 6.1 and their parameter estimates were generated by adopting the weighted least squares means and variance adjusted (WLSMV) estimation. The WLSMV allows researchers to apply sampling weights to the analysis as well as include categorical observed indicators in the model (Asparouhov & Muthén, 2003; Kaplan, et al., 2009).

Figure 6 displays a structural model on educational aspirations and each endogenous and exogenous variable was controlled by gender, race, and parental income. This structural model was tested with two separate samples, the total and the Asian American samples.

Figure 6. Hypothesized structural model on educational aspirations



Structural model to the entire sample

The structural model was examined if it fitted to the total sample. In order to evaluate the model fit, this study adopted the model chi-square, RMSEA, CFI, and TLI as model fit indices. Table 10 displays the summary of the model fit indicators. The chi-square for the structural model with the total sample was 1661.54 with 140 degrees of freedom, and it was statistically significant (χ^2=1661.54, df=140, p<.01). The structural model, therefore, rejected the null hypothesis at the 5% error level and it suggested that this model did not fit the data of the total sample. However, the model chi-square is sensitive to the sample size so that the larger sample sizes generally lead to higher values of chi-square, and rejects the model even when differences between observed and

predicted covariance are slight (Brown, 2006; Kline, 2005). Since the size of the total sample in this study is large (N=16,300), other model fit indices should be considered. The RMSEA should be close to zero and not statistically significant if it has a good model fit. The RMSEA value in the structural model with the total sample was .03 and it was not statistically significant (RMSEA=.03, p>.05). It suggested that the structural model fitted the observed data of the total sample well. For the CFI and TLI indices, values above .90 indicate a well-fitting model. In this case, the CFI value was .95 and the TLI value was .93 and both values suggests that the structural model fits data of the total sample well. This study did not conduct post-hoc modifications for this structural model because of the good fit of the hypothesized model to the data.

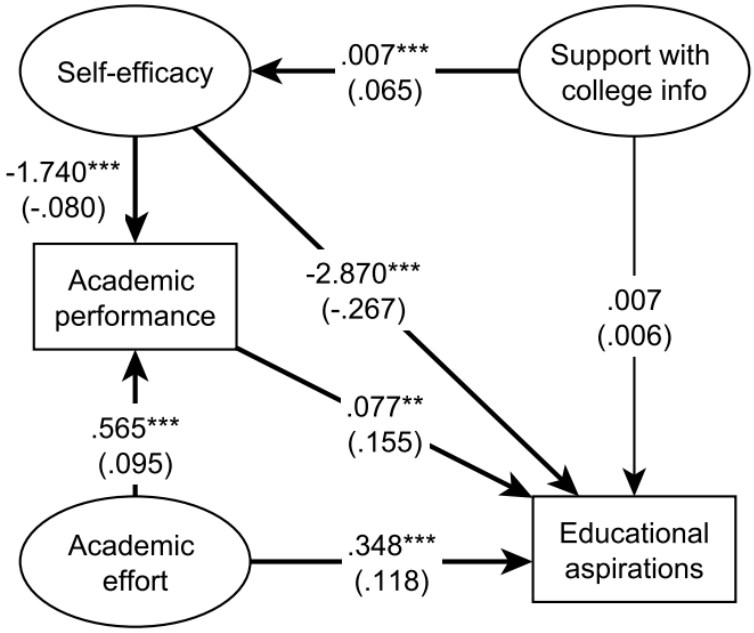
Table 10. Summary of fit indicators: the structural model to the entire sample

Models	χ^2	df	p	CFI	TLI	RMSEA
Hypothesized structural model: total sample	1661.554	140	.000	.953	.934	.027
Cutoff criteria for good model fit	Small χ^2 with p >.05			>.90	>.90	<.05

NOTE: All statistics are drawn from the weighted data.

Figures 7 shows unstandardized and standardized coefficients for the structural model applied to the entire sample. The standardized coefficients are in parentheses and useful to compare the magnitude of coefficients, especially when variables are measured by a different scale.

Figure 7. Hypothesized structural model on educational aspirations to the entire sample



NOTE: All statistics are drawn from the weighted data;
standardized coefficients are in parentheses; $^{***}p<.001$, $^{**}p< .01$, $^{*}p<.05$

Examining effects among research variables: the entire sample

Since the structural model to the total sample obtained an acceptable model fit, now the relationships among latent and observed variables can be examined. The structural model hypothesized that educational aspirations would be associated with support with college information from significant others, academic self-efficacy, academic performance and academic effort. As Figure 7 displays, the results demonstrated that these variables were significantly associated with educational aspirations, except for support with college information from significant others.

Specifically, both academic performance and academic effort are positively associated with educational aspirations (b=.077, t=10.608, p<.001 and b=.348, t=8.064, p<.001, respectively). Students who received better grades on math and science and those who spent more hours on homework were more likely to have higher educational aspirations. On the other hand, academic self-efficacy was negatively associated with educational aspirations (b=-2.870, t=-10.296, p<.001). Students who were confident with their success on math and science courses, understanding math and science textbooks, and mastery of skills taught in the math and science courses were more likely to report a lower level of educational aspirations. Similarly, academic self-efficacy had also a negative relationship with academic performance (b=-1.740, t=-5.591, p<.001), which is positively related with educational aspirations (b=.077, t=10.607, p<.01). These relationships are more specifically examined with decomposing direct and indirect effects as shown in Table 11.

Table 11. Effect decomposition of the structural model to the entire sample

Predictor	Direct effect	Indirect effect	Total effect
Self-efficacy	-2.870*** (SE=.263)	Total: -.134*** (SE=.026) *via performance*	-3.004*** (SE=.026)
Academic efforts	.348*** (SE =.043)	Total: .043*** (SE=.008) *via performance*	.391*** (SE=.044)
Support from sig. others	.007 (SE=.006)	Total: -.020*** (SE=.003) Indirect effect decomposition: -.019*** (SE=.003) *via efficacy* -.001*** (SE=.000) *via efficacy & performance*	-.013* (SE=.007)
Gender	.365*** (SE=.040)	Total: -.092*** (SE=.013) Indirect effect decomposition: .030*** (SE=.006) *via effort* -.113*** (SE=.011) *via efficacy* -.005*** (SE=.001) *via efficacy & performance*	.273*** (SE=.039)

Table 11 (Continued)

Income	.164***	Total: .094*** (SE =.010)	.258***
	(SE=.016)		(SE=.014)
		Indirect effect decomposition:	
		.012*** (SE=.002) *via performance*	
		.020*** (SE=.003) *via effort*	
		.002*** (SE=.000) *via effort & performance*	
		.003*** (SE=.001) *via efficacy & performance*	
R^2		.205	

NOTE: All statistics are drawn from the weighted data; Standard errors are in parentheses; $^{***}p<.001$, $^{**}p< .01$, $^{*}p<.05$

Table 11 shows the total (sum of direct and indirect effects), direct, and indirect effects as well as R^2 of the structural model on educational aspiration. The significant effects of independent or control variables on educational aspiration are listed in Table 11. The R^2 represents the proportion of variance that is explained by the structural model (Bryne, 2010). According to the findings, 20.5% of the variance in educational aspiration is explained by this structural model which was applied to the entire sample. Table 12 shows the significant effects of control variables on educational aspiration.

There were three independent variables and two control variables which had significant indirect effects on educational aspiration. Out of independent variables, academic self-efficacy showed not only a negative direct effect on educational aspiration as shown in Figure 7 but also a negative indirect effect through academic performance ($b=-.134$, $t=-5.106$, $p<.01$). Students who have a higher self-efficacy are likely to have a lower aspiration, and this negative relationship will be accelerated if they showed a higher academic performance. Next, academic effort showed a positive indirect effect on educational aspiration ($b=.043$, $t=5.629$, $b<.001$) in addition to its positive and direct effect. Although support with college information from significant others did not have a significant direct effect on aspiration, it showed a negative significant indirect effect through efficacy ($b=-.019$, $t=-5.863$, $b<.001$) as well as a two-step negative indirect effect via efficacy and performance ($b=-.001$, $t=-3.903$, $b<.001$).

By examining direct effects of control variables on research variables as shown in Table 12, gender showed significant direct effects on most of variables except for academic performance. Female students were more likely to have a higher educational

aspiration (b=.365, t=9.186, b<.001), higher self-efficacy (b=.039, t=9.000, b<.001), more academic effort (b=.087, t=6.633, b<.001), and more support from significant others (b=.016, t=2.345, b<.05) than their male counterparts. Students from higher income households were more likely to have a higher educational aspiration (b=.164, t=10.399, b<.001), show a higher academic performance (b=.160, t=5.992, b<.001), put more academic effort (b=.057, t=10.791, b<.001), receive more support from significant others about college information (b=1.143, t=84.077, b<.001), but have a lower academic self-efficacy (b=-.025, t=-9.906, b<.001).

By examining effects of race variables, Hispanic students tended to have a lower aspiration (b=-.120, t=-2.241, b<.05), whereas Asian American students tended to have a higher aspiration than their white counterparts (b=.302, t=3.260, b<.05). In addition, there were racial discrepancies in academic self-efficacy. Black and Asian students showed a lower academic self-efficacy (b=-.014, t=-1.985, b<.05 and b=-.033, t=-4.316, b<.001, respectively) whereas Hispanic students showed a higher academic self-efficacy than their white counterparts (b=.020, t=4.467, b<.001). Moreover, black students tended to receive more support with college information from significant others but Asian students receive less support than their white counterpart (b=.027, t=2.049, b<.05 and b=-.060, t=-3.379, b<.01, respectively). Lastly, Asian American students tended to put more academic effort than their white counterparts (b=.231, t=7.460, b<.001).

Out of control variables, gender shows a significant indirect effect on aspiration through academic effort, self-efficacy, and academic performance. Female students have a higher educational aspirations than their male counterpart according to its direct effect

(b=.365, t=9.186, p<.001), but female's positive relationship with aspirations is weaken if they show a higher academic self-efficacy on math and science. Parental income showed a positive indirect effect on aspiration (b=.094, t=9.848, p<.001), which means that a positive relationship between parental income and aspiration is supposed to be accelerated for those who show a high academic performance, effort, and self-efficacy.

Table 12. Effects of control variables on educational aspirations: the entire sample

Control variables	Gender	Income	Black	Hispanic	Asian	Other
Endogenous variables						
Educational aspiration						
b	.365***	.164***	-	-.120*	.302**	-
SE	.040	.016	-	.054	.093.	-
B	.132	.162	-	-.035	.041	-
Self-efficacy						
b	.039***	-.025***	-.014*	.020***	-.033***	-
SE	.004	.003	.007	.004	.008	-
B	.153	-.264	-.033	.064	-.048	-
Academic performance						
b	-	.160***	-	-	-	-
SE	-	.027	-	-	-	-
B	-	.078	-	-	-	-
Exogenous variables						
Academic effort						
b	.087***	.057***	-	-	.231***	-
SE	.013	.005	-	-	.031	-
B	.093	.165	-	-	.092	-
Support from sig. others						
b	.016*	1.143***	.027*	-	-.060**	-
SE	.007	.014	.013	-	.018	-
B	.007	.919	.007	-	-.048	-

NOTE: All statistics are drawn from the weighted data; $^{***}p<.001$, $^{**}p< .01$, $^{*}p<.05$

Structural Model to the Asian American sample

The structural model was examined if it fitted to the Asian American sample (N=1,300). Table 13 displays the summary of the model fit indicators.

Table 13. Summary of fit indicators: the structural model to the entire sample

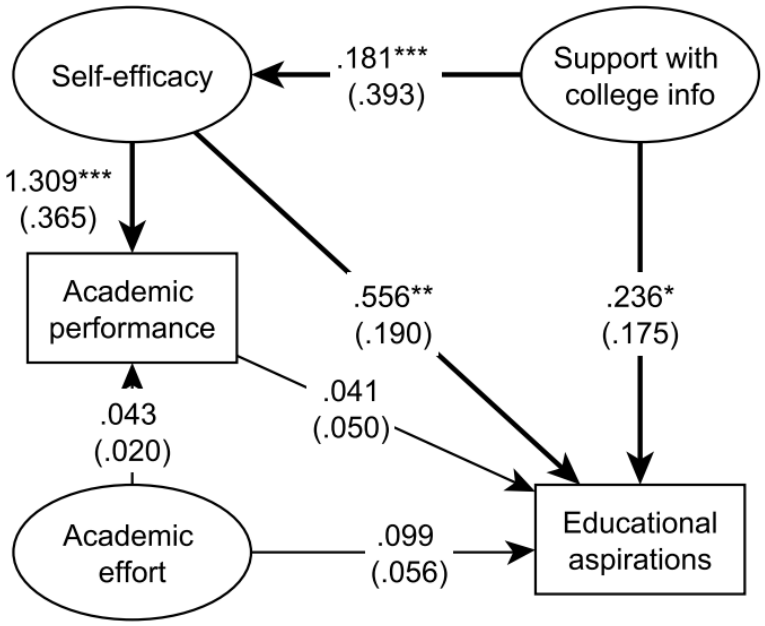
Models	χ^2	df	*p*	CFI	TLI	RMSEA
Hypothesized structural model: Asian sample	201.691	160	.007	.947	.926	.015
Cutoff criteria for good model fit	Small χ^2 with $p > .05$			>.90	>.90	<.05

NOTE: All statistics are drawn from the weighted data.

The chi-square for the structural model with the Asian sample is 201.69 with 160 degrees of freedom, and it was statistically significant (χ^2=201.69, df=160, p<.01). The structural model, therefore, rejected the null hypothesis at the 5% error level and it suggested that this model did not fit the data of the total sample. However, the model chi-square is sensitive to the sample size so that the larger sample sizes generally lead to higher values of chi-square, and rejects the model even when differences between observed and predicted covariance are slight (Brown, 2006; Kline, 2005). Since the size of the total sample in this study was relatively large (N=1,300), other model fit indices should be considered. The RMSEA value in the structural model with the Asian American sample was .02 and it was not statistically significant (RMSEA=.02, p>.05), which suggests a good model fit. The CFI value was .95 and the TLI value was .93 and both values suggests that the structural model fits data of the Asian American sample

well. Since the model obtained a goodness of fit, post-hoc modifications for the structural model with Asian American sample were not conducted. Figures 8 shows unstandardized and standardized coefficients for the structural model to the total sample. The standardized coefficients are in parentheses.

Figure 8. Hypothesized structural model on educational aspirations to the Asian sample



NOTE: All statistics are drawn from the weighted data;
standardized coefficients are in parentheses; $^{***}p<.001$, $^{**}p< .01$, $^{*}p<.05$

Examining effects among research variables: the Asian sample

Since the structural model to the Asian American sample obtained an acceptable model fit based on multiple fit indicators, the relationships among latent and observed variables could be examined. The model hypothesized that Asian American students'

educational aspirations were associated with support with college information from significant others, academic self-efficacy, academic performance and academic effort. As Figure 8 displays, the results demonstrated that the independent variables were significantly associated with educational aspirations, except for the relationships among academic performance, academic effort, and educational aspirations. Specifically, both academic self-efficacy and support with college information from significant others were positively associated with educational aspirations (b=.556, t=2.279, p<.01 and b=.236 t=2.192, p<.05, respectively). Asian American students who have a higher academic self-efficacy and receive more support with college information from significant others are more likely to have higher educational aspirations. On the other hand, academic performance and academic effort did not show any significant direct effect on Asian American students' educational aspiration. These relationships are examined more specifically with decomposing direct and indirect effects as shown in Table 14.

Table 14. Effect decomposition of the structural model to the Asian sample

Predictor	Direct effect	Indirect effect	Total effect
Support from sig. others	.236* (SE=.263)	Total: .110** (SE=.263) *via Efficacy*	.346** (SE=.263)
Income	.059** (SE=.263)	Total: .010* (SE=.263) *via Efficacy*	.069** (SE=.263)
R^2		.239	

NOTE: All statistics are drawn from the weighted data; standard errors are in parentheses; $^{***}p<.001$, $^{**}p< .01$, $^{*}p<.05$

Table 14 shows the total (sum of direct and indirect effects), direct, and indirect effects as well as R^2 of the structural model on Asian American students' educational aspiration. There are only two variables that showed statistically significant indirect effects on educational aspiration, and they are listed in Table 14. The R^2 represents the proportion of variance that is explained by the structural model (Bryne, 2010). According to the findings, 23.9% of the variance in Asian American students' educational aspiration was explained by this structural model which was applied to the Asian sample. Table 15 shows the significant effects of control variables on Asian American students' educational aspiration.

There are one independent variable and one control variable which had significant indirect effects on Asian Americans' educational aspiration as shown in Table 14. Support with college information from significant others has an indirect effect on educational aspirations through academic self-efficacy (b=.110, t=2.648, p<.01). The positive direct relationship between support from significant others and educational aspiration as shown in Figure 8 would be accelerated when these Asian American students have a high academic self-efficacy.

By examining direct effects of control variables on research variables, gender showed significant direct effects on self-efficacy, academic performance, and academic effort as shown in Table 15. Female Asian American students were more likely to show a higher academic performance (b=.536, t=3.128, p<.01), and put more academic effort (b=.256, t=2.895, p<.01), but have a lower academic self-efficacy (b=-.178, t=-3.341, p<.01), than their Asian male counterparts. Asian American students from higher income

households were more likely to have a higher educational aspiration (b=.059, t=2.908, b<.01) and show a higher academic performance (b=.066, t=2.295, *p*<.05).

By examining effects of the Asian American subgroups on educational aspiration, Chinese, Southeast, South, and other Asians tended to have a higher educational aspirations than Filipino Asians (b=.386, t=1.980, *p*<.05; b=.295, t=1.901, *p*<.05; b=1.029, t=5.560, *p*<.001; b=.331, t=2.117, *p*<.05, respectively). South Asian students showed a significantly higher academic self-efficacy (b=.171, t=1.967, *p*<.05) and received less support with college information from significant others (b=-.451, t=-2.408, *p*<.05) compared to their white counterparts.

Out of control variables, as shown in Table 14, parental income showed a positive indirect effect on Asian American students' aspirations (b=.010, t=1.987, *p*<.05) through self-efficacy, which means that a positive relationship between parental income and Asian American students' aspiration is accelerated for those who show a high academic self-efficacy.

Table 15. Effects of control variables on educational aspirations: the Asian sample

	Gender	Income	Chinese	Southeast	South	Other
Endogenous variables						
Educational aspiration						
b	-	.059**	.386*	.295*	1.029***	.331*
SE	-	.020	.216	.160	.185	.165
B	-	.150	.130	.088	.352	.115
Self-efficacy						
b	-.178**	-	-	-	.171*	-
SE	.053	-	-	-	.087	-
B	-.217	-	-	-	.171	-
Academic performance						
b	.536**	.066*	-	-	-	-
SE	.171	.029	-	-	-	-
B	.182	.138	-	-	-	-
Exogenous variables						
Academic effort						
b	.256**	-	-	-	-	-
SE	.092	-	-	-	-	-
B	.196	-	-	-	-	-
Support from sig. others						
b	-	-	-	-	-.451*	-
SE	-	-	-	-	.220	-
B	-	-	-	-	-.207	-

NOTE: All statistics are drawn from the weighted data; $^{***}p<.001$, $^{**}p< .01$, $^{*}p<.05$

Chapter Five: Findings, Implications, and Conclusions

The purpose of this study was to examine factors affecting the formation of Asian American high school students' educational aspirations by analyzing the HSLS:09 data with a structural equation modeling. The structural model on educational aspiration was developed based on theoretical framework. The model consists of four research variables, academic self-efficacy, academic effort, academic performance, and support with college information from significant others. This chapter provides the current study's conclusions and implications based on the findings presented in chapter 4. This chapter contains a summary of the study, a discussion of findings, conclusions, and implications of the study's findings.

SUMMARY OF STUDY

This study was designed to understand Asian American high school students' educational aspirations. This study examined how their educational aspirations are different from other racial groups as well as uncovers differences among Asian American subgroups. This study was drawn to question the validity of the model minority myth in education, which describes the perception that Asian Americans as a group are expected to achieve educational success because of their hard work and patience and they should serve as an example that other minority groups should follow (Li & Wang, 2008). Because of the myth, Asian American students have been easily assumed to achieve academic success and overlooked in educational studies compared to other racial monitory groups (Kao, 1995; Teranishi, 2002). However, more research on Asian

American students is still needed because of the three reasons. First, Asian Americans have been the second fastest growing ethnic population in America followed after Hispanics in terms of percentage increases since the 1980's (Lee & Hall, 1994; U.S. Census Bureau, 2011). Second, although Asian Americans have demonstrated some academic success in terms of academic achievement or higher education enrollment rate, those from low-income families show different educational outcomes at the same time (Anderson, 2003). The previous research has shown that academic success is not guaranteed for every Asian American student and they rather need to overcome additional barriers for academic success, such as a lack of language proficiency, acculturation, and/or enculturation (Kao, 1995; Teranishi, 2002). Third, more recent findings confirm that Asian American students cannot be aggregated as a model minority because there is a huge discrepancy in students' family income, social and cultural capital, and academic achievement among Asian American ethnic subgroups (Teranishi, 2002; Teranishi et al., 2004). Accordingly, educational experiences of the rapidly growing Asian American student population need to be examined more closely in order to evaluate the validity of the model minority myth, especially focusing on differences in ethnic subgroups.

Based on this research background, this study explores how Asian Americans' educational experiences are different from other racial groups as well as uncovers differences among Asian American subgroups by examining educational aspirations as a measure of educational experience. Educational aspiration refers to students' desire to achieve high levels of education (Hanson, 1994; Kao & Tienda, 1998), and it has a

notable impact on their subsequent educational attainment, such as high school graduation, college enrollment, and college degree completion (Mickelson, 1990).

This study developed a conceptual framework of the formation of educational aspiration based on theoretical and empirical explanations. First, examining the status attainment model, students' educational aspirations have been significantly predicted by their family background and socio-economic status (SES) (Owens, 1992; Rojewski & Kim, 2003; Rojewski & Yang, 1997; St-Hilaire, 2002; Trusty, 1998). According to the status attainment model, SES, which is indicated by parents' educational achievement and occupational status, affects children's academic and occupational attainment. Second, drawn from the framework of social cognitive learning theory (SCT), students' self-efficacy and support that is received from significant others has been also a predictor of educational aspirations. The SCT argued that SES itself did not directly affect students' educational aspirations but cultural expectations and stereotypes that were related to socio-economic class did, which influenced students' feelings of self-efficacy. Self-efficacy is a personal judgment of one's capabilities to attain goals (Bandura, 1989) and it would eventually affect their aspirations (Lent et al., 1996). Third, students' previous school experiences affect their educational aspirations. The most important preconditions of college attendance are receiving the academic skills necessary to meet college qualifications and graduating from high school (Adelman, 2006; Swail et al., 2003). Especially, the effects of school-related factors on educational aspirations are more important than family or friends' influence for racial minority and low-SES students (Way & Robinson, 2003).

Based on reviewing theoretical and empirical findings on educational aspirations, this study developed a hypothesized model on the formation of aspiration as shown in Figure 1. Among factors affecting educational aspirations that were derived from the literature review, students' academic effort and performance, students' perceived academic self-efficacy, and support received from students' significant others were hypothesized to have direct effects on students' educational aspirations. In addition, students' perceived self-efficacy and academic effort were hypothesized to have indirect effects on students' educational aspirations through students' academic performance. Students' demographic and socio-economic characteristics were controlled to examine if they had any direct and indirect effects on educational aspirations.

In order to test the validity of the hypothesized model on educational aspiration, this study adopted structural education modeling (SEM) to analyze the HSLS:09. In the analysis, the model fit of the measurement model was examined first in order to confirm the validity of latent constructs, academic effort, support from significant others, self-efficacy, and the structural model was tested to the total sample and the Asian American sample separately in order to understand how Asian American students' educational aspirations are different from the other racial groups as well as among Asian American subgroups. As a result, the hypothesized model was confirmed because of its adequate model fit. In addition, this study found that Asian American students' educational aspirations were different from those of other racial groups as well as there were differences in aspirations among Asian American ethnic subgroups.

The findings of this study help to understand how high school students' educational aspirations are formed in general by examining the SEM model on educational aspirations, which was applied to the entire sample. In addition, by examining discrepancies in Asian American students' educational aspirations by their ethnic subgroups, the findings help to fill the gap in the literature about debunking the model minority myth towards Asian American students. Specifically, this study argues that Asian American students are a heterogeneous group by their ethnic subgroups in terms of their educational aspirations.

DISCUSSION OF FINDINGS

The research questions of this study were: RQ #1) Are educational aspirations affected by students' academic effort, academic performance, perceived academic self-efficacy, support with college information from significant others, and students' demographic and socio-economic characteristics? RQ #2) Do students' academic effort, perceived academic self-efficacy, support with college information from significant others, and students' demographic and socio-economic characteristics mediate the effects of each factor on educational aspirations? RQ #3) Are Asian American high school students' educational aspirations different from those of other racial groups? RQ #4) Do the estimates of factors affecting educational aspirations are affected by Asian American ethnic subgroups? And each research question was specified by the following research hypotheses in the SEM analysis:

H1. The conceptual framework based on the literature is validated by the data.

H1 - (a). Students' educational aspirations are affected by students' demographic and socio-economic characteristics.

H1 - (b). Students' educational aspirations would be affected by their current academic efforts and performance at school.

H1 - (c). Students' educational aspirations are affected by their perceived academic self-efficacy.

H1 - (d). Students' educational aspirations are affected by support received from significant others, such as parents, teachers, school counselors, and peers.

H1– (e). Students' demographic and socio-economic characteristics, support from significant others and academic self-efficacy mediate the effects of current academic performance on students' educational aspirations.

H2. Asian American students' educational aspirations are different from those of other racial groups of students.

H3. There is heterogeneity in students' educational aspirations by Asian American subgroups.

H3 - (a). The conceptual model of educational aspiration based on the literature is also validated by the Asian American sample data.

H3 - (b). The level of Asian American students' educational aspirations is different by their ethnic subgroups when controlling for other variables.

The empirical evidences found in this study provide discussions on research questions and hypotheses.

Validity of the hypothesized model on educational aspiration

This study constructed a hypothesized structural model on education aspirations, which consists of three latent variables, which were academic self-efficacy, academic effort, and support with college information from significant others, and one observed variable, which was academic performance. The acceptable model fit indices of the measurement model as shown in Table 2 confirmed that these three latent variables in this study were valid measures.

The structural model was tested with both the entire and the Asian samples separately. As a result, both structural models provided acceptable model fit statistics, which indicated that the hypothesized model in this study was valid to examine educational aspirations. Table 16 shows model fit statistics for the three models.

Table 16. Summary of fit indicators

Models	χ^2	df	*p*	CFI	TLI	RMSEA
(a) Measurement model	801.447	70	.000	.97	.96	.05
(b) Hypothesized structural model: total sample	1661.554	140	.000	.953	.934	.027
(c) Hypothesized structural model: Asian sample	201.691	160	.007	.947	.926	.015
Cutoff criteria for good model fit	χ^2 with $p > .05$			>.90	>.90	<.05

NOTE: All statistics are drawn from the weighted data

Direct and indirect effects of factors on educational aspiration: the entire sample

The structural model was analyzed with the entire data to examine the effects of factors on educational aspirations both directly and indirectly. It was addressed by the research questions #1 and #2, and the research hypothesis #1 from H1-(a) to H1-(e), which specified the effect of each factor.

First, the results showed that H1-(b) was confirmed. Both academic effort and performance have a positive and direct effect on educational aspiration. Students who received a better grade and spent more hours on assignment are more likely to have a higher academic aspiration. In addition, academic effort also mediates a positive relationship between academic performance and aspiration as a positive indirect effect of academic effort was found. More academic effort can accelerate the positive effect of academic performance on aspiration. This is in line with previous research that found positive relationships among academic achievement, a level of school involvement. and aspirations (Ganzach, 2000; Yazzie-Mintz, 2006).

Second, H1-(c) was also confirmed because a negative direct effect of academic self-efficacy on aspiration was found in the analysis. Students who were confident with their math and science academic skills tended to have a lower educational aspiration. In the social cognitive theory, self-efficacy is influenced by family and peers though modeling in interpersonal relationships (Ali et al., 2005; Bandura, 1989). It was also found in this study because students' self-efficacy is positively associated with support with college information received from significant others.

However, interestingly, the negative relationship between self-efficacy and educational aspiration is the opposite from the social cognitive theory, which argued a positive influence of efficacy on educational outcomes (Joo et al., 2000). In this study, self-efficacy also had a negative and indirect effect through academic performance, which means that the negative relationship between self-efficacy and aspiration is stronger for high achieving students. Although a correlation coefficient between academic-efficacy and aspiration (r=.29***), and that between academic performance and aspiration (r=.19***) are positive as shown in Table 8 which is in line with previous research, these positive effects turned to negative when controlling for other predictors in the model.

Third, H1-(c) was not confirmed because there was not a significant effect of support from significant others on aspiration neither directly nor indirectly. Fourth, H1-(a) was confirmed because educational aspiration was significantly different by gender, parental income, and race. Students who are female and come from wealthy families tend to have higher educational aspiration than their counterparts. H1-(e) was also confirmed since there were significant indirect effects of self-efficacy, academic effort, gender, and parental income on educational aspiration.

Research questions #3 and #4 asked if Asian Americans' educational aspirations are different from other racial groups as well as by their ethnic subgroups. It is specified with the research hypotheses H2 and H3.

According to the descriptive statistics displaying means of educational aspirations as shown in Table 5, Asian Americans showed the highest educational aspiration

compared to white, Hispanic, and black students (M=3.82, SD=1.26). Among Asian American subgroups, South Asians are the highest (M=4.44, SD=.91), followed by Chinese, other, South East, and Filipino Asians. The same structural model on educational aspiration was analyzed with the Asian American sample to examine the formation of their aspiration more specifically.

Direct and indirect effects of factors on educational aspiration: the Asian sample

The results of the structural model with the Asian American sample were different from those with the entire sample. First, neither academic effort nor performance has a direct or indirect effect on educational aspiration in the Asian American sample. Second, there was a positive direct effect of academic self-efficacy on Asian Americans' educational aspiration, which was the opposite direction from the results with the entire sample. Asian American students who were confident with their math and science academic skills tended to have a higher educational aspiration, whereas a lower aspiration was found in the results from the total sample.

Third, more interestingly, there was a significant and positive effect of a latent variable, support with college information from significant others, on educational aspirations both directly and indirectly, which was not statistically significant in the results of the entire sample. Asian American students who received more support with college information from their significant others tend to have a higher aspiration, and this positive relationship is stronger for those who have high self-efficacy. This indicates that Asian American students' educational aspirations are more influenced by subjective or

perceived factors such as academic self-efficacy and support with college information received from significant others, rather than objective indicators such as grades on math and science (academic performance) and hours spent on homework (academic effort).

Parental income also has a positive effect on Asian Americans' aspirations both directly and indirectly. Asian American students whose parents earned higher income tend to have higher educational aspiration than their counterparts and this positive relationship is stronger if they have a high self-efficacy. In addition, there are differences in aspirations by Asian American ethnic subgroups even after controlling for other variables. Compared to Filipino Americans, all other four subgroups—Chinese, Southeast, South, and other Asians show significantly higher educational aspirations. In addition, South Asian Americans show significantly higher self-efficacy than Filipino Americans. This finding is consonant with previous research that found South Asian students tended to have the highest math performance (Goyette & Xie, 1999) as well as have been successful in receiving high school, bachelors, and advanced degrees (Moon, 2008).

POLICY IMPLICATIONS

This study draws attention to educational aspiration, which is the first step in the pipeline of educational and occupational attainment. Examining the 9th graders' educational aspirations can predict their future educational and occupational attainment. The findings allow parents, teachers, and policy makers to understand the relationships among self-efficacy, academic performance and effort, support from significant others

and aspirations, as well as to help them develop early interventions for those students whose educational aspirations need to be encouraged. Specifically, students' low socio-economic status is a stumbling block in building their educational aspirations. Providing financial support to marginalized students will help enhance their educational aspirations.

Another implication of this study is that it assists students, parents, teachers, school counselors, researchers, policy makers, and college administrators to consider differences in the formation of Asian Americans' educational aspiration compared to other racial groups, as well as to rethink the importance of taking into account the context of specific Asian American subgroups on educational aspirations. Asian American students' educational aspirations are influenced by two subjective indicators, academic self-efficacy and support with college information from significant others, rather than objective indicators such as grades on math and science and hours spent on homework. It suggests that providing professional advising or workshop on educational planning as well as developing their mentoring experience will facilitate Asian American students' educational aspirations. Furthermore, even after other variables were controlled, South Asians showed significantly higher aspirations whereas Filipino showed the lowest aspirations constantly. The significant discrepancy among Asian American subgroups suggests that educational policies need to differentiate among Asian subgroups. Specifically, some underrepresented Asian American subgroups with low SES such as Laotians, Cambodia, Hmong need to be considered as disadvantaged minority groups, and it is essential that policy makers incorporate such groups into their target populations on financial aid programs or college recruitment programs.

It is also important that researchers continue to analyze the heterogeneity among the Asian American subgroups based on disaggregated data. In addition, high school teachers, counselors, college administrators, policy makers, and politicians need to be aware of the diversity within the Asian American population in their educational planning and practice.

DIRECTIONS FOR FUTURE RESEARCH

The findings of this study help to understand how high school students' educational aspirations are formed in general by examining the conceptual model with the total data. In addition, comparing Asian American students' educational aspirations with other racial groups as well as by their ethnic subgroups, the findings help to fill the gap in the literature about debunking the model minority myth. Specifically, this study confirms that there are discrepancies in Asian American students' educational aspirations by their ethnic subgroups.

Despite the contribution to the educational aspiration and the Asian American literature, this study has a few limitations. One limitation of this study is that it did not include students who did not know their educational aspirations or plans yet. This study examined the formation of educational aspiration, specifically, how Asian American students' aspirations are different from other racial groups as well as by their Asian ethnic subgroups. The dependent variable of this study is educational aspiration, which was coded from 1=high school to 5=professional degree. However, there were over 20% of the total students who reported that they did not know their educational aspirations.

These students were excluded from the analysis because this "Don't know yet" category cannot be incorporated in the dependent variable as an ordered variable. Since this study does not include any information about this group of students who did not report any aspiration, they need to be examined in future research in comparison with those who reported any levels of aspirations. It will give an understanding factors affecting whether or not a student has an educational aspirations.

Second, two independent variables in this study—academic self-efficacy and academic performance—are capturing only math and science related academic experience. Each student may have different levels of academic self-efficacy and performance by subject areas, and it can affect their educational aspirations differently. If data incorporates diverse dimensions of self-efficacy and academic performance, their effects on aspirations will be better understood.

Third, although this study adopted the base-year data of the HSLS:09 only in the analyses, the HSLS:09 is originally designed as longitudinal data that its follow-up surveys are scheduled to be released in 2014, 2015, and 2016 until the respondents finish choosing their post-secondary path. Accordingly, adopting future follow-up survey data, this study can be expanded by examining not only Asian American students' educational aspirations but also how they change over time and how they affect their actual post-secondary educational plans.

Fourth, although the HSLS:09 disaggregated Asian American subgroups into five groups—Chinese, South East Asian, South Asian, Filipino, and other Asian, it is still not enough to fully capture heterogeneity among Asian American subgroups. For example,

Vietnamese, Thai, Hmong, and Laotians are combined into "Southeast Asian", Asian Indian, Pakistan, Bangladeshi, Sri Lankan are combined into "South Asian", and Korean, Japanese, and the rest of subgroups are combined into "other Asian" in the HSLS:09. The aggregation of Asian American subgroups does not allow verification of whether the effect of ethnic subgroups is consistent for all individuals in the same category. Accordingly, in order to better investigate the differences in aspirations by Asian American ethnic subgroups, collecting data with more subgroup categories will be necessary. In this case, it should be cautious about obtaining enough sample sizes for each subgroup.

CONCLUSIONS

Asian American students described as a model minority have been overlooked in educational research and excluded from racially targeted success programs because their academic success was already expected. This study was designed to debunk the model minority myth that not every Asian American student would enjoy the privilege conferred by the myth. Using educational aspiration as a dependent variable, this study examined how Asian American students' aspirations were different from those of other racial groups as well as by their ethnic subgroups. In order to test research hypotheses, the conceptual structural model on educational aspiration was developed, which included self-efficacy, academic effort and performance, and support with college information from significant others.

As this study reveals, Asian Americans as an aggregated group showed the highest level of educational aspiration compared to the other racial groups. However, comparing the structural model results with the total sample and the Asian American sample, it found that Asian American students' aspirations were more influenced by perceived factors including self-efficacy and support from significant others, rather than objective academic factors. It suggests that providing advising, mentoring, workshop and information sessions will be effective to encourage Asian Americans' aspirations. In addition, there were discrepancies by Asian subgroups even after controlling for other variables. The findings of this study also support the idea that Asian American should not be aggregated. It indicates that educational research and policies should consider the heterogeneity among Asian subgroups and understand their different needs.

Appendix

INSTITUTIONAL REVIEW BOARD (IRB) EXEMPT APPROVAL LETTER

OFFICE OF RESEARCH SUPPORT

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 · Mail Code A3200
(512) 471-8871 · FAX (512) 471-8873

FWA # 00002030

Date: 08/24/12

PI: Kye Hyoung Lee

Dept: Educational Administration

Title: Formation of Educational Aspirations among Asian American Students

RE: Non Human Subject Research Determination for IRB Protocol Number 2012-07-0098

Dear Kye Hyoung Lee:

The Office of Research Support (ORS) reviewed the above protocol submission request and determined it did not meet the requirements for human subject research as defined in the Common Rule (45 CFR 46) or FDA Regulations (21 CFR 50 & 56). At this time you are free to begin your research as IRB approval is not necessary. You should retain this letter with the respective research documents as evidence that IRB review and oversight is not required.

If you have any questions contact the ORS by phone at (512) 471-8871 or via e-mail at orsc@uts.cc.utexas.edu.

Sincerely,

James P. Wilson

James Wilson, Ph.D.
Institutional Review Board Chair

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