

1-1-2015

Relationships between Perceived Parenting Behaviors and Academic Achievement among High School Students in International Baccalaureate (IB) Programs: A Comparison of Asian American and White Students

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Relationships between Perceived Parenting Behaviors and Academic Achievement among High
School Students in International Baccalaureate (IB) Programs:
A Comparison of Asian American and White Students

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
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Date of Approval:
February 13, 2015

Keywords: International Baccalaureate, Responsiveness Demandingness, Autonomy Granting,
Semester GPA, End-of-course Exam, White, Asian American

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ABSTRACT

Parenting style as a predictor of students' academic achievement is gaining increased interest by parents, educators, and psychologists. Current literature suggests that a combination of three parenting dimensions (i.e., responsiveness, supervision, and autonomy granting) is relevant to characterizing one's parenting style into four types (i.e., authoritative, authoritarian, indulgent, and neglectful), and each dimension of parenting behavior has a different effect on students' academic performance. Based on the different cultural backgrounds and the methods parents use to educate their children at home, some literature suggests that the school performance of some Asian American students could benefit from different parenting behaviors as compared to White students. Very little prior research has attended to links between parenting and achievement among high-achieving students who pursue college-level curricula during high school years, such as students enrolled in International Baccalaureate (IB) programmes. This study examined: (a) the relationships between parenting behaviors and students' achievement (i.e., semester GPA and mean score on end-of-course exams) among a combined sample of ethnically diverse IB students and then within two ethnic groups of interests (i.e., White and Asian American), (b) the differences in mean levels of students' achievement between the two aforementioned ethnic groups, and (c) differences in mean levels of parenting dimensions between two ethnic groups with regards to three parenting behaviors (i.e., responsiveness, demandingness, and autonomy granting). An archival dataset that includes data from 245 Asian American IB students and 533 White IB students was analyzed. The findings from the current study suggested that Asian American IB students earned significant higher GPAs than White IB

students, while there was not a difference in performance on end-of-course exams between two groups. Second, White and Asian American IB students perceived different average levels of parenting behaviors. Specifically, White IB students reported perceiving higher levels of parental responsiveness and autonomy granting, while Asian American IB students perceiving higher level of demandingness. Additionally, responsiveness and autonomy granting both had positive relations with semester GPA within the entire sample of IB students as well as within the White IB students, while autonomy granting positively related to end-of-course exam scores within the entire IB students. All three parenting behaviors were associated with academic outcomes in a similar manner across White and Asian American IB subgroups. Specifically, responsiveness was the only significant and unique predictor of semester GPA for IB students. For end-of-course exam performance, demandingness was a negative predictor while autonomy granting was a unique positive predictor for IB students.

CHAPTER ONE: INTRODUCTION

Statement of the Problem

High school students who desire to take college-level courses primarily have three options: Advanced Placement (AP) courses, Dual Enrollment (DE) courses, and in some school districts International Baccalaureate (IB) programs. Advanced Placement (AP) is administered by the College Board, which currently offers 34 college-level courses and exams to high school students. Students who obtain certain scores on the exams will have opportunities to receive scholarships and course credit in U.S. colleges and universities (College Board, 2012). Dual enrollment (DE) courses allow high school students to be enrolled simultaneously at a community college or local university. As a head start on these students' college careers, they may apply for high school diploma or a college degree or certificate by using the credit from passed classes (Hughes, 2010). The third option, the International Baccalaureate (IB) program, offers four different programmes for students from kindergarten to high school to pursue a higher level of knowledge in advanced coursework. The IB Diploma Programme (DP) and the Middle Years Programme (MYP) are of most interest to the current study because they pertain to high school age students. The International Baccalaureate program is a broader program than AP courses and DE courses in terms of global participation and program goals. The IB program is offered worldwide, with programs in over one hundred countries (IBO, 2014). In the U.S., there

are more than one thousand IB schools in all 50 states providing different levels of programmes (IBO, 2014a). Of the three options for college-level classes in high school, the current study focused on students in IB programs due to this author's interest in college-level curricula that are currently available in China. This study will also contribute to the literature given the few very studies on IB students in any country or cultural context.

The International Baccalaureate (IB) program was founded in 1967 to meet students' needs and help students to develop their potential in a worldwide market. Students in the IB DP and MYP are able to expand their interests and pursue college-level knowledge when they are still in high school. Research indicates that IB students typically earn greater academic success in college (Dougherty, Mellor, & Jian, 2006; Hargrove, Codin, & Dodd, 2008; Morgan & Klaric, 2007).

The International Baccalaureate Diploma Programme (DP) is recognized by universities worldwide. The IB DP was developed for high school students in grades 11 and 12, and provides an internationally accepted qualification for entering higher education (IBO, 2014a). This comprehensive two-year programme is also one of the most popular programmes in IB. Some students may find it difficult to transfer to DP during the last two years or complete the diploma at a different school; thus, many students choose to join the IB earlier than last the two years, such as during the early high school years or even since elementary school (U.S. Department of State, Diplomacy in Action, 2013). As the IBO does not provide standardized admission requirement for all IB schools, IB schools vary in terms of criteria for admission into the DP. Nationwide, most of the schools that accept students into the DP require students to submit an application in February admission into the next school year's programme. Some schools may require applicants to be residents in the county that administers the program (for example,

Riverview IB, 2014), and obtain certain achievement levels in reading, math, science, and social studies in the previous school year or the first semester of the new grade in standardized tests (e.g., Riverview IB, 2014; Charlotte-Mecklenburg School, 2013). Some schools provide several Baccalaureate Prep (BP) courses in the sixth grade, and students enrolled in the BP could begin the IB course after taking exams for the completed IB curriculum (for examples, Wooster High School, 2014; St. Petersburg High School, 2014). Some other schools also ask students to take entrance examinations for various subject areas (for examples; Riverview IB, 2014; Princess Anne High School, 2014).

On March 10, 1983, IBO authorized The Florida Association of IB World Schools (FLIBS), and three high schools (St. Petersburg High School in St. Petersburg, Stanton College Preparatory High School in Jacksonville, and Eastside High School in Gainesville) to promote the IB programmes. Currently, there are 146 IB schools in Florida; 23 of them provide Primary Years Programme (PYP), 39 of them provide MYP, and 64 of them provide DP. There are also schools that combine different programs and provide them to students in different age ranges (i.e., seven schools provide PYP and MYP, 11 schools provide MYP and DP, and one school provides PYP and DP), as well as two schools, Carrollwood Day School and Saint Andrew's School, that provide all three programs (IBO, 2014).

Among all the countries and students in IB programmes, the Asian ethnic group (including children of Asian descent as well as those living in Asia) is regarded as a demographic group that is growing rapidly with respect to population both within the U.S. and worldwide, and is drawing increased attention from the public and educators (Austin-King, Lee, Little, & Nathan, 2012; Tan & Bibby, 2011). Although there is a lack of data on exact populations for different races in U.S. IB schools, the Asia-Pacific area is the third largest group in the world to be

consumers of IB, following North America/the Caribbean and Africa/Europe/Middle East in terms of popularity of IB (IBO, 2014a).

Some research suggested that IB program is an alternative secondary placement that appropriately meets the needs of gifted and talented youth who seek higher level knowledge and challenge during high school years (Poelzer & Feldhusen, 1997). According to The Civil Rights Data Collection (2009), the Asian/Pacific Islander students accounted for approximately 5.17% of total K-12 student membership, but constitute 9.58% of gifted students. Compared with White (54.94% vs. 65%), Hispanic (22.26% vs. 15.44%), African American (15.60% vs. 9.86%), and American Indian (1.27% vs. 1.17%) subgroups, Asian/Pacific Islander students are significantly overrepresented in the gifted population, whereas Hispanic and African American students are underrepresented (Civil Rights Data Collection, 2014).

Parental Influences on Academic Success among High School Students

Many factors may affect students' school performance, including students in IB programs. Developmental psychology focuses on the effects of parenting on children's social, emotional, and cognitive development, as well as academic achievement (Darling, 1999; Maccoby & Martin, 1983). Baumrind (1967) advanced a scheme of parenting style with two dimensions (i.e., demandingness and responsiveness) and a typology of three types (i.e., authoritative, authoritarian, and indulgent). Decades after, a new type, neglectful, was added to Baumrind's scheme (Maccoby & Martin, 1983). Among adolescents, these parenting styles are reflected in parents' relative levels (low vs. high) on different dimensions of parenting behaviors, including warmth/support/responsiveness, supervision/demandingness, and psychological autonomy granting (Steinberg, Mounts, Lanborn, & Dornbusch, 1991). Authoritative parenting refers to

warm and firm practices; a household in which parents hold high expectations for their children and allow them to work independently. Authoritarian parenting is characterized by restrictive demands and requirements, as well as low responsiveness. Indulgent parents are non-directive parents who are responsive but not demanding. Neglectful refers to uninvolved parents who are low in both warmth and control.

Of the four types, authoritative parenting has been identified as the most popular *and* most effective parenting style for promoting Western students' overall well-being among parents of children in the U.S., especially when predicting academic achievement (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Radziszewska, Richardson, Dent, & Flay, 1996; Steinberg, Dornbusch, & Brown, 1992; Steinberg et al., 1991; Steinberg, Elmen, & Mounts, 1989). However, Asian immigrated families hold unique values about parenting style; in particular, they are more likely to have authoritarian parents compared with other ethnic groups (Chao, 2001; Dornbusch et al., 1987; Radziszewska et al., 1996; Steinberg et al., 1989; Steinberg et al., 1991; Steinberg, Lamborn, Dornbusch, & Darling, 1992; Wu & Chao, 2005). Among Asian students, authoritarian parenting appears generally effective in terms of predicting high academic achievement compared to authoritative parenting (Chao, 2001; Dornbusch et al., 1987).

The purposes of this study were to: (1) investigate how parenting style relates to IB students' school performance, (2) examine whether students from majority culture (White) and minority culture (Asian American) differ in terms of types of parenting style, and (3) compare the relation between parenting style and IB students' school performance for White and Asian American groups.

Research Questions

1. What are the relationships between parenting behaviors/dimensions and indicators of achievement (semester GPA, and mean score on end-of-course exams)
 - a. Within the entire sample of IB students?
 - b. Within Asian American IB students?
 - c. Within White IB students?
 - d. Are there significant differences in the strength of the relationships for Asian American and White IB students?
2. Are there significant differences in mean levels of academic achievement between the groups of Asian American and White IB students?
3. Are there significant differences in mean levels of parenting dimensions between the groups of Asian American and White IB students with regard to: Support/responsiveness, Demandingness/supervision, and Autonomy granting?

Definition of Terms

International Baccalaureate (IB) Program

The IB program was developed to meet the educational needs of international students (e.g., students living abroad, native students returning from abroad, and children who travel extensively abroad) who required academic diplomas accepted worldwide (IBO, 2014a).

Currently, the IB program has three missions: (1) creating a better and more peaceful world through intercultural understanding and respect among young people, (2) developing challenging programmes of international education and rigorous assessment, and (3) encouraging students

across the world to become active, compassionate and lifelong learners who understand other people (IBO, 2014b).

Parenting Style

Parenting style is a complex construct that includes many specific behaviors that work individually and together to influence child outcomes (Baumrind, 1967). The behaviors include the interaction between parents and their children, as well as parents' values and beliefs that shape their children's development. In adolescence, parenting styles are often identified by observations or adolescents' perceptions of their parents' behaviors on three primary dimensions: responsiveness, supervision, and autonomy granting.

Responsiveness

Responsiveness refers to the degree of parents' sensitivity, involvement, and emotional support. Parents with high responsiveness want their children to be confident, socially responsible, self-regulated, and cooperative.

Supervision

Supervision refers to the combined degree of parents' expectation for their children and clear standards and instructions for their children to follow. Supervision entails behavioral monitoring of a child's whereabouts, and is also referred as physical control. Parents with high levels of supervision hold high expectations for their children, and are supportive but not overly restrictive.

Autonomy Granting

Autonomy granting refers to parents' efforts to (a) limit psychological control over their children's decisions, and (b) promote their children's individuality, emotional autonomy, and self-determination.

Significance of the Study

As the population in IB programs is increasing dramatically, there is growing interest in maximizing these students' school performance. An authoritative parenting style has been shown to be the most effective parenting method for U.S. high school students in general education environment (Dornbusch et al., 1987; Steinberg et al., 1989) as well as for students in gifted programs (Rudasill, Adelson, Callahan, Houlihan, & Keizer, 2013). Further research is needed in this area to identify the effect of authoritative parenting style on students within unique educational environments, such as IB programmes. Asian American students are part of an ethnic group that is increasing in population, and are overrepresented in programs for gifted students, which is relevant to students in IB programmes. Different from the majority group (i.e., White students) and other minority ethnic groups (i.e., Latino-American and African American), typical parenting for Asian American students reflects higher levels of authoritarian parenting, which is associated with higher academic achievement than authoritative parenting on Asian American students (Chao, 2001; Dornbusch et al., 1987).

Currently, no study has investigated the main parenting style of Asian-American students in IB programmes, or how the core dimensions of authoritative parenting may relate to outcomes differently for Asian American students. Therefore, the findings from this study may provide insight about the differences in perceived parenting styles between White and Asian American

IB students, as well as identify how parenting dimensions may affect these two groups' outcomes similarly or differently.

CHAPTER TWO: LITERATURE REVIEW

This chapter first describes the educational context of youth in the current study. An introduction to parenting styles follows, which includes identification of the most salient parenting dimensions included in popular conceptualizations of parenting styles for children and adolescents. The most popular ways to assess these parenting dimensions and styles are described, in order to establish how researchers have operationalized parenting in studies of parenting styles in relation to youth outcomes.

The International Baccalaureate (IB) Program

Overview

The International Baccalaureate (IB) program was founded in Geneva, Switzerland in 1968. Initially, it focused on the development and maintenance of the diploma program which would “provide an internationally acceptable university admissions qualification” for the increasing population of children and adolescent “whose parents were part of the world of diplomacy, international and multi-national organization” (Hayden, 2001, pp.94). Students ages 16 to 19 from such families could receive internationally standardized courses and assessment (Hayden, 2001). The International Baccalaureate program was first introduced in the United States in 1970, and the International Baccalaureate North America (IBNA) was established in 1975 (IBO, 2014c). Currently, the IB program contains four programs for different age groups:

Primary Years Programme (PYP) for students aged three to 12, Middle Years Programme (MYP) for teens from 11 to 16, Diploma Programme (DP) for students from aged 16 to 19 (in the U.S., corresponding to the junior and senior years of high school), and Career-related Certificate (IBCC) for students who wish to engage in career-related education with same age as DP students (IBO, 2014a). According to the database of the International Baccalaureate Organization (IBO, 2014), there are 405 PYP schools, 491 MYP schools, 798 DP schools, and 36 IBCC schools in all regions of the United States.

Curriculum

The DP programmes have the core curriculum that link humanities, sciences, mathematics, languages, and community services. IB students must pick one of the five subject groups (language acquisition, studies in language and literature, individuals and societies, mathematics, and sciences), and one from arts subject (e.g., dance, music, film, theatre, and visual arts) or a second subject from the previous five groups. The core of DP includes three activities: Extended Essay, Theory of Knowledge (TOK), and Creativity, Action, Service (CAS). The extended essay is a 4,000-word individual research project, which allows students to investigate in detail a topic that is both a special interest to them and one of the DP subjects they are learning. TOK challenges students to become critical, reflective, and independent thinkers, and to evaluate their own views and their own level of intercultural understanding. A 10-minute internally assessed oral presentation and an externally assessed 1,200 to 1,600 word written essay serve as the final assessment to evaluate students' TOK. Creativity, Action, Service fosters students' awareness of life outside the academic area through encouraging students to engage in the arts and creative thinking, develop a healthy lifestyle through physical activity, and

participate in the community for a new learning of academic value. A minimum of 150 hours of CAS is required over the two-year DP, with the experiences that support the hours equally divided into the three areas of creativity (i.e., creating thinking), action (i.e., physical activity) and service (i.e., service community with academic skills; IBO, 2014d).

Mission

Compared to the original goal of the IB program, its mission has changed to “develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect” (IBO, 2014b). The programmes encourage students across the world to be active, compassionate, and lifelong learners who could understand other people and cultural differences. Students with similar background (e.g., international background) or features (e.g., gifted or high-achieving) may benefit from the IB program for different reasons (Adams-Byers et al., 2004; IB Global Research, 2012). On one hand, the IB program provides personalized circumstances for students and therefore gives them opportunities to benefit intellectually and academically from what they deem a high-quality international education experience (IB Global Research, 2012). On the other hand, from a social/emotional aspect, students also have a more trust-filled, faster-paced, and possibly more enjoyable class environment (Adams-Byers et al., 2004) and have exhibited more mutual support, and encouragement to persist in the face of difficulty within the homogeneous IB group as compared to in a general education classroom (Lando & Schneider, 1997).

Overall, the IB program has emerged as appropriate for both general and gifted education, and is an increasingly popular educational option for meeting the needs of high-achieving students. In past 40 years, IB programs have helped these students to improve their academic

achievement and at the same time provided a better learning environment for them (Adams-Byers et al., 2004; Lando & Schneider, 1997).

Worldwide Participation

The IB program has proliferated dramatically since inception. The oldest programme, DP, started in 1968 with its first examinations in 1970 and is now offered by 2,464 IB World schools (1,875 DP only schools, 134 PYP+DP schools, 235 MYP+DP schools, and 220 schools have all three programmes). The PYP and MYP started in late 1990s and have expanded to over 1,823 IB schools all over the world (IBO, 2014). Three main programmes (i.e., PYP, MYP, and DP) increased 69.16% in past five years (2009-2014), with 11.09% of compound annual growth rate. IBCC schools are the newest IB school that emerged in the 21 century. Currently, there are 62 IBCC schools around the world and 36 of them are located in the U.S. (IBO, 2014).

According to the IB World School Statistics (2014a), the IB works with 146 countries with 3,698 schools to offer the four IB programmes to approximately 1,149,000 students currently. Table 1 (See page 14) presents the popularity of IB within four regions, as demonstrated by the number of countries with an IB program, the total number of IB programs/schools, and the frequency with which each of the programmes for school-age children are represented in these four regions. The IB World School statistics currently only focuses on three main programmes because of the limited number of IBCC schools. The region including North America and the Caribbean have the lowest number of countries that have IB program (14), but the highest density of IB schools (1,826) and programs (2,098). The region including Africa, Europe, and the Middle East is the second largest region with IB schools and programs,

followed by Asia-Pacific as the third largest region. Latin America has the smallest number of IB schools as well as programs.

Parenting Styles

Parenting style is a complex construct that has been developing since the 1920s because of the increased interest in how parents influence the development of children’s social and instrumental competence (Darling, 1999). However, it is relatively hard to find actual cause-and-effect links between specific initial parents’ actions and later children’s behavior, in part due to the reciprocal relationships between parents’ and children’s behavior.

Table 1

Distribution of IB World School by Region

| Region | Countries | Schools | Programs | | | |
|-------------------------------|------------|--------------|--------------|--------------|--------------|--------------|
| | | | PYP | MYP | DP | Total |
| Africa/Europe/ Middle East | 87 | 888 | 224 | 171 | 770 | 1,165 |
| Asia-Pacific | 29 | 600 | 305 | 135 | 404 | 844 |
| Latin America | 16 | 384 | 107 | 74 | 325 | 506 |
| North America & the Caribbean | 14 | 1,826 | 480 | 653 | 965 | 2,098 |
| Total | 146 | 3,698 | 1,116 | 1,033 | 2,464 | 4,613 |

Note: PYP=Primary Years Programme, MYP= Middle Years Programme, DP= Diploma Programme

Defining Parenting Styles

After conducting naturalistic observations of over 100 preschool-age children, Baumrind (1967) identified four important aspects of parenting: disciplinary strategies, warmth and nurturance, communication styles, and expectations of maturity and control. Based on her observation on these four aspects and parental interviews, Baumrind (1967) concluded the

definition of parenting style as a complex activity that includes many specific behaviors that work individually and together to influence child outcomes. Most of the recent parenting style studies are based on Baumrind's (1967) theory which views parenting style as the combination of parental attitudes, practices, and nonverbal expressions that characterize the nature of parent-child interactions (Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997).

Even though Baumrind is commonly credited with the seminal work on parenting styles, several earlier researchers published less comprehensive but still relevant ideas about familial differences in childrearing. The earliest dimensions of parenting style were introduced by Symonds (1939), who identified two dimensions as acceptance/rejection and dominance/submission. Because of different interests and theoretical vantage points, other researchers measured parenting style by using similar dimension with slight differences, as summarized in Table 2.

Table 2

Previous Dimensions of Parenting Behaviors

| Author/researcher | Year | Dimensions of Parenting Behaviors Identified |
|-------------------|------|---|
| Symonds, P. M. | 1939 | Acceptance/rejection, dominance/submission |
| Baldwin, A. L. | 1955 | Emotional warmth/hostility, detachment/ involvement |
| Sears, R. R. | 1957 | Warmth/hostility, restrictiveness/permissiveness |
| Schaefer, E. S. | 1959 | Love/hostility, autonomy/control |
| Becker, W. C. | 1964 | Acceptance/rejection, restrictive/permissive |
| Baumrind, D. | 1967 | Demandingness/control, responsiveness/warmth |

Classifying Parenting Styles for Children

Baumrind (1967) developed a classification scheme of parenting style by using the two dimensions of demandingness and responsiveness. Parental demandingness, sometimes called behavioral control, refers to “the claims parents make on children to become integrated into the

family whole, by their maturity demand, supervision, disciplinary efforts and willingness to control the child who disobeys” (Baumrind, 1991, pp. 61-62). Responsiveness, sometimes called warmth or support, refers to “the extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to children’s special needs and demands” (Baumrind, 1991, pp. 62). Based on levels of demandingness and responsiveness, Baumrind (1967) created a typology of three parenting styles: authoritarian, authoritative, and indulgent. Later, Maccoby and Martin (1983) expanded this typology to include one more cluster—neglectful. Each of the four clusters reflects different patterns of parental values, practices, and behaviors (Baumrind, 1991), as depicted in Figure 1.

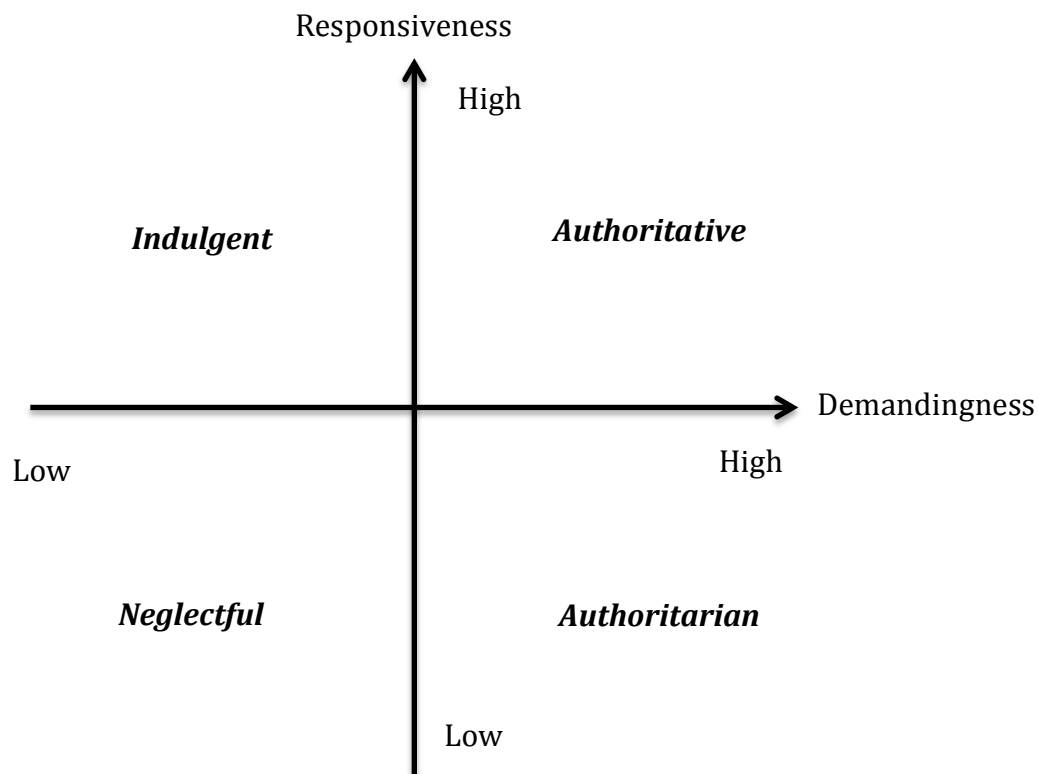


Figure 1. *Four Clusters of Baumrind’s (1991) Parenting Styles*

Authoritative parenting. This style of parenting entails relatively high levels of both demandingness and responsiveness. Authoritative parents establish rules and guidelines and expect their children to follow. Parents “monitor and impart clear standards for their children’s conduct” (Baumrind, 1991, pp. 62). However, they are more democratic than authoritarian parents, more willing to listen to their children. When children fail to meet the expectations, these parents are more forgiving than punishing, and “their disciplinary methods are supportive, rather than punitive” (Baumrind, 1991, pp. 62). Besides expecting their children to follow the rules and guidelines, authoritative parents also “want their children to be assertive as well as socially responsible, and self regulated as well as cooperative” (Baumrind, 1991, pp. 62). Baumrind (1991) suggested that authoritative parents are assertive, but not intrusive and restrictive.

Dornbusch et al. (1987) indicated that there are two subtypes of authoritarianism: *General Authoritativeness* and *Academic Authoritativeness*. *General Authoritativeness* refers to parents who encourage an open, egalitarian, and autonomic environment in the family. Developed from Baumrind’s (1967) three parenting styles theory, the following items have been used to assess the General Authoritativeness: in family communication, parents (1) tell children to look at issues from both sides, (2) admit that sometimes their children know more than them, (3) talk about politics with the family, and (4) emphasize that everyone should help with the family decision-making. *Academic Authoritativeness* is more focused on academic areas than General Authoritativeness, and refers to parents who use supportive, helpful behaviors to help their children to study. Academic Authoritativeness contains features such as: (1) parents praise the children in response to good grades or improvement,

(2) encourage them to try harder when the children get a poor grade, and (3) offer to help (Dornbusch et al., 1987; Leung, 1998).

Authoritarian parenting. Parents with this parenting style are highly demanding and directive, but not responsive. “They are obedience and status-oriented, and expect their orders to be obeyed without explanation” (Baumrind, 1991, pp. 62). Failure to follow such orders usually results in punishment. Authoritarian parents are unlikely to explain the reasons behind the orders, and if asked, the parents might reply, “Because I said so” as a final answer.

Indulgent parenting. This style refers to permissive parents or nondirective parents who are more responsive to their children than they are demanding. These parents rarely discipline their children because they have relatively low expectations of maturity and self-control for them. These parents are “nontraditional and lenient, do not require mature behavior, allow considerable self-regulation, and avoid confrontation” (Baumrind, 1991, pp. 62). Indulgent parents are more like friends to their children than parents.

Neglectful parenting. Also referred to as uninvolved parenting, this style is low in both responsiveness and demandingness. Neglectful parents may have little communication with their children, be generally detached from their lives, or even reject or neglect their needs (Baumrind, 1991).

Classifying Parenting Styles for Adolescents

Most of the aforementioned early work on parenting styles was based on research with samples of children, ages 4 to 15. Later conceptualizations of parenting, particularly those that included parents of adolescents in samples, identified another salient dimension of parenting

behavior that essentially splits the “control” dimension into “behavioral control” and “psychological control,” with low levels of the latter referred to as psychological autonomy granting. Schaefer (1956) first included *psychology autonomy/control* as one salient domain in parenting style. He explored this construct by using 26 items scale of the Children’s Reports of Parental Behavior Inventory and added *firm control/lax control* (1965). Parents with high levels of autonomy granting allow adolescents to make choices and encourage developmentally-appropriate independence, whereas parents with low levels of autonomy granting discourage independent thinking and use intrusive discipline strategies such as guilt induction (Silk, Morris, Kanaya, & Steinberg, 2003). Steinberg and his colleagues (1989, 1991) suggested that besides parental acceptance/warmth (responsiveness) and behavioral supervision /strictness (demandingness), autonomy granting (sometimes called democracy) is the third factor that contributes to adolescents’ healthy psychological development and school success among authoritative families. Accordingly, Steinberg et al. (1992b) adapted existing measures (Dornbusch et al., 1987; Patterson & Stouthamer-Loeber, 1984) and developed an Authoritative Parenting Scale that contains three subscales to assess: (1) acceptance/involvement, (2) strictness/supervision (also referred to as demandingness), and (3) psychological autonomy granting. The psychological autonomy granting scale focuses on the degree to which parents use non-coercive and democratic discipline that allows adolescents’ expression for their own individuality. Authoritative parenting was defined as having scores above the sample median on these three scales, while non-authoritative parenting was defined as having below median scores on these three scales.

Measuring Parenting Styles

Because of the variety of dimensions that can be involved in classifying one's parenting style, researchers have created multiple inventories and questionnaires to measure it from different theoretical perspectives (Arnold, O'Leary, Wolff, & Acker, 1993; Buri, 1991; Coodman & Scott, 1999; Cophan, Arbeau, & Arme., 2008; Darling & Toyokawa, 1997; Karavasilis, Doyle, & Markiewicz., 2003; Lamborn, Mounts, Steinberg, & Darnbush, 1991; Lindsay, 2011; Ritchie & Buchanan, 2011; Robinson, Mandlco, Olsen, & Hart, 1995; Ryan & Connell, 1989; Steinberg et al., 1989; Steinberg et al., 1992b). Generally, these inventories and questionnaires could be clustered into four categories: (1) inventory especially measuring parenting dimensions (e.g., Parenting Style Inventory, Parenting Style Inventory-II, and Parenting Style and Dimensions Questionnaire), (2) inventories that focus on general parenting, and thus measure parenting style, parenting practices, and other variables together (e.g., Parenting Scale), (3) questionnaires that only evaluate one type of parenting style, such as neglectful or authoritative (e.g., Parental Authority Questionnaire, Authoritative Parenting Questionnaire), and 4) adapted questionnaires from existing measures to meet specific needs.

Measures of Parenting Dimensions

Parenting Style Inventory (PSI-I) was designed to assess the construct of parenting style by assessing dimensions, which permits examinations of the associations between parenting behaviors on a continuum, in relation to child outcomes across diverse age ranges and ethnic groups (Lamborn et al., 1991). PSI has 26 items in total (acceptance/involvement, 9 items; strictness/supervision, 8 items; and psychological autonomy, 9 items). The measure yielded satisfactory internal consistency (alpha) among high school seniors and college students

(demandingness = .69, responsiveness = .87, and autonomy granting = .82) (Lamborn et al., 1991; Steinberg et al., 1992b) but relatively lower reliability for younger students ages 12 to 15 (demandingness = .68, responsiveness = .62, and autonomy granting = .58) (Darling & Toyokawa, 1997). In order to increase the internal consistency and variability of the items, the PSI-I was revised. Darling and Toyokawa (1997) created the PSI-II to include 15 statement format items instead of question format in PSI-I to decrease positive response bias and capture a broader range of the demandingness construct. Further, the response metric was changed to add one neutral option to the original complex response format (combination of 3-point Likert scale, 4-point Likert scale, and “True” and “False” questions) to avoid pushing students to make a positive or negative choice. Among 318 middle school students, the reliability estimates (internal consistency) for the PSI-II increased to reach acceptable levels (demandingness= .72, responsiveness= .74, and autonomy granting= .75) (Darling & Toyokawa, 1997). The inter-correlations among the three subscales were low to moderate, specifically $r = .34$ between responsiveness and demandingness, $r = .46$ between responsiveness and autonomy granting, and $r = -.11$ between demandingness and autonomy granting.

The Parenting Style and Dimensions Questionnaire (PSDQ; Robinson et al., 1995) is a 62-item parent-report questionnaire designed to measure the same three dimensions of parenting. The reliability of the individual PSDQ scales ranged from .75 to .91 among 1,251 volunteer parents (534 fathers age 22 to 63, and 717 mothers age 20 to 57) with youth age four to 12 (Robinson et al., 1995). Many studies have used the PSDQ to relate parenting style to children’s attachment, temperament, and school adjustment (Cophan et al., 2008; Karavasilis et al., 2003).

Measures of a Specific Parenting Style

The Parental Authority Questionnaire (PAQ) is a retrospective student report measure of recalled parenting practices, and consists of 30 items measured on a 5-point Likert scale. Ten items each assess authoritativeness, authoritarianism, and permissiveness for maternal styles and paternal styles. The internal reliability for the six PAS scales ranges from .75 to .85 for maternal style, and .74 to .87 for paternal style (Buri, 1991). The Authoritative Parenting Questionnaire (APQ) assesses the three core dimensions of authoritative parenting: acceptance/involvement (15 items), firm control (9 items), and psychological autonomy (12 items) (Steinberg et al., 1989, 1991, 1992). The internal reliability for these scales are acceptable, ranging from .72 to .82.

General Parenting Measures

The Parenting Scale (PS) consists of 30 items that measure dysfunctional discipline styles in parents, specifically: laxness (i.e., permissive discipline), over-reactivity (i.e., authoritarian discipline), and verbosity (e.g., overly long reprimands or reliance on talking to impart discipline) (Arnold et al., 1993). The internal reliability is high for the laxness subscale ($\alpha = .83$) and over-reactivity ($\alpha = .82$), but lower for the verbosity subscale ($\alpha = .63$). The PS also has good test-retest reliability over a 2-week period across subscales ($r = .83, .82, \text{ and } .79$).

Parent Measures Adapted or Revised from Existing Inventories

This type of questionnaires are adapted to meet the specific needs of researchers, thus these questionnaires are more targeted to specific research questions than the previous examples. Researchers revised and combined items from existing inventories and questionnaires to make their own measures that contain questions to tap the specific construct of interest. For example,

based on Strengths and Difficulties Questionnaire (SDQ; Goodman & Scott, 1999), researchers devised questionnaire items for neglectful parenting style for both fathers and mothers (Ritchie & Buchanan, 2011). There are 9 items for each scale (e.g., Dad is /is not interested in me, Mum is/is not interested in me) and all items are assessed using a dichotomous ‘yes/no’ response (Ritchie & Buchanan, 2011).

The Parenting Measures (Lindsay, 2011) was used in an investigation of the relation between parenting methods and adolescent achievement by using four dichotomous statements: (1) most of the time, your mother is warm and loving toward you; (2) your mother encourages you to be independent; (3) when you do something wrong that is important, your mother talks about it with you and helps you understand why it is wrong; (4) you are satisfied with the way your mother and you communicate with each other. Each question focuses on one of the following aspects of parenting style: warmth, independence, problem solving, and communication.

Many studies developed and adapted existing measures to meet their specific research needs (Dornbusch, 1987; Steinberg et al., 1992b). Although these measures and questionnaires were not widely used, they helped to inform and improve measures introduced later.

Cross-Cultural Research in Parenting Styles

Studies about parenting style have been largely investigated with Western families in recent decades. As described in the subsequent paragraphs, White Americans generally place higher value on authoritative parenting style than the other three, and the majority of U.S. families are using an authoritative parental method (Radziszewska et al., 1996). However, parenting styles other than authoritative are preferred within some cultural and ethnic groups.

For example, Asian American families are more likely to report an authoritarian parenting style (Dornbusch et al., 1987; Steinberg et al., 1989; Steinberg et al., 1991).

Radziszewska and his colleagues (1996) investigated parenting behaviors among ninth-grade adolescents from different ethnic groups in Los Angeles and San Diego. The 3993 15-year olds in the sample included 342 Asian Americans and 1305 White students. Youth completed a single item questionnaire about their perspective of the parenting style implemented in their home (i.e., how the youth and their parents make decision: (a) parents make decisions [authoritarian], (b) parents make decisions but will ask youth's opinion [authoritative], (c) youth make decision but will ask parents' opinion [permissive], and (d) youth make decisions [unengaged]). The majority of White adolescents reported the decision-making employed by their parents was Authoritative (40.1%), followed by Autocratic/Authoritarian (27.5%), Permissive/Indulgent (20.7%), and Unengaged/Neglectful (11.7%). The researchers found the same rank but different percentages for parenting styles most commonly used within Asian American families. Specifically, an authoritative parenting was reported in fewer Asian American families (34.9%), followed by a similar rate for Autocratic/Authoritarian parenting (28.8%), and a slight elevation for Permissive/Indulgent parenting (23.1%). Unengaged/Neglectful parenting was still the smallest group (13.2%; Radziszewska et al., 1996).

In an earlier study, Steinberg (1991) investigated two economic groups termed "working-class" and "middle-class" across four race/ethnicity groups among students in 9th through 12th grade (i.e., White [$N = 4871$], African American [$N = 778$], Hispanic [$N = 963$], and Asian American [$N = 988$]) with two family structures (intact and non-intact). These high school students from Wisconsin and California completed the Authoritative Parenting Questionnaire. Steinberg found that Asian American families have the lowest percentage of authoritative parents

(among working-class: 7.5% of intact and 6.1% of non-intact; among middle-class: 15.6% of intact and 10.8% of non-intact) compared with other three groups in the same class and family structure (White: 16.9%, 11.5%, 25.0%, and 17.7%; African American: 13.4%, 12.2%, 14.0%, and 16.0%; Hispanic: 10.5%, 9.8%, 15.8%, and 12.9%).

In Wu and Chao's (2005) research of intergenerational cultural conflicts, they surveyed 264 9th to 12th grade adolescents from four high schools in the Los Angeles area (60 first-generation Chinese American, 124 second-generation Chinese American, and 80 White). The Parental Warmth Measures survey was adapted from the acceptance-rejection subscale, which contained 10 items that assess the degree of parents' warmth and responsiveness (Children's Report on Parent Behavior Inventory, Schaefer, 1965). They found that both first- and second-generation Chinese American youths reported lower levels of warmth than their White peers. Since warmth is one of the core dimensions of authoritative parenting, their findings might explain why Chinese American youths would report less authoritative parenting than White youths.

A case study of Amy Chua's parenting experience also reflects the features of parenting style observed in some Asian families (Lui & Rollock, 2013). Chua self-identifies herself as the "tiger mother", which is characterized by an intense, authoritarian parenting style. The difference between western parents and immigrated Asian parents might come from the positive view of authoritarian parenting in traditional Asian culture, whereas the mainstream in American cultures prioritizes becoming independent and establishing an intimate relationship between children and parents.

Associations between Parenting Styles and Youth Academic Achievement among White American and Asian American Families

A growing body of research has indicated that different student psychological outcomes, ranging from substance use to internalizing forms of psychopathology, are more strongly tied to specific dimensions of authoritative parenting behaviors (i.e., responsiveness, demandingness, and supervision). Regarding the positive influence of responsiveness, Kincaid, Jones, Sterrett, and McKee (2012) suggested that parental warmth and emotional connection are protective factors for male adolescents against sexual risk behavior. Other research found higher levels of responsiveness predict lower levels of youth risk for internalizing symptoms such as depression (Garthe, Sullivan, & Kliewer, 2014), intergenerational continuity of child abuse (Valentino, Nuttall, Comas, Borkowski, & Akai, 2012), and problem behaviors such as school misconduct, delinquency, and drug use (Gracia, Fuentes, Carcia, & Lila, 2012). Parental supervision (i.e., psychological control) is particularly strongly tied to adolescents internalizing problems and, especially for girls, externalizing problems (Lansford, Laird, Pettie, Bates, & Dodge, 2013).

With respect to students' academic outcomes, early research indicated that lower parental authoritarianism and higher parental authoritativeness were typically associated with higher academic achievement (Dornbusch et al., 1987; Steinberg et al., 1989). The authoritative style was generally associated with the best outcomes, the unengaged style with the worst outcomes, and the permissive and autocratic style with intermediate outcomes (Lamborn et al., 1991; Steinberg et al., 2001). An illustration of such links among adolescents includes Steinberg and colleagues' (1992b) examination of 6,400 high school students (14 to 18 years old). At two time points (during the 1987-1988 and 1988-1989 school years), students reported their parents' parenting behaviors using the adapted measures from existing measures of Authoritative

parenting (Dornbusch et al., 1985), which assessed three dimensions: acceptance/involvement, behavioral supervision and strictness, and psychological autonomy granting. Academic achievement was operationalized as a combination of self-reported GPA, self-reported time spent on weekly homework in four major classes (i.e., math, English, social studies, and science), and self-reported classroom engagement (i.e., students' effort, concentration, attention, and frequency of mind wandering during those four classes) using a five-point scale. The student sample was diverse in terms of socioeconomic status, ethnic backgrounds (57.7% are White families, and 13.4% are Asian American families), and family structure (i.e., intact and non-intact). The high school students who were from authoritative families had better school performance and engagement than their peers, while adolescents from non-authoritative families had the lowest academic achievement. The positive impact of authoritative parenting on adolescent achievement was mediated by the positive effect of authoritativeness on parental involvement in schooling. Steinberg and his colleagues (1992b) suggested that parental involvement is a protective factor for adolescent school success when it occurs from an authoritative home environment.

One reason for the significant effect of parenting style is that parents are sources of influence on youth for their school performance. In addition to providing demanding and responsive environments for their children, parents with Academic Authoritativeness also give responses such as praise or encouragement for children's school performance, and offer assistance and help (Dornbusch et al., 1987).

Lamborn et al. (1991) indicated that the effects of parenting styles appear to be similar across ethnicity, gender, and income groups. In their study, students (White=60.9%, Asian American = 14.0%) completed a parenting style measure that was adapted from Dornbusch et al.

(1987) and assessed three dimensions: acceptance/involvement, strictness/supervision, and psychological autonomy. They used three measures to evaluate school achievement (i.e., self-reported GPA, academic competence subscale, and orientation toward school). Results from MANOVAs indicated that there was no significant interaction for parenting style by ethnicity. However, in Steinberg and his colleagues' (1992b) previously discussed research with 6,400 students from Wisconsin and California, the research team found that although generally authoritative parenting has an overall significant positive influence on high school students' academic performance and engagement, it did not have similar effect across all race subgroups. For Asian American families, parental involvement (i.e., school-specific parenting practices, help with course selection, and monitor student progress) had a stronger impact on high school students' achievement than among the other subgroups (i.e., Hispanic, African American, and White). Steinberg et al. (1992b) suggested that parental involvement played an important mediating role in parenting style and students' school achievement, and authoritative parenting is associated with high level of parental involvement. Therefore, Asian American families may actually be more authoritative than other families (Steinberg et al., 1992b).

Dornbusch and his colleagues (1987) surveyed 7,836 high school students in San Francisco by using three indices of parenting style questionnaire developed and adapted from Baumrind's (1967) three parenting styles theory (i.e., authoritarian, authoritative, and permissive) and found that the *authoritarian* parenting style was the strongest positive predictor of grades for the Asian subgroup (which included both male and female students), while in White subgroup authoritarian parenting style was associated with lower grades and *authoritative* parenting was a positive predictor of students' grades.

Chao (2001) examined the effects of parenting on White American and Chinese American students' school performance and also concluded that authoritative parenting does not have as beneficial effect on Chinese Americans as Whites. Participants in this study were 314 Chinese American adolescents (148 first generation, 176 second generation) and 208 European-descent adolescents from seven high schools in general education setting in the Los Angeles area. These high school students completed the Parenting Style Measures (Steinberg, et al., 1992b) to assess involvement/acceptance, strictness/supervision, and autonomy granting. School performance outcomes included self-reported cumulative GPA (i.e., English, Social studies, and U.S. History), and self-reported school effort about time spend on weekly studying, frequent of homework completion, whether they study before an exam, and whether they were attentive in classes (measure from Steinberg et al., 1992b). The results of chi-square tests indicated that there was no significant difference in the proportions of authoritative parenting between White youth and first-generation Chinese ($p = .95$), White youth and second-generation Chinese ($p = .32$), or first- and second-generation Chinese ($p = .32$). However, the first- and second-generation Chinese had significant greater levels of authoritarian parenting compared with White youths ($p = .015$ and $p = .010$, respectively). Wald tests were used to analyze the difference across group in the effects of authoritative and authoritarian parenting. The effects of these two parenting style were mediated by cultural background. The first-and second generation Chinese youth from authoritative families and authoritarian families did not have significant difference in terms of school performance, while European American students from authoritative homes had significant better school performance than their peers from authoritarian families. Therefore, authoritarian parenting (characterized by above the median on supervision but below the median on acceptance) was not detrimental to the academic success of Chinese students.

Although the above research suggested that parenting style/behaviors are associated with, or have effects on, adolescents' academic achievement, the unique contributions or causal directions of these associations (e.g., authoritative parenting results in higher grades) are less established. It should be acknowledged that parenting behaviors might be associated with many other factors that affect students' school outcomes in combination.

Gaps in the Literature

Historical research about parenting style has mainly focused on a majority population (i.e., White, middle-class students in general education), and there is limited knowledge about the effort of parenting style on academic achievement across different ethnic groups. The Asian American subgroup, a quickly increasing ethnic group in the American society, has been identified as having different cultural background and parenting style than the majority of Americans (i.e., White, Hispanic, and African American). Further, the Asian American subgroup is becoming one of the fastest growing and overrepresented groups among high-achieving students, such as those enrolled in the gifted and IB programme. To address these gaps in the literature, the current study concentrated on high-achieving students who are pursuing college-level courses during their high school years (i.e., IB students), and evaluated whether the core dimensions of parenting styles have different associations with these students' academic achievement (i.e., semester GPA and mean score on end-of-course exams). Further, the study further compared each dimension of parenting style between subgroups of White students and Asian American students, and examined whether the associations between dimensions of parenting behaviors and academic outcomes are different between White students and Asian American students.

CHAPTER THREE:

METHOD

This study explored the relationships between three parenting dimensions (i.e., responsiveness, supervision, and autonomy granting) and indicators of achievement (i.e., semester GPA and mean score on end-of-course exams) among students enrolled in IB programs. Among the participants from the IB programs, this researcher compared Asian American and White students with regard to mean levels of parenting dimensions and the magnitudes of the relations between parenting dimensions and achievement. This quantitative study analyzed data from a secondary source. This chapter describes the data source, measurements of parenting dimensions and achievement, procedures used during the data collection process, and overviews the analytic strategies used.

Participants

Data Source

The current study analyzed secondary data from a larger research project funded by the Institute of Education Sciences (IES) in a grant awarded to Drs. Suldo and Shaunessy-Dedrick in the University of South Florida (USF) College of Education. The IES-funded study included students in two college preparatory programs (i.e., Advanced Placement courses and IB programs). However, only data from students in the IB programs were analyzed, in line with the expressed focus of the study. Data were collected from 1229 students in either the Middle Years Program (MYP) or a formal pre-IB Diploma Program (for students in grades 9 and 10), or the IB

Diploma Program (for students in grades 11 and 12). The sample of IB students included 533 White students and 245 Asian American students. The term *Asian American students* referred to students who self-identify as Asian and were currently attending an IB programme in the participating schools. The current study was not able to verify whether IB Asian American participants were born in the United States or were immigrated Asian students. Other IB students in the sample identified as African American ($n = 156$), Hispanic ($n = 127$), multiracial ($n = 152$), and other or unknown racial/ethnic group ($n = 16$, including 9 IB students who did not specify a race/ethnic identity). Of note, the Institutional Review Board (IRB) for human subject research at the University of South Florida (USF) approved study procedures and personnel.

Table 3

Demographic Characteristics as a Percentage of the Sample of Interest to this Study

| Characteristic | Total ($N = 778$) % | White ($n = 533$) % | Asian American ($n = 245$) % |
|-----------------|-----------------------------|-----------------------------|--------------------------------------|
| Gender | | | |
| Male | 43.19 | 40.71 | 48.57 |
| Female | 56.81 | 59.29 | 51.43 |
| Grade Level | | | |
| 9th | 25.96 | 26.08 | 25.71 |
| 10th | 25.19 | 25.70 | 24.08 |
| 11th | 24.04 | 24.95 | 22.04 |
| 12th | 24.81 | 23.26 | 28.16 |
| SES | | | |
| Low | 43.32 | 45.78 | 37.96 |
| Average or high | 56.68 | 54.22 | 62.04 |

Note. SES= Socioeconomic status, as indicated by student's eligibility for free or reduced price school lunch. Low= eligible for free or reduced price school lunch; Average or high= not eligible for free or reduced price school lunch.

Sample

All students in the larger sample of IB study participants were enrolled in an IB program in the Spring of 2012. They were recruited from 10 high schools within five counties/districts in Florida. A total of 1229 IB students (43.47% White; 12.69% African American; 19.93% Asian American; 10.33% Hispanic; 1.30% other race as specified by child, including American Indian or Native Hawaiian; and 12.37% multiracial) participated in the larger study. In line with the purposes of the current study, only data from the 778 White and Asian American students was retained for many data analyses (533 White students and 245 Asian American students). Students who self-identified as multiracial were excluded, as were students in ethnic minority groups other than Asian American. Table 3 presents the demographic features of the reduced sample with regard to gender, grade level, and SES (as indicated by eligibility for school lunch at a free or reduced price). The White IB group had a higher percentage of female participants (59.29%) than represented in the Asian American IB students (51.43%), and this between group difference in the representation of genders was statistically significant ($t = 2.06, p < .05$). When grade level was examined in a continuous manner, the mean grade level of students in the two subgroups groups was similar ($t = -.83, p > .05$). When SES as indexed by a combination of standardized scores on three indicators, including eligibility for free or reduced-price school lunch status and parental educational level (mother and father separately), Asian American IB students had a slightly higher level of SES ($M = 0.31, SD = 0.77$) than White IB students ($M = 0.24, SD = 0.63$), but this difference was not statistically significant ($t = -1.36, p > .05$).

The number of Asian American and White students across the ten schools is reported in Table 4 (See page 34).

Student Self-Report Measures

Demographics Form

The demographics form contained questions concerning students' gender, age, grade, race, ethnicity, and SES (see Appendix A). This form was developed by the research team and used successfully in prior research.

Table 4

Representation of Asian American and White Students Across Participating Schools

| School | School <i>N</i> (IB Students in Dataset) | Asian American Students | | White Students | |
|--------|--|-------------------------|-----------------------|----------------|-----------------------|
| | | <i>N</i> | % of School Sample | <i>N</i> | % of School Sample |
| 1 | 148 | 35 | 23.65% | 45 | 30.41% |
| 2 | 151 | 27 | 17.88% | 103 | 68.21% |
| 3 | 108 | 23 | 21.30% | 52 | 48.15% |
| 4 | 100 | 38 | 38.00% | 33 | 33.00% |
| 5 | 134 | 20 | 14.93% | 68 | 50.75% |
| 6 | 169 | 38 | 22.49% | 6 | 3.55% |
| 7 | 101 | 19 | 18.81% | 69 | 68.32% |
| 8 | 100 | 8 | 8.00% | 38 | 38.00% |
| 9 | 95 | 11 | 11.58% | 65 | 68.42% |
| 10 | 123 | 26 | 21.14% | 54 | 43.90% |

Parenting Style Inventory-II (PSI-II; Darling & Toyokawa, 1997)

The PSI-II is a 15-item self-report measure of students' attitudes toward their general experiences with their parents (see Appendix B). Students were asked to choose on a 5-point Likert scale (1= *strongly disagree*, 2= *disagree*, 3= *I'm in between*, 4= *agree*, and 5= *strongly agree*) to describe their feelings about their parents' behaviors that tap various aspects of their general parenting style (acceptance/involvement, strictness/supervision, and psychological autonomy). Higher scores represent stronger agreement towards a given parenting dimension, with the exception of six reverse-scored items (e.g., "my parent(s) hardly ever praises me for

doing well,” “my parent(s) really let me get away with things”). The 15 items are divided equally into three subscales which represent three dimensions of parenting: responsiveness (5 items; e.g., “I can count on my parent(s) to help me out if I have a problem”), demandingness (5 items; e.g., “If I don’t behave myself, my parent(s) will punish me”), and autonomy granting (5 items; e.g., “My parent(s) respects my privacy”).

Regarding construct validity, item development and selection came from the Parenting Style Inventory (PSI-I; Lamborn et al., 1991), which was created based on prior research attempts to separate parenting style from parenting practice while investigating the correlation between parenting style and child outcomes (e.g., school competence, internalized distress, and problem behaviors) across various age ranges and diverse populations (Darling & Toyokawa, 1997). The PSI-I assessed three dimensions of parenting with 26 items to represent these dimensions (i.e., acceptance/involvement, 9 items; strictness/supervision, 8 items; and psychological autonomy, 9 items). The response metric was rather complex, and involved a combination of 3-point Likert scale, 4-point Likert scale, and “True” or “False” questions. In order to increase internal consistency, Darling and Toyokawa (1997) revised the PSI-II to include 15 short items that were phrased as statements (instead of question format), and also added a neutral response to the original scale in order to make a 5-point Likert scale.

Darling and Toyokawa (1997) validated the PSI-II with 318 students (grades 6 to 8) from a public middle school. For each subscale, Cronbach’s alpha reached acceptable levels: demandingness = .72; responsiveness = .74; and autonomy granting = .75. The correlation coefficients among three subscales showed small to moderate associations between parenting dimensions ($r = .34$ between demandingness and responsiveness; $r = .46$ between responsiveness and autonomy granting; $r = -.11$ between demandingness and autonomy granting). For predictive

validity, the PSI-II subscales have yielded associations with academic outcomes such as GPA ($r = .07, .28, \text{ and } .23$ for demandingness, responsiveness, and autonomy granting, respectively), as well as other school-related attitudes such as Value School ($r = .33, .49, \text{ and } .30$ for demandingness, responsiveness, and autonomy granting, respectively) and Try in School ($r = .27, .24, \text{ and } .02$ for demandingness, responsiveness, and autonomy granting, respectively).

Data from Participants' School Records

Semester Grade Point Average (GPA)

The research team calculated a semester GPA to index participants' academic performance in school at the time in which student self-report data were collected (i.e., spring 2012). This unweighted GPA averaged the final grades earned during the spring semester, across all courses taken for high school credit that semester. Students were awarded the following points per course: A = 4.0, B = 3.0, C = 2.0, D = 1.0, F = 0. Therefore, GPA ranged from 0 to 4.0.

Mean Score on End-of-course Exams

Another academic outcome variable available in this dataset was a composite score that reflected participants' average performance on end-of-course exams taken for those AP and IB courses for which college credit may be awarded. One variable in this composite was participants' average exam score on all AP exams taken in 2012; exam scores ranged from 1 (*low*) to 5 (*high*). A total of 923 of the 1229 IB students took at least 1 AP exam ($M = 2.17$; $SD = 1.37$; $\text{min} = 1, \text{max} = 9$). The second variable in this composite was participants' average exam score on all IB exams taken in 2012; exam scores ranged from 1 (*low*) to 7 (*high*). A total of 465

of the 1229 IB students took at least 1 IB exam ($M = 4.29$; $SD = 2.29$; min = 1, max = 7). For participants that had taken both AP and IB exams, linear equating was used to predict the average AP test score from the average IB test score. The resulting equation thus put IB scores on the AP scale; once on a common metric, scores reflected the average score of all end-of-course AP and IB tests taken in the spring of 2012.

Procedures

Recruitment of Participants

After obtaining study approval from the University IRB and research departments of the five participating school districts, parent consent forms (see Appendix C) were distributed to IB students to bring home to their parents. In the fall of 2011 and spring of 2012, the research team recruited all students in two classrooms per grade level (which were selected by participating schools after consulting with cooperating teachers), for a total of eight classes per school and 80 classes in total. Only students who turned in a signed parent permission form participated in this study. Sample sizes across 10 schools ranged from 78 to 169 ($M=115$). Four of five school districts' research policies permitted the research team to offer student incentives (i.e., a pre-paid movie pass or a \$10 iTunes gift card) to increase return of parent consent forms and participation in the study. The principal investigators (two faculty members) trained all research assistants (a team of graduate students) in procedures for participant recruitment, the assent process, and survey administration in order to maintain the standardization across the collection of student data.

Collection of Student Self-report Data

The data collection process occurred during Spring 2012 across all participating schools. Before beginning survey administration, a member of the research team read the student assent form (Appendix D) aloud to all students. All students provided written assent to participate. In groups of 10 to 120, student participants completed a 16-page questionnaire, which included the demographic items, PSI-II, and several other psychological measures in line with the purpose of the larger study. A member of the research team verbally administered the demographic items to the large groups of participants, provided guidance on how to respond, and then introduced example survey items contained in the rest of the packet in order to help participants become familiar with the Likert-style of many items in the survey. In order to control for order effects, the order of questionnaires included in the survey packets was counterbalanced to create four different versions. While participants independently completed the remaining 15 pages of the survey packet, multiple members of the research team circled the room to answer questions and monitor completion of the survey packet. The whole packet took approximately 45 minutes to complete.

A team of graduate students entered this self-report data into a database by using secured laptops located in a USF research lab. Research assistants entered part of the descriptive demographic information (e.g., About how long does it take you to travel from your house to school on most mornings?) and several descriptive items in other psychological measures (e.g., Did you experience other large stressors in the past year that are NOT listed above? If yes, please specify below) by hand, and scanned the rest of the questionnaire (formatted for and copied to be scannable compatible). In order to verify the accuracy of all data entered, research assistants selected 10% of the questionnaire packets and compared the hand-entered and scanned items

against students' responses on the raw data. This researcher participated in the data entry and verification process throughout the study. The entire scanned and checked dataset was ultimately exported to Excel and SAS files for further analysis.

Collection of Data from School Records

In the larger study, academic high school transcripts were collected for each participant. Specifically, each district provided the principal investigators with electronic files that included the following raw data: (a) titles and grades earned in each high school course taken to date, (b) performance on end-of-course IB and AP exams (course title and score), and (c) student demographic features (e.g., gender, race/ethnicity, eligibility for free or reduced-price lunch). Project research assistants combined raw data from different districts into large datasets. Participants were identified by the same code number assigned to the individual during the collection of student self-report data.

Ethical Considerations

Precautions were taken during the processes of recruitment, data collection, and data entry to ensure the safety of participants. First, approval from the university IRB and from all five school districts was received for procedures used in the larger study. Second, parent consent forms were sent to parents to inform them of the purpose of the study, as well as to provide them with contact information for the principal investigators in the case there were any questions related to the study. Only students with signed parent consent forms were permitted to participate in the study. Third, prior to starting the survey packet, all students were informed of the study purpose and procedures, and asked to give their written assent to participate. One researcher

from the team read the assent aloud to groups of students, and provided a second copy of the assent form to all students in case of any question afterward. Fourth, instead of including identifying information (i.e., name, student ID) on survey packets, students were assigned code numbers to ensure the confidentiality of student data. Only the principal investigators of the larger study have access to documents linking code numbers to students' names. Fourth, only approved members of the research team had access to student data for data entry and subsequent review. This researcher is an approved member of the research team for the larger study, and analyzed a de-identified version of the dataset.

Overview of Analyses

Preliminary Analysis

Descriptive statistics such as means, standard deviations, skewness and kurtosis on all predictor variables (parenting dimensions, specifically PSI-II subscales), outcome variables (achievement, specifically semester GPA and mean score on end-of-course exams), and the frequency of AP and IB exams taken by the sample were calculated for the entire sample (i.e., 1229 IB students) and two targeted group samples (i.e., White IB students and Asian American IB students). Students with scores more than 3 standard deviations from the mean on a given variable were identified, and the corresponding data entered for that participant was reviewed to ensure accuracy of data entry (i.e., that scores are true values). During the data screening process, the amount of missing data by variable was recorded.

Internal consistency of the PSI-II subscales was calculated and reported, by total sample (N = 1229 IB students) and subgroups. Due to satisfactory alpha values, additional explorations or factor structure were not formally pursued. This researcher created subscale composite scores

consistent with the items included in each factor as established by prior research (Darling & Toyokawa, 1997).

Pearson correlation coefficients were calculated between all study variables, and presented by the total sample and within the two demographic subgroups of interest. In a series of chi-squared and t-tests, White and Asian American groups were compared in terms of SES (a combination of free or reduced-price school lunch status and parental educational level), gender, and grade level. Demographic variables that are not equivalent between groups were included as covariates in subsequent analyses.

Q1. What are the relationships between parenting behaviors/dimensions (acceptance/involvement, strictness/supervision, and psychological autonomy) and the indicators of academic achievement (Semester GPA, mean score on end-of-course exams)

- a. Within the entire sample of IB students?
- b. Within Asian American IB students?
- c. Within White IB students?
- d. Are there significant differences in the strength of the relationships for Asian American and White IB students?

Regression Analysis

For all analyses, an alpha level of .05 was used to determine statistical significance. Two multiple regression equations were conducted to determine which dimensions of parenting behaviors were the strongest predictors of two indicators of students' academic achievement (semester GPA and exam performance). The simultaneous multiple regression analysis permitted understanding of how each parenting dimension influences achievement variables independently

while controlling for the other two dimensions and other variables (i.e., SES, gender, and grade level; covariates were selected with to permit consistency of predictors across analyses). For these two multiple regression equations, residual variability was calculated to determine the quality of equations. Based on the assumption that residuals were distributed normally, this study reviewed the distributions of major variables (semester GPA and exam performance) and presents the result by scatter plot. Meanwhile, Pearson correlation coefficients were calculated between each parenting behavior and each achievement indicator.

Building on the regression analyses conducted for the first research question, interaction terms were added to the equation to determine if a parenting dimension predicted an outcome differently for a specific racial group (0 = White, 1 = Asian American). Each parenting dimension was looked at in isolation, for a total of six step-wise regressions. For example, to determine if psychological autonomy predicted GPA similarly across group, the final equation would be:

$$\text{GPA} = \text{Control variables} + \text{Main effect of race group} + \text{Main effect of psychological autonomy granting} + \text{Race group} * \text{psychological autonomy granting}.$$

The predictors were entered in blocks, and the change in R^2 examined, to determine if the subsequent predictor(s) explained a statistically significant amount of additional variance in the outcome, controlling for the influence of the earlier predictors. In the event an interaction term was statistically significant, simple slopes were calculated (e.g., GPA = (Control variables +) Psychological autonomy granting) by ethnic group.

Q2. Are there significant differences in mean levels of academic achievement between the groups of Asian American and White IB students?

Group Differences

T-tests were used to determine the significance of the difference in academic achievement between the two ethnic groups. The two academic indicators were examined separately, and an alpha level of .05 was used to determine statistical significance.

Q3. Are there significant differences in mean levels of parenting dimensions between the groups of Asian American and White IB students with regard to: Support/responsiveness, Demandingness/supervision, and Autonomy granting?

Multivariate analysis of variance (MANOVA) tests were conducted to determine if IB students in two race groups (White group and Asian American group) display statistically significant between-group differences in any of the three parenting dimensions (responsiveness, demandingness, and autonomy granting). The homogeneity of variances assumption was first examined to ensure the variances in these two groups are similar to each other. An alpha level of .05 was used to determine statistical significance.

CHAPTER FOUR:

RESULTS

This chapter includes findings from the statistical analyses completed to answer the primary three research questions. First, findings from preliminary analyses are described. Then, the results of two simultaneous multiple regressions conducted to determine the portion of variance in two outcome variables (i.e., semester GPA and exam performance) predicted by all three dimensions of parenting behaviors (i.e., acceptance/involvement, supervision, and psychological autonomy), as well as each parenting behavior individually, for two target ethnic groups separately, are presented. Next, results from the MANOVAs are presented to illustrate the between group differences in parenting behaviors.

Data Screening

Data Entry

Members of the larger study research team entered the raw PSI-II data through scanners. The entire dataset was then imported into SPSS, checked for data entry errors, and screened for any systematic errors in participants' responding. Data entry checks were completed for randomly selected 10% of participants' survey packets to ensure accuracy. If one or more error was found in a survey packet, the error(s) was corrected first, and then the survey packets entered before and after this packet were checked for accuracy until error-free packets were discovered. Overall, trustworthiness of the data entry procedure was high, and the dataset that includes the

PSI-II survey analyzed in the current study was verified to be reflective of students' self-report responses.

For the reverse-scored items in the PSI-II (i.e., items 1, 2, 4, 6, 11, 15), raw data were entered into database, and then recoded during data analysis procedures.

Missing Data

Several actions had been taken during data collection to reduce the rates of missing data, such as monitoring the completion of survey packet by members of the research team and visually scanning completed survey packets to detect skipped items. When missing data were observed during data entry procedures, members of the research group entered a period for the missing data. Data from participants who completed at least 13 of 15 items on PSI-II measure were retained for analyses in the current study.

Variable Creation

Summary scores were created to present participants' self-report levels on three PSI-II subscales (responsiveness, demandingness, and autonomy granting) by calculating the mean of participants' responses to certain items. Responsiveness score was the mean of items 1, 4, 7, 10, 13; autonomy granting score was the mean of items 2, 5, 8, 11, 14; demandingness score was the mean of items 3, 6, 9, 12, 15. Reverse-scored items (i.e., items 1, 2, 4, 6, 11, 15) were reversed by six minus the raw score. For example, when students selected 4 (*agree*) on item 4, My parent(s) hardly ever praises me for doing well, the revised score would be two, and the value of two would be calculated into responsiveness score.

Socio-economic status (SES) was indicated by students' mean values on standardized values on three indicators: (a) free or reduced-price school lunch status (*yes*, a response initially coded as "1" during data entry, for 290 IB students vs. *no*, a response coded as "0" during data entry, for 937 IB students, per school records), and, from student self-report, (b) mother educational level, and (c) father educational level. After reverse-scoring the school lunch variable, higher SES score indicated more family financial resources as reflected in lack of eligibility for subsidized lunch and higher parent educational attainment.

Preliminary Analyses

Preliminary analyses consisted of: (a) computing descriptive statistics such as means, standard deviations, skewness and kurtosis for all variables of interest, (b) computing Cronbach's alphas for PSI-II subscales, (c) computing correlational analysis between three PSI-II subscales and two outcome variables separately for the entire sample and two subgroups, (d) computing *t*-test and *Chi-square* test to compare two subgroups in terms of SES, gender, and grade level.

Descriptive Analyses

Skewness and kurtosis of all the variables of interest were calculated for the entire sample (1229 IB students), as well as the two subgroups of primary interest (i.e., White students and Asian American students), to assess normality issues. As presented in Tables 5, 6, and 7 (See page 47 and 48), most variables were approximately normally distributed (skew and kurtosis between -2.00 and +2.00). However, semester GPAs had a non-normal distribution (kurtosis= 3.35) for the Asian American student group. Thus, caution should be taken when interpreting the

results of analyses that include Asian American students' semester GPAs, as the general trend among this demographic group was for quite high GPAs with few low scores.

Excluded Participants

For the combined sample of interest (533 White IB students and 245 Asian American IB students), there were four participants for whom data were missing for the semester GPA values (three White IB students and one Asian American IB students), and 140 participants who were missing data for the mean score of end of course exam (106 White IB students and 34 Asian American IB students) because these students did not take either an AP or IB exam during the school year examined. These participants were not included in analyses of these specific outcomes.

Table 5

Means, Standard Deviations, Ranges, Skew, and Kurtosis of Variables for Entire Sample

| Variable | <i>N</i> | Min | Max | <i>M</i> | <i>SD</i> | Skew | Kurtosis |
|---------------------|----------|-------|------|----------|-----------|-------|----------|
| Responsiveness | 1229 | 1.00 | 5.00 | 3.67 | 0.84 | -0.57 | -0.02 |
| Demandingness | 1229 | 1.00 | 5.00 | 3.74 | 0.67 | -0.40 | 0.26 |
| Autonomy granting | 1229 | 1.00 | 5.00 | 3.37 | 0.86 | -0.50 | -0.22 |
| Semester GPA | 1225 | 0.33 | 4.00 | 3.31 | 0.60 | -1.16 | 1.86 |
| End-of-course exams | 1039 | 1.00 | 5.00 | 2.88 | 1.00 | 0.05 | -0.42 |
| SES | 1229 | -2.30 | 1.42 | 0.16 | 0.73 | -0.63 | -0.01 |

There were 12 participants (11 White IB students and one Asian American IB students) who were identified as univariate outliers (three deviations from the mean) on semester GPA. Another three White IB students and one Asian American IB student were missing semester GPA data. The mean of the semester GPA increased from 3.36 (*SD*=0.62) to 3.40 (*SD*= 0.55)

after removal of the outliers. There was no univariate outliers on end-of-course exam scores. The size of this study sample reduced to 519 White IB students and 243 Asian American IB students after these outliers and missing data were removed from the dataset.

The entire sample of participants (1229 IB students) reduced to 1211 IB students after removal of univariate outliers whose GPAs were three deviations from the mean or missing GPA, and the mean GPA of the entire sample increased from 3.31 ($SD = 0.60$) to 3.34 ($SD=0.55$). IB students who did not take either AP or IB exams ($N= 186$) were also excluded from the specific analysis that related to this outcome.

Table 6

Means, Standard Deviations, Ranges, Skew, and Kurtosis of Variables for White Students

| Variable | <i>N</i> | Min | Max | <i>M</i> | <i>SD</i> | Skew | Kurtosis |
|---------------------|----------|-------|------|----------|-----------|-------|----------|
| Responsiveness | 533 | 1.00 | 5.00 | 3.74 | 0.84 | -0.63 | 0.13 |
| Demandingness | 533 | 1.00 | 5.00 | 3.64 | 0.69 | -0.45 | 0.28 |
| Autonomy granting | 533 | 1.00 | 5.00 | 3.52 | 0.82 | -0.53 | -0.20 |
| Semester GPAs | 530 | 0.33 | 4.00 | 3.28 | 0.65 | -1.35 | 2.50 |
| End-of-course exams | 427 | 1.00 | 5.00 | 3.12 | 0.95 | -0.15 | -0.04 |
| SES | 533 | -1.80 | 1.42 | 0.24 | 0.63 | -0.53 | -0.06 |

Table 7

Means, Standard Deviations, Ranges, Skew, and Kurtosis of Variables for Asian American Students

| Variable | <i>N</i> | Min | Max | <i>M</i> | <i>SD</i> | Skew | Kurtosis |
|---------------------|----------|-------|------|----------|-----------|-------|----------|
| Responsiveness | 245 | 1.00 | 5.00 | 3.54 | 0.89 | -0.56 | -0.11 |
| Demandingness | 245 | 1.00 | 5.00 | 3.83 | 0.64 | -0.23 | -0.43 |
| Autonomy granting | 245 | 1.00 | 5.00 | 3.23 | 0.89 | -0.65 | -0.12 |
| Semester GPAs | 244 | 0.8 | 4.00 | 3.54 | 0.51 | -1.58 | 3.35 |
| End-of-course exams | 211 | 1.00 | 5.00 | 3.12 | 0.94 | -0.12 | -0.18 |
| SES | 245 | -2.24 | 1.42 | 0.31 | 0.78 | -0.89 | -0.56 |

Measure Reliability

The internal consistency of PSI-II in the entire sample as well as two subgroups was assessed by Cronbach's alpha. Among all IB students, the coefficient alpha for responsiveness subscale was .82, demandingness subscale was .70, and autonomy granting subscale was .80. For the White IB student group and Asian American IB student group, the internal consistency values were .82 and .83 for responsiveness, .71 and .65 for demandingness, and .79 and .81 for autonomy granting, respectively. The internal consistency of the responsiveness subscale and autonomy granting subscales for the subgroups and combined samples were higher than values reported by Darling and Toyokawa (1997; responsiveness=.74 and autonomy granting=.75). The Cronbach's alpha of the demandingness subscale for the samples in this study were similar but lower than Darling and Toyokawa's (1997) finding ($\alpha = .72$).

Comparison of Subgroups of Interest on Potential Covariates

Two independent *t*-tests and one *chi-square* test were conducted to determine whether there was a difference between White IB students and Asian American IB students with respect to their socio-economic status (SES), grade levels, and gender representation.

Socio-economic status. The White IB students had a mean composite SES score ($M = 0.26$, $SD = 0.63$) that was quite similar to Asian American IB students ($M = 0.33$, $SD = 0.76$). There was not a significant difference in SES between these two groups, $t(762) = -1.27$, $p > .05$. The effect size was computed as $d = 0.10$, which represents a small effect. In sum, participants from two ethnic groups had statistically similar mean levels of socio-economic backgrounds.

Grade level. The White IB students had similar average grade level ($M = 10.47$, $SD = 1.11$) compare to Asian American IB students ($M = 10.53$, $SD = 1.16$). There was no significant

difference in grade level between two groups $t(762) = -0.59, p > .05$. The effect size was computed as $d = 0.05$, which represents a small effect. Overall, the mean grade level of students in the two ethnic subgroups was similar.

Gender. A *chi-square* test was used to examine the difference of gender ratio between White IB students and Asian American students. The analysis revealed a statistically significant difference between two groups, $t(762) = 4.20, p < .05$. The White IB group had a significantly greater percentage of female students compared to the Asian American IB group.

Research Question 1: What are the Relationships between Parenting Behaviors/Dimensions and Achievement within (a) the Entire Sample of IB Students, (b) Asian American IB Students, and (c) White IB Students?

Correlational Analyses

Correlation matrices were constructed to determine the relationship between all predictor variables (i.e., responsiveness, demandingness, and autonomy granting) and outcome variables (i.e., GPAs and mean performance on end-of-course exams) for the entire sample (see Table 8) as well as the two subgroups (see Table 9 for White IB students and Table 10 for Asian American IB students). An alpha level of .05 was used to determine statistical significance. Within the PSI-II, correlations among the three subscales ranged from -.04 to -.08 between responsiveness and demandingness, from .55 to .61 between responsiveness and autonomy granting, and from -.42 to -.36 between demandingness and autonomy granting. The autonomy granting subscale was significantly positively correlated with the responsiveness subscale and

significantly negatively correlated with the demandingness subscale across the entire sample, White IB students, and Asian American IB students.

There were a few significant positive correlations between the predictor variables (i.e., responsiveness and autonomy granting) and an indicator of academic achievement (i.e., GPAs) for the entire sample and White IB students. Figures 2 to 7 present the scattergram of the two outcome variables (i.e., GPAs and end-of-course tests) plotted against three domains of parenting behaviors separately within the entire sample.

Table 8

Correlations between Predictor and Outcome Variables within Entire Sample (n = 1211)

| | Resp | Demand | Auto | GPAs | ECE |
|----------------------------------|------|--------|------|------|------|
| Responsiveness | 1.00 | | | | |
| Demandingness | -.04 | 1.00 | | | |
| Autonomy Granting | .57* | -.39* | 1.00 | | |
| Semester GPA | .17* | -.06 | .15* | 1.00 | |
| End-of-Course-Exams ^a | .06 | -.11 | .13* | .48* | 1.00 |

Note. ^an=1025. *p < .05.

Table 9

Correlation between Predictor and Outcome Variables within the White IB Students (n = 519)

| | Resp | Demand | Auto | GPAs | ECE |
|----------------------------------|------|--------|------|------|------|
| Responsiveness | 1.00 | | | | |
| Demandingness | -.04 | 1.00 | | | |
| Autonomy Granting | .55* | -.42* | 1.00 | | |
| Semester GPA ^a | .26* | -.13 | .25* | 1.00 | |
| End-of-Course Exams ^b | .09 | -.15 | .14 | .53* | 1.00 |

Note. ^an = 519 ^bn = 416. *p < .05.

Table 10

Correlation between Predictor and Outcome Variables within the Asian American IB Students (n = 243)

| | Resp | Demand | Auto | GPA's | ECE |
|----------------------------------|------|--------|------|-------|------|
| Responsiveness | 1.00 | | | | |
| Demandingness | -.08 | 1.00 | | | |
| Autonomy Granting | .61* | -.36* | 1.00 | | |
| Semester GPA ^a | .17 | -.05 | .15 | 1.00 | |
| End-of-Course Exams ^b | .06 | -.06 | .13 | .50* | 1.00 |

Note. ^an = 243 ^bn = 210. *p < .05.

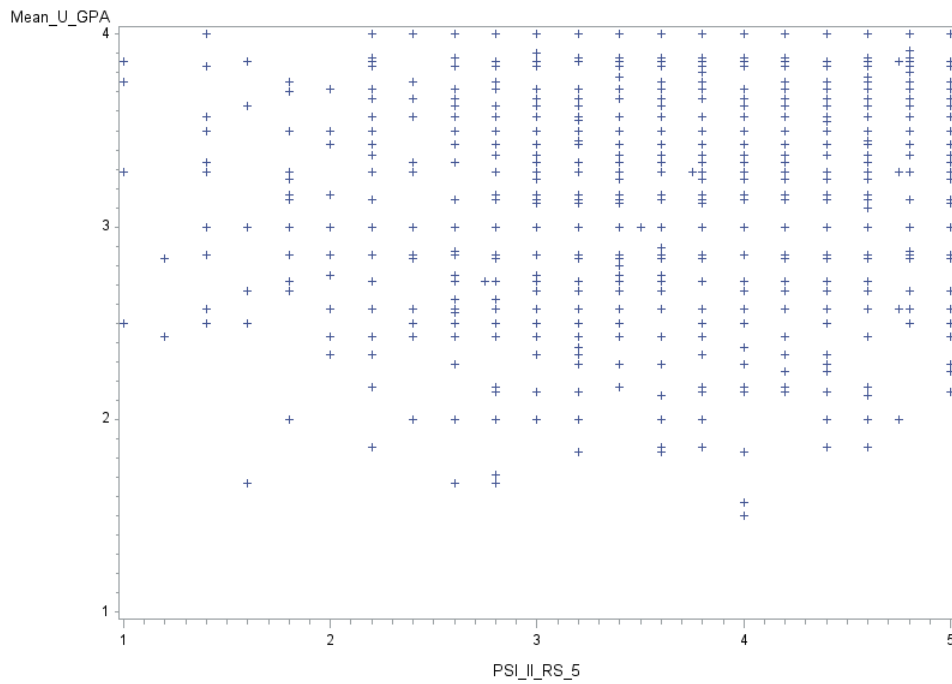


Figure 2. Scattergram of Semester GPAs Plotted against Responsiveness (n = 1211)

Note. PSI_II_RS_5=Responsiveness. Mean_U_GPA=Semester GPA.

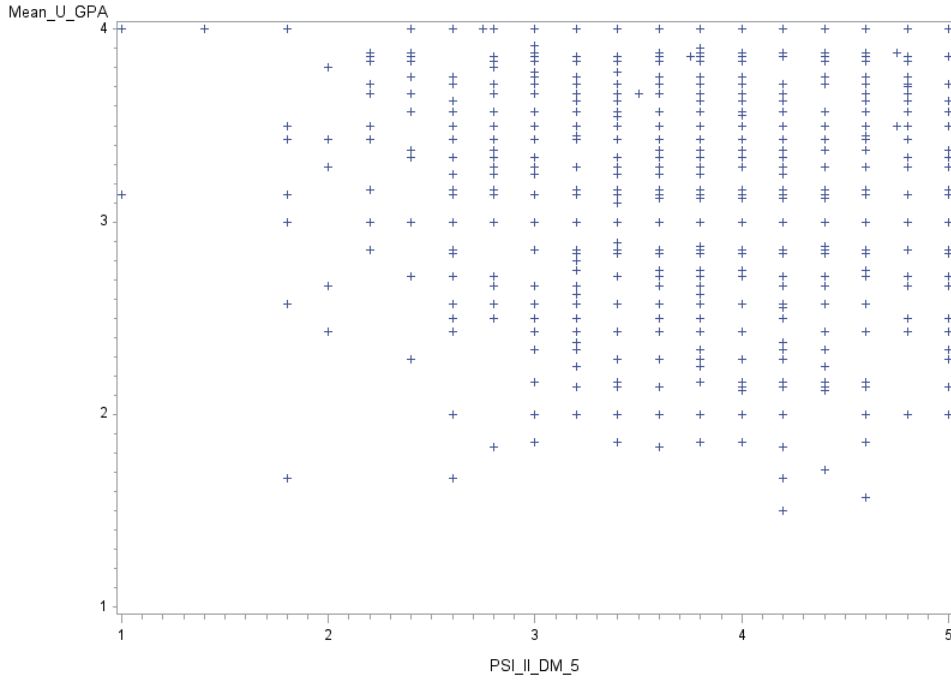


Figure 3. *Scattergram of Semester GPAs Plotted against Demandingness (n = 1211)*

Note. PSI_II_DM_5= Demandingness. Mean_U_GPA= Semester GPA

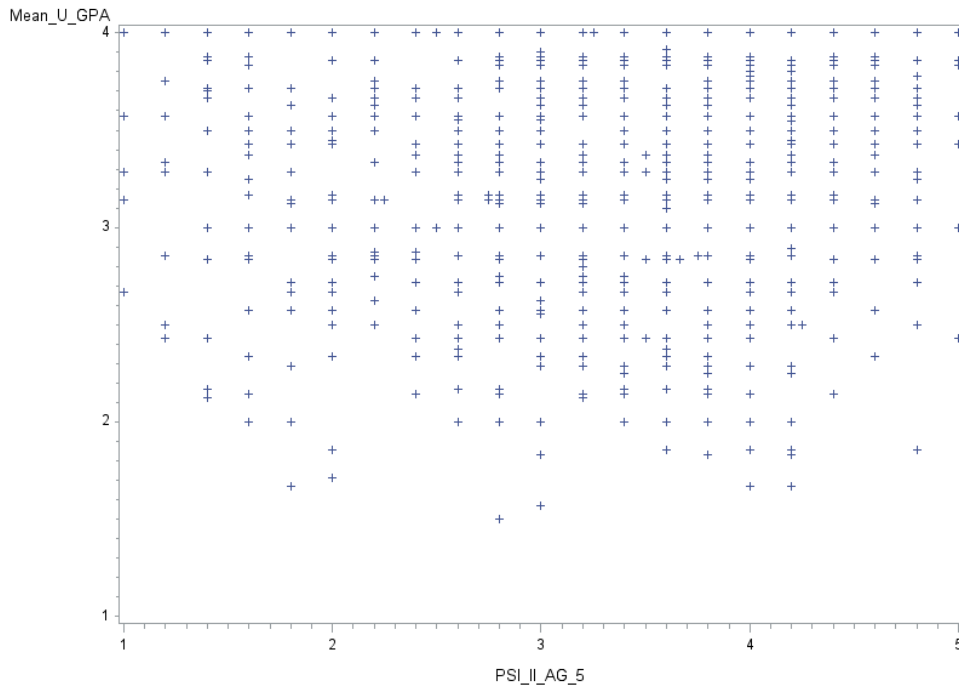


Figure 4. *Scattergram of Semester GPAs Plotted against Autonomy Granting (n = 1211)*

Note. PSI_II_AG_5=Autonomy Granting. Mean_U_GPA=Semester GPA.

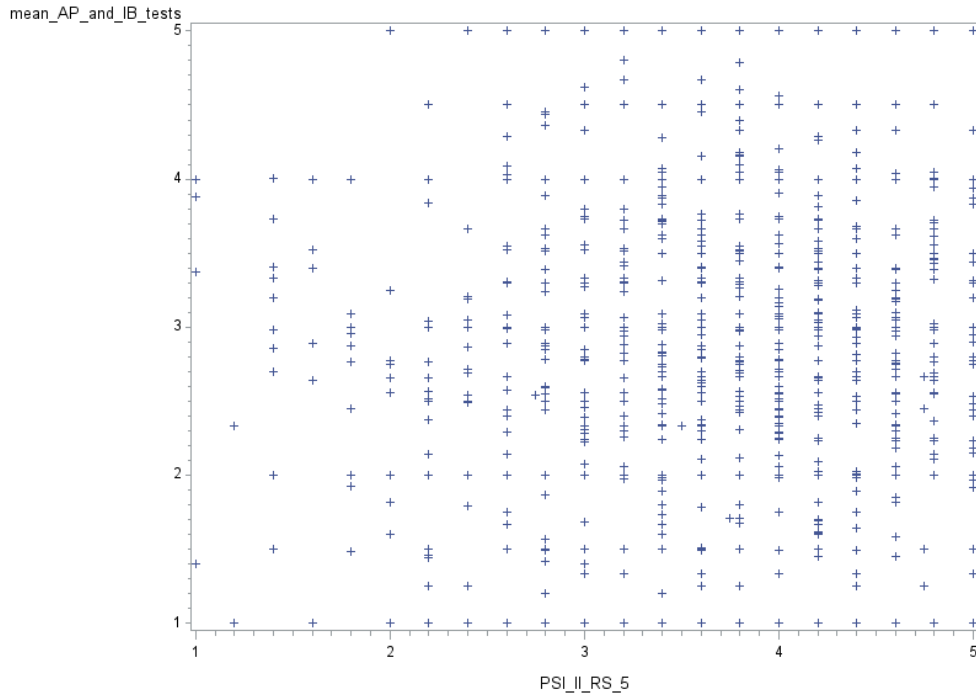


Figure 5. Scattergram of End-of-Course Test Scores Plotted against Responsiveness ($n = 1025$)

Note. PSI_II_RS_5=Responsiveness. Mean_AP_and_IB_Test=End-of-Course Exam.

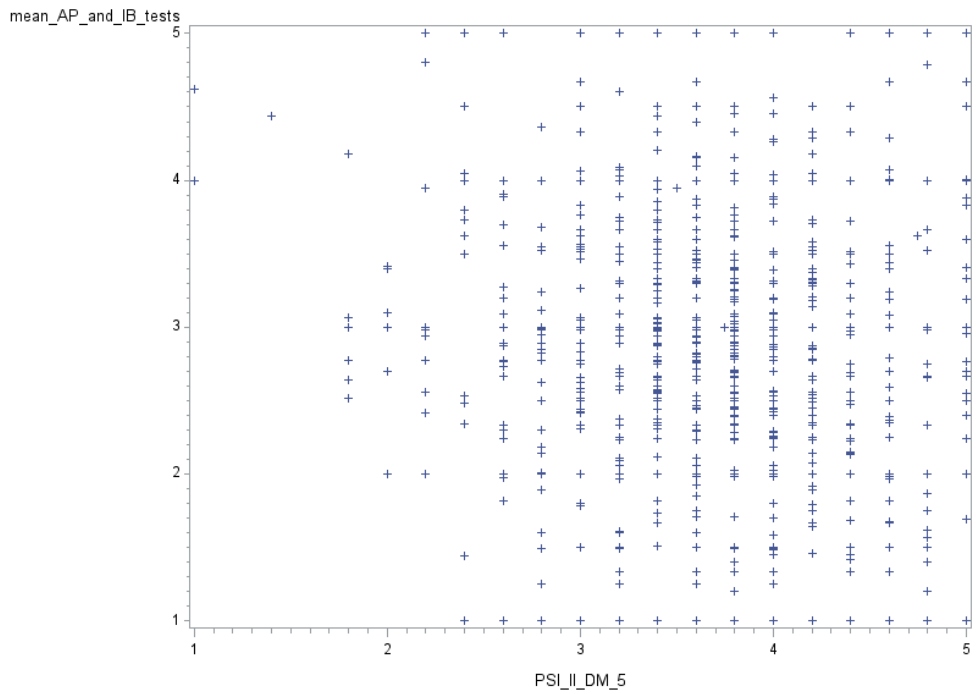


Figure 6. Scattergram of End-of-Course Test Scores Plotted against Demandingness ($n = 1025$)

Note. PSI_II_DM_5=Demandedness. Mean_AP_and_IB_Test=End-of-Course Exam.

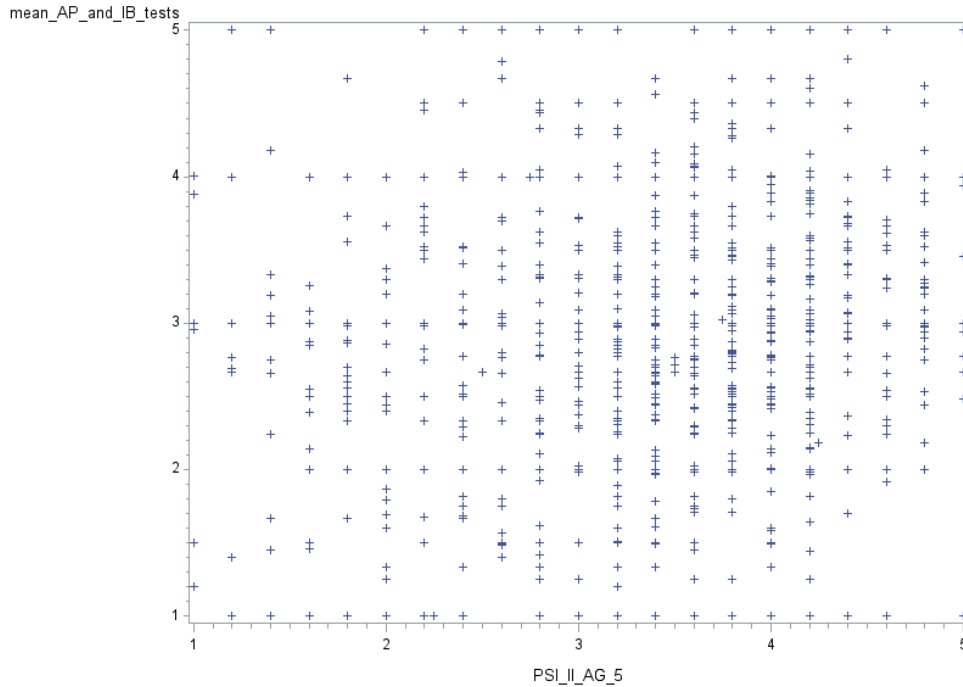


Figure 7. Scattergram of End-of-Course Test Scores Plotted against Autonomy Granting ($n = 1025$)

Note. PSI_II_AG_5=Autonomy Granting. Mean_AP_and_IB_Test=End-of-Course Exam.

As shown in Table 8 (See page 51), within the entire sample of IB students, there were significant positive correlations between responsiveness and GPAs ($r = .17$) as well as between autonomy granting and GPAs ($r = .15$), such that IB students who reported more responsiveness and autonomy granting parenting behaviors earned better grades. A similar pattern was reflected in the positive significant correlation between autonomy granting and end-of-course exam scores ($r = .13$), which indicated that IB students who perceived high autonomy granting from their family had higher test scores.

As shown in Table 9 (See page 51), for the White IB students, only the correlation between GPAs and two parenting behaviors were statistically significant ($r = .26$ with responsiveness, $r = .25$ with autonomy granting); no parenting behaviors exhibited significant

correlations with end-of-course exam scores. For Asian American IB students, none of the parenting behaviors were significantly correlated with any of the academic indicators, such that Asian American IB students' GPAs and exam scores were not reliably associated with the parenting behaviors they reported at home.

Building on the previous correlational analyses, two simultaneous multiple regression analyses were conducted to determine the extent to which parenting behavior (i.e., responsiveness, demandingness, and autonomy granting) predicts academic achievements (i.e., GPAs or end-of-course exam scores) within the entire sample of IB students ($n = 1211$). Beta weights and uniqueness indices were reviewed to evaluate the importance of each parenting behavior. To facilitate parallel interpretation of findings across regression analyses (in research questions 1 and 2), gender (but not SES or grade level) was entered as a predictor and statistically controlled in the regression equations since the χ^2 test presented earlier showed that gender significantly differentiated the two groups of primary interest, and results of the t -tests presented indicated the subgroups (White and Asian American) were not statistically different in terms of mean levels of SES and grade level representation.

For the entire sample of IB students ($n = 1211$), the equation containing these four variables accounted for approximately 3% of observed variance in students' GPAs, $F(4, 1206) = 10.68, p < .0001, R^2 = .034, \text{adjusted } R^2 = .031$. Beta weights and uniqueness indices were subsequently reviewed to assess the relative importance of the four variables in the prediction of GPAs for the entire sample (see Table 11, page 57). Responsiveness was significant and the strongest predictor ($\beta = .13, p < .05$). In sum, within the entire IB sample, higher GPAs were observed from IB students who reported a more responsive parenting style from their parents.

The equation containing these four variables accounted for approximately 3.6% of observed variance in IB students' end-of-course tests, $F(4, 1020) = 9.62, p < .0001, R^2 = .036$, adjusted $R^2 = .033$ ($n = 1025$). Beta weights and uniqueness indices were subsequently reviewed to assess the relative importance of the four variables in the prediction of end-of-course test scores for the entire sample (see Table 12, page 58). Gender was significant and the strongest predictor ($\beta = -.13, p < .05$), followed by autonomy granting ($\beta = .09, p < .05$), and demandingness ($\beta = -.08, p < .05$). In sum, higher scores of end-of-course tests were observed from the male IB students, as well as within students who reported *higher* levels of psychological autonomy granting and *lower* demandingness (i.e., less behavioral strictness from parents).

Table 11

Simultaneous Multiple Regression Analysis Explaining GPA within Entire Sample of IB Students
($n = 1211$)

| Variable | <i>B</i> | <i>SE B</i> | β | Uniqueness index |
|-------------------|----------|-------------|---------|------------------|
| Responsiveness | .088 | .023 | .134* | .011* |
| Demandingness | -.021 | .026 | -.025 | .000 |
| Autonomy Granting | .041 | .025 | .063 | .002 |
| Gender | .013 | .032 | .011 | .000 |

Note. Gender was coded as 1=Female, 0=Male. $R^2 = .034$, adjusted $R^2 = .031$
* $p < .05$.

Research Question 1, cont'd: Are there Significant Differences in the Strength of the Relationships for Asian American and White IB Students?

A total of six multiple regression analyses were conducted to determine whether a given parenting behavior predicted school performance differently for the two ethnic groups. These analyses built on the regression analyses conducted for the first research question, but were

restricted to the combined sample with only participants from the White and Asian American subgroups ($n = 762$). Interaction terms between a given parenting behavior and the two ethnic groups of interest were added to the equation to determine if a parenting dimension predicted an outcome differently for a specific group (0 = White, 1 = Asian American). Each parenting dimension was examined in isolation. The statistical significance of the beta weight associated with each interaction term was examined to determine if parenting predicts achievement outcomes differently with regard to GPA (see Table 13, page 60) and End-of-Course Exam Performance (see Table 14, page 61). Gender (but not SES or grade level) was entered as a predictor and statistically controlled in the regression equations since it was shown that this factor significantly differentiated the two groups in the previous analyses.

Table 12

Simultaneous Multiple Regression Analysis Explaining End-of-Course Exams within Entire Sample of IB Students ($n = 1025$)

| Variable | <i>B</i> | <i>SE B</i> | β | Uniqueness index |
|-------------------|----------|-------------|---------|------------------|
| Responsiveness | .019 | .046 | .016 | .000 |
| Demandingness | -.115 | .052 | -.077* | .005* |
| Autonomy Granting | .104 | .049 | .090* | .004* |
| Gender | -.255 | .063 | -.126* | .016* |

Note. Gender was coded as 1=Female, 0=Male. $R^2 = .036$, adjusted $R^2 = .033$

* $p < .05$.

Responsiveness (predicting GPA)

GPA was regressed on the linear combination of gender, ethnic group, responsiveness (after the variable was mean-centered), and the interaction of group by responsiveness. Findings are presented in Table 13. Of most relevance to the current research question, the interaction

term was not statistically significant ($\beta = -.08, p > .05$), indicating the positive influence of responsiveness on GPA ($\beta = .28, p < .0001$) was not significantly different for White and Asian American IB students.

Demandingness (predicting GPA)

GPA was regressed on the linear combination of gender, ethnic group, demandingness (after the variable was mean-centered), and the interaction of group by demandingness. The interaction term between ethnic group and Demandingness was not statistically significant ($\beta = .05, p > .05$), which indicated the negative influence of demandingness on GPA ($\beta = -.13, p < .002$) was not significantly different for the two ethnic groups.

Autonomy Granting (predicting GPA)

GPA was regressed on the linear combination of gender, ethnic group, autonomy granting (after the variable was mean-centered), and the interaction of group by autonomy granting. There was not a significant effect associated with the interaction term ($\beta = -.08, p > .05$). This finding suggests that the positive influence of autonomy granting on GPA ($\beta = .26, p < .0001$) was not significant different for White and Asian American IB students.

In sum, among the three parenting behaviors that were examined as predictors of achievement, responsiveness showed the most significant effect on GPA across the two groups $F(4, 757) = 19.51, p < .05, R^2 = .09$, adjusted $R^2 = .09$, followed by autonomy granting $F(4, 757) = 17.08, p < .05, R^2 = .09$, adjusted $R^2 = .08$, and demandingness $F(4, 757) = 9.99, p < .05, R^2 = .05$, Adjusted $R^2 = .04$. None of the interactions between parenting behaviors and ethnic groups were statistically significant, which indicated that there was no significant differences between how

the three parenting behaviors predicted students' GPA for White IB students and Asian American IB students.

Table 13

Multiple Regression Analysis Predicting GPAs Using Ethnic Group, Parenting Behavior and the Interaction Effect between Parenting Behavior and Ethnic Group (n =762)

| | <i>F</i> | <i>R</i> ² | Adjusted <i>R</i> ² | <i>t</i> (interaction x group) |
|-------------------|----------|-----------------------|-----------------------------------|--------------------------------------|
| Responsiveness | 19.51* | .09 | .09 | -1.79 |
| Demandingness | 9.99* | .05 | .04 | 1.09 |
| Autonomy granting | 17.08* | .09 | .08 | -1.74 |

**p* < .05.

Responsiveness (predicting end-of-course exam scores)

End-of-course exam scores were regressed on the linear combination of gender, ethnic group, responsiveness (after the variable was mean-centered), and the interaction of group by responsiveness. Findings are presented in Table 14. Of most relevance to the current research question, the interaction term was not statistically significant ($\beta = -.02, p > .05$), indicating the positive effect of responsiveness on end-of-course tests ($\beta = .09, p > .05$) was not significantly different for White and Asian American IB students.

Demandingness (predicting end-of-course exam scores)

End-of-course exam scores were regressed on the linear combination of gender, ethnic group, demandingness (after the variable was mean-centered), and the interaction of group by demandingness. The interaction term between group and demandingness was not statistically significant ($\beta = .05, p > .05$), indicating the negative effect of demandingness on end-of-course tests ($\beta = -.16, p < .001$) was not significantly different for two ethnic groups.

Autonomy Granting (predicting end-of-course exam scores)

End-of-course exam scores were regressed on the linear combination of gender, ethnic group, autonomy granting (after the variable was mean-centered), and the interaction of ethnic group by autonomy granting. Of most relevance to the current research question, the interaction term was not statistically significant ($\beta = -.02, p > .05$), indicating the positive effect of autonomy granting on end-of-course tests ($\beta = .15, p < .005$) was not significantly different for White and Asian American IB students.

For end-of-course tests, demandingness had the most significant effect across the two groups $F(4, 621) = 4.67, p < .05, R^2 = .03$, adjusted $R^2 = .02$, followed by autonomy granting $F(4, 621) = 4.58, p < .05, R^2 = .03$, adjusted $R^2 = .02$, and responsiveness $F(4, 621) = 2.64, p < .05, R^2 = .02$, adjusted $R^2 = .01$. None of the interactions between parenting behaviors and ethnic group were statistically significant, which indicated that all three parenting behaviors predicted students' end-of-course tests in a similar manner across White IB students and Asian American IB students.

Table 14

Multiple Regression Analysis Predicting End-of-Course Tests Using Ethnic Group, Parenting Behavior, and the Interaction Effect between Ethnic Group and Parenting Behavior (n = 626)

| | <i>F</i> | <i>R</i> ² | Adjusted <i>R</i> ² | <i>t</i> (interaction x group) |
|-------------------|----------|-----------------------|-----------------------------------|--------------------------------------|
| Responsiveness | 2.64* | .02 | .01 | -0.32 |
| Demandingness | 4.67* | .03 | .02 | 1.12 |
| Autonomy granting | 4.58* | .03 | .02 | -0.33 |

* $p < .05$.

Research Question 2: Are there Group Differences in Academic Achievement between White IB Students and Asian American IB Students?

Semester GPA

The analysis revealed a significant difference between the two groups, $t(760) = -5.32, p < .01$. Asian American IB students had significant higher GPAs ($M = 3.55, SD = 0.49$) than White IB students ($M = 3.33, SD = 0.56$). The effect size was computed as $d = 0.42$, which represents a small to medium effect.

End-of-course Exam Scores

The White IB students had end-of-course exam scores ($M = 3.15, SD = 0.94$) that were almost the same as Asian American IB students ($M = 3.13, SD = 0.94$), and there was no significant difference between these two groups $t(624) = .23, p > .05$. The effect size was computed as $d = 0.02$, which represents a minimal effect. In sum, participants from two ethnic groups had similar end-of-course exam scores.

Research Question 3: Are there Significant Differences in Mean Levels of Parenting Dimensions differ between the Groups of Asian American and White IB Students with regard to: Support/Responsiveness, Demandingness/Supervision, and Autonomy Granting?

A multivariate analysis of variance (MANOVA) was conducted to determine whether there was a difference between White IB students and Asian American IB students with respect to the parenting behaviors they perceived from their parents (i.e., responsiveness, demandingness, and autonomy granting).

The homogeneity of variances was first examined to ensure the variances were similar across White and Asian American IB students. The result of Levene's test was $F(1, 774) = 1.33$, $p > .05$ for responsiveness, $F(1, 774) = 1.85$, $p > .05$ for demandingness, and $F(1, 774) = 2.33$, $p > .05$ for autonomy granting, indicating the variances of these three parenting behaviors were not significantly different across groups.

This MANOVA revealed a significant multivariate effect for ethnic group, Wilks lambda = .97, and $p < .0001$ with significant differences in all three domains: responsiveness ($F = 9.05$, $p < .01$), autonomy granting ($F = 18.15$, $p < .0001$), and demandingness ($F = 13.26$, $p < .001$). Specifically, White IB students reported higher levels of responsiveness ($M = 3.74$, $SD = 0.84$) and autonomy granting ($M = 3.52$, $SD = .82$) on average than Asian American IB students (responsiveness: $M = 3.54$, $SD = 0.89$, autonomy granting: $M = 3.23$, $SD = 0.89$), while Asian American IB students reported higher level of demandingness ($M = 3.83$, $SD = 0.64$) than White IB students ($M = 3.64$, $SD = .69$). The Cohen's d s were computed as $d = 0.23$ for responsiveness, $d = 0.29$ for demandingness, and $d = 0.34$ for autonomy granting; all represented small effects of race group for each of the three parenting dimensions.

CHAPTER FIVE:

DISCUSSION

The purpose of this study was to examine how perceived parenting behaviors related to academic outcomes among high school students who enrolled in college-level curricula (i.e., International Baccalaureate Program), with a focus on understanding these relationships between two ethnic subgroups (Asian American, White). Additionally, this study compared the group differences in academic performance and perceived parenting behaviors between IB students from the majority culture (White) and a minority culture (Asian American). This chapter summarizes the results of this study, and discusses the findings in the context of the existing literature. The discussion of significant findings is followed by implications of these results for parents and educators, contributions to the literature, and directions for future research on this topic.

Group Differences in Achievement

Two research questions focused on mean differences in achievement indicators and parenting behaviors between two ethnic groups. It should be noted that no known published studies have specifically compared White students and Asian American students in college-level curricula like the IB programme, neither on their academic achievement nor perceived parenting behavior. Therefore, findings from the current study are compared against prior research with high school students from different settings.

The current study found that Asian American IB students earned significant higher grades than their White IB peers, but the two groups did not differ in performance on end-of-course tests.

Semester GPA

The semester GPA variable analyzed in the present study was the average of the final grades earned during the semester in which students took part in the study (Spring 2012), across all courses taken for high school credit. Besides six required subjects from DP programmes (i.e., language acquisition, studies in language and literature, individuals and societies, mathematics, sciences, and arts), the DP also includes three core activities (i.e., Extended Essay, Theory of Knowledge, and Creativity, Action, Service) to ensure the programme “develop inquiring, knowledgeable and caring young people” (IBO, 2014b). The core of DP might play an important role in drawing IB students’ attention from course work to critical and creative thinking, community serving, and a life outside the academic area. Compared with White students’ families, Asian American students’ parents may be more likely to place importance on and put effort into their children’s in-school academic performance, and relatively neglect students’ out-school activities (Lui & Rollock, 2013), which may be reflected in the better grades Asian American students earned in courses.

End-of-course Exam Scores

The end-of-course composite test score variable represents IB students’ average performance on final AP and IB tests during the school year. Whereas grades in courses reflect an accumulated performance on assignments and in-class exams, the end-of-course test scores reflect knowledge demonstrated on a single occasion, specifically a formal testing situation. The

equivalence of Asian American and White students' performance on these final exams suggests that perhaps the subgroups' have similar content knowledge but Asian American students have superior in-class participation and/or assignment completion (additional contributors to course grades).

In the 2008-2009 school year, Asian American high school students across the country had overall higher average GPA ($M=3.26$) than other ethnic groups (White=3.09, Hispanic=2.84, and Black= 2.69) (The Nation's Report Card, 2014). Previous studies found that Asian American high school students (i.e., age 15-19) had better performance than White students in terms of overall or average GPA, grades and test scores in *math* (i.e., SAT math section, and National Assessment of Educational Progress [NAEP] Mathematics Assessment Tests), but equivalent or lower grades and test scores in *verbal* (i.e., SAT verbal section) and *writing* skills (Kao & Thompson, 2003; Sue & Okazaki, 2009) Many studies have focused on why Asian American have been portrayed as a model minority in education (Sue & Okazaki, 1990; Wong, Lai, Nagasawa, & Lin, 1998), and Sue and Okazaki (2009) indicated that aspects of the Asian culture that emphasize essential elements for better education performance (i.e., hard work, patience, cohesion between families, and team work) are significantly positively associated with Asian American students' school performance.

Group Differences in Perceived Parenting

Responsiveness

Responsiveness refers to how parents respond to their children's need, are involved in their lives, and provide emotional support when needed. In the current study, White IB students reported perceiving higher levels of responsiveness on average than Asian American IB students.

This trend is consistent with previous studies in which the majority of White adolescents reported an authoritative parenting style (of which responsiveness is a hallmark), followed by authoritarian, indulgent, and neglectful, whereas Asian American adolescents reported lower rate of authoritative parenting style in terms of responsiveness (Radziszewska et al., 1996; Steinberg et al., 1992a; Wu & Chao, 2005). The finding of greater responsiveness among White students is also consistent with the literature in that White Americans placed higher value on authoritative parenting (Radziszewska et al., 1996).

Demandingness

Demandingness refers to the parents' expectation for their children to follow certain standards and instructions, as well as their degree of behavioral monitoring for their children. In the current study, Asian American IB students reported higher level of demandingness on average than White IB students. Demandingness is a key feature of authoritarian parenting, particularly when high levels of demandingness occur in the absence of responsiveness. The current finding of greater demandingness among Asian American students is consistent with previous studies that found Asian American adolescents reported higher rates of authoritarian parenting than White adolescents (Dornbusch et al., 1987; Lui & Rollock, 2013; Steinberg et al., 1989; Steinberg et al., 1991; Steinberg et al., 1992a; Steinberg et al., 1992b; Wu & Chao, 2005).

Autonomy Granting

This aspect of authoritative parenting involves promoting children's individuality, emotional autonomy, and self-determination while limiting parents' psychological control. Compared to the other dimensions of parenting style, autonomy granting has many unique

features. First, autonomy granting is a domain specific to adolescents. Adolescents (ages 15 to 18) have their own desires of making choices and developing independence (Schaefer, 1956). Thus, unlike young age children (ages 4 to 15) who are influenced by behavioral control (i.e., demandingness) from their parents, adolescents are also affected by psychological control (i.e., low autonomy granting). Then, autonomy granting acts as a salient domain which could be blended into authoritative parenting style (Schaefer, 1956; Steinberg et al., 1989). Most previous studies of authoritative parenting in adolescents have combined three domains together when examining relationships between types of parenting style (i.e., authoritative, authoritarian, indulgent, and neglectful) and academic achievement (Dornbusch et al., 1987; Lamborn et al., 1991; Steinberg et al., 1989; Steinberg et al., 1992b). The current study is one of the only to examine the autonomy granting dimension independently, i.e., without combining it with other relevant dimensions, in relation to high school students' school performance.

The current study found White IB students perceived higher level of autonomy granting on average than Asian American IB students, consistent with aforementioned studies that found greater authoritative parenting in general among White families. Notably, no known published studies had specifically examined mean level of autonomy granting across White and Asian American subgroups.

Bivariate Associations between Parenting and Achievement

Responsiveness

Within the entire sample of IB students, higher levels of responsiveness were positively correlated with one of the indicators of academic achievement (i.e., semester GPA), which indicated that students who perceived more responsive parenting behavior from home would

have higher GPAs. Correlations calculated separately by ethnic group suggested this trend is particularly likely for White students but not Asian American students.

The findings that IB students' higher academic outcomes were correlated with higher responsiveness (thus lower parental authoritarianism and higher authoritative parenting if with same level of demandingness) were consistent with prior research with students in general high schools (Dornbusch et al., 1987; Steinberg et al., 1989). Like other youth, IB students who perceive higher responsive parenting behaviors in general (general responsiveness features an optimistic and comprehensive worldview, e.g., by telling children to look at issues from both sides) as well as academic-focused responsiveness like praising children in response to good grades or improvement, encouraging them to try harder when a child gets a poor grade, and offering help when necessary (Dornbusch et al., 1987; Leung, 1998) might have higher academic performance.

Correlations in the current study were consistent with findings in previous studies that responsiveness was generally associated with the best academic outcomes (e.g., GPA, school effort, academic competence, time spent on homework, classroom engagement, etc.) for White students (14-18 years old) (Chao, 2001; Dornbusch, 1987; Lamborn et al., 1991). Bivariate associations in the current study also suggested that in contrast to findings for the majority ethnic group (White students), the correlations between responsiveness and academic outcomes were not significant within this subgroup of only Asian American students. This is consistent with previous studies (Chao, 2001) which found authoritative parenting was positively associated with White adolescents' school performance (i.e., GPA and school effort), but not first-generation Chinese students.

Taken together, these correlational findings might suggest that the majority of IB students (i.e., White students) were like typical high school students, whose academic performance was positively associated with authoritative parenting (in particular, responsiveness) whereas Asian American IB students were not. However, the differences in parenting measures might be one reason of these different results. Chao (2001) and Steinberg (1992b) both used Baumrind's (1967) three parenting style theory (i.e., authoritative, authoritarian, and permissive) and Parenting Style Measures (Steinberg, et al., 1992b) in their studies. In the Parenting Style Measure, authoritative parenting style is comprised of scores on three dimensions: high responsiveness, demandingness, and autonomy granting, which precludes an understanding of which dimension has a stronger effect on academic outcomes, or whether three dimensions have mixed effect across ethnic groups. The present study examined three parenting behavior (i.e., responsiveness, demandingness, and autonomy granting) separately, which might provide clearer interpretation on effects of three parenting behaviors, separately.

Demandingness

In the current study, demandingness had no significant correlations with IB students' academic outcomes (neither GPA nor end-of-course tests), within the entire sample or for White students. This null association was inconsistent with findings from previous studies (Dornbusch et al., 1987; Steinberg et al., 1989). Demandingness is generally considered a less popular parenting behavior across American society (Radziszewska et al., 1996) and has appeared negatively associated with White students' academic outcomes (Dornbusch et al., 1987; Lamborn et al., 1991; Steinberg et al., 2001).

Also, the present study found that similar as with White IB students, demandingness did not significantly correlate with Asian American IB students' academic outcomes. Previous studies reported that Asian American families are more likely to report an authoritarian parenting style (low responsiveness and high demandingness), and this authoritarian parenting style was associated with higher academic achievement (indicators such as GPA, as well as homework effort, school attendance, and behavior at school) for Asian American students (Dornbusch et al., 1987; Steinberg et al., 1989; Steinberg et al., 1991; Wu & Chao, 2005). Thus, it is surprising that greater levels of demandingness (a hallmark of authoritarian parenting) were not correlated with academic achievement among Asian American IB students.

Some features of IB students and the curriculum they receive might explain these discrepant findings. Students who enrolled in the IB programmes are often gifted or high-achieving (Adams-Byers et al., 2004) or have an international background (IB Global Research, 2012), as well as a clear personal goals to attend a desired college or university. Therefore, IB students are more likely to be engaged in class and concentrate on course work as compared to typical high school students (IB Global Research, 2012). Demandingness (sometimes called supervision) indexes parents' expectation for their children as well as clear standards and instructions for their children to follow. This external oversight might overlap with IB students' self-expectations and standards for performance in the IB curricula; for self-motivated students, demandingness might not be as salient to students' academic achievement as IB students may set their own high expectations for achievement and strive to reach their high standards regardless of their parents' goals.

Autonomy Granting

The current study found that autonomy granting was positively correlated with both indicators of academic outcomes (i.e., GPA and end-of-course exams score) within the entire sample of all IB students, as well as positively related to GPA for White IB students. These findings were consistent with previous studies (Schaefer, 1956; Steinberg et al., 1989; Steinberg et al., 1991), which suggested that autonomy granting is a salient contributor to adolescents' school performance.

In general, the positive associations between autonomy granting and academic outcomes were similar to findings suggesting a facilitative role of responsiveness among IB students. For the entire sample, students who receive more freedom to make decision on their own, get respect from parents about their own point of view and personal privacy, and are allowed to questions their parents' ideas are more likely to achieve higher academic outcomes. For White IB students, autonomy granting only had significant bivariate correlations with semester GPA, but not end-of-course test scores. The autonomy granting IB students perceived from their parents (e.g., have more freedom to make their own decision) might be consistent with and promote their high self-expectation as parents would like to let children make their own decision to have good behavior in class. Thus, autonomy granting might positively relate to IB students' daily school performance pertinent to classroom engagement, homework completion, school attendance, etc., and further positively relate to IB students' GPA. Further research could focus on how autonomy granting differentially impacts students' GPA and performance on end-of-course tests.

Multivariate Effects of Perceived Parenting Behaviors on Academic Achievement

Semester GPAs

Within the entire sample of IB students, the current study found that when all three parenting behaviors were considered together, responsiveness was the only significant predictor of semester GPA, an association that was positive in direction. This finding is consistent with previous research (Dornbusch et al., 1987; Lamborn et al., 1991; Steinberg et al, 1992b) that found authoritative parenting style had an overall significant positive effect on high school students' academic performance (e.g., GPA, classroom engagement, and time spent on homework). In Steinberg and his colleagues' study they used an adapted version of the Authoritative Parenting Questionnaire (APQ; Dornbusch et al., 1985), an authoritative parenting style was indicated by higher responsiveness, demandingness, and autonomy granting combined together. That combined variable was a positive predictor of academic performance. By examining three dimensions separately, the current study suggested that the responsiveness dimension of authoritative parenting drives the positive effect, whereas demandingness and autonomy granting have smaller unique contributions. This finding suggests that for high achieving adolescents (i.e., IB students), responsiveness might be the only dimension of parenting salient to their GPA. Since authoritative and indulgent parenting styles both feature high levels of responsiveness, these two styles might have a similarly positive effect on IB students' GPA.

In terms of group differences in the contribution of parenting behaviors to GPA between White IB students and Asian American IB students, findings from regression analyses indicated that ethnic group was not a statistically significant moderator of the effect of a parenting dimension on GPA, indicating that the influence of a particular parenting behavior was not in a

significantly different direction or magnitude between subgroups of students who identified as either White or Asian American. Rather, results of the current study indicated that the three parenting behaviors predicted students' GPA similarly across the two subgroups. These findings were inconsistent with most previous studies (Chao, 2001; Dornbusch et al., 1987; Steinberg et al., 1992b). Some of those previous studies that suggested different results examined parenting types rather than behavioral dimensions associated with each type. For example, authoritative parenting had a stronger impact on White students' achievement than on Asian American students (Steinberg et al., 1992b), whereas authoritarian parenting either did not have a beneficial effect at all (Chao, 2001) or was the strongest predictor for Asian American students (Dornbusch et al., 1987). However, similar as to findings from the current study, Lamborn and his colleagues (1991) suggested that the effects of parenting styles appear to be similar across ethnic groups, including White and Asian American subgroups.

The differences between the results of the current study and the previous studies might also be due to use of different measures. The measure of parenting style that Lamborn et al (1991) used was adapted from existing measures (Dornbusch et al., 1985) and developed by the researchers of their program, which measured three parenting behaviors (i.e., responsiveness, demandingness, and autonomy granting). Since autonomy granting was viewed as important to authoritativeness, but less so relevant to other types of parenting styles, Lamborn and his colleagues decided not to employ their measure of autonomy granting in that study. Thus, only responsiveness and demandingness were used to assign families to one of four parenting styles, and an authoritative parenting style was characterized by high levels of responsiveness and high levels of demandingness. Different from the measure Lamborn et al (1991) used in their study, Steinberg et al (1992b) and Chao (2001) both used their own adapted measures to examine three

parenting behaviors (i.e., responsiveness, demandingness, and autonomy granting), while Dornbusch et al (1987) used self-developed 25 items questionnaire to evaluate Baumrind's (1971) three styles of parenting (i.e., authoritative, authoritarian, and permissive).

Selection of school performance indicator might be another reason why the current study yielded different conclusions than findings from previous studies. The current study used semester GPA from school records as an academic achievement indicator, while others used different combinations of self-reported GPA and other self-reported data (e.g., self-reported time spent on weekly homework, self-reported classroom engagement and school effort, and orientation toward class and exam; Chao, 2001; Lamborn et al, 1991; Steinberg et al, 1992b), or a single indicator (i.e., self-reported grades; Dornbusch et al., 1987). Semester GPA from school records might more objectively reflect students' school performance, but be less able to capture students' attitudes toward school.

Finally, differences in analytic approaches may contribute to discrepant findings. Even within a single study, such as the current one, different conclusions were suggested following review of results from correlation matrices as compared to multivariate analyses in which parenting dimensions were considered simultaneously along with control variables. Further, different conclusions were suggested from bivariate analyses of associations within a single subgroup as compared to multivariate analyses that relied on interaction terms to indicate a difference in associations between predictor and outcome variables for different subgroups. Specifically, results of the correlational analyses conducted in the current study suggest stronger links between parenting and achievement, particularly among White students, but these trends were not supported by the moderator analyses since the group X parenting dimension interaction terms were not statistically significant (although in the case of GPA, the interaction terms for

responsiveness and autonomy granting likely approached statistically significant levels as the t-values were relatively large).

In sum, the differences in indicators (of parenting and academic achievement) and analytic approaches might contribute to the findings of the current study that all three parenting behaviors contributed similarly across two subgroups. The unique features of IB students such as gifted, high self-motivated, and having a more trust-filled environment (IBO Global Research, 2012) might also contribute to the result.

End-of-course Exam scores

Findings of regression analyses conducted in the current study indicated that for the entire IB sample, male IB students had significant higher scores in end-of-course tests than female IB students. After controlling for the gender variable and the commonality between dimensions of authoritative parenting, demandingness emerged as the strongest predictor (in a negative direction) and autonomy granting was the second strongest predictor (in a positive direction) of end-of-course test scores. Tests for ethnic group as a potential moderator indicated that the three parenting behaviors contributed similarly to end-of-course tests across two subgroups. No known published studies have specifically examined the effect of parenting behaviors on high school students' performance on college-level tests. Thus, comparisons to past literature cannot be drawn.

Demandingness contributed inversely to IB students' college-level tests score, which indicated that more behavioral control was associated with lower scores in these end-of-course, high stakes exams. The design of DP programmes, such as the mission, curriculum structure, and circumstance, could partially explain the above finding. First, IB program missions included

encouraging students across the world to become *active* learners who could understand other people and cultural differences (IBO, 2014b). Then, the core curriculums of DP programmes link variety of subjects and activities, which required *creativity, critical, reflective* and *independent thinking*. Furthermore, the programmes provided *personal circumstances* such as personalized curriculum design (IBO, 2014b; IB Global Research, 2012). The above features of DP programmes are meant to engender a more trustful, enjoyable, and relatively freer class environment. However, parents with high demandingness behaviors require their children to follow family rules, punish them when they do not behave themselves, and point out ways that their children could do better. Demandingness is associated with a home environment which parents make claims for their child “to become integrated into the family whole, by their maturity demand, supervision, disciplinary efforts and willingness to control the child who disobeys” (Baumrind, 1991, pp. 61-62) which is opposite in spirit to IB students’ classroom and school circumstance which reflects the rather autonomous mission of IB. In contrast, parental encouragement of age appropriate independence (i.e., autonomy granting) is consistent with the spirit of IB. Thus, it is somewhat logical that among IB students, demandingness by parents may be tied to reduced achievement (students’ performance on the college-level tests), whereas parental autonomy granting is associated with greater achievement as indexed by content mastery within a like-minded philosophy.

Different from having a significant effect on semester GPA, responsiveness did not exert a unique contribution to end-of-course test scores for IB students. Responsiveness was indicated as a strong positive predictor of achievement for the majority of U.S. adolescents in the previous studies (Dornbusch et al., 1987; Lamborn et al, 1991; Steinberg et al., 1992a; Steinberg et al., 1992b). It is possible that the positive effects of responsiveness are only observable on more

behavioral indicators of students' school performance such as attendance, assignment completion, class participation, and so on, but less influential on academic skills as indicated by students' performance on AP and IB exams. However, more research is needed to replicate the findings in the current study prior to concluding that responsiveness is only crucial to subjective or behavioral indicators of academic achievement as compared to more objective indicators of content knowledge.

Implications for Parents and School Educators

Parenting has been indicated as a crucial determinant of children's social, emotional, and cognitive development, as well as school performance and academic achievement (Darling, 1999; Maccoby & Martin, 1983). According to the previous literature, some specific types of parenting styles (e.g., authoritative and authoritarian) contribute differently across ethnic groups (Chao, 2001; Dornbusch et al., 1987, Radziszewska et al., 1996; Steinberg et al., 1991; Steinberg et al., 1992b; Wu & Chao 2005), so it would benefit students to receive the most suitable parenting from their families. Especially for IB students who pursue college-level knowledge and credits when they are still in high school, receiving the most suitable parenting may help to improve their academic achievement and school performance.

Findings of the current study suggest that for IB students in general, the parenting behaviors that may best promote academic achievement are higher responsiveness, higher autonomy granting, and lower demandingness. Generally, higher responsiveness contributes most to better course grades, while lower demandingness and higher autonomy granting contribute most to higher final course exam scores.

By examining the associations between parenting behaviors and students' academic outcomes, this study provides educators and school psychologists with a clearer idea of where to focus their efforts in terms of communicating with parents. The current study found that among high school students in IB courses, parenting behaviors were significant predictors of students' achievement, underscoring the critical role of parenting even among a developmental stage that is marked by strivings for independence and increased emphasis on friends and romantic relationships. Findings thus underscore the importance of providing relevant information to families, in individual consultations or group meetings, to enhance parents' awareness of how their behaviors likely influence their children's academic performance. Specifically, school psychologists may introduce the term of *authoritative parenting* to families and explain the importance of suitable parenting behaviors. Further, school psychologists may provide evaluating and measuring services to parents, and provide further consultation to families who identify their parenting behaviors as "at-risk" level (i.e., low responsiveness, low autonomy granting, and high demandingness).

Additionally, school psychologists may provide group-level information and individual consultation for parents and students who have needs of improving or changing their current parenting method at home. Families of Asian American students may be a particularly at-risk group with regard to parenting because the parenting dimensions associated with better academic outcomes for IB students are all less prevalent among this ethnic group. Findings in the current study revealed that White IB students reported higher levels of parental responsiveness and autonomy granting than their Asian American peers, while Asian American IB students reported higher level of demandingness than White IB students. Therefore, consultation for Asian American families can likely focus on how responsiveness is positively associated with

children's academic performance, as Asian American families may be less likely to embrace a high level of responsiveness as compared to families of White youth. And perhaps most importantly, the consultation may correct the myth that demandingness positively contributes to Asian American students' school performance.

In terms of assisting school-level teams and educational personnel such as teachers, related consultation provided by school psychologists on the topic of parenting may help them to effectively improve students' school performance. Such consultation may focus on the features of different parenting behaviors/styles, students' academic performance associated with specific parenting behaviors/styles, as well as strategies that may be useful in communicating such guidance about parenting to families.

In addition to consulting with school-level personnel, school psychologists may work with students directly to increase their understanding of the kind of parenting they receive at home, as well as the importance of communication with parents. Especially for students who perceive high demandingness from their parents (i.e., feel they are asked to follow orders without questioning and challenging their parents), school psychologists may help to build a more responsive family environment by working with these students directly, for instance by role-playing problem-solving dialogue with parents.

In sum, the current study provides further rationale for school psychologists to provide services and assistance to promote a more suitable family environment for IB students, as characterized by higher responsiveness and autonomy granting, and lower demandingness, as these features are linked to academic success among IB students. These services could be provided by variety of manners, including through consulting with parents and students during individual or group meetings, as well as indirectly through working with teachers.

Contributions to the Literature

Although the role of parenting to children's outcomes has been of great historical interest to educational personnel and psychologists, there has been a paucity of research examining three parenting behaviors in relation to high-achieving students' academic outcomes. The existing literature mostly focused on four types of parenting styles (i.e., authoritative, authoritarian, indulgent, and neglectful) which are comprised of high and low levels of three core parenting behaviors (i.e., responsiveness, demandingness, and autonomy granting); only a few studies have examined the effects of these three parenting behaviors separately. So far, no study has been conducted to examine the effects of parenting behaviors on academic outcomes among high school students enrolled in college-level curricula. The current study illustrates how parenting behaviors differentially influence various indicators of academic achievement. The cross-sectional design of the study precludes confident statements regarding directionality and causality among the variables examined. But if parenting behaviors are conceptualized as the predictor (in line with the stable and often multi-generational nature of family dynamics), the findings from the current study suggest that higher responsiveness parenting behavior may help students to earn better grades in courses (i.e., semester GPA), while lower demandingness and higher autonomy granting contribute most to students' superior performance on high stakes tests (i.e., end-of-course AP and IB exams).

Additionally, previous studies yielded divergent conclusions on the how parenting behaviors work differently across White and Asian American adolescent groups. The current study first suggests that Asian American IB students perceived significantly higher level of demandingness, as well as significantly lower level of responsiveness and autonomy granting than White IB students. The previous studies indicated that different from White students, Asian

American students benefited from authoritarian parenting style (low responsiveness and high demandingness). However, findings from the current study suggest that Asian American IB students may benefit from high responsiveness and low demandingness in a manner similar to White IB students. Additionally, autonomy granting was found to be a positive contributor to both White and Asian American IB students' school performance. The findings of the current study may be due to the unique features of IB curriculum and IB students. Moreover, the parenting measure used in the current study examined three parenting behaviors separately, which may help to disentangle the mixed effects of parenting behaviors in parenting styles.

Limitations

There are some limitations of this study. First, the sample is from 10 high schools in Florida; ideally, a sample from multiple states and geographic regions would provide representation of the whole population of IB students in the U.S., as well as improve the overall generalizability of this study. Second, this study does not distinguish the first-generation and second-generation for immigrated Asian families. Chao (2001) found that second-generation Asian American families have similar values and beliefs as White families, and both groups are significantly different from the first-generation immigrated Asian families. Generation plays a role as an extraneous variable in this study and may introduce inaccuracies. The third limitation includes a possible gender effect for both parents and children. Barbara (1996) reported that boys could attain higher academic achievement with authoritative parenting, while girls are more likely to perform better with authoritarian parenting style. Jones, Forehand, and Beach (2000) indicated that maternal and paternal parenting styles have different effects on children. However, the questionnaire this study used focused on general parenting that occurred in one's household,

which precludes examination of specific effects of mothers' or fathers' behavior. A fourth limitation pertains to the source of parent-level data. Specifically, only youth perceptions of their parents' behavior was assessed; ideally, data on parenting behaviors would be triangulated with multiple methods such as observations, parent reports, and student reports. The fifth limitation pertains to the lack of knowledge regarding the ethnic identity of participants' parents. Because participants were not asked if they were "adopted" or "raised by biological parents," this study is unable to distinguish whether students' self-identification is the same as their family ethnicity or not. For example, the sample may include students who identify as Asian American but were adopted at an early age by White families, and thus exposed to a typical White family environment. The last limitation pertains the unclear direction between parenting behaviors and students' academic achievement. Since the current study is a cross-sectional study which collected data from the participants at one specific time point, it is unclear that whether parenting behaviors predict students' academic outcomes or in the opposite direction. Interventions that target at changing parenting behaviors could be implemented to exam the causal effect of parenting behaviors.

Future Directions

In order to provide further understanding of how parenting behaviors are linked to IB students' academic achievement, including for students from different ethnic and cultural groups, there are several future directions for research. Future research should distinguish more clearly Asian American IB students' immigration status (e.g., first or second generation) as well as the ethnic identity of their parents. Further, maternal and paternal parenting could be reported separately, to permit examination of the influence of parenting by mothers and fathers

independently, and to compare the interaction between parent's gender and adolescent's gender. It would also be beneficial for future researchers in this area to obtain parents' report of parenting they provide to their children in order to gain a more comprehensive understanding of any potential discrepancies between students' perspectives and parents' opinions.

Future research should include comparison groups of students from general high school settings to examine the effect of parenting behaviors measured by PSI-II among students other than high-achieving adolescents. Including peers in general education would provide a comparison group to examine whether parenting behaviors associate with students' academic performance differently across different academic environments, which would help to verify the hypothesized roles of the IB curriculum as well as the unique features of IB students. Further, participants from other college-level programming such as Advanced Placement and Dual Enrollment courses could be included in further research to determine if the findings from the current research are generalizable across other programs geared toward similar student populations.

Another direction for future research is to explore the differences of perceived parenting behaviors between Asian American IB students and Asian IB students who are living in a traditional Asian culture (e.g., China, Hong Kong, Japan, Korean, etc.). Asian American students and their parents are more likely to be influenced by American culture; for instance, they live within a society that holds high values for responsiveness. However, Asian IB students (IB students who identify themselves as Asian and live in Asian countries) may receive different parenting behaviors from their families, and due to the fit with the larger society's goals and norms, that parenting may work differently on students' academic achievement than their Asian American peers.

Summary

In conclusion, the current study has expanded the available literature by examining the relations between three parenting behaviors (i.e., responsiveness, demandingness, and autonomy granting) and two academic performance indicators (i.e., semester GPA and end-of-course test scores), and by examining how parenting behaviors contributed similarly across two ethnic groups (i.e., White IB students and Asian American IB students). The current study was the first known research to examine the influence of parenting behavior on academic performance among IB students. Additionally, the current study was the first to examine how parenting behaviors related to course grades and exam performance separately.

Asian American IB students were found have significantly higher average GPA than White IB students, but the two groups did not differ in performance on end-of-course tests. Group differences on average levels of parenting behaviors were found between the White and Asian American IB subgroups for all three parenting behaviors measured. Additionally, the current study found that responsiveness and autonomy granting both have positive correlations with an academic outcome within the entire sample of IB students, as well as within the subset of White IB students. Furthermore, the current study found that all three parenting behaviors associated with academic outcomes similarly across White and Asian American IB subgroups. Specifically, responsiveness was the only significant and unique predictor of semester GPA for IB students. For end-of-course test performance, demandingness was a negative predictor while autonomy granting was a unique positive predictor for IB students.

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APPENDICES

Appendix A: Demographics Form (Modified to fit in current document)

Spring 2012 (Study 7) School: _____ Version: _____ Code #: _____

1. Birthdate: _____
(month) (day) (year)
2. I am in grade: 9 10 11 12
3. My age is: 13 14 15 16 17 18 19 20
4. My gender is: Male Female
5. In middle school, were you:
- a. in an IB school (MYP)? No Yes Which school? _____
- b. in a magnet program? No Yes Which program? _____
- c. in Honors/advanced classes? No Yes
6. Have you attended your current high school since the start of 9th grade?
- a. Yes
- b. No c. If no, what grade were you in when you transferred to this high school? 9 10 11 12
7. Are you of Hispanic, Latino, or Spanish origin?
- a. No, not of Hispanic, Latino, or Spanish origin
- b. Yes, Puerto Rican d. Yes, Mexican, Mexican American, Chicano
- c. Yes, Cuban e. Yes, another Hispanic, Latino, or Spanish origin (*specify*): _____
8. My race/ethnic identity is: (*circle all that apply*)
- a. White d. American Indian/Alaska Native
- b. Black or African American e. Native Hawaiian or Other Pacific Islander
- c. Asian f. Other (*specify*): _____
9. My parents are:
- a. Married d. Never married
- b. Divorced e. Never married but living together
- c. Separated f. Widowed
10. Which adult(s) do you live with most of the time?
- a. Mother and Father e. Father and Step-mother (or partner)
- b. Mother only f. Grandparent(s)
- c. Father only g. Other relative (*please specify*): _____
- d. Mother and Step-father (or partner) h. Other (*please specify*): _____
11. My father's highest education level is:
- a. 8th grade or less e. College/university degree
- b. Some high school, did not complete f. Master's degree
- c. High school diploma/GED g. Doctoral level degree (Ph.D, M.D.) or other degree beyond Master's level
- d. Some college, did not complete
12. My mother's highest education level is:
- a. 8th grade or less e. College/university degree
- b. Some high school, did not complete f. Master's degree
- c. High school diploma/GED g. Doctoral level degree (Ph.D, M.D.) or other degree beyond Master's level
- d. Some college, did not complete
13. About how long does it take you to travel from your house to school on most mornings? _____ hrs _____ mins
14. About how many times have you visited the school nurse's office this school year? _____

| | None of Them | A Few of Them | About Half of Them | Most of Them | All of Them |
|--|--------------|---------------|--------------------|--------------|-------------|
| 15. How many of your friends are in an IB program? | 1 | 2 | 3 | 4 | 5 |

| | Strongly Disagree | Disagree | Not Sure | Agree | Strongly Agree |
|--|-------------------|----------|----------|-------|----------------|
| 16. I am satisfied with my school program (IB) | 1 | 2 | 3 | 4 | 5 |

Appendix B: Parenting Style Inventory-II (PSI-II)

Please think about your parent(s) or guardian(s) typical behavior. Then bubble in the number that corresponds to your level of agreement with each statement below about your parent(s) or guardian(s), from **(1) = Strongly Disagree** to **(5) = Strongly Agree**.

| | Strongly Disagree | Disagree | I'm in Between | Agree | Strongly Agree |
|--|-------------------|----------|----------------|-------|----------------|
| 1. My parent(s) doesn't really like me to tell him or her my troubles. ¹ | 1 | 2 | 3 | 4 | 5 |
| 2. My parent(s) tells me that his or her ideas are correct and that shouldn't questions them. ¹ | 1 | 2 | 3 | 4 | 5 |
| 3. My parent(s) really expects to follow family rules. | 1 | 2 | 3 | 4 | 5 |
| 4. My parent(s) hardly ever praises me for doing well. ¹ | 1 | 2 | 3 | 4 | 5 |
| 5. My parent(s) respects my privacy. | 1 | 2 | 3 | 4 | 5 |
| 6. My parent(s) really lets me get away with things. ¹ | 1 | 2 | 3 | 4 | 5 |
| 7. I can count on my parent(s) to help me out if I have a problem. | 1 | 2 | 3 | 4 | 5 |
| 8. My parent(s) gives me a lot of freedom. | 1 | 2 | 3 | 4 | 5 |
| 9. If I don't behave myself, my parent(s) will punish me. | 1 | 2 | 3 | 4 | 5 |
| 10. My parent(s) spends time just talking to me. | 1 | 2 | 3 | 4 | 5 |
| 11. My parent(s) makes most of the decisions about what I can do. ¹ | 1 | 2 | 3 | 4 | 5 |
| 12. My parent(s) points out ways I could do better. | 1 | 2 | 3 | 4 | 5 |
| 13. My parent(s) and I do things that are fun together. | 1 | 2 | 3 | 4 | 5 |
| 14. My parent(s) believes I have a right to my own point of view. | 1 | 2 | 3 | 4 | 5 |
| 15. When I do something wrong, my parent(s) does not punish me. ¹ | 1 | 2 | 3 | 4 | 5 |
| 16. My parent(s) typically knows where I am when I leave the house. ² | 1 | 2 | 3 | 4 | 5 |

Note. Responsiveness = items 1, 4, 7, 10, 13; Autonomy granting = items 2, 5, 8, 11, 14; Demandingness = items 3, 6, 9, 12, 15. ¹ Reverse-scored item. ² Item was suggested for inclusion as an additional indicator behavioral supervision by a research consultant, but will not be included in the analyses pertinent to the proposed study.

Appendix C: Parent Consent Letter (Modified to fit in current document)

Dear Parent or Caregiver:

This letter provides information about a research study that will be conducted in your child's high school by investigators from the University of South Florida. We are examining high school students in academically demanding college preparatory programs in order to understand what factors are linked to emotional wellness and academic success among youth in Advanced Placement (AP) courses and International Baccalaureate (IB) Programs.

- ✓ Who We Are: We are Shannon Suldo, Ph.D., and Elizabeth Shaunessy, Ph.D., professors in the College of Education at the University of South Florida (USF). Several graduate students in the USF College of Education are also on the research team. We are planning the study in cooperation with school administrators to ensure the study provides information that will be helpful to the school.
- ✓ Why We Are Requesting Your Child's Participation: This study is being conducted as part of a project entitled, "Predictors of Academic Success among High School Students in College Preparatory Programs." Your child is being asked to participate because he or she is a high school student in an International Baccalaureate (IB) Program and/or Advanced Placement (AP) courses.
- ✓ Why Your Child Should Participate: There is a great need for educators and researchers to understand what leads to school success and happiness for students in rigorous academic programs. The information that we collect from your child may help increase our overall knowledge of how factors such as stressors and coping strategies relate to academic, social, and emotional success among high-achieving students. Information from this study will provide a foundation from which to improve the schooling experiences and well-being of high school students in college preparatory programs, which we will use to inform our work with educational professionals. Please note neither you nor your child will be paid for your child's participation in the study. However, every student that returns this form (regardless of whether you give permission for your child to participate or not) will be included in a classwide drawing for a \$50 Visa gift card. In order to show our appreciation for your child's participation, each student who participates will receive either a \$10 iTunes gift card or a pre-paid movie ticket to a local theater.
- ✓ What Participation Requires: If you grant your child permission to participate in the study, we will ask him or her to complete several paper-and-pencil surveys. These surveys will ask your child about his or her stressors and coping strategies; school-related attitudes and behaviors; personal academic engagement; relationships with classmates, teachers, and parents; thoughts about his or her personality and psychological well-being (happiness and emotional distress); and participation in extracurricular activities. It will take approximately 45-60 minutes to complete the survey during one school day. We will personally administer the surveys at the high school, during regular school hours, this spring to large groups of students who have parent permission to participate. A final part of participation involves a review of your child's school records. School/district employees will provide the USF research team with the following information about your child: courses taken for high school credit, including grades earned in these courses as well as scores on AP and IB exams; scores on college entrance/readiness exams (e.g., PSAT, SAT, ACT); FCAT scores since middle school; student demographic characteristics including race/ethnicity, eligibility for free or reduced-price lunch, identification as an English Language Learner (ELL) or a student with an exceptionality; student distance from current high school (e.g., high school student is zoned to attend); extent of involvement in unique educational services, such as the AVID program, services for ELL students, and/or gifted education; district/state student ID numbers; student attendance and discipline history (i.e., number of office discipline referrals); number of community service hours completed; for 12th grade students: college acceptances and scholarships, and obtainment of IB diploma and/or IB certificate.

Appendix C: Continued

- ✓ Please Note: Your decision to allow your child to participate in this research study must be completely voluntary. You are free to allow your child to participate in this study or to withdraw him or her at any time. You or your child's decision to participate, not to participate, or to withdraw participation at any point during the study will in no way affect your child's student status, his or her grades, or your relationship with your child's high school, USF, or any other party.
- ✓ Confidentiality of Your Child's Responses: There is minimal risk to your child for participating in this research. We will be present during administration of the surveys in order to provide assistance to your child if she or he has any questions or concerns. Your child's privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, employees of the Department of Health and Human Services, the USF Institutional Review Board and its staff, and other individuals acting on behalf of USF may inspect the records from this research project, but your child's individual responses will not be shared with school system personnel or anyone other than us and our research assistants. Your child's completed surveys will be assigned a code number to protect the confidentiality of his or her responses. Only we will have access to the locked file cabinet stored at USF that will contain: (1) all records linking code numbers to participants' names, and (2) all information gathered from school records. All records from the study (completed surveys, information from school records) will be destroyed five years after the study is complete. Please note that although your child's specific responses on the surveys will not be shared with the school staff, if your child indicates that he or she intends to harm him or herself, we will contact district mental health counselors to ensure your child's safety.
- ✓ What We'll Do With Your Child's Responses: We plan to use the information from this study to inform educators and psychologists about the types of stressors faced by students in high school college preparatory programs, which coping strategies are associated with positive and negative outcomes, and which student characteristics and environmental factors are associated with success and risk in AP and IB courses. The results of this study may be published. However, the data obtained from your child will be combined with data from other people in the publication. The published results will not include your child's name or any other information that would in any way personally identify your child.
- ✓ Questions? If you have any questions about this research study, please contact Dr. Suldo at (813) 974-2223 or Dr. Shaunessy at (813) 974-7007. If you have questions about your child's rights as a person who is taking part in a research study, you may contact a member of the Division of Research Integrity and Compliance of the University of South Florida at (813) 974-5638, and refer to eIRB # 1094.
- ✓ Want Your Child to Participate? To permit your child to participate in this study, complete the attached consent form and have your child turn it in to his or her designated teacher. The second copy of this letter is yours to keep.

Sincerely,

Shannon Suldo, Ph.D.
Associate Professor of School Psychology
Department of Psychological and Social Foundations

Elizabeth Shaunessy, Ph.D.
Associate Professor of Gifted Education
Department of Special Education

Appendix C: Continued

Consent for Child to Take Part in this Research Study

I freely give my permission to let my child take part in this study. I understand that this is research. I have received a copy of this letter and consent form for my records.

Printed name of child

Grade level of child

School

Signature of parent of child
taking part in the study

Printed name of parent

Date

Statement of Person Obtaining Informed Consent

I certify that participants have been provided with an informed consent form that has been approved by the University of South Florida's Institutional Review Board and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

Signature of person
obtaining consent

Printed name of person
obtaining consent

Date

Appendix D: Student Assent Letter

Dear Student:

Today you will be asked to take part in a research study titled, “Predictors of Academic Success among High School Students in College Preparatory Programs” (Pro00001094). You will be asked to complete several surveys that inquire about stressors that you experience; and the things you do to deal with those stressors; your attitudes towards your classes and schooling in general; your relationships with classmates, teachers, and parents; features of your personality; your happiness and emotional distress, and your participation in extracurricular activities. Completing these surveys will take you approximately 45-60 minutes. To thank you for your participation, you will receive one pre-paid movie ticket or a \$10 iTunes gift card.

You are being asked to participate in this study because you are a high school student in an either in an International Baccalaureate (IB) Program, and/or Advanced Placement (AP) classes. Your parent or guardian has already given you permission to take part in this study. Your answers will be kept confidential to the extent of the law. However, if you tell us that you plan to hurt yourself or someone else, we would have to tell someone at your school in order to keep everyone safe. You are free to withdraw from participating at any time, and you will not be penalized.

If you have any questions about the study, please feel free to contact Dr. Suldo at (813) 974-2223 or Dr. Shaunessy at (813) 974-7007.

Assent to Participate

I understand what participating in this study requires, and I agree to take part in this study.

Signature of person taking part
in the study

Printed name of person taking part
in the study

Date

Signature of person obtaining assent

Printed name of person obtaining assent

Date

Appendix E: IRB Approval



DIVISION OF RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd. MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-5618

July 23, 2010

Shannon Suldo, PhD
Psychological and Social Foundations
EDU 105

RE: **Expedited Approval** for Initial Approval
IRB#: Pro00001094

Title: Intrapersonal Factors Associated with Academic Success among High School Students in Advanced Placement and International Baccalaureate (AP-IB) Programs

Dear Dr. Suldo,

On 7/23/2010 the Institutional Review Board (IRB) reviewed and **APPROVED** the above referenced protocol. Please note that your approval for this study will expire on 7/23/2011.

Approved Items:
Consent/Assent
Document(s):

| | | |
|---|-------------------|------|
| Educator Consent_Study 3_Educator Focus Groups.docx.pdf | 7/23/2010 2:15 PM | 0.01 |
| Parent Consent_Study 1_Student Focus Groups.docx.pdf | 7/23/2010 2:15 PM | 0.01 |
| Parent Consent_Study 2.docx.pdf | 7/23/2010 2:15 PM | 0.01 |
| Student Assent_Study 1_Student Focus Groups.docx.pdf | 7/23/2010 2:15 PM | 0.01 |
| Student Assent_Study 2_Individual Interviews.docx.pdf | 7/23/2010 2:15 PM | 0.01 |

Appendix E: Continued

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category

(5) Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis). (6) Collection of data from voice, video, digital, or image recordings made for research purposes. (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

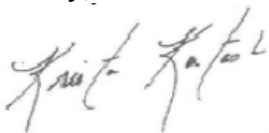
Please be advised that this initial approval only includes subjects recruited from the Pinellas County School District. Data collection within Hillsborough, Pasco, Broward and Duval school districts cannot begin until approval letters from those school districts are provided to the USF IRB.

Please note, the informed consent/assent documents are valid during the period indicated by the official, IRB-Approval stamp located on the form. Valid consent must be documented on a copy of the most recently IRB-approved consent form.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-9343.

Sincerely,



Krista Kutash, PhD, Chairperson
USF Institutional Review Board

Cc: Anna Davis, USF IRB Professional Staff