

ABSTRACT

Title of Dissertation: MATERNAL EDUCATION, MATERNAL LANGUAGE ACCULTURATION, PARENTAL INVOLVEMENT, AND MATERNAL SOCIAL SUPPORT AS PREDICTORS OF THE ACADEMIC ACHIEVEMENT AND SOCIOEMOTIONAL DEVELOPMENT OF ASIAN AMERICAN CHILDREN

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Asian American families are one of the fastest growing groups of the American population. Although multiple studies point to the importance of parents in children's development, there are few empirical studies of the role of mothers and family members in the academic achievement and socioemotional development of Asian American children. Therefore, this study examined the role of maternal education, maternal language acculturation, maternal and family member involvement in home and school activities, and maternal social support in predicting the reading skills, mathematical thinking skills, peer relations, externalizing behavior problems, and internalizing behavior problems of Asian American children. The sample included 311 third grade Asian American children who had biological mothers of Asian heritage and whose families were participants in the Early Childhood Longitudinal Study-Kindergarten Class

of 1998-1999 (ECLS-K). Mothers were interviewed by telephone or in person, and direct assessments were made of children's academic skills, peer relations, and behavior problems. Secondary data analyses included descriptive statistics, bivariate correlations, and hierarchical multiple regressions. Findings revealed that higher maternal education predicted better child reading and mathematical skills, poorer peer relations, and fewer internalizing behavior problems. Higher maternal language acculturation predicted poorer child mathematical thinking skills and better peer relations. Greater maternal and family involvement in school activities predicted fewer child internalizing problems. Maternal social support was not a significant predictor of any child outcomes in this group of Asian American children. Implications of the findings for developing interventions aimed at mothers of Asian heritage to enhance their children's academic achievement and socioemotional development are discussed.

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Dedication

This dissertation is dedicated to my beloved family in China: to my grandfather, Huang Kaiguo, who passed away when I was away in college, but instilled me with love of reading and imagination by his storytelling. I would also like to dedicate my work to my father, Wang Jicheng, and my mother, Huang Yulan, for their unconditional love, sacrifice, and encouragement. Finally, I would like to extend additional thanks to my older sister, Wang Lingling, and brother-in-law, for taking care of every family need through the years, and to my younger brother, Wang Xiaofeng, who supported me financially to pursue my academic dream. I owe my family my deepest gratitude for helping me to be the first in my family to earn a Ph.D.

Lastly, I could not conclude this dedication without giving honor to my Heavenly Father for His unfailing love. I hope that my work will benefit future research efforts involving the wellbeing of children.

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CHAPTER I: INTRODUCTION

Children from immigrant families are the fastest growing segment of America's population of children (Board on Children and Families, 1995; Hernandez, 2004; Shields & Behrman, 2004). Following the passage of the 1965 Immigration Act (Hernandez, 2004), there was a dramatic increase in the proportion of children of Asian heritage living in the U.S. For example, between 1980 and 2000, the Asian and Pacific Islander population increased 204% (U.S. Census Bureau, 2000a). In July 2006, there were more than 1.46 million American children between the ages of five and 13 of Asian heritage and more than 390,000 children in biracial families with an Asian parent (U.S. Census Bureau, 2000b). The population of elementary school children enrolled in grades one through eight in 2000 included more than 1.09 million Asian children (no data on Asian biracial students), representing 3% of all elementary school students in the United States (U.S. Census Bureau, 2000c).

Social demographers and popular media representatives have often termed Asian American children a "model minority group" because of their high levels of school achievement (Winnick, 1990). However, Asian Americans are a very heterogeneous and ethnically diverse group with different historical, socioeconomic, and family backgrounds. Even though undifferentiated data on Asian American children suggest that they are doing quite well academically, some groups have demonstrated difficulties in school achievement, especially Southeast Asian Americans whose families immigrated from Cambodia, Laos, Thailand, and Vietnam (Sengupta, 1997; Yang, 2004). Many Asian American children face school challenges because of less proficient English language skills; systematic miscommunication between students, parents, and teachers;

discrimination from peers; and widespread feelings of alienation from mainstream schools (Yang, 2004). However, very few empirical studies have examined predictors of Asian American children's academic achievement, focusing on within-group differences in this population.

Stereotypes of Asian American children as the "model minority" with respect to scholastic achievement may have also restricted research on the socioemotional development of this group. It is important to investigate children's socioemotional development because early peer relation skills predict children's ability to sustain positive relations with peers and adults throughout elementary and secondary school (Eisenberg & Fabes, 1992). Research suggests that children who have academic and adjustment difficulties prior to age eight often have problems succeeding in their later school years, including completing middle and high school (Takanishi, 2004). Thus, it is especially important to examine predictors of children's academic achievement and socioemotional development in their third grade year.

Several studies have found that Asian American children exhibit similar or more social and emotional problems than European American children (e.g., Feng & Cartledge, 1996; Lorenzo, Pakiz, Reinherz, & Frost, 1995). For example, in one study that compared Asian American and Caucasian 9th grade students, Asian Americans performed better academically and exhibited less delinquent behavior than Caucasians (Lorenzo et al., 1995). However, the Asian American adolescents were more likely than their Caucasian peers to feel isolated, depressed and anxious and to internalize their social problems. They were also less likely than Caucasians to be involved in after-school activities or to seek help for their problems. Currently, most studies on children's socioemotional

development focus on racial groups other than Asian Americans (Kim, Han & McCubbin, 2007; Takanishi, 2004). Few studies focus on within-group differences in Asian American children's social skills or behavior problems, particularly during the elementary school years.

The family science literature reveals that parents and families play a critical role in children's growth and development, influencing both cognitive and academic outcomes (e.g., Jeynes, 2003; Portes & Macleod, 1999; Ryan, Martin, & Brooks-Gunn, 2006) and social-emotional adjustment (e.g., Chen, Liu, & Li, 2000; Chen, Wu, Chen, Wang, & Cen, 2001; Morris et al., 2002). The personal backgrounds, parenting behaviors, and support networks of parents of Asian heritage, like those of other parents in the U.S., can be expected to have an impact on their children's academic performance and socioemotional development (Fan, 2001; Hao & Bonstead-Bruns, 1998). However, there is an absence of existing research on factors that are related to academic and socioemotional outcomes among Asian American children in the elementary school years (Takanishi, 2004).

There is a vital need for more information about individual, family, and community level factors that predict differences in the development of children of Asian heritage, including their academic achievement, peer relations, and behavior problems. One factor that may contribute to differences in Asian American children's academic achievement and socioemotional development is maternal education. Research indicates that higher maternal education is associated with positive effects on a number of child outcomes, including higher achievement scores (Byrd & Weitzman, 1994; Jackson & Frick, 1998; Smokowski, 1999; Supplee, Shaw, Hailstones, & Hartman, 2004) and lower

behavior problems (McMunn, Nazroo, Marmot, Boreham, & Goodman, 2001; Paterson, Carter, Gao, & Perese, 2007; Supplee et al., 2004). A second factor that may be linked to children's academic and socioemotional behavior is maternal language acculturation, often measured by the mother's English language proficiency. Previous studies have related maternal language acculturation to children's academic achievement (Kenney, 2002), socioemotional development (Pawliuk et al., 1996), and psychological adjustment (Kim, 2001; Kim, Cain & McCubbin, 2006). A third variable found to be positively associated with child development outcomes is maternal and family involvement in children's education and learning (Desimone, 1999; Jeynes, 2003). A wide variety of studies have linked parental and family member involvement to higher grade point averages (Gutman & Midgley, 2000), better mathematics and reading scores (Izzo, Weissberg, Kaspro, & Fendrich, 1999; Senechal & LeFevre, 2002), lower special education placements and grade retentions (Miedel & Reynolds, 1999), and better social skills (Izzo et al., 1999). A fourth factor, maternal social support, has also been found to be positively related to children's achievement and socioemotional development (Fletcher, Newsome, Nikerson & Bazley, 2001; Izzo, Weiss, Shanahan & Rodriguez-Brown, 2000). A number of studies, primarily involving Caucasian and African American children, have found that when families receive high levels of support from family members, friends, and their communities, children demonstrate better cognitive and socioemotional outcomes (McLoyd, 1990; Melson, Ladd & Hsu, 1993).

This study addressed a significant gap in the literature by examining predictors of Asian American children's academic achievement and socioemotional development. The study adopted an ecological/integrative theoretical framework (Bronfenbrenner, 1986;

Garcia Coll et al., 1996) to explore how individual, family, and community level factors are related to the development of Asian American elementary school children.

Specifically, this study examined the role of maternal education, maternal language acculturation, maternal and family involvement in home activities and in school activities, and maternal social support in predicting the reading and mathematical thinking skills, peer relations, and behavior problems of Asian American children in third grade.

In this investigation, academic achievement was defined as children's performance on measures of reading and mathematical thinking skills (National Center for Education Statistics [NCES], 2004). Socioemotional development was defined broadly as the skills and behaviors that children need for successful adaptation to social settings (NCES, 2004). Peer relation skills are discrete abilities that contribute to children's friendships and peer acceptance (NCES, 2004), whereas behavior problems refer to social and emotional behaviors that impair a child's current functioning or later adjustment (Achenbach, 1991). This study focused on three measures of socioemotional development: children's peer relations, externalizing behavior problems, and internalizing behavior problems.

The current study employed data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Longitudinal Kindergarten-Third Grade Public-Use Data File (NCES, 2004). The ECLS-K is a longitudinal study that focuses on the early school experiences of advantaged and disadvantaged children (including immigrant children), beginning with kindergarten and following the children through 12th grade. At the present time, researchers have collected data through grade 8. The ECLS-K

collects information from children, parents, school teachers, and school administrators.

This investigation focused on the role of mothers in influencing child outcomes because of the important role that mothers of Asian heritage play in their children's development. In Asian cultures, mothers are expected to provide a highly nurturing environment during the early childhood years, and to play the major role in motivating and supporting their children during the elementary school years (Chao, 1994; Wu, 1985; Yong, 1972). All of the data used in the current study were from the ECLS-K Longitudinal Kindergarten-Third Grade Public-Use Data. Measures of maternal education, maternal and family involvement in home and school activities, maternal social support, and children's academic achievement and socioemotional development were collected when children were in the third grade in 2002. Information about maternal language acculturation, measured by mother's English abilities, was from the base year (fall 1998) because the ECLS-K study collected these data only in the kindergarten year. The ECLS-K dataset does not provide information about the child's birthplace but it is known that all third grade children in the current sample had spent at least two to three years in the United States. Therefore, these children were termed "Asian American children" throughout this study.

CHAPTER II: REVIEW OF LITERATURE

Theoretical Framework: Ecological/Integrative Theory

Ecological theory provides a major theoretical framework to study the academic achievement and socioemotional development of Asian American children. Urie Bronfenbrenner played a key role in bringing ecological theory to the study of child development in the 1970s (Bronfenbrenner, 1979). Bronfenbrenner posited four levels of nested environmental systems that influence child outcomes: the microsystem, the mesosystem, the exosystem, and the macrosystem (Bronfenbrenner, 1979). These systems are differentiated in terms of their immediacy with respect to the developing child. In 1986, Bronfenbrenner (1986) added the dimension of time to his theoretical framework with the construct of the chronosystem. Figure 1 presents Bronfenbrenner's ecological model.

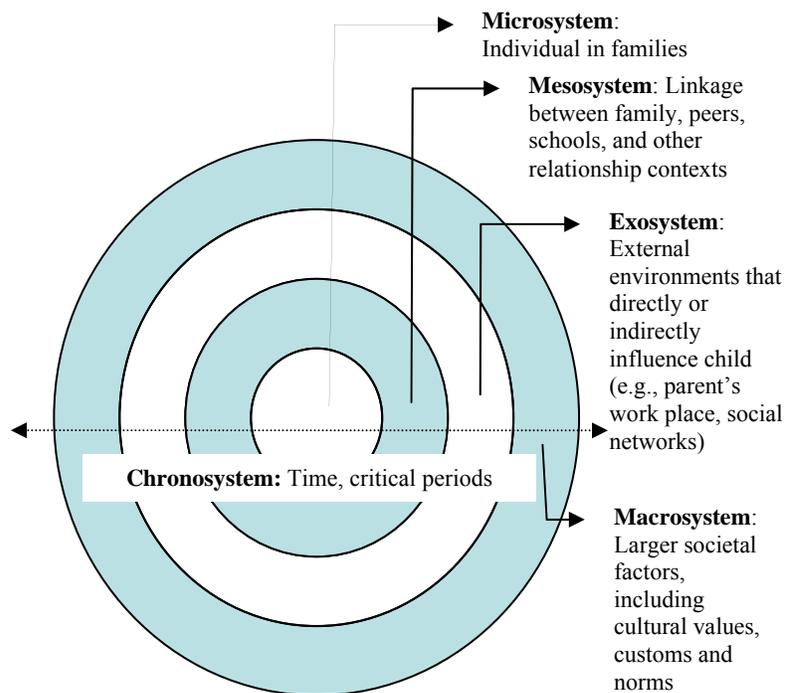


Figure 1. Bronfenbrenner's Ecological Model of Human Development.

The innermost circle of this model represents the microsystem of the individual. According to Bronfenbrenner (1979), the microsystem is defined as a pattern of activities, roles, and interpersonal relations experienced by the child in a given environment, with the family serving as the principal microsystem context. The second level, the mesosystem, is defined as the interrelations among two or more settings in which the child actively participates (such as the relations between home, school, and neighborhood peer group). The exosystem refers to one or more settings that do not involve the child as an active participant, but in which events occur that may influence, or be influenced by, the environment that includes the child. For example, the exosystem might include a parents' work setting or members of the parent's social network who reside outside the home. The outermost level in the individual's environment is the macrosystem. It refers to the general cultural context in which the microsystem, mesosystem, and exosystem are embedded. It includes the broad ideological values, norms, and institutional patterns of a particular culture. The chronosystem refers to the patterning of environmental events and transitions over the life course, examining how effects created by time (e.g., sociocultural conditions) or critical periods (e.g., parental influence in early childhood, peer influence in adolescence) affect child/youth development and adjustment. The chronosystem, which is not examined in this study, addresses life transitions, and intersects the microsystem, mesosystem, exosystem, and macrosystem.

Ecological theory posits that the study of child development needs to consider both the child's individual characteristics (e.g., temperament, intelligence, age, gender) and the familial, social and cultural context in which the child develops. In the ecological framework, a child's microsystem includes parents whose background and experiences

influence the child's immediate environment and development. For example, variables such as maternal education or language acculturation may affect a mother's ability to nurture her children's school interests, introduce children to popular culture, and discipline children according to American norms. A mesosystem variable, maternal and family involvement in children's school activities, may also influence child outcomes. Parents and family members who become more involved in children's school activities may facilitate children's academic achievement and model ways to interact positively with teachers and adults.

At the exosystem level, factors such as social support may have direct or indirect influences on children's behavior. Parents vary in their access to instrumental (e.g., cash, transportation), informational (e.g., school knowledge), and emotional (e.g., encouragement) support for raising their children. Social networks may indirectly support parents as individuals (e.g., transportation to work) or directly influence both parents and their children (e.g., child care, cash for family meals, guidance regarding children's behavior). Thus, social support may affect children's development of academic and socioemotional development in multiple ways, including the amount of time parents spend with their children, parents' ability to invest in children's academic and personal development, and their capacity to help children who may demonstrate behavior problems.

Bronfenbrenner's (1986) ecological theory views child outcomes as dependent upon the characteristics of the child, parent, family, school, community, and larger society, as well as the interactions among these variables. However, some researchers have argued that this traditional ecological framework is limited because it does not

adequately consider variables such as social position (e.g., social class, ethnicity, race, and gender), social stratification (e.g., racism, prejudice, discrimination, and segregation), and adaptive culture (e.g., traditions and cultural legacies, migration and acculturation, economic and political histories) experienced by family members of color who are born in the United States or other countries. To address this problem, Garcia Coll et al. (1996) proposed an integrative model to study the development of competence in children of color, by considering both social position and social stratification constructs at the *core* rather than at the periphery of a theoretical formulation of children's development. In this model, the researchers address some important factors omitted or neglected in mainstream ecological models, such as experiences of racism and segregation, intra-group variability and diversity within minority group families, and the effects of social stratification and acculturation on the developmental competencies of minority group children.

Among the constructs that Garcia Coll et al. (1996) include in their model are adaptive culture, social position, and family (e.g., structure and roles, family values, beliefs and goals, racial socialization, and socioeconomic status). With respect to adaptive culture, the researchers noted the importance of examining variables such as parental acculturation. Acculturation involves adapting and adopting mainstream beliefs, traditions, values, and communication systems, and is measured by variables such as the parent's use of the host country language (Berry, 1990). For example, parents who speak and understand English will be better able to learn about recommended American parenting practices and better able to communicate with their children's teachers than those with limited English skills (Kim & Hong, 2007). Through their school attendance

and socialization with other children, children from immigrant families gain social skills and interests associated with American culture, and they may lose some of their parents' language and cultural beliefs. If parents continue to show preference for the language of their original culture and do not develop English skills, there may be a significant decline in meaningful communication between parents and children.

Integrative models also focus on other variables that are likely to influence children's academic and socioemotional development. For example, Garcia Coll et al. (1996) emphasized the need to consider a family's social position by examining factors such as parental education, occupation, and family income. Family structure, including the number of parents in the home, is also likely to influence child outcomes. Thus, acculturation and other family factors may have a significant impact on the academic achievement, peer relations, and behavior problems of children from Asian and other racial/ethnic minority backgrounds in the United States.

Summary of Study's Theoretical Framework

This study utilized a combined ecological/integrative theoretical framework to examine predictors of Asian American children's academic achievement and socioemotional development. According to the ecological model, children's development of academic and social skills is influenced by factors at the individual, family, community, and societal levels (Bronfenbrenner, 1986). These factors include maternal education (microsystem level), maternal language acculturation (microsystem level), maternal and family involvement in children's home activities (microsystem level), maternal and family involvement in children's school activities (mesosystem level), and maternal social support (exosystem level).

The current study also paid particular attention to factors emphasized in the integrative model of child development for children of color (Garcia Coll et al., 1996), including the impact of parental education, acculturation, occupation, family income, and family structure. Specifically, this study examined maternal education and maternal language acculturation as predictors of children's developmental competencies, and controlled for the variables of family type (two-parent versus single-parent family) and social position (household income, maternal employment, and occupation).

Figure 2 presents a diagram of the variables in this study shown within the context of Bronfenbrenner's ecological model and the integrative model. This study did not examine any macrosystem variables. As noted earlier, the chronosystem would intersect each of these systems; however, since this study was cross-sectional, chronosystem variables were not explored. The ecological model included independent and control variables analyzed in the current study, organized by system. The final column shows study variables emphasized in the integrative model that have been identified as important in studying families from non-Caucasian racial/ethnic backgrounds.

In summary, this study examined the role of maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support as predictors of the academic achievement and socioemotional development of Asian American children. The study examined how these variables predicted five dependent variables, including: children's reading skills, mathematical thinking skills, peer relations, externalizing behavior problems, and internalizing behavior problems. The following sections review research on the relationships between the five major predictor variables and children's

Bronfenbrenner's model	Variables in Ecological Model	Variables emphasized in Integrative Model
Microsystem	Child characteristics: Child gender (Control)	Child gender
	Family characteristics: Maternal education (IV)	Maternal education (social class)
	Maternal language acculturation (IV)	Maternal language acculturation (adaptive culture)
	Parent/family involvement in home activities (IV)	
	Maternal occupation (Control)	Maternal occupation (social class)
	Family income (Control)	Family income (social class)
Mesosystem	Family type (Control)	Family type
	Maternal and family involvement in school activities (IV)	
Exosystem	Maternal social support (IV)	
	Maternal employment (Control)	Maternal employment

Figure 2. Study Variables Emphasized in Ecological and Integrative Models.

academic achievement and socioemotional development.

Maternal Education

Definition and Measures of Maternal Education

One variable that may be a significant predictor of the academic achievement and

socioemotional development of Asian American children is maternal education. Maternal education is generally defined as the number of years of schooling a mother has completed or the highest educational degree or diploma a mother has achieved (U.S. Census Bureau, 2004). The influence of maternal education on children's academic achievement is well documented; previous research indicates that the educational attainment of the mother is an important factor that influences children's academic test scores, school outcomes, cognitive development (Davis-Kean, 2005; DeGarmo, Forgatch, & Martinez, 1999; Haveman & Wolfe, 1995; Perry, 2008; Sirin, 2005), grade retention (Hayes, 2005), and socioemotional development (Cardamone, 1998).

Maternal Education and Children's Academic Outcomes

Studies have shown that parent education influences child achievement through parental beliefs and behaviors, the home environment, and parental expectations for children's educational attainment (Davis-Kean, 2005). Investigations have found that maternal education is positively related to child academic outcomes (Supplee et al., 2004), early language development (Dollaghan et al., 1999), and reading and math achievement (Vagi, 2008). For example, Smith and colleagues found that maternal education was a statistically significant predictor of children's math and reading achievement even after controlling for family income (Smith, Brooks-Gunn & Klebanov, 1997). Similar results were revealed in other studies. For example, in one investigation, Vagi (2008) examined the effects of specific SES variables (household income, maternal education, paternal education, maternal occupation, and paternal occupation) and home social capital variables (parental involvement, parental expectations, family type, number of siblings, maternal employment prior to kindergarten, and changes in the home) on the

reading and math achievement of children in kindergarten through the fifth grade. Using the Early Child Longitudinal Study-Kindergarten Cohort (ECLS-K) dataset, the sample included 9,267 children from non-Hispanic White, Black or African American, Hispanic, Asian, Native Hawaiian/other Pacific Islander, American Indian/Alaskan Native, and biracial/ multiracial backgrounds. Findings revealed that maternal education had a statistically significant positive influence on socioeconomic status (SES), and higher SES was associated with higher reading scores in 3rd grade and greater growth in reading achievement from kindergarten through 5th grade. Similarly, SES was significantly positively related to math achievement in kindergarten and the later elementary school years.

In another study, Roberts, Bellinger, and McCormick (2006) conducted secondary analysis of data from a large cohort of premature and low birth weight children who were currently eight years of age. The racial background of the children's mothers included Black, Hispanic, White, and other. The researchers found that lower maternal education was predictive of lower reading and math scores, as measured by the Woodcock-Johnson tests of academic achievement. Still another study investigated the reading performance of 3,693 African American and Hispanic third-grade children who had been born in New York City, participated in Head Start, and attended New York City public schools (Rauh, Parker, Garfinkel, Perry, & Andrews, 2003). Findings revealed that lower maternal education was a major risk factor linked to children's low reading scores.

A recent national study by Carneiro, Meghir and Parey (2007) examined relationships between maternal education and children's academic achievement and behavior problems. The researchers used data from female participants of the National

Longitudinal Survey of Youth 1979 (NLSY79) and their children, controlling for mother's cognitive ability and family background factors such as parents' schooling and whether the mother was raised by her biological parents. The sample included 4,379 children of 1,948 White mothers and 3,051 children of 1,211 African American mothers. Child cognitive ability was measured by the Peabody Individual Achievement Tests in math and reading at both ages seven to eight and 12-14. Findings revealed that, for White children, additional years of mother's education increased the mathematics and reading performance of children at ages seven and eight. Moreover, for White children, the effects of maternal education on math and reading declined with the age of the child. For African American children, higher maternal education was also positively related to math and reading performance. However, for these children, the impact of maternal education was stronger at 12-14 years of age than at seven to eight years of age.

Although a large group of studies have linked maternal education to children's achievement, some research has not found maternal education to be a significant predictor of child and adolescent math achievement (Esposito-Lamy, 2003; Rivera, 1997). For example, Esposito-Lamy (2003) examined 197 families whose children attended a Head Start program during the 1991-92 and 1992-93 school years in a Northeastern city. Family baseline data were collected during children's kindergarten year and children's math and reading achievement data were collected over the following seven years. Results revealed that maternal education was a consistent positive predictor of children's reading achievement across the second, third, fourth and fifth grade years; however, maternal education was not found to be a significant predictor of children's math achievement.

Still other studies found that the relationship between maternal education and children's academic achievement varied with the age of children. For example, in one study, O'Connor (2002) examined the association between individual and family characteristics (including maternal education) and children's math and reading achievement among 1,645 black and white younger (six to eight year old) and older (nine to 12 year old) children. Maternal education was measured by mother's report of the highest level of education completed, and child reading and math achievement was measured using Woodcock-Johnson Achievement tests. Results revealed that for younger children, maternal education was positively related to reading and math performance. However, maternal education was not significantly correlated with the reading and math performance of older children.

Maternal Education and Children's Socioemotional Development

Few studies have examined the relationship between maternal education and children's socioemotional development, including peer relations and child behavior problems. In one such investigation, Cardamone (1998) examined the relationship between maternal education and the social skills of elementary school children who were former Head Start students. The sample included 108 children and their families in the Pennsylvania and South Dakota sites of the National Head Start/Public School Early Childhood Transition Study. Participants (82.4%) were white or American Indian/Native American (17.6%). Social skills data were collected from parent and teacher ratings on the Social Skills Rating System during both the students' kindergarten and third grade years. Findings revealed that maternal education level was a significant predictor of caregiver ratings of both kindergarten and third grade children's social skills. However,

maternal education level was not a significant predictor of teachers' ratings of children's social skills in kindergarten or third grade.

In another study of Head Start graduates, Starost (2006) examined the relationship between maternal education and children's peer relations in kindergarten and first grade. Peer skills were measured with the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (completed by children) and the Howes's Rating Scale of Social Competence with Peers and Teacher Checklist of Peer Relationships (completed by classroom teachers). Findings revealed that maternal/caregiver education was not a significant predictor of the children's peer relations.

Other studies have explored the relationship between maternal education and children's externalizing behavior problems, such as anger and aggression. For example, one study investigated this relationship using a randomly selected sample of 218 homeless and housed, predominantly African-American (91%) mothers and their five to 16 year old children (Yu, North, LaVesser, Osborne, & Spitznagel, 2008). Results revealed that maternal education was a significant predictor of children's disruptive behavior. For each year increment in maternal education, children were 0.7 times less likely to have a behavior disorder.

In another study, focusing on Asian children, Yu, Shi, Huang, and Wang (2006) examined family factors contributing to children's aggression. Participants were 4,010 Chinese students from primary and secondary schools in five different areas in Hubei province, China. Child aggressive behavior was measured with the Chinese version of the parents' form of the Child Behavior Checklist. Findings revealed that maternal education was significantly associated with the children's and adolescents' aggression. The lower

the mother's educational level, the higher the incidence of aggression among children and adolescents.

Other studies have failed to support the significant relationship between maternal education and children's externalizing behavior problems. For example, in the previously described study of Head Start graduates, Starost (2006) found that maternal/caregiver education was not a significant predictor of aggressive or hyperactive behavior problems as measured by the teacher version of the Preschool Behavior Questionnaire and the parent version of the Child Behavior Checklist.

Focusing on the relationship between maternal education and children's internalizing behavior problems, studies have also had mixed results. For example, in the Starost (2006) study of Head Start graduates, maternal/caregiver education was significantly associated with teacher ratings of internalizing child behavior problems. Specifically, lower maternal/caregiver education was linked to more anxious child behavior rated by teachers in the first grade.

Other studies did not find significant relationships between maternal education and children's internalizing behavior problems. For example, Card (2001) employed a sample of 147 kindergarten, first-grade, and second-grade children from diverse racial groups (57% Hispanic American, 19% African American, 16% Caucasian, and 8% Asian American) to examine family predictors of children's emotional distress symptoms. Child emotional distress symptoms, including depression and anxiety/intrusive thoughts, were assessed using the Levonn measure, which is a cartoon-based interview for assessing a child's emotional distress symptoms. Findings revealed that maternal education was not a significant predictor of children's self-reported emotional distress symptoms.

Still other studies have explored the relationship between maternal education and children's psychological health using combined measures of children's internalizing and externalizing behavior problems. For example, McMunn et al. (2001) examined this relationship between maternal education and child behavior in a sample of 1,426 mothers and 5,705 children aged four to 15 years in England. Children's behavior was measured with the Strengths and Difficulties Questionnaire (SDQ) which included items assessing externalizing problems such as conduct problems and hyperactivity, internalizing problems such as extreme worry, and peer relationships such as solitary play. Findings revealed that the lower the mothers' educational level, the higher SDQ scores on behavior problems exhibited by the children.

In the previously described study examining intergenerational effects of maternal education on children's behavior, Carneiro et al. (2007) found that mother's education was strongly related to child behavioral problems of both White and Black children at both ages of seven to eight and 12 to 14. The more years of additional education the mother had obtained, the fewer behavior problems her child had, and the effect of maternal education on behavior increased with the age of the child.

Another national study using a combined measure of behavior problems had similar results. Magee (2005) employed data from the National Longitudinal Survey of Youth 1979 to explore the relationship between maternal education and child behavior problems with a sample of 721 mothers and 721 four to nine year old children from diverse ethnic backgrounds (21% Black, 23% Hispanic, 56% Non-Black, Non-Hispanic). Child behavior problems were measured by mothers' responses to the Behavior Problem Index which assessed antisocial, anxious/depressed, headstrong, hyperactive, dependent,

and peer conflict behavior. Findings revealed that maternal education was negatively associated with child behavior problems, with less educated mothers having children with more problems.

However, other studies have not found maternal education to be a significant predictor of children's behavior problems. For example, in the previously described study of the relationship between maternal education and the socioemotional development of former Head Start students (Cardamone, 1998), teachers and parents completed measures of their children's externalizing problems, internalizing problems, and hyperactivity. Results revealed that maternal education was not a significant predictor of either parent or teacher ratings of children's problem behavior in the third grade.

In summary, a majority of the existing studies have revealed positive relationships between maternal education and child reading and math achievement, and negative relationships between maternal education and children's behavior problems. However, the findings were not consistent and most of this research involved children at grade levels other than third grade. Most studies employed White or other racial ethnic groups and included few families of Asian heritage in the United States. There is also a scarcity of studies examining the relationship between maternal education and socioemotional development among Asian American children. This study addresses gaps in the literature by investigating how maternal education is related to the academic achievement, peer relations, and behavior problems of third grade children of Asian heritage.

Maternal Language Acculturation

Definition and Measures of Acculturation

Another variable that may be a significant predictor of the academic achievement

and socioemotional development of children of Asian heritage is maternal language acculturation. In one classic study, acculturation was defined as “those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups” (Redfield, Linton & Herkovits, 1936, p. 149). Research studies on acculturation have defined the construct in terms of both a collective or group-level phenomenon and an individual psychological phenomenon. Collective or group-level acculturation refers to a change in the *culture* of the group, and individual psychological acculturation refers to a change in the *psychology* of the individual (Graves, 1967).

Berry (1997) identified four different acculturation strategies that individuals and groups have developed to deal with both cultural maintenance and involvement with other groups through contact and participation. The four strategies are *separation*, *integration*, *assimilation*, and *marginalization*. From the perspective of the non-dominant group, *separation* is defined as placing value on maintaining one’s original culture through avoiding interaction with others. Integration is defined as having an interest in both maintaining one’s original culture, while at the same time seeking to participate as an integral part of the new culture. Assimilation is defined as giving up on maintenance of one’s cultural identity and seeking concentrated interaction with another culture. Finally, marginalization refers to having little interest in or opportunity to maintain one’s original culture and little contact and participation in other cultures, often resulting from discrimination and enforced exclusion.

Other studies have found that the process of acculturation involves different types of change and different personal choices that affect individual outcomes (Abraido-Lanza,

Armbrister, Florez & Aguirre, 2006). For example, individuals from another culture may choose to use their native language to communicate with family members and friends and may employ the English language to communicate with English-only speakers (Miranda, Estrada & Firpo-Jimenez, 2000). Other individuals may choose to communicate with their children in both their native language and English (Sun, 2000; Zhang, 2005).

One measure of acculturation adopted in numerous research studies is the mother's use of the host country language (e.g., Gonzales, Deardorff, Formoso, Barr & Barerra, 2006; Marin & Gamba, 1996). Research has found that language is often the largest initial barrier reported by immigrants who have moved to a new country (Portes & Rumbaut, 1990). The ability to speak and understand the language of the host country provides adults with many benefits, including better employment opportunities and the ability to communicate successfully with one's neighbors, coworkers, children's teachers, and the general public (Portes, Kyle & Eaton, 1992). Because of its cultural and functional importance, many researchers have used host country language as a proxy for acculturation (Schenker & Bethel, 2005; Vega, Kolody & Warheit, 1985).

Immigrant parents' proficiency with the host country language is expected to influence their children's development. In the United States, immigrant parents who speak, read, write, and understand English well may be more likely than those with poorer English skills to learn about recommended American parenting strategies; to communicate effectively with teachers, doctors, neighbors, and other individuals who have contact with their children; and to help children with school assignments. Given that children from immigrant and other ethnic/cultural backgrounds often adopt English as their preferred language, the failure of parents to develop and use English may reduce

parent-child interaction (Ying, 1999). Thus, parents who speak limited English to their children may lose some opportunities to influence their children's academic and social skills (Kenney, 2002; Plunkett & Bamaca-Gomez, 2003).

Parental Acculturation and Children's Academic Outcomes

A number of studies have examined the relationship between parental acculturation and children's academic outcomes, including performance on measures of language literacy, reading, and mathematics (Amado, 2004; Farver, Bhadha & Narang, 2002; Kenney, 2002; Plunkett & Bamaca-Gomez, 2003). For example, Colon-Papazoglou (1999) examined the relationship between maternal acculturation, bilingualism, and children's vocabulary and mathematics scores with a sample of Puerto Rican families in the U.S. Participants included 108 Puerto Rican American mothers and their second generation, bilingual children in grades one through four. The maternal acculturation scale included items such as English language usage and familiarity, ethnic interaction, and ethnic pride and identity. Children were administered the Wechsler Intelligence Scale for Children-Revised (WISC-R). Findings revealed that the higher the mother's acculturation to Anglo mainstream culture, the higher the vocabulary scores of their bilingual, Puerto Rican children. However, there was no relationship between maternal acculturation and children's mathematical performance.

In another study, Kenney (2002) examined relationships between Asian American parents' acculturation and their children's cognitive abilities and academic achievement. Researchers administered a measure of acculturation, the Suinn-Lew Asian Self-Identity Scale, to 148 study parents of five to six year olds in a program for "gifted" children. Their children completed a measure of language preference, cognitive abilities (Stanford-

Binet), and academic achievement (Woodcock-Johnson Revised). Results supported a number of relationships between greater parental acculturation (more Western identified) and children's cognitive abilities and academic achievement. Specifically, more acculturated parents had children with significantly higher verbal comprehension scores on the Stanford Binet than less acculturated parents. Findings further revealed that more acculturated parents had children who performed better on the broad knowledge scale (science, social studies, humanities) of the Woodcock-Johnson than less acculturated parents. However, because these children were in a "gifted" children program, the results of this study had limited generalizability.

Other research has failed to find a positive link between parental acculturation and children's academic outcomes. For example, in one study, Amado (2004) explored relationships between parental level of acculturation, family risk factors (e.g., low income, single parent status), and children's reading achievement in Mexican and Mexican-American families. Sixty-nine parents from three school districts in Texas completed the Acculturation Rating Scale for Mexican Americans, which assessed acculturation with three primary factors: language use, ethnic identity, and ethnic interaction. Standardized reading test scores were obtained for their 70 first through third grade children. Findings revealed no significant relationship between parental styles of acculturation and students' reading ability.

Paternal Acculturation and Children's Socioemotional Development

Research has also investigated the relationship between immigrant parents' acculturation and their children's socioemotional development. The majority of these studies have focused on children's behavior problems or depressive symptoms, as

compared to prosocial skills such as positive peer relations. For example, Go (1999) used a sample of 206 Southeast Asian middle-school students to examine how parental acculturation level, family conflict, and peer relations were related to children's depressive symptoms and delinquent attitudes. Findings revealed that in families where parents did not speak English, adolescents exhibited more depressive symptoms and more delinquent attitudes.

A similar study by Atzaba-Poria and Pike (2007) on Indian families living in Britain examined the relationship between parents' acculturation style and adolescents' behavior problems. The sample included 31 young adolescents and their parents. Parents' acculturation style was measured with Ghuman's Acculturation Scale, which assessed the acculturation of Asians into British culture in areas such as food and clothing, the role of women, religion, entertainment, and community life (but not parental English ability). The Ghuman scale focused on two general factors: traditional attitudes (retaining Asian attitudes) and Western attitudes (adapting to British cultural norms). Internalizing and externalizing child behavior problems were assessed using the Child Behavior Checklist. Findings revealed that the more Westernized Indian mothers were in their acculturation style, the higher the level of internalizing and externalizing behavior problems among their adolescents. The researchers speculated that this finding may be due to the fact that more Westernized Indian parents used lower levels of discipline and positive control with their children than more traditional parents.

Another study adopted Berry's (1997) acculturation framework to examine the relationship between maternal acculturation style and adolescent outcomes in Korean American families. Specifically, the researchers investigated whether four parental

acculturation styles---separation, integration, assimilation, and marginalization---predicted the psychosocial functioning of 11-14 year old adolescents. Social competence measures included self-esteem, self-adequacy, emotional responsiveness, emotional stability, world view, hostility, aggression, and dependence. Overall, findings indicated that maternal and paternal styles of integration and assimilation were most strongly related to young adolescents' healthy psychosocial functioning.

In an earlier classic study, Minde and Minde (1976) examined the relationship between the acculturation of Ugandan Asian immigrants to Canadian culture and the socioemotional functioning of their children. This study involved 51 Ugandan Asian families (many Ismaili Muslims) in Toronto who had been in Canada from 12 to 18 months and had children attending Toronto primary schools. Parents were interviewed about the extent to which they had adapted to Canadian culture, with high ratings awarded to parents who made language and other contact with non-Asians; used Canadian economic, educational and social institutions; made efforts to learn something about the new country; and permitted their children to participate in recreational and social activities of their non-Asian peers. Children were interviewed separately about family, school, friends, occupational choices, and socioemotional adjustment; teachers also completed a psychological symptom checklist assessing behavior problems and social skills (e.g., courtesy, positive peer relations with Canadian children). Overall, findings indicated that when parents adopted strategies similar to Berry's (1997) integration style, using English and maintaining contact with Canadian schools and other institutions without giving up their own ethnic identity, their children demonstrated better psychological outcomes and social skills.

In still another study, Pawliuk et al. (1996) examined the relationship between parental acculturation style and the psychological functioning of children between the ages of six and 17. Their investigation involved 34 immigrant parents living in Quebec, primarily from Asian countries, and their 48 children; approximately one third of the children had been born outside Canada and had immigrated to Canada between two and ten years of age. Acculturation style was measured with the Bicultural Involvement Questionnaire, which assessed such factors as comfort with host country language and recreational preferences. Families received scores on an acculturation continuum that included separated, integrated, assimilated, and marginalized categories. Children's psychological functioning, including internalizing and externalizing behavior problems, was measured with the Child Behavior Checklist and Profile. Parents also completed measures of children's self esteem, depression, anxiety, and psychosomatic symptoms. Findings revealed that children of assimilated parents received higher scores on the social competence subscale of the Child Behavior Profile than all other groups. In addition, children with parents who demonstrated greater acceptance of the majority culture (e.g., father's ability to speak French and mother's number of Canadian friends) had fewer internalizing problems and higher social competence scores than peers whose parents were less involved in Quebec culture. The researchers speculated that parental ability to use the majority culture language increased parents' likelihood of enrolling their children in team activities and organizations, contributing to their children's socioemotional development. The study found no relationship between parental acculturation style and children's externalizing behavior problems.

In another study of Asian, predominantly Indian immigrant families, Aycan and

Kanungo (1998) examined the relationship between parents' acculturation to Canadian culture and their adolescent children's behavior problems. Berry's (1997) strategies were again used as a measure of parental acculturation. The sample consisted of 558 parents, with mothers and fathers living in Canada for an average of 17 to 19 years. Children in the study averaged 17 years of age and had resided in Canada for an average of 14 to 15 years. Findings revealed that parental acculturation styles were related to their children's behavioral problems. Specifically, parents who adopted an integrated style had children who exhibited the fewest behavior problems, followed by children whose parents adopted the separated style. Interestingly, parents with the assimilated acculturation style (where parents gave up on maintaining their own cultural identity and sought concentrated interaction with Canadian culture) had children with the most behavioral problems. Again, the authors speculated that this finding may be due to the parenting styles of assimilated parents, who appeared to use less discipline and control in childrearing.

Research suggests that the relationship between parental acculturation and child behavior problems is complex, depending in part, on the measure of acculturation. Some investigations have failed to find relationships between parental acculturation and children's socioemotional development. For example, Balaguru (2005) examined the relationship between parental acculturation and child behavior problems in a sample of Asian-Indian immigrant families. Children in the study averaged between 16 and 17 years of age. Parental acculturation was measured with a scale similar to that of Berry (1997) that assessed assimilation, integration, marginalization, and separation. Findings revealed that parental acculturation style was not related to children's internalizing, externalizing, or total behavior problems on the Child Behavior Checklist.

Another study of Hmong families explored the relationship between parental acculturation and the behavior problems of adolescents between the ages of 14 and 18 (Xiong, 2006). Acculturation was measured with the Suinn-Lew Asian Self-Identify Acculturation Scale and adolescent behavior problems were measured with the Millon Adolescent Clinical Inventory. Both parents and adolescents rated the parents' acculturation. Parental acculturation was not found to be related to children's behavior problems. However, interestingly, Hmong adolescents' perceptions of their parents' level of acculturation was a good predictor of behavior problems among youth. Specifically, Hmong adolescents who perceived their parents as more acculturated into the culture and lifestyles of Western society reported more anxious feelings and oppositional problems than those who perceived their parents as more Asian.

In summary, the literature provides some evidence that parental acculturation is related to the academic achievement and socioemotional development of their children. Several studies found that greater parental acculturation is linked to higher levels of children's academic skills, including better vocabulary and higher grades in school. Less is known about the relationship between parental acculturation and arithmetic skills, although school grade point averages are likely to include classes in mathematics.

Existing research also demonstrates a link between parental acculturation and children's social skills and behavior problems. In particular, parental adoption of integrative or assimilated acculturation styles, which involve more extensive use of the English language, generally have been associated with better child social skills and fewer behavior problems. However, other research has linked greater acculturation (particularly assimilation) to more externalizing problems in adolescents, and other studies have found

no relationship between parental acculturation and child behavior problems.

It is notable that most studies examining the relationship between parental acculturation and child outcomes involve adolescents or kindergarten age children, rather than children in the elementary years. Also, there is little research on how parental acculturation is related to child achievement or socioemotional development in families of Asian heritage in the United States, with many of the existing studies conducted in Canada. Finally, studies examining socioemotional development have tended to focus on behavior problems, rather than prosocial skills, such as positive peer relations. The current study addresses these shortcomings by examining the role of maternal language acculturation, as measured by the ability of mothers of Asian heritage to speak, read, write, and understand English, in predicting the academic achievement and socioemotional development of Asian American third grade children.

Parental Involvement

Definition and Measures of Parental Involvement

A third variable that may be a significant predictor of the academic achievement and socioemotional development of children of Asian heritage is parental involvement by a child's parents or other members of his/her family. Lombana (1983) defined parent involvement as all educational activities conducted by parents that directly or indirectly influence their children's development. Other researchers have operationally defined parental involvement in a variety of ways including: parents' communication of educational aspirations for their children (Bloom, 1980); parents' rules and behaviors related to academic achievement in the home (Keith et al., 1993); parents' participation in school activities (Stevenson & Baker, 1987); parents' communication with children about

school (Christenson, Rounds & Gorney, 1992); and parents' communication with teachers about their children (Epstein, 1991). Some researchers have investigated multiple dimensions of parent involvement. For example, Grolnick and Slowiaczek (1994) defined parent involvement as parents' commitment of time and resources to children's school work, school activities, athletics, and other areas. Such activities might include reading to a child, helping with homework, becoming involved in school activities, and exposing the child to cognitively stimulating activities and materials.

Vandegrift and Greene (1992) defined parent involvement by emphasizing parents' provision of energy, emotion, and financial resources to aid children's development. They also argued that there was no necessary connection between parental support for children's education and parents' active participation in school-based activities. Considering these latter elements, four types of parents would exist: (1) parents who support their children's education and are willing to participate in school educational activities; (2) parents who pay significant attention to their children's education but are not active participants in school activities; (3) parents who only attend school activities but do not support their children's education at home; and (4) parents who are not involved in their children's education at home or their school activities.

To examine the role of parent involvement in children's education, Epstein (1996) delineated six types of parent involvement and school partnership activities: parenting, communicating, volunteering, learning at home, decision making, and collaborating with the community. Her model addresses parental interaction with the school and larger community to facilitate children's academic and socioemotional development. In the first level of her model, "parenting," parents meet basic obligations of providing safety,

nutrition, and healthy homes to promote children's development and school preparedness. This level includes supervision, discipline, and guidance to facilitate children's self-confidence and positive self concept. In the second level, "communication," parents and teachers or school representatives communicate with each other about children's academic progress, school programs, and events through parent-teacher conferences, phone calls, open houses, report cards, school newsletters, and other venues. The third level, "volunteering," refers to parents helping teachers and children in classroom settings when they attend school activities. In the fourth level, "learning at home," parents work with teachers and schools to foster children's intellectual growth at home, including helping children with homework, reading, and other learning activities. The fifth level, "decision making," refers to parental participation in school decisions, including governance and advocacy for school programs, through participation in parent-teacher organizations, advisory committees, or school-based groups. The sixth and final level, "collaborating with the community," involves parents working collaboratively with community programs, businesses, social service agencies, and other groups to enrich school programs and enhance student learning.

Child development theorists, researchers, and practitioners agree that parent involvement has the potential to play an important role in children's academic and socioemotional development. Integrative theorists (e.g., Garcia Coll et al., 1996) also argue that members of a child's extended family (e.g., grandmothers, grandfathers, aunts, uncles) may also be instrumental in parenting children, supplementing parental caregiving or, in some cases, taking the primary responsibility for parenting. Most parents and adult family members share the goal of nurturing and preparing the next

generation to become educated, productive, creative, and socially adjusted members of society. However, despite a large body of research on parental involvement and child outcomes, there is relatively little research on parental involvement and the academic achievement and socioemotional development of Asian American and Asian immigrant children (Kim & Wong, 2002).

Asian Immigrant and Asian American Parenting

Researchers (e.g., Kotchick & Forehand, 2002) have found that parent involvement is influenced by many factors, including characteristics of the child (e.g., gender, temperament), the parent (e.g., personality, psychological functioning), the family (e.g., marital relationship, family stress, financial standing), and the larger social context (e.g., ethnicity/culture, community norms). To explore the relationship between parent involvement and child development among Asian Americans, it is necessary to have some understanding of Asian American parenting attitudes and behaviors.

Asian immigrant and Asian American families are very heterogeneous in terms of nationality, religion, language, and customs (Feng, 1994), consisting of more than 29 different subgroups. The four major subgroups are: Southeast Asian, whose countries of origin include the Philippines, Vietnam, Cambodia, Indonesia, Laos, Malaysia, and Thailand; East Asian, whose countries/areas of origin include China, Japan, South Korea, North Korea, Singapore, and Taiwan; South Asian, whose countries of origin include India, Pakistan, Bangladesh, Kuwait, and Sri Lanka; and Pacific Islanders, whose countries of origin include Hawaii and Samoa (Pang, 1990; Sohn, 2008). These different subgroups are adjacent regionally, and subgroups often share commonalities in terms of philosophies, economic and political situations, cultural backgrounds, languages,

religions, and values. For example, most South Asians are impacted by Islam or Hindu religions (Pang, 1990). East Asian culture is largely influenced by Confucianism (Jung, 1998) and Chinese student school success may be explained by the notion of “training” in Confucianism (Chao, 1994).

In East Asian countries, where Confucianism has a huge impact on parenting, *Jiao Xun* (training) and *Guan* (control or supervision) are concepts that define role relationships. *Jiao Xun* is a Chinese term that includes the idea of training, or teaching and educating children about appropriate or expected behavior. A central part of training focuses on the ability of children to perform well in school. Wu and Tseng (1985) report that, “in the family, Chinese parents pay special attention to training children to adhere to socially desirable and culturally approved behavior. One way to measure the success of parental intervention is the ability of children to perform well in school (p. 11).”

One of the main beliefs of Confucianism is that children are born with inherent goodness (Ho, 1986; Kojima, 1986). Significant others in the child’s environment are responsible for training the child by exposing him/her to explicit examples of proper behavior and restricting exposure to undesirable behavior (Ho, 1986; Wu, 1985). Children’s training requires enormous devotion and sacrifice on the part of the mother. During the child’s early years, the mother is expected to provide a highly nurturing environment for the child by being physically available and promptly taking care of the child’s every need (Wu, 1985; Yong, 1972). When children reach school age, the mother is responsible for providing support and motivation for children to achieve in school and to ultimately meet societal and familial expectations for the child’s success. Thus, training occurs in the environment of a highly supportive, involved, and physically close

mother-child relationship.

A second concept emphasized in East Asian parenting is *Guan*. *Guan* literally means “to govern”, and can also mean “to care for.” *Guan*, or control and governance, has a very positive connotation for the Chinese, and it is viewed as a role responsibility of both parents and teachers. Teachers in China and most East Asian countries are expected to continuously monitor and correct children’s behavior by evaluating whether children are meeting the teacher’s expectations or standards, and comparing children to each other in these evaluations. *Guan* and *Jiao Xun* not only describe the style of East Asian parenting, but also include a standard of conduct enforced by both parents and the larger society. These concepts ensure preservation of familial and societal goals of harmonious relations with others and the integrity of the family unit (Lau & Cheung, 1987).

The role relationships between parents and children, teachers and children, and parents and teachers were defined by Confucius and remain models of role relationships in modern China. Three essential aspects of Confucian thought are as following: (1) a person is defined by his or her relationships with others, (2) relationships are structured hierarchically, and (3) social order and harmony are maintained by each party honoring responsibilities of the role relationships (Bond & Hwang, 1986). Children are required to be loyal and respectful of their parents, who are, in turn, are expected to govern, teach, and discipline their children. Parents are also expected to be respectful of teachers who hold higher authority (than parents) for educating their school-age children.

Despite the different heritages of Asian subgroups, Asian parents share similarities in terms of their educational beliefs and involvement in children’s education. For example, a majority of Asian families highly value the importance of parenting,

education, hard work, self-discipline, and fulfillment of role-related family responsibilities (Chao & Tseng, 2002; Garcia Coll et al., 2002; Tamis-LeMonda, Wang, Koutsouvanou & Albright, 2002). Numerous studies have found that Asian American parents place a significant value on education, have high expectations for their children's schooling, and believe in the value of hard work and effort (Okagaki & French, 1998; Wang & Lin, 2005). Asian parents believe that academic achievement brings honor and prestige to the family unit (Sue & Okazaki, 1990). They instill the value of education in their children and attempt to motivate their children to succeed at school and at work (Abboud & Kim, 2006). Among recent Asian immigrants to the United States, parents may perceive children's academic success as the only way to improve their social status in American society (Kao, 1995; Lee, 1996).

Parental involvement and Children's Academic Outcomes

A growing body of studies has examined the relationship between parent involvement in children's home and school activities and their academic achievement (e.g., Jordan, Snow & Porche, 2000; Westat & Policy Studies Associates, 2001). Several studies have shown that parent involvement at home, including helping with homework, monitoring study time, and providing a stimulating home environment, is positively related to student achievement (e.g., Christenson & Sheridan, 2001; Izzo et al., 1999; Sui-Chu & Willms, 1996). For example, Senechal and LeFevre (2002) conducted a 5-year longitudinal study to examine the relationship between parental involvement in early home literacy experiences and children's subsequent receptive language skills, emergent literacy skills, and reading achievement. This study involved 168 middle- and upper middle-class children in kindergarten and grade one in Ottawa, Ontario, Canada. Results

showed that parental involvement in teaching children about reading and writing words was related to the development of early literacy skills. In addition, early literacy skills directly predicted word reading at the end of grade one and indirectly predicted reading comprehension in grade three.

In another study, Izzo et al. (1999) examined relationships between teacher ratings of parental involvement and students' reading and math achievement in grades one and three. Teachers provided information about parent involvement and school performance for 1,205 urban children, kindergarten through third-grade, for three consecutive years. Participating children were from ethnically diverse backgrounds, including 63% Black, 20% Hispanic, and 17% White students. Approximately 20% of the students had a home language other than English, and 49% received a lunch subsidy. Four dimensions of parent involvement reported by teachers were: frequency of parent-teacher contact, quality of parent-teacher interaction, participation in educational activities at home, and participation in school activities. Findings revealed significant positive relationships between all parental involvement measures and children's reading comprehension and math problem-solving. Interestingly, parents' participation in educational activities at home was the strongest positive predictor of children's achievement, predicting more strongly than quality of parent-teacher interaction, number of parent-teacher contacts, or participation in school activities.

Still other research has found that race/ethnicity influences the relationship between parent involvement and children's academic achievement. For example, Jeynes (2003) conducted a meta-analysis of 21 studies to examine the impact of parental involvement on the academic achievement of minority children in grades K-12 (including

African Americans, Asian Americans, and Latinos). The overall effects of parental involvement were assessed in the analysis, as well as the impact of specific components of parental involvement. These components of parental involvement included: *communication*, measured by the extent to which parents communicated with their children about school; *homework*, defined by whether parents checked their children's homework; *expectations*, measured by parental expectations for their children's academic success; *reading*, defined as parents' level of encouraging children to do outside reading; *parental attendance*, measured by parents' participation in school functions; *rules*, defined as the extent to which parents had household rules regarding school and/or leisure activities; parenting style and warmth; and other specific measures of parental involvement. Four child outcomes included: school grades, standardized test scores, teacher ratings of academic behaviors and attitudes, and a combined measure of all components of academic achievement. Findings revealed that the overall impact of parent involvement was significant and positive for all racial groups. Greater parent involvement was associated with higher grade point averages, higher standardized test scores, and other measures of children's academic achievement. However, interestingly, some minority groups appeared to benefit from parental involvement more than others. Specifically, parental involvement benefited African Americans and Latinos more than it did Asian Americans. The author argued that there may have been less variability in parental involvement in Asian American families because of the culture's emphasis on education and the higher percentage of intact families. However, findings also emphasized the need for more study of Asian families and for use of a broader range of parental involvement measures.

Other research has reported little or no relationship between parental involvement and children's academic outcomes (Begum, 2007; Milne, Myers, Rosenthal & Ginsburg, 1986; Natriello & McDill, 1986). For example, in a recent study, Begum (2007) examined whether parent involvement among families from different ethnic and socioeconomic backgrounds was related to the math and reading achievement of young children across multiple school years, using the data from 5,324 students in the Early Childhood Longitudinal Study (ECLS), Kindergarten Class of 1998-99. Parent involvement variables included home learning resources (e.g., number of books, internet access), home cognitive stimulation (e.g., storytelling, games, nature activities), parent involvement in school (e.g., attendance at school meetings, volunteering), extracurricular activities (e.g., music lessons, athletic events), and use of community resources (e.g., visited library or zoo). Demographic variables were child gender, race/ethnicity, parent education, poverty level, family type, and socioeconomic status. The author reported on the relationship between parent involvement and math and reading achievement in kindergarten, first grade, third grade, and fifth grade for children in African American, Asian American, European American, and Hispanic ethnic groups. For the Asian children, parent socioeconomic status was the strongest positive predictor of reading and math performance in kindergarten, first grade, third grade and fifth grade. Coming from a single parent family and a family below the poverty level were negatively related to reading and math performance for the Asian children in all grade levels. With respect to parent involvement predictors of reading and math performance, parent involvement measures were significantly related to children's achievement scores for African American, European American, and Hispanic children. However, among Asian families,

no parent involvement measure was significantly related to the reading and math performance of their children in kindergarten, first grade, third grade, and fifth grade. According to the author, the lack of significant relationships between parent involvement measures and children's reading and math achievement was likely due to the fact that Asian parents did not value the parent involvement activities considered in this research. In this study, there was a greater focus on parent involvement activities such as storytelling, cultural activities, games, and sports, than on doing school-related activities with one's child (e.g., reviewing math problems or vocabulary words).

Similarly, in a previously mentioned study, Vagi (2008) used the ECLS-K dataset to examine the effect of parental involvement in school on children's reading and math achievement from kindergarten through elementary school. Items on the measure of parental involvement in the school included contacting the child's teacher or school, attending an open house or back-to-school night, attending a PTA/PTO meeting or a Parent-Teacher Student Organization, attending a parent-teacher conference, attending a school or class event, volunteering at school or serving on a committee, and participating in fundraising for child's school. Findings revealed that parental involvement in their children's schools did not significantly affect reading and math performance after controlling for SES (household income, maternal education, paternal education, maternal occupation, and paternal occupation).

Parental Involvement and Children's Socioemotional Development

In addition to exploring the relationship between parental involvement and children's academic achievement, researchers have also examined links between parental involvement and children's socioemotional development. These studies have focused on

children's social skills as well as their behavior problems. For example, Kohler (2007) examined parent involvement in a Child-Parent Center (CPC) preschool program and its influence on disadvantaged children's social and emotional development. Data were collected for 1,451 low-income minority children who attended government-funded early intervention programs in the Chicago Public Schools. Mothers' and teachers' ratings of various types of parent involvement and social skills were obtained from school questionnaires administered in grades one through seven. Findings revealed that with one exception (parent ratings of involvement in learning activities at home), all parent involvement variables were positively linked to children's social adjustment, including peer social skills. More specifically, teacher ratings of parental interest in their children's school progress, parental involvement in school activities, and parents' communication with the school were positively related to children's social adjustment between the ages of seven and 12. Independent teacher ratings of parental involvement in school activities between ages six and 12 were significantly positively associated with teacher ratings of student peer social skills between ages 11 and 13. However, parent ratings of their involvement in learning activities at home did not predict social adjustment or children's peer social skills.

Izzo et al. (1999) examined the ways in which parent involvement in children's education changes over time and how it is related to children's social functioning in school. The kindergarten through third grade students in this study were from racially/ethnically diverse backgrounds and attended urban schools. Students' socioemotional development was rated by teachers on the Teacher-Child Rating Scale, which included school engagement, socioemotional adjustment, and number of absences.

The school engagement measure assessed acting out, learning problems, task orientation, and frustration tolerance. The measure of socioemotional adjustment included shy-anxious behavior, peer social skills, and assertive social skills. Findings revealed that the quality of the parent-teacher interaction, teachers' report of parents' participation in educational activities at home, and parents' participation in school activities in grades one through three were significantly positively correlated with students' school engagement and socioemotional adjustment, and significantly negatively related to students' school absences in grade three. In addition, after controlling for first grade performance, parent involvement still accounted for statistically significant amounts of variance in every grade three measure of social functioning. Interestingly, the number of parent-teacher contacts negatively predicted both school engagement and socioemotional adjustment of students. The researchers argued that this negative association exists because, with other positive aspects of parent involvement controlled, these contacts were primarily related to a child's existing behavior problems.

In another investigation, Domina (2005) used data from children participating in the National Longitudinal Survey of Youth, 1979 to estimate the effects of several types of parent involvement on child behavior problems. Child behavior problems were assessed with the Behavior Problems Index, which addressed problems such as children's impulsiveness, argumentativeness, difficulty concentrating, bullying, disobedience at home and at school, trouble getting along with other children, and trouble getting along with teachers. Findings revealed that many indicators of parental involvement were associated with a reduction in child behavior problems. Specifically, results showed that after controlling for family and school backgrounds, parents' volunteering at school,

helping children with their homework, and checking children's homework were associated with lower levels of behavior problems.

In summary, a majority of existing studies have revealed positive relationships between parent involvement and children's academic achievement. However, most of this research includes Caucasians or other racial/ethnic groups, with relatively few studies focusing on families of Asian heritage. Interestingly, in two studies with substantial Asian American and/or Asian immigrant families, certain types of parental involvement (e.g., school involvement, home cognitive stimulation) were not significantly related to children's academic achievement (Begum, 2007) or Asian children benefited less from parental involvement than children from other racial/ethnic groups (Jeynes, 2003). Additional research is needed to examine the relationship between measures of parental involvement and children's reading and mathematical achievement.

The existing parenting literature also fails to examine the relationship between parent involvement and the socioemotional development of children of Asian heritage. No studies were found that examined how various types of parent involvement are related to competence with peer relations or internalizing and externalizing behavior problems in Asian American and Asian immigrant children. Moreover, the research on non-Asian children has focused primarily on behavior problems rather than prosocial skills, such as positive peer relations. This study addressed these gaps by investigating how parental involvement is related to the both peer relations and behavior problems in primary grade children of Asian heritage.

Maternal Social Support

Definition and Measures of Social Support

Social support is another factor that may be a significant predictor of the academic achievement and socioemotional development of children of Asian heritage. There have been many definitions of social support. One definition of the concept refers to an individual's perception that she or he is reliably connected to others, is cared for and esteemed, and can obtain emotional and instrumental assistance from others in times of need (Barrera, 1986; Belle, 1983; Koblinsky & Anderson, 1993). Social support has also been defined in terms of resources, such as information, material assistance, affection, physical comfort, empathy, reassurance, and assistance in problem solving, that are provided by others within the context of interpersonal relationships (Belle, 1989). Some definitions focus on the number of persons available who can be relied upon by an individual and the level of satisfaction with that available support (Sarason, Levine, Basham & Sarason, 1983).

Other researchers divide social support into three areas: social embeddedness, perceived quality of social support, and enacted support (Barrera & Ainlay, 1983). Social support measures have been developed to assess each of these areas. Social embeddedness refers to the number of connections a person has to significant others in his/her environment. Perceived quality of social support refers to the person's cognitive appraisal of social support. Enacted support refers to the frequency of assistance a person receives from his or her significant others. Barrera and Ainlay (1983) conclude that each of these three domains independently affects how an individual can cope with stress. Sources of social support have also been categorized as formal or informal. Formal social

support refers to assistance from institutions such as mental health services, social services, schools, and religious organizations (Hill, 1993). Informal social support is defined as the material, financial, emotional or informational assistance offered by members of an individual's informal network, such as family members, friends, co-workers, and neighbors (Belle, 1983). Several measures have been developed to assess formal and informal sources of social support (e.g., Dunst, Jenkins & Trivette, 1984).

Many theorists and researchers have speculated about how maternal and family social support may influence child development outcomes. For example, Cochran and Brassard (1979) posited that persons in the parents' social network can be sources of cognitive and social stimulation for the child by providing opportunities for experiences beyond the family (e.g., trips to parks and museums, opportunities to participate in educational, cultural, and recreational activities). Members of the social support network can be important role models for a child. Greater parental support may also free parents to spend more quality time with their children. Finally, a child's active participation in his/her parents' social support networks can help a child develop his/her own personal social network.

Maternal Social Support and Child Outcomes

There has been growing research on the relationship between maternal social support and children's development. Some of these studies have found positive relations between maternal social support and children's cognitive skills. For example, in a classic study, Bee et al. (1982) examined the effects of the family ecology (level of social support, maternal education, and stress) in predicting intellectual and language outcomes during the preschool years. The sample in this four-year longitudinal study was 193

healthy, mostly Caucasian (85%), working-class and middle-class mothers and their infants. Child outcomes included mental development, psychomotor development, and receptive and expressive language. Mental development was measured with the Bayley Scales of Infant Development at 12 and 24 months and with the Stanford-Binet at 48 months. Receptive and expressive language were assessed with the Sequenced Inventory of Communication Development, the Bayley scales, and the Fluharty Speech and Language Screening Test. The mother's prenatal social support and social support at 4 months were assessed in a maternal interview, with items including the mother's perception of the father's support and more general support from others. Findings revealed that social support for mothers, especially at birth, was strongly and positively related to children's IQ and language development within the low-education subsample, but not among mothers with more than a high school education.

Another study by Melson et al. (1993) explored the relationship between maternal social support networks, maternal perceptions of parenting, and children's cognitive performance and social development. The sample included 69 mothers and their preschool-age children (mean age of four years) and the families were largely Caucasian, two-parent, middle-class, and well-educated. Maternal social support was assessed with the Social Network List that measured social network size and with the Social Support Questionnaire that measured satisfaction with social support. Preschoolers' cognitive performance was assessed with the Peabody Picture Vocabulary Test (measuring receptive vocabulary) and the Preschool Inventory (measuring basic knowledge and perceptual-cognitive competencies). Child social competence was assessed with a measure of peer acceptance. Findings revealed that maternal support network size and

network quality (frequency of contact, duration of contact with network members) directly predicted children's performance on cognitive measures. No direct association between individual or composite social network quality variables and child peer acceptance was found, but network size indirectly predicted peer acceptance through maternal attributions and cognitions about parenting difficulty. Overall, the authors concluded that social support variables significantly and directly predicted cognitive performance but not peer acceptance.

Vaillancourt, Miller, Fagbemi, Cote, and Tremblay (2007) explored the relationship between parents' social support when their child was age two and the child's indirect aggression at age 10 using a sample of 1,401 Canadian families. Social support was measured with a scale assessing mothers' perceived support from friends, family, and others. Mothers or major caregivers rated children's indirect aggression. Findings revealed that low maternal social support when the child was two years of age was related to indirect aggression at age 10 for girls, but not for boys.

The majority of studies examining the relationship between maternal/parental social support and child outcomes have involved predominantly White families. However, Siegel (1998) conducted a study on maternal social support, maternal education, and children's academic resilience with 50 primarily Central American Hispanic families and 45 non-Hispanic (including White, African American, Asian American, Native American, and Native Alaskan) families with post-Head Start kindergarten children. Maternal social support was measured by asking the mother whether or not she had anyone who helped her with parenting duties and had someone she could "talk to" about childrearing and related concerns. Children's academic

resilience was defined as receptive language ability measured by the Peabody Picture Vocabulary Test (PPVT-R). Results revealed that, for Hispanic mothers, social support was a significant protective factor for children's academic resilience; maternal social support was positively correlated with children's receptive language scores. For Hispanic families, social support was more highly correlated with academic resilience than other individual protective factors. However, for non-Hispanic subjects, maternal social support was not significantly correlated with children's PPVT-R scores; instead, maternal education was the most significant protective factor for children's academic resilience.

Another study by Stacks and Goff (2004) examined whether parental factors, such as parental satisfaction with social support, were related to preschoolers' internalizing and externalizing behavior problems. The sample included 63 Head Start parent-child dyads, including African American, Hispanic, and Caucasian families. Children were enrolled in Head Start and an average of four and a half years of age. Parents or legal guardians of the child completed self-report measures of social support including the Social Support Questionnaire (Sarason et al., 1983). Both parents/guardians and teachers reported on child behavior problems, with parents using the Child Behavior Checklist to rate problems at home and teachers using the Behavior Assessment System for Children to rate problems at school. Findings revealed that parental satisfaction with social support was significantly related to parents' ratings of female children's internalizing and externalizing behaviors; the more satisfied parents were with social support, the lower the level of internalizing and externalizing behavior problems at home in female preschoolers. However, parental satisfaction with social support was not significantly related to female children's internalizing and externalizing behavior problems at school

(teacher report), or to internalizing and externalizing behavior problems in male children at home (parent report) and school (teacher report).

Other research has not found direct relationships between maternal social support and children's cognitive skills. For example, Burchinal, Follmer, and Bryant (1996) examined relationships between maternal social support, maternal responsiveness, and children's cognitive development in a longitudinal study of 62 low-income African American families. Children participated in the study when they were between 6 weeks and 3 months of age. Maternal social support networks were examined with measures of network size, caregiving assistance, density, number of interactions, and number of relatives. Children's cognitive ability was assessed with the Stanford-Binet, Wechsler Preschool and Primary Scales of Intelligence, and Wechsler Intelligence Scale for Children –Revised. Findings revealed that women with larger support networks tended to be more responsive in interaction with their infants and to provide more stimulating home environments than mothers with smaller social networks. However, maternal social support was negatively related to child activity level. No significant relationships were found between maternal social support and the child cognitive and IQ variables. The authors noted that the sample size for this study was small and included only very young children; it was recommended that future research investigate older children and also consider child social skills measures.

Other research has examined the relationship between maternal social support and child behavior problems. For example, in one study, Koverola et al. (2005) conducted a longitudinal study examining the relationships between maternal social support, victimization, and children's behavior. The sample included 203 mother-child dyads from

a low-income, predominantly African American population recruited from pediatric primary care clinics. Data were collected when children were four and eight years of age. Maternal social support was measured when children were age four with the Duke–University of North Carolina Functional Social Support Questionnaire. Child socialization skills (getting along with others) and daily living skills (taking care of oneself) were measured with the Vineland Screener, and child behavior problems were measured with the Child Behavior Checklist when children were age eight. Findings revealed that increased maternal social support was associated with fewer child externalizing behavior problems, as well as increased socialization skills.

Short and Johnston (1997) examined the relationship between social support and children’s behavior problems with a sample of Asian families. The researchers sampled immigrant Chinese mothers regarding their perceived social support and their children’s adjustment after immigrating from Hong Kong to Canada. The mothers’ children averaged eight years of age. Maternal social support was measured with the Parent Support Scale (assessing adequacy of support from spouse, family, and friends) and the Multidimensional Scale of Perceived Social Support. Participants were asked how often they received parenting support (e.g., child care, discipline, advice) from these sources and how helpful they considered this support. Child behavior problems were measured with the Child Behavior Checklist. Results revealed that the higher the level of maternal social support, the fewer the child behavior problems for girls. However, for boys, there was no relationship between maternal social support and behavior problems.

Although some studies have found a significant negative relationship between maternal social support and child behavior problems, others have not replicated this

finding. For example, Mitchell (2004) conducted a study examining the relationship between parental social support and children's social competence in school with a diverse sample of low income families. The 137 participants were from three geographic backgrounds and included 55 African American, 34 Latino, 27 European American, 10 biracial, and two American Indian families. All children had been enrolled as infants in a family intervention program. Parental social support was measured with the Family Support Scale, which asked primary caregivers about the number of adults who had helped in raising their child and about the degree of helpfulness. Teachers rated children's social competence with the Child Behavior Scale, which included questions about self-directed learning, cooperation, prosocial skills, and aggressive behavior with peers. Overall, results revealed that parental support (helpfulness) was related to ethnicity, with Black parents more likely to perceive their networks as being helpful than Hispanic parents. Parental social support, measured by both number of helpers and helpfulness, was not significantly related to children's self-directed learning, prosocial behavior, and aggression. The authors speculated that the lack of relationship between parental social support and children's behavior may have been due to the high levels of risk families were currently facing; in other words, families may have needed substantially more social support for there to be an impact on their children's behavior.

Another study by Taylor and Roberts (1995) examined the link between kinship support to mothers/female guardians and the psychological well-being of 51 economically disadvantaged African-American adolescents aged 15 to 19 years. The measure of kinship relations assessed mothers'/guardians' perceptions of the level of social and emotional support they received from adult kin, including areas of advice and

counseling, problem-solving, and socialization and entertainment. Adolescent psychological well-being included self-reliance, behavior problems (e.g., delinquency), and psychological distress (depressive symptoms). Findings revealed that kinship social support to mothers/female guardians was positively related to adolescent psychological well-being. However, when the effects of maternal well-being and maternal parenting practices were controlled, significant relationships between kinship support and adolescent well-being were no longer significant.

In summary, a number of studies have found positive relationships between maternal or parental social support and measures of children's cognitive and academic skills. However, almost all of these studies involve children from infancy through the kindergarten years, and many include primarily Caucasian samples. One study that did include different ethnic groups found differential results for Hispanic and non-Hispanic samples (Siegel, 1998). Existing studies have also focused primarily on measures of IQ and receptive vocabulary, rather than investigating measures of academic achievement, such as reading and mathematical thinking skills. Future research is needed to explore the links between parental social support and broader measures of cognitive competence with elementary age children from more diverse backgrounds.

The literature examining links between parental social support and measures of children's socioemotional development is more mixed. Some studies find maternal social support to be associated with greater child social skills and fewer behavior problems, while others find no relationship between maternal social support and socioemotional development measures. Again, this research has focused primarily on preschool, kindergarten, and adolescent children. Although the samples in these studies have

included children from diverse backgrounds, there appears to be only one investigation of the relationship between parental social support and the child socioemotional development in families of Asian heritage (Short & Johnston, 1997). The current study attempted to address these shortcomings in the literature by examining how maternal and family social support are related to the academic achievement, peer relations, and behavior problems of Asian American elementary school children. Social support was considered to be an important variable for investigation because of the potential for community level support to influence child development, and the paucity of existing research examining the relationship between social support and child outcomes in families of Asian heritage.

Purpose of the Study

The purpose of this study is to use an ecological/integrative theoretical framework to examine various factors that may predict the academic achievement and socioemotional development of third grade children of Asian heritage. Specifically, the study examined the role of maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support in predicting the reading skills, mathematical thinking skills, peer relations, and behavior problems of Asian American children. This study should provide valuable information about the relationship between microsystem (maternal education, maternal language acculturation, maternal and family involvement in home activities), mesosystem (maternal and family involvement in school activities), and exosystem (maternal social support) factors and the child development of children of Asian heritage. Such information may be used by educators, family practitioners, and

policy makers to promote the academic achievement and socioemotional development of elementary school children in this understudied population. Figure 3 presents the conceptual model of ecological factors used to predict child outcomes.

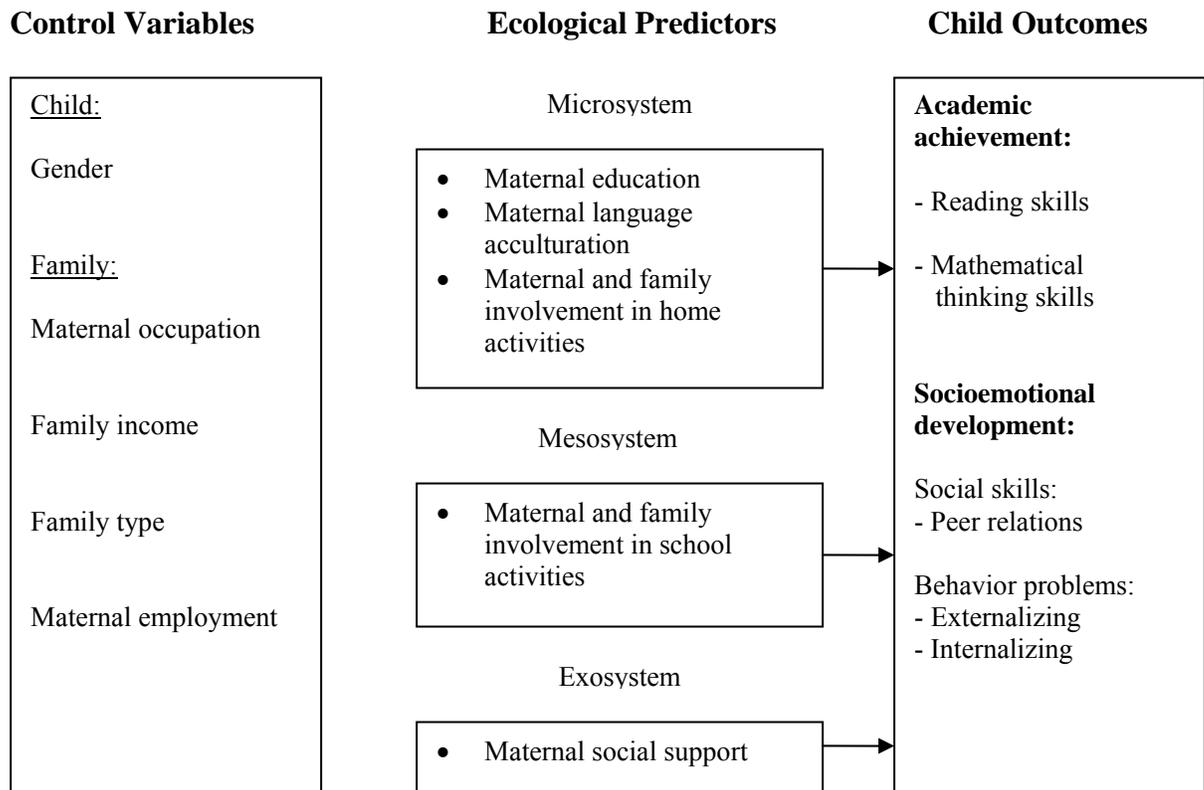


Figure 3. Conceptual Model for the Study.

As the above framework indicates, the conceptual model includes controlling for additional variables because of their relationship with children’s cognitive and socioemotional development. Specifically, the study controlled for child gender since early childhood and elementary school sex differences in academic achievement favor girls (e.g., Henry et al., 2004; Marcon, 2002; Pollard, 1993; Richardson, Koller & Katz, 1986). In the area of socioemotional development, teachers also rate girls’ behavior more favorably than boys (Izzo et al., 1999). The study also controlled for family variables of

maternal employment status, maternal occupation, and family income because of their prior association with child development among children of color, as suggested by the integrative models (Garcia Coll et al., 1996). For example, children whose families have lower incomes tend to have lower levels of academic achievement and higher rates of social maladjustment than their peers from more affluent families (e.g., Edelman, 1987; Petit, Bates & Dodge, 1997). Finally, family type (two-parent versus single-parent households), another variable addressed in the integrative model, was also controlled. Several previous studies have found that children from single-parent households have lower levels of academic achievement than their counterparts from two-parent households (Guidubaldi & Perry, 1984; Smokowski, 1999).

Operational Definition of Variables

Following is a listing of independent, control, and dependent variables, which are defined and measured by scales in the ECLS-K.

Independent Variables

Maternal Education

The mother's highest grade of school completed, or highest degree or diploma.

Maternal Language Acculturation

The extent to which the mother speaks, reads, writes, and understands English when her child enters elementary school.

Maternal and Family Involvement in Home Activities

The frequency with which the mother or a family member engages in home activities with her child, such as telling stories, singing songs with child, playing games with her child, involving her child in household activities, and engaging in sports

together.

Maternal and Family Involvement in School Activities

The frequency with which a mother or a family member participates in school activities, such as attending parent-teacher conferences, attending school functions, and volunteering in the child's school.

Maternal Social Support

The perceived amount of instrumental and expressive/emotional support that mothers received from family members, friends, and others to handle various issues involving her child and other family members (e.g., help with childcare, advice about a child's school problem, emergency loan).

Control Variables

Gender of Child

Gender of the mother's third grade child, male or female.

Maternal Employment Status

The mother's total hours per week of work for pay, including all jobs.

Maternal Occupation

Prestige score of the mother's occupation in the 1989 General Social Survey, based on the employer, the type of business where the mother worked, and the type of work the mother did. The ECLS-K dataset computed this score for each mother.

Family Income

The total household income of the participating mother.

Family Type

Family's status as a single or two-parent household.

Dependent Variables

Academic Achievement

Reading skills. The child's skills in phonemic awareness, single word decoding, vocabulary, and passage comprehension.

Mathematical thinking skills. The child's skills in mathematics, including concepts of numbers, solving number problems, use of mathematic strategies, and measurement.

Socioemotional development

Peer relations. The child's skill in establishing friendships, getting along with other children, and perceiving himself/herself as popular.

Internalizing behavior problems. The child's internal emotional problems, including sadness, loneliness, feeling shame about mistakes, and worry about school and friendships.

Externalizing behavior problems. The child's acting out problems, including the frequency with which a child fights, argues, talks, disturbs others, and distracts.

Research Questions and Hypotheses

This study asked five major research questions. Following each question were hypotheses based on theory and the limited existing research.

Question 1: Is maternal education a significant predictor of Asian American children's academic achievement, peer relations, and behavior problems?

Hypotheses:

1A. Asian American children whose mothers had more education would have better reading skills than Asian American children whose mothers had less education.

1B. Asian American children whose mothers had more education would have better mathematical thinking skills than Asian American children whose mothers had less education.

1C. Asian American children whose mothers had more education would have better peer relations than Asian American children whose mothers had less education.

1D. Asian American children whose mothers had more education would have fewer externalizing behavior problems than Asian American children whose mothers had less education.

1E. Asian American children whose mothers had more education would have fewer internalizing behavior problems than Asian American children whose mothers had less education.

Question 2: Is maternal language acculturation a significant predictor of Asian American children's academic achievement, peer relations, and internalizing behavior problems?

Hypotheses:

2A. Asian American children whose mothers had greater language acculturation would have better reading skills than Asian American children whose mothers had lower language acculturation.

2B. Asian American children whose mothers had greater language acculturation would have better mathematical thinking skills than Asian American children whose mothers had lower language acculturation.

2C. Asian American children whose mothers had greater language acculturation would have better peer relations than Asian American children whose mothers had lower

language acculturation.

2D. Asian American children whose mothers had greater language acculturation would have fewer internalizing behavior problems than Asian American children whose mothers had lower language acculturation.

Because of mixed results in the literature examining the relationship between maternal language acculturation and child externalizing behavior problems, no hypothesis was made about the relationship between these variables.

Question 3: Is maternal and family involvement in home activities a significant predictor of Asian American children's peer relations and behavior problems?

Hypotheses:

3A. Asian American children whose mothers and other family members engaged in more home activities with their children would have better peer relations than Asian American children whose mothers and other family members engaged in fewer home activities with their children.

3B. Asian American children whose mothers and other family members engaged in more home activities with their children would have fewer externalizing behavior problems than Asian American children whose mothers and other family members engaged in fewer home activities with their children.

3C. Asian American children whose mothers and other family members engaged in more home activities with their children would have fewer internalizing behavior problems than Asian American children whose mothers and other family members engaged in fewer home activities with their children.

Previous research suggests that there would be no significant relationship between

maternal or other family members' involvement in home activities and children's reading and mathematical thinking skills in Asian families. Therefore, no hypotheses were made about the relationship between these variables.

Question 4: Is maternal and family involvement in school activities a significant predictor of Asian American children's peer relations and behavior problems?

Hypotheses:

4A. Asian American children whose mothers and other family members engaged in more school activities would have better peer relations than Asian American children whose mothers had less involvement at school.

4B. Asian American children whose mothers and other family members engaged in more school activities would have fewer externalizing behavioral problems than Asian American children whose mothers had less involvement at school.

4C. Asian American children whose mothers and other family members engaged in more school activities would have fewer internalizing behavioral problems than Asian American children whose mothers had less involvement at school.

Previous research suggests that there would be no significant relationship or a weak relationship between maternal and family members' involvement in school activities and children's reading and mathematical thinking skills with families of Asian heritage. Therefore, no hypothesis was made about the relationship between these variables.

Question 5: Is maternal social support a significant predictor of Asian American children's academic achievement, peer relations, and behavior problems?

Hypotheses:

5A. Asian American children whose mothers had more social support would have better reading skills than Asian American children whose mothers had less social support.

5B. Asian American children whose mothers had more social support would have better mathematical thinking skills than Asian American children whose mothers had less social support.

5C. Asian American children whose mothers had more social support would have better peer relations than Asian American children whose mothers had less social support.

5D. Asian American children whose mothers had more social support would have fewer externalizing behavior problems than Asian American children whose mothers had less social support.

5E. Asian American children whose mothers had more social support would have fewer internalizing behavior problems than Asian American children whose mothers had less social support.

CHAPTER III: METHODOLOGY

Sample

This study used data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Longitudinal Kindergarten-Third Grade Public-Use Data File (NCES, 2004). The ECLS-K is a longitudinal study that focuses on the early school experiences of advantaged and disadvantaged children (including immigrant children), beginning with kindergarten and following the children through 12th grade. Currently data have been collected through middle school (eighth grade), but the dataset is only publicly available for children in kindergarten through the fifth grade years. The ECLS-K collects data from parents, school administrators, teachers, and student records, as well as directly from the children. It contains information about measures of children's cognitive skills, children's social development, and their behavior problems, as well as information on family background and the educational quality of their home environments.

The ECLS-K selected a nationally representative sample of 21,260 kindergartners from throughout the nation. The sampled children were from different racial-ethnic and socioeconomic backgrounds, and included an oversampling of Asian and Pacific Islanders (APIs).

Base-year data were collected when the sampled children were in kindergarten in the fall of 1998 and the spring of 1999 (rounds 1 and 2). Follow-up data collections occurred in the fall of 1999 and spring of 2000 when children were in the first grade (rounds 3 and 4), in the spring of 2002 when children were in the third grade (round 5), in the spring of 2004 when children were in the fifth grade (round 6), and in the Spring of 2007 where children were in the eighth grade.

The database for the base year (school year 1998-99) had 21,260 children (unweighted), including 1,355 Asian American children. Among this group, 1,102 were sampled from public kindergartens, and 253 from private kindergartens.

The sample for the present study was drawn from the group of children of Asian heritage whose parents were interviewed in their third grade year. In the longitudinal kindergarten-third grade data file, there were 1,100 children who identified themselves as Asian. This number does not include “Hawaiian/Pacific Island” children because the original design separated this group from parents from “Asian countries.” The ECLS-K dataset does not provide information about the child’s birthplace but it is known that all third grade children in the current sample had spent at least two to three years in the United States.

The final sample size for this study is 311 Asian American third grade children with biological mothers of Asian heritage. The process for obtaining this sample was as follows: of the 1,100 children who identified their race as Asian, 895 children were in third grade (some had advanced or stayed back a grade). The parents of these 895 Asian third graders came from diverse racial backgrounds (including Non-Hispanic White, Non-Hispanic Black or African American, Hispanic, Asian, Native Hawaiian and other Pacific Islander, American Indian or Alaska Native, Non-Hispanic more than one race), and a total of 608 identified themselves as Asian. In this group, 171 cases were excluded because the respondent was an adult other than the child’s biological mother (e.g., father, non-parent relative). At this point, 437 cases remained and in one case, two children had the same parent. To meet the assumption of independence of observations in correlation and regression analysis, one child in this family was randomly selected, reducing the total

cases to 436. After deleting cases with missing data on key variables, 311 remained. These 311 mother-child dyads with complete data comprised the final sample in the study.

Measures

Demographic Background. Demographic items on the ECLS-K addressed such factors as age and gender of the target child, family income, family type, maternal age, marital status, educational level, employment status, occupation, citizenship status, country of birth, length of U.S. residency, number of children in the home, and number of adults in the home.

Independent Variables

Maternal Education

Maternal education was measured by using one ECLS-K item that asked the mother the highest grade she completed in school and the degrees she received (see Appendix A). For example, items included: never went to school, first grade, high school, or bachelor's degree. These data were recoded to create a continuous variable of maternal years of education, with a range from 0 to 20 years. For example, 0 = "never went to school," 1 = "completed first grade," 2 = "completed second grade," 12 = "high school (with diploma or GED)," or "high school plus vocational/technical program (but no diploma)," 13 = "Vocational/technical program after high school or some college but no degree," 14 = "Associate's degree in college," 16 = "Bachelor's degree in college," 17 = "graduate or professional school, but no degree," 18 = "Master's degree (MA, MS)," 20 = "Doctoral degree (Ph.D., Ed.D.)" or "Professional degree after bachelor's degree (e.g., Medicine/MD, Dentistry/DDS, Law/JD/LLB)."

Maternal Language Acculturation

Maternal language acculturation was measured in this study with a four item ECLS-K scale that asked about the mother's ability to speak, read, write, and understand English (see Appendix B). Mothers responded on a 4-point scale with the following responses: 1 = very well, 2 = pretty well, 3 = not very well, and 4 = not well at all. All four items were reverse scored. After recoding, items were summed to create a total score with a range from 4 to 16. The higher scores represented better English skills. These items were not used with the third grade sample, so maternal language acculturation data were collected from the mothers' kindergarten (base year) interviews.

Maternal and Family Involvement in Home Activities

Maternal and family member involvement in home activities with the third grade child was measured using 10 items from a study-specific question (see Appendix C). These 10 items measured the number of times in a typical week that the mother or a family member engaged in activities with her child at home, including activities such as telling stories to the child, playing games with the child, or playing sports together. Mothers responded on a 4-point Likert scale that included: 1 = not at all, 2 = once or twice a week, 3 = 3-6 times a week, and 4 = every day. These data were recoded and the new scale began with 0 rather than 1 (i.e., 1 recoded as 0, 2 recoded as 1, 3 recoded as 2, 4 recoded as 3). After recoding, the 10 items were summed to create a total score with a range from 0 to 30, with higher scores showing greater involvement in home activities with the child.

Maternal and Family Involvement in School Activities

Maternal and family member involvement in the child's school activities was

measured with an ECLS-K measure (see Appendix D). Factor analysis was performed on this measure because of its low internal consistency (see Results section). Based on the results of this analysis, four items (b, d, e, and f of Question PIQ.020) were drawn from the original six items in the question to form this study-specific measure. The four-item scale included items such as maternal and family members' participation in PTA/PTO meetings and involvement in volunteer and school fundraising activities. Mothers responded to the items using a dichotomous format (yes/no). "Yes" was coded as 1 and "no" was coded as 0. Responses to all items were summed to create a total score ranging from 0 to 4, with higher scores indicating greater maternal and family involvement in school activities.

Maternal Social Support

Maternal social support was assessed with a 6-item, study-specific social support scale (see Appendix E). This scale included items assessing emotional support, such as "if my child is sick, friends or family will call or come by to check on how things are going;" information and advice, such as "If I have troubles or need advice, I have someone I can talk to;" and instrumental support, such as "If I have an emergency and need cash, family or friends will loan it to me." Mothers responded to these items on a three-point scale that included: 1 = never true, 2 = sometimes true, and 3 = always true. These data were recoded so the new scale began with 0 rather than 1 (i.e., 1 recoded as 0, 2 recoded as 1, and 3 recoded as 2). Mothers' responses were summed to create a total score with a range from 0 to 12, with higher scores indicating greater social support.

Control Variables

Gender of Child

Gender of the mother's third grade child was assessed, with 1=male, and 2=female. The data were recoded (i.e., 1 recoded as 1, and 2 recoded as 0).

Maternal Employment

Maternal employment was measured by using one ECLS-K item that asked the mother the total hours per week she usually worked for pay, including all jobs she did (see Appendix F).

Maternal Occupation

Maternal occupation is a composite variable (W3MOMSCR) computed by the ECLS-K (see *Third Grade User's Manual Chapters 6-9*, NCES, 2004 for detailed information). This composite variable was derived from four questions addressing the name of the company or business where the mother works or last worked, the type of business, the kind of work the mother does, and the most important activities or duties performed on the job (see Appendix G). With this information, occupation was coded to reflect the average prestige scores from the 1989 General Social Survey (Davis, Smith, Hodge, Nakao, & Treas, 1991). For more information, readers are referred to the ECLS-K Methodology Report (NCES, 2005a).

Family Income

The total household income per year of the participating mother was scored with Likert scale categories from lower to higher income. For example, 1 = \$5,000 or less, 2 = \$5,001 to \$10,000, 3 = \$10,001 to \$15,000, 11 = \$75,001 to \$100,000, 12 = \$100,001 to \$200,000, and 13 = \$200,001 or more.

Family Type

Family type was measured dichotomously in this study, with 1 = child living in a single parent family with or without siblings, and 2 = child living in a two parent household with or without siblings.

Dependent Variables

Data on all dependent variables came from direct child assessment in the ECLS-K.

Academic achievement

Third grade children's academic achievement was measured with the ECLS-K third grade child cognitive assessment battery (NCES, 2005b). This battery contains items assessing reading and mathematics, knowledge and skills that represent important cognitive goals of elementary school curricula. Pools of test items were developed and reviewed by elementary school curriculum specialists for appropriateness of content and difficulty, relevance to the test framework, and sensitivity to minority concerns. Items that passed these content, construct, and sensitivity screenings were field tested in spring 2000. The content validity of the ECLS-K item pools was established by comparing the results of the ECLS-K with scores on the Woodcock-McGrew-Werder Mini-Battery of Achievement that was also administered during the field test.

The scores used to describe children's performance on the direct cognitive assessment included broad-based measures that reported performance in each domain as a whole, as well as targeted scores reflecting knowledge of selected content or mastery within a set of hierarchical skill levels. Some of the scores were simple counts of correct answers, while others used Item Response Theory (IRT), which measured children's

performance on a set of questions with a broad range of difficulty, and used patterns of correct and incorrect answers to obtain estimates that are comparable across different assessment forms.

Reading skills. Because the *ECLS-K* has copyright-protected materials and agreements with test publishers that restrict distribution of the instruments, specific items on the direct child assessment are not available for public examination. However, a summary of the items was provided in the *ECLS-K Third Grade User's Manual, Chapters 1-5*. These items measured phonemic awareness, single word decoding, vocabulary, and passage comprehension. The comprehension items measured skills in initial understanding, interpretation, personal reflection, and demonstrating a critical stance. The passage reading section examined sentence, paragraph, and story comprehension and included various literary genres including poetry, letters, informational text, and narrative text.

The third grade reading assessment contained five proficiency levels, which reflected a progression of skills and knowledge. The proficiency levels were as follows: (1) recognizing common “sight” words; (2) reading words in context; (3) making inferences using cues that were directly stated with key words in text (literal inference); (4) identifying clues used to make inferences (extrapolation), and using personal background knowledge combined with cues in a sentence to understand use of homonyms; and (5) demonstrating understanding of the author’s craft and making connections between a problem in the narrative and similar life problems (evaluation).

The Item Response Theory (IRT) scale scores of reading in the *ECLS-K* database were used in the analysis. They represent estimates of the number of items students

would have answered correctly at each point in time if they had taken all of the 154 questions in all of the first- and second-stage reading forms. These scores are not integers because they are probabilities of correct answers, summed over all items in the pools.

Mathematical thinking skills. The third grade mathematics assessment addressed the following content areas: number sense, properties, and operations; measurement; geometry and spatial sense; data analysis, statistics, and probability; and pattern, algebra, and functions. Conceptual, procedural, and problem solving processes are assessed in each of these areas. Some of the items draw upon knowledge from more than one area.

The items in the third grade mathematics assessment were grouped in four proficiency levels. The clusters of third grade mathematics items included the following: (1) solving simple addition and subtraction problems; (2) solving simple multiplication and division problems and recognizing more complex number patterns; (3) demonstrating understanding of place value in integers to the hundreds place; and (4) using knowledge of measurement and rate to solve word problems.

Similar to reading, the Item Response Theory (IRT) scale scores of math in the ECLS-K database were used in the analysis, and they also represent estimates of the number of items students would have answered correctly at each point in time if they had taken all of the 123 questions in all of the mathematical forms.

Children's Self-Report Socioemotional Development

Children's socioemotional development was measured by the *ECLS-K* Self-Description Questionnaire (SDQ), which is used to determine how children think and feel about themselves socially and academically. Because of copyright protection restriction, specific items on this child self-report socioemotional development were not available for

public examination. However, summary of the items was provided in the *ECLS-K Third Grade User's Manual Chapters 1-5*.

The SDQ consists of 42 statements. However, only 19 statements in the SDQ, which were determined by the ECLS-K, addressed socioemotional development. In these 19 statements, third grade students rated their perceived competence and popularity with peers and reported on behavior problems with which they might struggle. The items on the first scale, Peer Relations, were adapted with permission from the Self-Description Questionnaire I (Marsh, 1990). The items in the two behavior problem scales, externalizing and internalizing behavior problems, were developed specifically for the ECLS-K. Students rated each behavior by indicating how closely it matched their perception of themselves on a four point response scale that included “not at all true,” “a little bit true,” “mostly true,” or “very true.” The 19 items factored into three scales:

Peer relations. This scale includes six items about how easily the child makes friends and gets along with children, as well as the child's perception of her/his popularity.

Externalizing behavior problems. This scale includes six items about externalizing behavior problems, such as fighting and arguing with other kids, talking and disturbing others, and problems with distractibility.

Internalizing behavior problems. This scale includes seven items about internalizing behavior problems such as feeling sad a lot of the time, feeling lonely, feeling ashamed of mistakes, and worrying about school and friendships.

The scale scores on these SDQ scales in the ECLS-K dataset represent the mean rating of the items included in the scale. Students who responded to the SDQ answered

virtually all of the questions, so treatment of missing data was not an issue. As with most measures of social-emotional behaviors, the distribution on these scales is skewed (skewed negatively for the peer relations scale and skewed positively for the behavior problem scales).

Procedure

The ECLS-K used a multistage probability sample design to select a nationally representative sample of children who were enrolled in kindergarten in 1998-99. In the kindergarten year, the primary sampling units (PSUs) were geographic areas consisting of counties or groups of counties. The second-stage units were schools in sampled PSUs, and the final stage units were students within schools. In each school, the project staff acquired a list of kindergartners enrolled, ensuring that no child was left out due to language problems or disability. Two independent sampling strata were used within each school, one containing Asian Pacific Islander (API) students and the second, all other students. Within each stratum, students were selected through equal probability systematic sampling, using a higher rate for the API stratum. In general, the target number of children sampled at each school was 24. As noted earlier, only students of Asian heritage (but not API students) were included in the sample. Once the sampled children were identified, the school provided parent contact information. The researchers then obtained parental consent for the child assessment and for the parent interview.

The ECLS-K collected data from children, their parents, teachers, and schools through one-on-one assessments, computer- assisted telephone interviews, and self-administered paper and pencil questionnaires. All parents and teachers volunteered to participate in the ECLS-K. To insure the confidentiality of participant responses, every

case was assigned an identification number so it was impossible to connect data to specific participants.

To collect parent information, including data from the mothers of the child, a computer-assisted interview (CAI) was conducted. The parent interview was conducted primarily in English, but provisions were made to interview parents who spoke other languages. The questionnaires were translated into Spanish, Chinese, Lakota, and Hmong languages and bilingual interviewers were trained to conduct the parent interview. Approximately 92% of the parents of Asian heritage were interviewed in English. Most of the interviews were conducted by telephone, with a small percentage (2%) conducted in person.

The parent interview for the third grade data collection in spring 2002 lasted an average of 62 minutes. Parents were asked approximately 500 questions covering the third grade child's school experience, child care, and child health. Mothers responded to questions about their educational level and social support, and provided demographic information such as family type, marital status, and family income. Mothers also responded to questions about their own or any other family member's involvement in home and school activities with their child. Data on maternal language acculturation were collected when children were in kindergarten because these data were not collected in spring 2002.

To collect data from third grade children, one-on-one direct child assessments were administered using both hard-copy instruments and computer-assisted interviewing (CAI) in spring 2002. The assessments required about 90 minutes to administer. The assessment began by verifying the child's name and administering a short set of warm-up

exercises similar in form to the items used in the Self-Description Questionnaire (SDQ). The assessor then administered the SDQ followed by the reading and math assessments. Because children of this age have different levels of reading ability, assessors read the SDQ questions to each child even if the child said that he or she could read them. In this way, children's responses were not affected by their reading ability. Children were given a few seconds after each statement was read to mark their response in the SDQ questionnaire. The reading passages and questions were in a booklet format to allow the student to refer back to the story when answering the questions. All questions were read by the assessor.

Small easels were used to administer items in mathematics. The items were printed on one side of the easels and administration instructions for the assessor on the other side. Assessors entered children's responses on a laptop computer. In mathematics, all available response options were read to the child. The students also completed workbooks with open-ended mathematics questions.

Data Analysis

Descriptive statistics, including frequencies, means, and standard deviations, were computed to present demographic characteristics of all children and mothers in the study sample. Cronbach's coefficient alphas were computed to examine the internal consistency of the scales of maternal language acculturation, maternal and family member involvement, and maternal social support. Since specific items on the direct child assessment and the SDQ were copyright protected and not available for public examination, Cronbach's coefficient alphas of children's academic skills, peer relations, and behavior problem measures could not be computed for the current sample (but are

provided for the larger ECLS-K cohort). Bivariate correlation analyses were conducted to examine the relationships among all independent, control, and dependent variables.

To test the study hypotheses, hierarchical regression analyses were used to determine the extent to which the independent variables of maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support predicted the five dependent variables. Child gender, maternal occupation, family income, family type, and maternal employment were entered into the equations as control variables because of their prior association with child outcomes, especially within minority group families (e.g., Bogenschneider & Steinberg, 1994; Christian, Morrison, & Bryant, 1998; Evans, 2004; Linver, Brooks-Gunn, & Kohen, 2002; Magnuson, 2007; Morris & Gennetian, 2003; Yeung, Linver, & Brooks-Gunn, 2002).

Five hierarchical regression models were analyzed, with a separate hierarchical regression model for each of the five dependent variables. The dependent variables were: reading skills, mathematical thinking skills, peer relations, externalizing behavior problems, and internalizing behavior problems. Control variables were entered first into the model, followed by entry of the key predictor variables. The final models include independent variables that contribute significantly to the prediction of each target dependent variable at a significance level of .05 or below.

Missing Data and Weights

Missing Data

In the ECLS-K data set, there are missing values for Asian American children's mothers for both maternal education and family income. Maternal education had 66

missing values and family income had 94 missing values in the third grade interview. In such cases, missing values in the third grade dataset were replaced by available values from the kindergarten or first grade year (if there were data for both years, the highest value was used). This method was considered more accurate than using a mean substitution method since it draws from actual data on the mother and her family at an earlier point in time and is available in this longitudinal study.

Weighting Cases

Multistage probability sampling techniques were utilized to obtain a large, nationally representative sample of children from the 1998-99 kindergarten class from which data were collected. In addition, Asian American children were oversampled in this study. As mentioned earlier, region of the country (Northeast, Midwest, South, and West) was the primary sampling unit (PSU), and schools within regions were the secondary sampling unit. In the ECLS-K dataset, each case was weighted based on the probability of the individual's selection if she/he had been drawn randomly. Given that the data on maternal language acculturation were drawn from the base year of the study and the remaining data were obtained from the child's third grade year, the ECLS-K manual and an expert on the use of national datasets advised using the K-3 longitudinal weight C1_5FP0 in data analyses (see *Third Grade User's Manual Chapters 6-9* for more information). A normalized weight was created using the following equation:

$$Newt = \text{Each Child's Sample Weight} / \text{Mean Weight (i.e., } C1_5FP0 / \text{mean value of } C1_5FP0 = C1_5FP0 / 139.1707)$$

for each case in the current study. All of the hierarchical regressions were run with the weighted cases so that the results can be applied to larger populations ensuring greater generalizability.

CHAPTER IV: RESULTS

Demographic Characteristics

Table 1 presents demographic characteristics of this sample, including frequencies and percentages for the variables of child age, child gender, family income, family type, maternal marital status, maternal education level, maternal employment status, maternal occupation, maternal citizenship status, and mother's country of birth. The table also provides means and standard deviations for mother's age, percentage of mother's life spent in the U.S., number of children, and number of adults in the household.

The sample consisted of 311 Asian American children and their biological mothers. As shown in Table 1, most of the children (86%) were between eight and three quarters and nine and three quarters years of age. There were approximately the same number of boys and girls in the sample, with 51% male children and 49% female children. Among the participating families, approximately 9% had an annual family income of \$20,000 or less, 38% had a family income between \$20,001 and \$50,000, 15% had a family income between \$50,001 and \$75,000, and 38% had a family income of \$75,001 or more. Approximately 87% of the children were members of two-parent families and 86% of the participating mothers were married. Approximately 15% of mothers had less than high school education, 15% had a high school degree or GED, 22% had an associate's degree or trade school, 34% had a four year college degree, and 15% had graduate school education (some graduate school education or a graduate degree). With respect to the mother's employment status, approximately 58% of mothers in the sample worked 35 hours or more per week, 22% worked less than 35 hours per week, 2% were looking for work, and 17% were not in the labor force.

Table 1

Demographic Characteristics of Sample Children and Mothers

Demographic characteristic	Mean (<i>SD</i>)	Range
Mother's age (years)	39.30 (5.47)	26-53
Mother's education (years)	13.83 (3.93)	0-20
Percentage of mother's life spent in the U.S.**	0.54 (0.26)	0.05-1.00
Number of children in household (<18)	2.60 (1.31)	1-10
Number of adults in household (>18)	2.46 (.95)	1- 8
		<i>N</i> (%)
Child age at third grade assessment (years)		
Less than 8.75		33 (10.6%)
8.75 to less than 9		72 (23.2%)
9.00 to less than 9.25		85 (27.3%)
9.25 to less than 9.50		76 (24.4%)
9.50 to less than 9.75		34 (10.9%)
9.75 or older		11 (3.5%)
Child's gender		
Male		159 (51.1%)
Female		152 (48.9%)
Family income		
\$20,000 or less		28 (9.1%)
\$20,001 to \$30,000		34 (10.9%)
\$30,001 to \$40,000		39 (12.5%)
\$40,001 to \$50,000		45 (14.5%)
\$50,001 to \$75,000		47 (15.1%)
\$75,001 to \$100,000		51 (16.4%)
\$100,001 to \$200,000		48 (15.4%)
\$200,001 or more		19 (6.1%)

Table 1 (continued)

Demographic Characteristics of Sample Children and Mothers

Demographic characteristic	N (%)
Family type	
2 parents	271 (87.1%)
1 parent	40 (12.9%)
Marital status	
Married	267 (85.9%)
Separated/divorced/widowed	30 (9.6%)
Never married	13 (4.2%)
Don't know	1 (0.3%)
Mother's educational level	
Less than high school	47 (15.1%)
High school/GED	46 (14.8%)
Trade school/some college/Associate's degree	67 (21.6%)
Graduate, 4 year college	105 (33.8%)
Graduate/professional school but no degree	7 (2.3%)
Master's degree	26 (8.4%)
Doctorate/professional degree after Bachelor's degree	13 (4.2%)
Mother's employment	
35 hours or more per week	181 (58.2%)
Less than 35 hours per week	69 (22.2%)
Looking for work	6 (1.9%)
Not in the labor force	54 (17.4%)
Not determined	1 (0.3%)
Mother's country of birth	
Philippines	68 (21.9%)
United States	42 (13.5%)
India	38 (12.2%)
Laos	34 (10.9%)
Vietnam	26 (8.4%)
China (not including Hong Kong and Taiwan)	19 (6.1%)
South Korea	14 (4.5%)
Other Asian country	68 (21.9%)
Refused or Not Determined	2 (0.6%)

Table 1 (continued)

Demographic Characteristics of Sample Children and Mothers

Demographic characteristic	N (%)
Mother's U.S. citizenship status	
U.S. citizen, born in U.S.	42 (13.5%)
U.S. citizen, born outside U.S.	163 (52.4%)
Non-citizen	97 (31.2%)
Not determined	9 (2.9%)
Mothers' occupational category (General Social Survey prestige score) *	
Physician, dentist, veterinarian (77.50)	5 (1.5%)
College teacher, postsecondary counselor, librarian (72.10)	3 (1.0%)
Engineer, surveyor, architect (64.89)	7 (2.3%)
Teacher, except postsecondary (63.43)	7 (2.3%)
Natural scientist, mathematician (62.87)	5 (1.6%)
Registered nurse, pharmacist (61.56)	26 (8.4%)
Social scientist/worker, lawyer (59.00)	6 (1.9%)
Health technologist, technician (57.83)	7 (2.3%)
Executive, administrative, managerial occupation (53.50)	39 (12.5%)
Writer, artist, entertainer, athlete (52.54)	1 (0.3%)
Technologist, except health (48.69)	8 (2.6%)
Administrative support, including clerk (38.18)	58 (18.6%)
Precision production occupation (37.67)	1 (0.3%)
Marketing and/or sales occupation (35.78)	16 (5.1%)
Service occupation (34.95)	34 (10.9%)
Production worker occupation (33.42)	30 (9.6%)
Handler, cleaner, manual labor (29.60)	4 (1.3%)
Not in the labor force (.00)	54 (17.4%)

Note. * Occupation was recoded to reflect the average of the 1989 General Social Survey (GSS) prestige score. From *User's Manual for the ECLS-K Third Grade Public-Use Data File and Electronic Code Book*, p. 7-21, NCES 2004-001. ** Percentage of a mother's life spent in the U.S. = $(\text{Mother's current age minus age that mother moved to the U.S.}) / \text{mother's current age}$. Mothers born in the U.S. checked the answer "not applicable" for the question "age that mother moved to the U.S." This response was coded as 0. Then using the above formula, mothers who were born in the U.S. had spent 100% of their lives in the U.S.

As shown in Table 1, mothers' occupations represented a variety of prestige levels, from physician, college teacher, and engineer to production worker and other manual laborer. With respect to mother's United States citizenship status, two thirds (66%) of sample mothers were citizens, including 14% who were born in the U.S. Approximately 22% of the mothers in the sample were born in the Philippines, 12% in India, 11% in Laos, 8% in Vietnam, 6% in China (not including Hong Kong and Taiwan), 5% in South Korea, and less than 4% in each of several other Asian countries.

The mean age of mothers in the current study was 39 years. Mothers had earned an average of about 14 years of education. The mean percentage of mothers' lives spent in the U.S., using the formula: *Percentage of a mother's life spent in the U.S. = Mother's current age minus age that mother moved to the U.S. / mother's current age*, was approximately 54%. Mothers reported an average of two to three (2.6) children and more than two adults (2.5) living in their household.

Reliability of Study Measures

Cronbach's coefficient alphas were computed to examine the internal consistency of nine study measures (see Table 2). For the independent variable measures, the maternal language acculturation scale had an alpha value of .93, the maternal and family involvement in home activities scale had an alpha value of .67, the maternal and family involvement in school activities scale had an alpha value of .55, and the maternal social support scale had an alpha value of .81. The maternal and family involvement in school activities scale originally had an alpha value of .35. Factor analysis of the scale resulted in eliminating two items that did not fit the main factor structure for the scale. This procedure improved the reliability of the measure to .55 (see Appendix H).

For the dependent variables, the alpha value for the reading measure was .94 and the alpha value for mathematical thinking skills measure was .95. The alpha value for the peer relations scale was .79. The alpha value for externalizing behavior problems was .77 and the alpha value for internalizing behavior problems was .81. Overall, all independent and dependent measures had acceptable to high reliability coefficients with the exception of involvement in school activities, which was marginal (.55).

Scores on Study Measures

Independent Measures

Table 2 also presents mean scores and standard deviations for the five independent variables (maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support). As noted earlier, mothers in this study had an average of approximately 14 years of education, or the equivalent of an Associate's college degree. On the four-item maternal language acculturation measure, higher scores indicated higher levels of language acculturation. Thus, mothers' mean score of 13.38 on this measure that ranged from 4 to 16 indicated a relatively high level of language acculturation. Mothers' mean score on the 10-item maternal and family involvement in home activities scale was approximately 15.33 with a sample range of 3 to 30, indicating that the average mother and/or her family members engaged in home activities with their children between once or twice and three to six times weekly. The total mean score on the four-item maternal and family involvement in school activities scale was approximately 2.35 with a sample range of 0 to 4. Higher scores indicated a higher level of maternal and family involvement. Thus, the average mother or her family members

Table 2

Children's and Mothers' Scores on Predictor and Child Outcome Measures (N = 311)

Measurement	Number of items	<i>M</i>	<i>SD</i>	Sample range	Measure range	Cronbach's alpha coefficient
Maternal education	1	13.83	3.93	0-20	0-20	N/A
Maternal language acculturation	4	13.38	3.13	4-16	4-16	.93
Maternal and family involvement in home activities	10	15.33	4.56	3-30	0-30	.67
Maternal and family involvement in school activities	4	2.35	1.27	0-4	0-4	.55
Maternal social support	6	9.88	2.61	0-12	0-12	.81
Reading skills	154	114.26	15.64	67.36-145.42	0-154	.94
Mathematical thinking skills	123	92.99	15.55	43.82-118.20	0-123	.95
Peer relations	6	2.84	0.63	1.33-4.00	1-4	.79
Externalizing behavior problems	6	1.84	0.62	1.00-4.00	1-4	.77
Internalizing behavior problems	7	2.09	0.64	1.00-3.88	1-4	.81

engaged in approximately half of the school activities with her third grade child. The mean score on the maternal social support scale was approximately 9.88 with a sample range of 0 to 12. Higher scores on this scale also indicated greater maternal social support, and thus, mothers in this study reported relatively high levels of maternal social support.

Dependent Measures

Table 2 also presents mean scores and standard deviations for the five dependent variables, including reading and mathematics skills, and the socioemotional development measures of peer relations, externalizing behavior problems, and internalizing behavior problems. Higher scores on the reading and math measures indicate higher levels of these cognitive skills. For the socioemotional development measures, higher scores indicate higher levels of peer relations and higher levels of behavior problems. The ECLS-K manual does not provide norms for third graders so one cannot interpret the sample mean reading and mathematics scores, other than stating that the average child answered approximately 74% of the reading and 76% of the mathematics items correctly at the point in time when they were assessed. On the peer relations scale, the average Asian American child in this sample obtained a score of 2.84 on a scale of one to four, indicating that the child's perception of his/her possessing specific social skills fell between "a little bit true" and "mostly true." With respect to behavior problems, the average Asian American child rated having internalizing and externalizing behavior problems as "a little bit true." A paired samples t-test was conducted to compare the mean levels of externalizing and internalizing behavior problems. There was a significant difference in the mean scores of internalizing ($M = 2.09$, $SD = 0.64$) and externalizing (M

= 1.84, SD = 0.62) behavior problems; $t(310) = 8.05, p = .000$. These results suggest that the level of internalizing and externalizing behavior problems of study children did differ. Specifically, the results indicate that Asian American children in current study had more internalizing behavior problems than externalizing behavior problems.

Comparison of ECLS-K Study Sample and Full Third-Grade Sample

Because there are so few studies examining relationships between parental variables and child outcomes in the Asian American population, it is important to compare characteristics of the current sample to those of the full ECLS-K sample. Table 3 compares demographic and other characteristics of Asian American third grade children and their mothers in this study with the children and their parents in the full third grade sample in the 2001-02 school year in the ECLS-K dataset.

In examining the household income of study children, Table 3 reveals that mothers of Asian heritage in the ECLS-K sample had higher family incomes than parents in the full sample. Specifically, there was a lower percentage of families of Asian heritage (13.5%) in the lowest family income category of \$25,000 or below in this study as compared to the full ECLS-K sample (21.5%). There was also a higher percentage of families of Asian heritage (37.9%) in the highest income category of \$75,000 or more as compared to the full ECLS-K sample (28.6%).

Table 3 also reveals that the majority of Asian American children (87.1%) in this study lived in two-parent families. There was a lower percentage of two parent families in the full ECLS-K sample (78.6%). Mothers of Asian heritage were more likely to be married (85.9%) than those in the full sample (75.5%).

Table 3

Characteristics of Third Grade Children and Their Mothers in Current Study Sample and the Full ECLS-K Sample, 2001-02 School Year

Parent demographic data	Percentage	
	Current study (<i>N</i> = 311)	ECLS-K sample (<i>N</i> = 11,930)
Household income category		
\$25,000 or less	13.50	21.50
\$25,001 to \$50,000	33.40	30.50
\$50,001 to \$75,000	15.10	19.30
\$75,001 or more	37.90	28.60
Live in single parent family	12.90	19.50
Live in two-parent family	87.10	78.60
Mother currently married	85.90	75.50
Maternal education		
Bachelor's degree	33.80	18.30
Graduate school or above	14.90	10.60
Maternal occupation (most prevalent)		
Administrative support	18.60	20.10
Service occupations	10.90	13.50
Executive, administrative, managerial	12.50	7.70
Marketing & sales occupations	5.10	7.00
Teachers, except postsecondary	2.30	5.60
Registered nurses, pharmacists	8.40	4.40
Production workers	1.30	3.60
Maternal employment status		
Work 35 hours+/week	58.20	47.20
Work less than 35 hours/week	22.20	23.50
Mother born in U.S.	13.50	78.20
Mother a U.S. citizen	67.90	89.10

Table 3 (Continued)

Characteristics of Third Grade Children and Their Mothers in Current Study Sample and the Full ECLS-K Sample, 2001-02 School Year

Parent measures: Independent variables	Current study			ECLS-K sample			<i>t</i>	<i>df</i>	<i>p</i> (two-tailed)
	Mean	<i>SD</i>	Range	Mean	<i>SD</i>	Range			
Maternal/parental education	13.83	3.93	0-20	13.27	2.88	0-20	2.20	310	.013
Maternal/parental language acculturation	13.38	3.13	4-16	15.14	2.54	4-16	-9.89	310	.000
Maternal/parental/ family involvement in home activities	15.33	4.56	3-30	16.01	4.71	0-30	-2.63	309	.009
Maternal/parental/ family involvement in school activities	2.35	1.27	0-4	2.51	1.20	0-4	-2.22	310	.027
Maternal/parental social support	9.88	2.61	0-12	10.54	2.10	0-12	-4.48	310	.000
Child measures: Dependent variables									
Reading scale score	114.26	15.64	67.36-145.42	109.87	18.66	42.36-148.95	4.95	310	.000
Math scale score	92.99	15.55	43.82-118.20	86.58	16.83	30.57-120.42	7.27	310	.000
Competence in peer relations	2.84	0.63	1.33-4.00	3.02	0.63	1.00-4.00	-5.01	310	.000
Externalizing behavior problems	1.84	0.62	1.00-4.00	1.96	0.67	1.00-4.00	-3.32	310	.001
Internalizing behavior problems	2.09	0.64	1.00-3.88	2.15	0.72	1.00-4.00	-1.55	310	.122

Note. Confidence interval (CI) = .95.

With respect to maternal education, mothers of Asian heritage in this study had earned an average of 14 years of education (13.8 years), which is the equivalent of an associate's college degree. Mothers in the full sample had earned an average of 13.3 years of education. Further examination of the college education of mothers of Asian heritage revealed that a third of these mothers (33.8%) had earned a bachelor's degree, as compared to approximately 18% (18.3%) of mothers in the full sample. With respect to graduate education, almost 15% (14.9%) of mothers of Asian heritage had attended graduate school or earned a graduate degree as compared to approximately 11% (10.6%) of mothers in the full ECLS-K sample. While the current study sample of mothers of Asian heritage had higher levels of education than the full ECLS-K sample overall, there is heterogeneity in the sample. For example, compared to the study mean of 13.8 years of education for mothers of Asian heritage, the mean years of education for mothers from Southeast Asia (e.g., Vietnam, Cambodia, Laos) was 12.6 years, from East Asia was 14.6 years, and South Asia was 15.8 years.

Mothers of Asian heritage in this study also had a high rate of employment in the U.S. labor force. More than half (58.2%) of mothers in the Asian American sample worked full-time and an additional 22.2% worked part-time. Thus, four-fifths (80%) of mothers of Asian heritage were working outside of the home while their children were attending third grade. This percentage is higher than the rate of mothers in the full ECLS-K sample in the labor force (70.7%), which included 47.2% of mothers working full-time and 23.5% of mothers working half time.

In examining maternal occupation, Table 3 reveals that the most prevalent

occupations for the full ECLS-K sample were administrative support (20.1%), service occupations (13.5%), executive/administrative/managerial occupations (7.7%), marketing and sales occupations (7%), teachers (except postsecondary) (5.6%), and registered nurses/pharmacists (4.4%). Five of these occupations were also common among the sample of mothers of Asian heritage, including administrative support (18.6%), service occupations (10.9%), executive/administrative/managerial occupations (12.5%), marketing and/or sales occupations (5.1%), and registered nurses/pharmacists (8.4%)

The table reveals that the full ECLS-K sample is slightly more likely than the Asian American subsample to be working in administrative support, service occupations, and marketing and sales; however, mothers of Asian heritage were more likely than their peers in the full sample to hold executive/administrative/managerial positions and nurse/pharmacist positions. In addition, the study revealed that only 1.3% of the mothers of Asian heritage held production worker occupations as compared to 3.6% of mothers in the full ECLS-K sample.

It is also interesting to note that only 13.5% of the mothers of Asian heritage were born in the U.S. compared to 78.2% of mothers in the full ECLS-K sample. Approximately one third (32%) of the mothers of Asian heritage did not have U.S. citizenship status, compared to approximately 11% of mothers in the full sample.

Table 3 also compares the language acculturation, maternal and family involvement, and social support levels of mothers of Asian American children and parents in the full ECLS-K sample. As noted, the measure of language acculturation in this study assessed mothers' ability to speak, read, write, and understand English. Mothers of Asian heritage had a mean score of 13.4, indicating that mothers rated their

English skills between “pretty well” and “very well.” The mean language acculturation score for the full sample parents was 15.14, representing an overall rating of “very well.” A t-test revealed that mothers of Asian heritage ($M = 13.38$, $SD = 3.13$) had lower language acculturation scores than the full sample parents ($M = 15.14$, $SD = 2.54$); $t(310) = -9.89$, $p = .000$.

This study involved two measures of maternal and family involvement: involvement in home activities and involvement in school activities. As shown in Table 3, the mean maternal and family involvement in home activities score of 15.3 ($SD = 4.56$) for mothers of Asian heritage was significantly lower than the full sample’s mean score of 16.0 ($SD = 4.71$); $t(309) = -2.63$, $p = .009$. Similarly, for maternal and family involvement in school activities, mothers of Asian heritage had a significantly lower mean score of 2.4 ($SD = 1.27$) as compared to the full sample score of 2.5 ($SD = 1.20$); $t(310) = -2.22$, $p = .027$.

Table 3 also compares maternal social support for the mothers of Asian heritage and the full ECLS-K sample. Although parents in both groups reported high levels of social support (approximately 10 on a scale of 0-12), the mean score of 10.5 ($SD = 2.10$) for parents in the full sample is significantly higher than the mean social support score of 9.9 ($SD = 9.88$) for mothers of Asian heritage; $t(310) = 4.48$, $p = .000$.

Finally, Table 3 compares the academic and socioemotional development scores of third grade children in the current sample of Asian American children and the full ECLS-K sample. The average Asian American child in this sample correctly answered approximately 74% of the reading items (114.3 items), compared to the average child in the full ECLS-K sample who correctly answered 71% of the items (109.9 items). In the

area of mathematics, the average Asian American child in this study correctly answered approximately 76% of the reading items (93.0 items) compared to the average child in the full ECLS-K sample who correctly answered 70% of the items (86.6 items). With respect to competence in peer relations, the average Asian American child in this study rated his/her peer relations scores as significantly lower than those of the average child in the full ECLS-K sample, with a mean score of 2.8 ($SD = 0.63$) versus 3.0 ($SD = 0.63$); $t(310) = -5.01, p = .000$. In the area of behavior problems, the average Asian American child rated his/her externalizing behavior problems as significantly lower than those of children in the full ECLS-K sample, with a mean score of 1.8 ($SD = 0.62$) versus 2.0 ($SD = 0.67$); $t(310) = -3.32, p = .001$. Even though the average Asian American child in this rated his/her internalizing behavior problems as slightly lower than those of children in the full ECLS-K sample, with a mean score of 2.1 ($SD = 0.64$) versus 2.2 ($SD = 0.72$), the difference is not statistically significant at the .05 level; $t(310) = -1.55, p = .122$.

Bivariate Relationships Among Variables

Table 4 presents a correlation matrix depicting the interrelationships among all the independent, control, and dependent variables in this study. Pearson Product-Moment correlation coefficients were computed to examine the relationships between these variables. Maternal education was significantly positively correlated with maternal language acculturation ($r = .55, p < .01$), maternal and family involvement in home activities ($r = .12, p < .05$), and maternal and family involvement in school activities ($r = .25, p < .01$), as well as the control variables of maternal employment ($r = .12, p < .05$), maternal occupation ($r = .38, p < .01$) and family income ($r = .57, p < .01$). Mothers with more education were better able to speak, read, write, and understand English; were

Table 4

Pearson Product-Moment Correlations for Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Independent variables														
1. Maternal education	—													
2. Maternal language acculturation	.55**	—												
3. Maternal and family involvement in home activities	.12*	.10	—											
4. Maternal and family involvement in school activities	.25**	.25**	.16**	—										
5. Maternal social support	.07	.10	.04	.17**	—									
Control variables														
6. Child gender ¹	-.07	-.08	-.03	-.07	.01	—								
7. Maternal employment	.12*	.09	.07	-.04	.10	-.01	—							
8. Maternal occupation	.38**	.25**	.09	.12*	.06	-.03	.75**	—						
9. Family income	.57**	.49**	.02	.32**	.10	-.05	.07	.28**	—					
10. Family type	.08	.00	.14*	.00	.05	-.01	-.18**	-.08	.34**	—				
Dependent variables														
11. Reading skills	.44**	.26**	.01	.21**	.08	-.16**	-.02	.16**	.43**	.18**	—			
12. Mathematical thinking skills	.39**	.12*	.00	.18**	.04	.07	-.07	.10	.37**	.14*	.67**	—		
13. Peer relations	-.04	.14*	.05	.10	-.10	.04	-.03	.01	.05	-.01	-.05	-.05	—	
14. Externalizing problems	-.16**	-.09	-.03	-.00	-.05	.15**	.01	-.08	-.15**	-.13*	-.24**	-.22**	.02	—
15. Internalizing problems	-.25**	-.10	-.07	-.12*	-.03	-.01	.04	-.06	-.16**	-.13*	-.34**	-.33**	-.13*	.62**

Note. ¹ Male = 1, Female = 0.

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

personally more involved and/or had family members who were more involved in their third grade child's home and school activities; were more likely to be employed; held more prestigious occupations; and had higher family incomes than mothers with less education. Maternal education was also significantly positively correlated with the dependent variables of children's reading skills ($r = .44, p < .01$) and mathematics ($r = .39, p < .01$), and significantly negatively correlated with children's externalizing behavior problems ($r = -.16, p < .01$) and internalizing behavior problems ($r = -.25, p < .01$). Asian American third graders whose mothers had more education had better reading and better mathematics scores, as well as fewer externalizing and fewer internalizing behavior problems, than those whose mothers had less education.

Maternal language acculturation, a second independent variable, was significantly positively correlated with maternal and family involvement in school activities ($r = .25, p < .01$), and with the control variables of maternal occupation ($r = .25, p < .01$) and family income ($r = .49, p < .01$). Mothers who could speak, read, write and understand English better were personally more involved and/or had family members who were more involved in their third grade child's school activities; held more prestigious occupations; and had higher family incomes than those with less proficient English skills. Maternal language acculturation was also significantly positively correlated with three dependent variables, including third graders' reading skills ($r = .26, p < .01$), mathematics ($r = .12, p < .05$), and peer relations ($r = .14, p < .05$) scores. Asian American third graders whose mothers had greater language acculturation had better reading abilities, better mathematical thinking skills, and better peer relations than those whose mothers had lower levels of language acculturation.

Maternal and family involvement in home activities, the third independent variable, was significantly positively correlated with another independent variable, maternal and family involvement in school activities ($r = .16, p < .01$) and the control variable of family type ($r = .14, p < .05$). Mothers who were personally more involved or had family members who were more involved in home activities with their children were also more involved in school activities; these mothers were also more likely to live in two-parent families than mothers who had lower levels of maternal and family involvement in home activities.

Maternal and family involvement in school activities, the fourth independent variable, was significantly positively correlated with the independent variable maternal social support ($r = .17, p < .01$) and the control variables of maternal occupation ($r = .12, p < .05$) and family income ($r = .32, p < .01$). Mothers who were personally more involved or who had family members who were more involved in children's school activities had more maternal social support; these mothers also held more prestigious jobs and had higher family incomes. Maternal and family involvement in school activities was also significantly positively correlated with the dependent variables of children's reading skills ($r = .21, p < .01$) and mathematical thinking skills ($r = .18, p < .01$) scores, and significantly negatively correlated with the dependent variable of internalizing behavior problems ($r = -.12, p < .05$). Asian American third graders whose mothers and family members were more involved in their school activities had better reading skills, better mathematical thinking skills, and fewer internalizing behavior problems. The fifth independent variable of maternal social support was not significantly correlated with any of the dependent variables.

In examining the relationships between dependent variables, Asian American third graders' reading skills were significantly positively correlated with their mathematical thinking skills ($r = .67, p < .01$), and significantly negatively correlated with their externalizing behavior problems ($r = -.24, p < .01$) and internalizing behavior problems ($r = -.34, p < .01$). Asian American third graders who had better reading abilities were more likely to have better mathematical thinking skills, fewer externalizing behavior problems, and fewer internalizing behavior problems. Asian American third graders' mathematical thinking skills were significantly negatively correlated with their externalizing behavior problems ($r = -.22, p < .01$) and internalizing behavior problems ($r = -.33, p < .01$). Thus, Asian American third graders who had better mathematical thinking skills were more likely to have fewer externalizing and internalizing behavior problems. Asian American third graders' peer relations were significantly negatively correlated with their internalizing behavior problems ($r = -.13, p < .05$); thus, children who had better peer relations had fewer internalizing behavior problems. Asian American children's externalizing behavior problems were significantly positively correlated with their internalizing behavior problems ($r = .62, p < .01$), indicating that third graders with more externalizing problems also had more internalizing problems.

Regression Models

A major objective of this study was to identify factors that may predict Asian American third graders' reading skills, mathematical thinking skills, peer relations, externalizing behavior problems, and internalizing behavior problems. Multiple hierarchical linear regression analyses were used to test the power of maternal education, maternal language acculturation, maternal and family involvement in home activities,

maternal and family involvement in school activities, and maternal social support to predict third graders' reading and mathematical thinking skills, peer relations, and externalizing and internalizing behavior problems, while controlling for child gender, maternal employment, maternal occupation, family income, and family type. Five hierarchical regression models were analyzed, with control variables entered first into the model, followed by entry of the five key predictor variables. Since Asian American children were oversampled, all regressions were weighted by normalized sample weights. Results, presented in Tables 5 through 9, show the adjusted R^2 for the control variables alone, the adjusted R^2 for the second model with all control and independent variables in the model, and the change in R^2 resulting from entry of the five predictor variables.

Hierarchical Regression Model 1: Children's Reading Skills

Table 5 presents the results of the hierarchical regression model examining the predictive effects of maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support for children's reading skills, controlling for child gender, maternal employment, maternal occupation, family income, and family type. The model as a whole was significant, $F(10, 274) = 10.26, p < .001$, and explains 25% of the variance (adjusted) in children's reading skills.

The first hypothesis was that Asian American third graders whose mothers had more education would have better reading skills than children whose mothers had less education. Consistent with this hypothesis, mother's education ($\beta = .24, p < .01$) was found to be significant a predictor of children's reading skills. Children with more educated mothers had better reading skills than children with less educated mothers.

Table 5

Summary of Hierarchical Regression Analysis for Variables Predicting Child Reading Skills (N = 285)

Variable	<i>B</i>	<i>SE</i> ¹	β
Model 1			
Child gender ²	-2.72	1.64	-.09 (<i>p</i> = .099)
Maternal employment	-3.65	1.14	-.26**
Maternal occupation	0.19	0.06	.25**
Family income	1.77	0.30	.35***
Family type	3.57	2.39	.09
Model 2			
Child gender	-2.84	1.62	-.09 (<i>p</i> = .081)
Maternal employment	-2.51	1.20	-.18*
Maternal occupation	0.11	0.07	.14
Family income	1.06	0.37	.21**
Family type	5.30	2.46	.13*
Maternal education	0.95	0.29	.24**
Maternal language acculturation	-0.18	0.33	-.04
Maternal and family home involvement	-0.15	0.18	-.04
Maternal and family school involvement	1.09	0.71	.09
Maternal social support	0.29	0.30	.05

Note. Adjusted $R^2 = .217$ *** for Model 1; Adjusted $R^2 = .246$ *** for Model 2; $\Delta R_{21}^2 = .042$ **.

¹Standard Error. ²Male = 1, Female = 0.

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

Contrary to the second hypothesis, mother's language acculturation did not predict children's reading skills. In contrast to the third hypothesis, maternal social support was not found to be a significant predictor of children's reading skills. There were no hypotheses for the relationship between maternal and family members' involvement in home and school activities and children's reading skills. In this study, the variables of maternal and family members' involvement in both home activities and school activities were not found to be significant predictors of children's reading skills.

Hierarchical Regression Model 2: Children's Mathematical Thinking Skills

Table 6 presents the results of the hierarchical regression model examining the predictive effects of maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support for children's mathematical thinking skills, controlling for child gender, maternal employment, maternal occupation, family income, and family type. The model as a whole was significant, $F(10, 274) = 9.20, p < .001$, and explains 22% of the variance (adjusted) in children's mathematical thinking skills.

The first hypothesis was that Asian American third graders whose mothers were more educated would have better mathematical thinking skills than children whose mothers were less educated. Consistent with this hypothesis, mother's education ($\beta = .32, p < .001$) was found to be significant predictor of children's mathematical thinking skills. Children with more educated mothers had better mathematical thinking skills than children with less educated mothers. Contrary to the second hypothesis that greater language acculturation would predict better mathematical thinking skills, the opposite

Table 6

Summary of Hierarchical Regression Analysis for Variables Predicting Child Mathematical Thinking Skills (N = 285)

Variable	<i>B</i>	<i>SE</i> ¹	β
Model 1			
Child gender ²	4.65	1.68	.15**
Maternal employment	-4.53	1.16	-.33***
Maternal occupation	0.19	0.07	.25**
Family income	1.49	0.30	.30***
Family type	-0.20	2.44	-.01
Mode 2			
Child gender	4.13	1.63	.13*
Maternal employment	-3.13	1.21	-.23*
Maternal occupation	0.09	0.07	.12
Family income	0.93	0.37	.19*
Family type	1.33	2.47	.03
Maternal education	1.26	0.29	.32***
Maternal language acculturation	-0.95	0.33	-.19**
Maternal and family home involvement	-0.24	0.18	-.07
Maternal and family school involvement	1.25	0.72	.10 (<i>p</i> = .083)
Maternal social support	0.11	0.30	.02

Note. Adjusted $R^2 = .167$ *** for Model 1; Adjusted $R^2 = .224$ *** for Model 2; $\Delta R_{21}^2 = .069$ **.

¹Standard Error. ²Male = 1, Female = 0.

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

result occurred. Children whose mothers had greater language acculturation had poorer mathematical thinking skills ($\beta = -.19, p < .01$) than those whose mothers had less language acculturation. Contrary to the third hypothesis, maternal social support was not found to be a significant predictor of children's mathematical thinking skills. No hypothesis was made for the relationship between maternal and family members' involvement in home activities and children's mathematical thinking skills. In this study, maternal and family members' involvement in home activities was not found to be a significant predictor of Asian American children's mathematical thinking skills. There was also no hypothesis for the relationship between maternal and family members' involvement in school activities and children's mathematical thinking skills. In this study, results revealed a trend ($\beta = .10, p = .083$); specifically, children whose mothers and family members were more involved in school activities tended to have better mathematical thinking skills than those whose mothers and family members had less involvement in school activities.

Hierarchical Regression Model 3: Children's Peer Relations

Table 7 presents the results of the hierarchical regression model examining the predictive effects of maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support for children's peer relations, controlling for child gender, maternal employment, maternal occupation, family income, and family type. The model as a whole was significant, $F(10, 274) = 2.75, p < .01$, and explains 6% of the variance (adjusted) in children's peer relations.

The first hypothesis was that Asian American third graders whose mothers were

Table 7

Summary of Hierarchical Regression Analysis for Variables Predicting Child Peer Relations (N = 285)

Variable	<i>B</i>	<i>SE</i> ¹	β
Model 1			
Child gender ²	0.05	0.07	.05
Maternal employment	-0.07	0.05	-.12
Maternal occupation	0.00	0.00	.10
Family income	0.02	0.01	.09
Model 2			
Child gender	0.09	0.07	.07
Maternal employment	-0.07	0.05	-.12
Maternal occupation	0.00	0.00	.13
Family income	0.01	0.02	.07
Family type	-0.01	0.11	-.01
Maternal education	-0.04	0.01	-.23**
Maternal language acculturation	0.05	0.01	.24**
Maternal and family home involvement	0.01	0.01	.10
Maternal and family school involvement	0.02	0.03	.05
Maternal social support	-0.03	0.01	-.12 (<i>p</i> = .052)

Note. Adjusted $R^2 = .001^{\text{ns}}$ for Model 1; Adjusted $R^2 = .058^{**}$ for Model 2; $\Delta R_{21}^2 = .072^{**}$.

¹Standard Error. ²Male = 1, Female = 0.

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

more educated would have better peer relations than children whose mothers were less educated. Contrary to this hypothesis, the opposite result occurred. Children with more educated mothers had poorer peer relations ($\beta = -.23, p < .01$) than children with less educated mothers. Consistent with the second hypothesis, children whose mothers have greater language acculturation had better perceptions of their relationships with peers ($\beta = .24, p < .01$) than those whose mother had less language acculturation. Contrary to the third and four hypotheses, maternal and family members' involvement in home and school activities were not found to be significant predictors of Asian American children's peer relations. With respect to the fifth hypothesis, indicating that more maternal social support would predict better child peer relations, there was an opposite trend ($\beta = -.12, p = .052$) revealing that children whose mothers had more social support tended to have poorer peer relations than those whose mothers had less social support.

Hierarchical Regression Model 4: Children's Externalizing Behavior Problems

Table 8 presents the results of the hierarchical regression model examining the predictive effects of maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support for children's externalizing behavior problems, controlling for child gender, maternal employment, maternal occupation, family income, and family type. The model as a whole was significant, $F(10, 274) = 2.73, p < .01$, and explains 6% of the variance (adjusted) in children's externalizing behavior performance.

The first hypothesis was that Asian American third graders whose mothers were more educated would have fewer externalizing behavior problems. Contrary to the hypothesis, maternal education was not found to be a significant predictor of children's

Table 8

Summary of Hierarchical Regression Analysis for Variables Predicting Child Externalizing Behavior Problems (N = 285)

Variable	<i>B</i>	<i>SE</i> ¹	β
Model 1			
Child gender ²	0.08	0.07	.07
Maternal employment	0.16	0.05	.30**
Maternal occupation	-0.01	0.00	-.23*
Family income	-0.01	0.01	-.07
Family type	-0.18	0.10	-.12 (<i>p</i> = .063)
Model 2			
Child gender	0.08	0.07	.07
Maternal employment	0.15	0.05	.28**
Maternal occupation	-0.01	0.00	-.19 (<i>p</i> = .056)
Family income	-0.01	0.02	-.04
Family type	-0.18	0.10	-.11 (<i>p</i> = .083)
Maternal education	-0.01	0.01	-.08
Maternal language acculturation	0.01	0.01	.03
Maternal and family home involvement	-0.01	0.01	-.06
Maternal and family school involvement	-0.01	0.03	-.02
Maternal social support	0.00	0.01	.01

Note. Adjusted $R^2 = .068$ *** for Model 1; Adjusted $R^2 = .058$ ** for Model 2; $\Delta R_{21}^2 = .007$ ^{ns}.

¹Standard Error. ²Male = 1, Female = 0.

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

externalizing behavior problems. Contrary to the second, third, and fourth hypotheses, maternal and family members' involvement in home activities, maternal and family members' involvement in school activities, and maternal social support were not found to be significant predictors of children's externalizing behavior problems. There was no hypothesis for the relationship between maternal language acculturation and children's externalizing behavior problems. In this study, maternal language acculturation was not found to be a significant predictor of children's externalizing behavior problems.

Hierarchical Regression Model 5: Children's Internalizing Behavior Problems

Table 9 presents the results of the hierarchical regression model examining the predictive effects of maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support for children's internalizing behavior problems, controlling for child gender, maternal employment, maternal occupation, family income, and family type. The model as a whole was significant, $F(10, 274) = 5.14, p < .001$, and explains 13% of the variance (adjusted) in children's internalizing behavior problems. The first hypothesis was that Asian American third graders whose mothers were more educated would have fewer internalizing behavior problems. Consistent with this hypothesis, mother's education ($\beta = -.24, p < .01$) was found to be a significant predictor of children's internalizing behavior problems. Children with more educated mothers had fewer internalizing behavior problems than children with less educated mothers. Contrary to the second hypothesis, maternal language acculturation was not found to be a significant predictor of children's internalizing behavior problems. In contrast to the third hypothesis, maternal and family members' involvement in home activities was not found

Table 9

Summary of Hierarchical Regression Analysis for Variables Predicting Child Internalizing Behavior Problems (N = 285)

Variable	<i>B</i>	<i>SE</i> ¹	β
Model 1			
Child gender ²	-0.20	0.07	-.15**
Maternal employment	0.23	0.05	.39***
Maternal occupation	-0.01	0.00	-.29**
Family income	-0.02	0.01	-.08
Family type	-0.09	0.11	-.05
Model 2			
Child gender	-0.19	0.07	-.15**
Maternal employment	0.17	0.05	.29**
Maternal occupation	-0.01	0.00	-.16
Family income	0.01	0.02	.06
Family type	-0.15	0.11	-.09
Maternal education	-0.04	0.01	-.24**
Maternal language acculturation	0.02	0.02	.08
Maternal and family home involvement	-0.00	0.01	-.02
Maternal and family school involvement	-0.07	0.03	-.14*
Maternal social support	0.01	0.01	.02

Note. Adjusted $R^2 = .096$ *** for Model 1; Adjusted $R^2 = .13$ *** for Model 2; $\Delta R_{21}^2 = .046$ *

¹Standard Error. ²Male = 1, Female = 0.

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

to be a significant predictor of children's internalizing behavior problems. Consistent with the fourth hypothesis, children whose mothers and family members were more involved in school activities had fewer internalizing behavior problems ($\beta = -.14, p < .05$) than those whose mothers and family members were less involved in school activities. Contrary to the fifth hypothesis, maternal social support was not found to be a significant predictor of Asian American third grader's internalizing behavior problems.

Summary of Hypotheses and Results

Table 10 presents a summary of all research questions and hypotheses, organized according to the major independent variables used to predict the academic achievement and socioemotional development of Asian American third graders: maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support.

Table 10

Summary of Research Questions, Hypotheses, and Results

Research questions and hypotheses	Results
<p>Research question 1: Is maternal education a significant predictor of Asian American children's academic achievement, peer relations, and behavior problems?</p>	
<p>Hypothesis 1A. Asian American children whose mothers had more education would have better reading skills than Asian American children whose mothers had less education.</p>	Supported
<p>Hypothesis 1B. Asian American children whose mothers had more education would have better mathematical thinking skills than Asian American children whose mothers had less education.</p>	Supported
<p>Hypothesis 1C. Asian American children whose mothers had more education would have better peer relations than Asian American children whose mothers had less education.</p>	Not supported; maternal education was a significant predictor, but in the opposite direction. Asian American children whose mothers were more educated had poorer peer relations than Asian American children whose mothers were less educated.
<p>Hypothesis 1D. Asian American children whose mothers had more education would have fewer externalizing behavior problems than Asian American children whose mothers had less education.</p>	Not supported
<p>Hypothesis 1E. Asian American children whose mothers had more education would have fewer internalizing behavior problems than Asian American children whose mothers had less education.</p>	Supported

Research Question 2: Is maternal language acculturation a significant predictor of Asian American children's academic achievement, peer relations, and internalizing behavior problems?	
Hypothesis 2A. Asian American children whose mothers had greater language acculturation would have better reading skills than Asian American children whose mothers had lower language acculturation.	Not supported
Hypothesis 2B. Asian American children whose mothers had greater language acculturation would have better mathematical thinking skills than Asian American children whose mothers had lower language acculturation.	Not supported; mother's language acculturation was a significant predictor, but in the opposite direction. Asian American children whose mothers had greater language acculturation had poorer mathematical thinking skills than those whose mothers were less acculturated.
Hypothesis 2C. Asian American children whose mothers had greater language acculturation would have better peer relations than Asian American children whose mothers had lower language acculturation.	Supported
Hypothesis 2D. Asian American children whose mothers had greater language acculturation would have fewer internalizing behavior problems than Asian American children whose mothers had lower language acculturation.	Not supported
Research Question 3: Is maternal and family involvement in home activities a significant predictor of Asian American children's peer relations and behavior problems?	
Hypothesis 3A. Asian American children whose mothers and other family members engaged in more home activities with their children would have better peer relations than Asian American children whose mothers and other family members engaged in fewer home activities with their children.	Not supported

<p>Hypothesis 3B. Asian American children whose mothers and other family members engaged in more home activities with their children would have fewer externalizing behavior problems than Asian American children whose mothers and other family members engaged in fewer home activities with their children.</p>	<p>Not supported</p>
<p>Hypothesis 3C. Asian American children whose mothers and other family members engaged in more home activities with their children would have fewer internalizing behavior problems than Asian American children whose mothers and other family members engaged in fewer home activities with their children.</p>	<p>Not supported</p>
<hr/> <p>Research Question 4: Is maternal and family involvement in school activities a significant predictor of Asian American children's peer relations and behavior problems?</p>	
<p>Hypothesis 4A. Asian American children whose mothers and other family members engaged in more school activities would have better peer relations than Asian American children who mothers had less involvement at school.</p>	<p>Not supported</p>
<p>Hypothesis 4B. Asian American children whose mothers and other family members engaged in more school activities would have fewer externalizing behavioral problems than Asian American children who mothers had less involvement at school.</p>	<p>Not supported</p>
<p>Hypothesis 4C. Asian American children whose mothers and other family members engaged in more school activities would have fewer internalizing behavioral problems than Asian American children who mothers had less involvement at school.</p>	<p>Supported</p>

<p>Research Question 5: Is social support a significant predictor of Asian American children's academic achievement, peer relations, and behavior problems?</p>	
<p>Hypothesis 5A. Asian American children whose mothers had more social support would have better reading skills than Asian American children whose mothers had less social support.</p>	<p>Not supported</p>
<p>Hypothesis 5B. Asian American children whose mothers had more social support would have better mathematical thinking skills than Asian American children whose mothers had less social support.</p>	<p>Not supported</p>
<p>Hypothesis 5C. Asian American children whose mothers had more social support would have better peer relations than Asian American children whose mothers had less social support.</p>	<p>Not supported; there was a trend ($\beta = -0.12, p = .052$) but in the opposite direction; Asian American children whose mothers had more social support tended to have poorer peer relations than those whose mothers had less social support.</p>
<p>Hypothesis 5D. Asian American children whose mothers had more social support would have fewer externalizing behavior problems than Asian American children whose mothers had less social support.</p>	<p>Not supported</p>
<p>Hypothesis 5E. Asian American children whose mothers had more social support would have fewer internalizing behavior problems than Asian American children whose mothers had less social support.</p>	<p>Not supported</p>

CHAPTER V: DISCUSSION

The current study utilized a combined ecological/integrative theoretical framework to examine predictors of Asian American children's academic achievement and socioemotional development. Specifically, the model examined the role of five ecological factors, including three microsystem level factors: maternal education, maternal language acculturation, and maternal and family involvement in children's home activities; one mesosystem level factor, maternal and family involvement in school activities; and one exosystem level factor, maternal social support, in predicting Asian American third graders' academic achievement and socioemotional development. Several important child, parent, and family variables emphasized in the integrative model were considered, including maternal language acculturation, maternal education, maternal employment, maternal occupation, family income, and family type. The study focused on several academic and socioemotional outcomes in Asian American children, including reading skills, mathematical thinking skills, peer relations, externalizing behavior problems, and internalizing behavior problems.

This study extends the existing literature in several important ways. First, it is unique in focusing on the under-investigated group of Asian American children. In particular, studies have failed to identify factors that may contribute to within-group differences in the academic achievement and socioemotional development of Asian American children, particularly during the elementary school years. Second, this study used data from a nationally representative dataset, the Early Childhood Longitudinal Studies Kindergarten Class (ECLS-K) of 1998-99, which oversampled Asian American children, to examine predictors of child outcomes within the population of Asian

American third graders. Thus, study findings can be generalized to the larger national population of Asian American third grade children. Third, the current investigation extends existing research by examining Asian American children's socioemotional development, including both peer relation skills and behavior problems. Most of the existing literature focuses on behavior problems rather than prosocial skills such as peer relations.

Characteristics of Study Mothers

To place the current findings in context, it is important to consider the characteristics of the mothers and children who participated in this study. The majority of mothers of Asian heritage in the study sample (86%) were married, a percentage that is similar to that in the 2005 U.S. Census data showing that 84% of Asian American children live with two married parents (Child Trends, 2009). U.S. Census data reveal that only two-thirds (67%) of U.S. children under 18 resided with married parents in 2006 (U.S. Census Bureau, 2009) so the mothers in this study were more likely to be married than mothers in the larger U.S. population.

Mothers in the current sample averaged 39 years of age and had an average of 2.5 adults living in their households. Given the high rate of marriage among study mothers, one of the adults in residence was almost always the mother's husband. Mothers of Asian heritage in this study had an average of 2.6 children, a birth rate that slightly exceeds the U.S. average of two children (Klein, 2004). With respect to education, mothers had an average of 14 years of education which is equal to an associate degree or trade school degree (post high school).

Approximately 49% of the mothers of Asian heritage in this study had earned a

bachelor's degree or higher, which is a much greater percentage than the 27% of U.S. adults who hold at least a bachelor's degree (U.S. Census Bureau, 2004). This high level of education is not surprising given U.S. Census Bureau (2004) data indicating that Asian American/Asian immigrants are the ethnic minority group with the largest percentage of individuals who have earned a bachelor's degree or higher. In 2004, 49% of adults of Asian heritage in the U.S. held a bachelor's or more advanced college degree (Longley, 2005).

Approximately 32% of mothers in the current study did not have U.S. citizenship. Moreover, 86.5% of the mothers in this sample were born in Asian nations. This finding is consistent with data finding that Asians have been immigrating to the U.S. in growing numbers in recent years (Greico, 2004). In the area of employment, approximately 58% of study mothers were working full time (35 hours or more) per week and 22% were working part-time. The labor force involvement of mothers of Asian heritage in this study (80%) was higher than for mothers of school-age children in the U.S., which was reported to be 67% in the 2000 U.S. Census (Hernandez, 2004). With respect to family income, approximately 47% of mothers of Asian heritage in this study had a household income of less than \$50,000, and 53% had a household income above \$50,000. U.S. Census data for 2000 reveal that 58% of the U.S. population had household incomes of less than \$50,000, and 42% had household incomes above \$50,000 (Census Scope, 2000). Thus, overall, the mothers of Asian heritage in this study were more likely to be married, had more children, were better educated, were more likely to be employed, and had higher household incomes than mothers in the general U.S. population.

It is also interesting to compare the academic achievement of Asian American

children to those in the larger U.S. population. Overall, the third grade children in this study performed significantly better than their peers in the larger, nationally representative ECLS-K sample in both reading and math. These findings parallel some national data indicating that Asian American children perform better than other American racial/ethnic groups in reading and math (NCES, 2009a; NCES, 2009b).

With respect to socioemotional development, the Asian American children in this study perceived themselves as significantly less competent in peer relations than the nationally representative group of children in the ECLS-K sample. Asian American children were also likely to report that they had significantly fewer externalizing behavior problems than their ECLS-K peers but there were not significant differences in the perceived internalizing behavior problem scores of Asian American children and the full ECLS-K sample. The current findings are consistent with popular stereotypes of Asian American children as more academically-oriented and less social than children from other racial/ethnic backgrounds. Moreover, research suggests that Asian American children have fewer reported behavior problems, especially externalizing problems, than their non-Asian American peers (e.g., Lorenzo et al., 1995).

Predictors of Asian American Children's Achievement and Socioemotional Development

Maternal Education

The first research question in this study asked whether or not maternal education was a significant predictor of Asian American third graders' academic achievement and socioemotional development. To answer this question, five hypotheses were formed to predict the relationship between maternal education and Asian American third graders'

reading skills, mathematical thinking skills, peer relations, externalizing behavior problems, and internalizing behavior problems.

First, it was hypothesized that maternal education would predict Asian American third graders' reading skills. Children whose mothers had higher education were expected to have better reading skills than children whose mothers had less education. As predicted, Asian American children whose mothers had higher education levels were found to have higher reading scores. This finding is consistent with previous studies of Caucasian, African American, Hispanic, and other ethnic minority families who had children from kindergarten through early adolescence, which found that higher maternal education was associated with higher levels of children's reading achievement (e.g., Carneiro et al., 2007; Rauh et al., 2003; Roberts et al., 2006; Starost, 2006; Vagi, 2008).

Second, it was hypothesized that maternal education would predict Asian American third graders' mathematical thinking skills. Higher levels of maternal education were expected to predict better mathematical thinking skills in children. Consistent with this hypothesis, children whose mothers had more education had better mathematical thinking skills. These findings parallel those of past studies of children from Caucasian and ethnic minority groups between the ages of kindergarten and early adolescence, which found that higher maternal education was linked to higher math achievement (Carneiro et al., 2007; Roberts et al., 2006; Smith et al., 1997).

Third, it was hypothesized that maternal education would be a significant predictor of Asian American third graders' peer relations. Higher levels of maternal education were expected to predict better child peer relations. Although maternal education was a significant predictor of third graders' peer relations, results were in the

opposite direction than expected. Children of more educated mothers were found to have significantly poorer peer relations than children of less educated mothers. This finding was inconsistent with current literature, which either found higher maternal education to be linked with greater child social skills such as cooperation, assertion, responsibility, and self-control (Cardamone, 1998), or found that maternal education failed to predict children's peer relation skills (Starost, 2006). However, it should be noted that previous studies in the literature focused on largely Caucasian samples, or samples with very small numbers of Asian families. It is likely that the vast majority of the mothers in these prior investigations were born and raised in the U.S. In contrast, 87% of the mothers in this study were born in Asian countries where education is highly valued. As noted, approximately 48% of study mothers held a minimum of a bachelor's degree, which is much higher than 27% of adults in the U.S. general population.

Asian American and Asian immigrant parents often believe that education is the key to upward social mobility for their children and the family unit (Lum & Char, 1985; Sue & Okazaki, 1990). Thus, it appears likely that more educated mothers in this study placed greater stress on children's academic achievement than on their popularity with peers. As noted earlier, Asian parents believe that academic achievement brings honor and prestige to the family unit (Sue & Okazaki, 1990). Among recent Asian immigrants to the United States, parents may perceive children's academic success as the only way to improve their own and their children's future social status in American society (Kao, 1995; Lee, 1996). Thus, more educated mothers of Asian heritage may have focused their children's time on academic activities, such as reading and math, and also served as role models who spent more time in academic endeavors than socializing with friends and

family.

Fourth, it was hypothesized that maternal education would predict Asian American third graders' externalizing behavior problems. Higher levels of maternal education were expected to predict fewer externalizing behavior problems among their third grade children. Findings did not support this hypothesis in that maternal education failed to predict externalizing child behavior problems. This finding was similar to that of a study of Head Start graduates (Starost, 2006), where maternal education was not found to significantly predict externalizing child behavior problems. In interpreting this finding, it should be noted that the Asian American children in this study exhibited relatively low levels of externalizing behavior problems (averaging 1.84 on a scale of 1 to 4) and had fewer externalizing problems than their peers in the full ECLS-K third grade sample. The low incidence and level of variability in children's externalizing behavior problem scores may have contributed to the lack of significant findings.

Finally, it was hypothesized that maternal education would predict Asian American third graders' internalizing behavior problems. Higher levels of maternal education were expected to predict fewer internalizing child behavior problems. As hypothesized, children whose mothers had higher education levels had fewer internalizing behavior problems. These findings are consistent with other studies of Caucasian, African American, Hispanic, and other minority families with children from kindergarten through mid-adolescence, which found higher maternal education linked to fewer internalizing behavior problems (Albers, 2001; Paterson et al., 2007; McMunn et al., 2001; Starost, 2006; Supplee et al., 2004). Mothers who are more educated may be better able to identify and effectively address children's loneliness, worry, sadness, and

shame than those with less education.

Current findings extend previous research by showing that higher maternal education is associated with higher reading and math skills and fewer internalizing behavior problems among Asian American children in third grade. It also revealed a unique relationship between maternal education and children's socioemotional development among families of Asian heritage, with higher maternal education linked to children's lower peer relation skills.

Maternal Language Acculturation

The second research question asked whether or not maternal language acculturation was a significant predictor of Asian American third grade children's academic achievement and socioemotional development. To answer this question, four hypotheses predicted the relationship between maternal language acculturation and Asian American third graders' reading and math skills, peer relations, and internalizing behavior problems.

First, it was hypothesized that maternal language acculturation would be a significant predictor of Asian American third graders' reading skills, with higher maternal language acculturation expected to be associated with higher child reading skills. Contrary to this hypothesis, maternal language acculturation was not found to be a significant predictor of children's reading skills. This finding parallels results of a study of Mexican and Mexican-American families by Amado (2004), who examined the relationship between parental level of acculturation (measured by language use, ethnic identity, and ethnic interaction) and first through third grade children's reading achievement. In both the current and previous study, parental language acculturation

failed to predict students' reading skills. One possible explanation is that greater language acculturation among mothers of Asian heritage did not translate into higher children's reading scores because even when mothers had high English proficiency, they may not spend significant time in one-on-one reading activities with their children. As noted, in many Asian cultures, mothers assign academic roles to teachers and show respect for teachers as experts by not directly assuming teacher's duties, such as teaching reading (Bond & Hwang, 1986; Ogbu, 1974; San Antonio Workshop, 1991). Instead, mothers may encourage children to obey their teachers and do well in school. Mothers of Asian heritage may also be less confident of their reading skills and prefer their children to learn from skilled teachers. Thus cultural factors may have played a role in the lack of relationship between maternal language acculturation and children's reading skills.

Second, it was hypothesized that maternal language acculturation would be a significant predictor of Asian American third graders' mathematical thinking, with higher maternal language acculturation linked to better child mathematical skills. Findings revealed that although maternal language acculturation was a significant predictor of mathematical thinking skills, results were in the opposite direction than expected. Asian American children whose mothers had greater language acculturation tended to have poorer mathematical thinking skills. This finding is not consistent with previous studies, which found maternal language acculturation to be positively associated with children's mathematical achievement (O'Connor, 2002) or showed no relationship between maternal acculturation and children's math achievement (Colon-Papazoglou, 1999). However, some other studies of immigrant groups have found that with longer U.S. family residence, there are less positive child outcomes in areas such as early school

performance, academic aspirations, self-esteem, and behavior problems (e.g., depression) (Harker, 2001; Hernandez & Charney, 1998; Kao & Tienda, 1995; Rumbaut & Ima, 1988; Suarez-Orozco & Suarez-Orozco, 1995). Possibly, mothers with greater language acculturation were more integrated into American society and did not perceive as strong a need for their children to succeed in mathematics and other academic areas as less acculturated mothers. Research has found that many Asian parents perceive math and science as ways for their children to succeed in the professional world and escape job discrimination (Sue & Zane, 1985). In this study, mothers of Asian heritage with less proficient English skills may have been more likely to pressure their third grade children to spend time on math activities, and do well in math, viewing math as a way to obtain academic and later career success. In addition, mothers of Asian heritage may have better math skills than English language skills, and thus feel more comfortable and competent teaching their children math than reading. These factors may help to explain the relationship between lower maternal language acculturation and higher mathematical skills among Asian American children.

Third, it was hypothesized that maternal language acculturation would be a significant predictor of Asian American third graders' peer relations, with higher maternal language acculturation associated with better peer relations. As hypothesized, maternal language acculturation emerged as a significant predictor of children's peer relations. Asian American third graders whose mothers could speak, read, write, and understand English more proficiently had better peer skills than children whose mothers had less English proficiency. Current findings are similar to those of other studies conducted in Canada, which found greater maternal acculturation to be associated with

greater child social skills among Ugandan Asian immigrant children (Minde & Minde, 1976) and Asian immigrant children between the ages of 6 and 17 (Pawliuk et al., 1996). One explanation of this finding is that parental ability to use the majority culture language increased their interaction with English-speaking families, with parents serving as social role models for their Asian American children. Mothers with greater English language proficiency may also have been more likely than their less English proficient peers to enroll their children in athletic teams and other extracurricular activities that enable children to develop peer social skills.

A fourth hypothesis was that maternal language acculturation would be a significant predictor of Asian American third graders' internalizing behavior problems, with higher maternal language acculturation expected to predict lower levels of child internalizing problems. Contrary to this hypothesis, maternal language acculturation failed to predict children's internalizing behavior problems. Another study of Asian-Indian immigrant families by Balaguru (2005) also found no relationship between parental acculturation and child behavior problems. One can speculate that although mothers may have had strong English skills, these skills may not have enhanced their ability to detect and address loneliness, sadness, and other internalizing problems in their children. The limited previous literature prevented hypothesizing about the relationship between maternal language acculturation and child externalizing behavior problems. However, current findings also revealed no significant relationship between these factors. Thus, the level of maternal language acculturation among mothers of Asian heritage in this study was not significantly associated with either internalizing or externalizing problems in their third grade children.

Maternal and Family Involvement in Home Activities

The third research question asked whether or not maternal and family involvement in home activities was a significant predictor of Asian American third grade children's academic achievement and socioemotional development. To answer this question, three hypotheses predicted the relationship between maternal and family involvement in home activities and Asian American third graders' peer relations, externalizing behavior problems, and internalizing behavior problems.

First, it was hypothesized that maternal and family involvement in home activities would predict Asian American third graders' peer relations. Children whose mothers and family members were more engaged in home activities with them were expected to have better peer relations. This hypothesis was not supported with findings indicating that maternal and family members' involvement in home activities failed to be a significant predictor of child peer relations. Current results are similar to those of a study of low-income minority children in the Chicago Public Schools (Kohler, 2007), where parent ratings of their involvement in home learning/cognitive stimulation activities did not significantly predict children's peer relation skills or social adjustment.

It was also hypothesized that maternal and family members' involvement in home activities would be a significant predictor of Asian American third graders' externalizing behavior problems, with higher maternal and family involvement in home activities expected to predict lower levels of child externalizing problems. Contrary to this expectation, maternal and family members' involvement in home activities failed to predict children's externalizing behavior problems. It was further hypothesized that maternal and family members' involvement in home activities would be a significant

predictor of Asian American third graders' internalizing behavior problems, with higher involvement in home activities expected to predict lower levels of child internalizing problems. Again, contrary to this hypothesis, maternal and family member's involvement in home activities failed to predict internalizing behavior problems among Asian American children.

Several factors may have contributed to the lack of relationship between maternal and family members' involvement in home activities and third graders' externalizing and internalizing behavior problems. As has been noted, the Asian American children in this study had low levels of externalizing and internalizing behavior problems, with fewer reported problems than the larger ECLS-K sample. Moreover, there was limited variability in their behavior problem scores. Another important factor is that the measurement of home involvement utilized in the ECLS-K dataset is more culturally sensitive to and consistent with parent involvement activities of European American than Asian American parents. Specifically, European American parents are more likely than their Asian immigrant and Asian American peers to tell stories to their child, play games with the child, and participate in sports activities together (Jose, Huntsinger, Huntsinger & Liaw, 2000; Steinberg, Dornbusch & Brown, 1992). The comparison between the study sample and the ECLS-K third grade full sample revealed that Asian American mothers and family members engaged in significantly fewer home activities with their children than their counterparts in the full ECLS-K sample. Asian parents tend to focus their parent-child activities in the home on learning and intellectual activities, such as monitoring the child's completion of homework (Stevenson et al., 1990), which were not extensively measured in ECLS-K home involvement measure.

The limited previous literature on parental involvement in families of Asian heritage suggested that there would be no significant relationship between maternal and family members' involvement in home activities and children's reading and mathematical thinking skills. Thus, no hypotheses were made about the relationship between these factors. Current findings revealed maternal and family members' involvement in home activities failed to predict Asian American children's reading and mathematical thinking skills.

Maternal and Family Involvement in School Activities

The fourth research question in this study asked whether or not maternal and family involvement in school activities was a significant predictor of Asian American third graders' socioemotional development. To answer this question, three hypotheses were developed to predict the relationship between maternal and family involvement in school activities and Asian American third graders' peer relations, externalizing behavior problems, and internalizing behavior problems.

First, it was hypothesized that maternal and family members' involvement in school activities would be a significant predictor of children's peer relations. Children whose mothers and family members were more engaged in school activities were expected to have better peer relations. Contrary to this hypothesis, maternal and family members' involvement in school activities failed to predict child peer relations. This finding is not consistent with results of a study of low-income, minority youth (ages 11 to 13) in the Chicago Public schools, where teacher ratings of parental involvement in school activities were positively related to their ratings of students' peer social skills (Kohler, 2007).

Again, the failure of maternal and family involvement in school activities to predict children's peer relations may be tied to the differences in the way that mothers and family members of Asian heritage, as compared to mothers and family members of other cultural backgrounds, participate in children's school activities. European American parents are more likely than their peers of Asian heritage to attend PTA meetings, participate in school or class events, volunteer at a school or serve on a school committee, and take part in school-related fundraising activities (Jose et al., 2000). Notably, mothers and family members of Asian heritage in this study engaged in significantly fewer school activities, on average, than other parents in the larger ECLS-K sample. Previous research suggests that Asian American parents are infrequent visitors to their children's schools because they perceive the school setting as the teachers' responsibility (Mawjee & Grieshop, 2002), and expect teachers, as individuals holding a high position in Confucianism's hierarchy, to take initiative in conversation and interaction with them. Asian cultures further value relational harmony and humility (Bond & Hwang, 1986), so parents may be reticent to be assertive in the school setting. Asian parents tend to involve themselves in school activities in a more child-focused way, such as assisting their children with homework, tutoring them, and structuring and monitoring their time (Chao, 1994; Steinberg et al., 1992). These factors may have contributed to the lack of a significant relationship between maternal and family members' school involvement and Asian American third graders' peer relation skills.

Second, it was hypothesized that maternal and family members' involvement in school activities would be a significant predictor of children's externalizing behavior problems, with greater school involvement expected to predict lower levels of child

externalizing problems. Contrary to this expectation, maternal and family involvement in school activities failed to predict children's externalizing behavior problems. Again, one can speculate that this finding was influenced by the relatively low involvement of Asian family members in school-based activities. Mothers and family members of Asian heritage may involve themselves in school-related activities in ways that the ECLS-K questionnaire failed to measure. Moreover, it should also be noted that the Asian American children in this study had a very low level of externalizing behavior problems.

A third hypothesis was that maternal and family involvement in school activities would be a significant predictor of Asian American third graders' internalizing behavior problems, with higher school involvement expected to predict lower levels of child internalizing behavior problems. Consistent with this hypothesis, maternal and family involvement in school activities was found to be a significant predictor of internalizing behavior problems; when mothers and family members had greater involvement with their children's schools, the children had fewer internalizing behavior problems. This finding parallels results of a study of urban, kindergarten through third-grade students from racially/ethnically diverse backgrounds where parents' participation in school activities and parent-teacher communication were significantly related to children's internalizing behavior problems (Izzo et al., 1999). The discovery of a significant relationship between maternal and family involvement school activities and internalizing, but not externalizing, behavior problems was somewhat surprising. Notably, the Asian American children in this study had more internalizing than externalizing behavior problems. Teachers may have reached out to parents of shy, anxious, and/or lonely children and asked them to attend school meetings and events. When these parents

became more involved with their children's schools, children may have gained greater confidence and exhibited fewer internalizing behavior problems.

Because of mixed findings in the previous literature, no hypotheses were made about the relationship between maternal and family involvement in school activities and Asian American third graders' reading and mathematical thinking skills. In the current study, maternal and family involvement in school activities was not found to be a significant predictor of Asian American children's reading and math skills. This finding is similar to that of previous studies involving families from diverse racial/cultural backgrounds (Begum, 2007; Jeynes, 2003; Vagi, 2008). The lack of a relationship is not especially surprising since the nature of parents' school activities measured in the ECLS-K questionnaire focuses more on teacher and school support (e.g., attending meetings and events, fundraising) than on parent-child interaction focused on academic work (e.g., monitoring homework).

Maternal Social Support

The fifth and final research question in this study asked whether or not maternal social support was a significant predictor of Asian American third graders' academic achievement and socioemotional development. To answer this question, five hypotheses were developed to predict the relationship between maternal social support and Asian American third graders' reading skills, mathematical thinking skills, peer relations, externalizing behavior problems, and internalizing behavior problems.

First, it was hypothesized that children whose mothers received more social support would have better reading skills than those whose mothers had less social support. Contrary to this expectation, maternal social support was not found to be a

significant predictor of children's reading skills. This finding is consistent with that of other studies (e.g., Burchinal et al., 1996; Siegel, 1998). Siegel's (1998) study revealed that for non-Hispanic subjects, maternal social support was not significantly correlated with children's reading vocabulary skills. Findings are also consistent with a classic study by Bee et al. (1982), where maternal social support was not related to children's language development and IQ among mothers with more than a high school education. In the current study, only 15% of mothers of Asian heritage had less than a high school degree. It appears likely that the emotional and instrumental social support that mothers of Asian heritage received, such as child care, transportation, financial help, and childrearing advice, may not contribute directly to mothers' efforts to develop their children's reading skills.

Second, it was hypothesized that Asian American children whose mothers received more social support would have better mathematical thinking skills than those whose mothers had less social support. Again, maternal social support was not found to be a significant predictor of children's mathematical thinking skills. There is currently a paucity of research examining the relationship between maternal social support and mathematical thinking skills, although some studies have linked more maternal social support to higher child IQs and higher cognitive skills (Bee et al., 1982; Melson et al., 1993). Again, the nature of the social support received by mothers in this study seems unlikely to have translated into mothers' investment in advancing her child's mathematical skills.

Third, it was hypothesized that Asian American third graders whose mothers had more maternal social support would have better peer relations than children whose

mothers had less social support. Surprisingly, although there was a trend ($\beta = -0.12, p = .052$) for maternal social support to predict her child's peer relations, results were in the opposite direction than expected. Children whose mothers had less, rather than more, social support tended to have better peer relations. The negative relationship between maternal social support and Asian American children's peer relations may be due, in part, to the reasons why some mothers had more social support. It is possible that mothers with the greatest support were needier and others reached out to help them because they were in distress (e.g., lacking money or transportation). These mothers may have been consumed with their personal problems and been poor social role models for their children. Children of such mothers may have experienced some embarrassment, shame, or "loss of face," and therefore, been more likely to withdraw from peers than children of mothers with more resources and time to socialize with others.

Fourth, it was hypothesized that maternal social support would be a significant predictor of Asian American third grade children's externalizing behavior problems. Children whose mothers received more social support were expected to have fewer externalizing behavior problems. Contrary to this expectation, maternal social support was not a significant predictor of children's externalizing behavior problems. Current findings are similar to those of a study of low income children from diverse racial/ethnic backgrounds, where parental social support did not significantly predict children's externalizing behavior problems, such as aggression (Mitchell, 2004). Study results are also consistent with past research finding no relationship between maternal social support and externalizing behavior problems among boys (e. g., Short & Johnston, 1997; Stacks & Goff, 2004; Vaillancourt et al., 2007). One explanation of this finding is that social

support for mothers of Asian heritage may be more focused on their own needs and have limited impact on their interaction with children, including management of children's externalizing behavior problems.

Finally, it was hypothesized that maternal social support would be a significant predictor of Asian American third grade children's internalizing behavior problems. Children whose mothers received more social support were expected to have fewer internalizing behavior problems than peers whose mothers had less social support. Contrary to this hypothesis, maternal social support failed to predict children's internalizing behavior problems. This finding is consistent with that of a study of economically disadvantaged African American adolescents which also found no significant relationship between maternal social support and youth internalizing problems, such as depressive symptoms (Taylor & Roberts, 1995). Other research also revealed that maternal social support was not related to internalizing behavior problems in boys (Short & Johnston, 1997; Stacks & Goff, 2004). Again, one can speculate that the types of support received by mothers in this study, which primarily addressed their own difficulties, had little impact on their interaction with their children and thus, were unlikely to influence children's internalizing behavior problems.

Contributions to Theory

Current findings support an ecological and integrative approach for examining factors that might predict the academic achievement and socioemotional development of Asian American children. Consistent with the ecological theoretical framework (Bronfenbrenner, 1986), factors at the microsystem level (maternal education, maternal language acculturation) emerged as significant predictors of academic achievement and

socioemotional outcomes in the current sample of Asian American third grade children. More specifically, higher maternal education predicted better reading skills, better mathematical thinking skills, and fewer internalizing behavior problems. Maternal language acculturation was a significant positive predictor of Asian American third graders' peer relations. Thus, current findings suggest that maternal factors at the microsystem level may have a direct influence on children's academic skills and their socioemotional development.

At the mesosystem level, findings revealed that maternal and family involvement in school activities was predictive of fewer internalizing behavior problems among Asian American third grade children. Such findings suggest that when mothers of Asian heritage do become involved with their children's schools, despite their tendency to take less initiative in joining traditional American parent-teacher activities, their children may benefit from maternal and family involvement with the school.

Although several study findings supported the influence of ecological factors, it should be noted that one microsystem factor, maternal and family involvement in home activities, failed to predict any child outcomes. This finding was attributed, in part, to the lack of a culturally sensitive measure of Asian parent and family involvement in children's home activities. At the exosystem level, results also revealed that maternal social support did not predict child academic achievement or socioemotional development in this population of mothers and children of Asian heritage. The lack of a relationship between maternal social support and child outcomes was thought to be influenced by the nature of the social support received by study mothers. Specifically, this support focused on mothers' instrumental and emotional challenges, and did not

appear to influence her parenting behavior.

Current findings also underscored the contribution of integrative theory to identifying and understanding factors that influence the academic achievement and socioemotional development of Asian American children. Integrative theory posits that factors such as acculturation, social position (which includes parent education and family income), and cultural experience (e.g., discrimination) should be at the core of theoretical examinations of child development, especially among children of color. In this study, the educational level of mothers of Asian heritage was found to be a salient predictor of children's reading and math skills and peer relation skills. In addition, the concept of adaptive culture, another aspect of integrative theory, was examined in this study through the focus on maternal language acculturation among mothers of Asian heritage. Maternal language acculturation was positively related to children's peer relations skills and negatively related to their mathematical thinking skills. This study further highlighted the need to employ more culturally sensitive measures of maternal and family involvement in home and school activities when researching families of Asian heritage. Overall, findings extended current knowledge of factors predicting child outcomes among one specific population of children of color, and emphasized the importance of integrative theory in guiding future research on child development in culturally diverse families.

Limitations

Although the current study extends the literature by examining maternal and family factors that may predict the academic achievement and socioemotional development of Asian American third graders, the research has several limitations. First, this study used secondary data analysis, which limited the concepts that were available to

investigate. For example, while it would have been interesting to look at a broader construct of acculturation, the available measures in the ECLS-K dataset limited this study to language acculturation. Many investigators (e.g., Berry, 1990) have proposed that acculturation includes far more than language, such as an individual's values, customs, and behaviors. The one indicator of language acculturation used in this study may not capture the essence of the multidimensional process of acculturation for Asian American and Asian immigrant mothers.

A second limitation was that there was no third grade data available on mother's English proficiency. Therefore, it was necessary to use kindergarten data to assess the mother's ability to speak, read, write, and understand English. It is possible that some mothers increased their English ability over time through additional education or longer residence in the United States. Thus, findings related to language acculturation are limited by the fact that the measurement of mother's English ability was two to three years old and may not have reflected mother's English language skills when their children were in third grade.

A third limitation of the study was the measurement of involvement in home and school activities. On both of the ECLS-K measures of these variables, the questionnaire asked about the parenting behaviors of both the mother and other members of her family. Therefore, it was impossible to separate mothers' involvement with her children in these domains from those of other family members. In addition, the measurements of maternal and family involvement in home and school activities appeared more culturally suitable to European-American parents than to Asian American parents and family members.

In interpreting the study's results, one should note that the study is cross-

sectional. Although the study reveals significant predictors of Asian American third graders' academic achievement and socioemotional development, no causal directions can be established by this study. For example, it is not known whether maternal and family involvement in school activities contributes to a reduction in child internalizing behavior problems, whether a child's internalizing problems contribute to maternal and family involvement in school activities (e.g., parent-teacher conferences related to a child's behavior problems), or whether an unknown third variable (e.g., maternal psychological well-being) is largely responsible for this relationship. Only longitudinal designs can explore causal relationships.

There were also some threats to the internal validity of this study. Data on most maternal variables were collected through telephone interviews. It is possible that some mothers gave socially-desirable answers to selected items, such as their language ability, home and school involvement, and social support. Such responses may have been the result of Asian American/Asian immigrant mothers' efforts to look responsible and "save face." Their responses may have been different if other data collection methods, such as anonymous paper or online questionnaires, were used. It should also be noted that mothers in this study were the sole reporters of their own and family members' behaviors. The ECLS-K did not question additional sources about maternal behaviors addressed in this study. Finally, the reliability of one measure, maternal and family involvement in school activities was marginal ($\alpha = .55$) so results involving this measure should be interpreted with some caution.

Programmatic and Policy Implications

In spite of several limitations, results of the current study have important

implications for policy makers, educators, and other family practitioners interested in promoting the optimal academic and socioemotional development of Asian American children. These findings may be of particular interest to practitioners because there is very little existing literature about factors that may affect the reading skills, math skills, peer relations, and behavior problems of Asian American children in elementary school.

One of the key findings of this study was that higher maternal education was predictive of greater reading skills, better mathematical thinking skills, and fewer internalizing behavior problems in Asian American third graders. The findings suggest that Asian American children, like children from many other cultural backgrounds, would benefit from interventions that seek to improve mothers' educational level. Although the mean number of years of education for mothers in this study was 14 (equivalent to an associate's degree), mothers from Southeast Asia (e.g., Vietnam, Cambodia, Laos) had lower educational levels than mothers from South and East Asia. Offering more educational programs and opportunities for these mothers, particularly mothers from the Southeast Asia, may contribute to higher academic skills and fewer internalizing behavior problems in their children.

Second, given the positive relationship between maternal English skills and children's peer relation skills, there may be benefits of providing English language classes to mothers of Asian heritage. Provision of ESL/English as a Second Language classes may improve mothers' social skills and ability to interact with other parents and teachers, while also enabling mothers to serve as social role models for their children. Although findings did reveal a negative relationship between maternal language acculturation and Asian American third graders' mathematical thinking skills, as long as

Asian parents continue emphasizing the value of math achievement and devoting their time to encouraging children's mathematical skills, improving maternal English skills seems unlikely to diminish children's math performance.

Finally, the current findings revealed that children whose mothers and family members engaged in more school activities exhibited fewer internalizing behavior problems than their peers whose mothers and family members were less involved at school. Thus it is important to develop strategies to involve mothers and family members of Asian heritage in school activities. Since the current sample of children exhibited more internalizing than externalizing behavior problems, helping mothers of Asian heritage to feel comfortable at school may especially benefit children who are shy, anxious, or lonely. Interventions that contribute to a reduction in internalizing behavior problems during the elementary school years may help to reduce the higher incidence of isolation, anxiety, and depression found among Asian American as compared to Caucasian American secondary school students (Lorenzo et al., 1995).

Directions for Future Research

The current findings suggest that maternal education, maternal language acculturation, and maternal and family involvement in school activities may play an important role in Asian American children's academic achievement and socioemotional development. However, this study also highlights the need for future research. First, additional studies should develop and use more comprehensive and culturally competent measures of acculturation. Specifically, future studies should employ measures that assess Asian American and Asian immigrant parents' interaction with their own and other racial/ethnic groups, as well as their ethnic identity and values (Berry, 1997; Colon-

Papazoglou, 1999; Suinn, Rickard-Figueroa, Lew, & Vigil, 1987). Future research should also identify or develop more culturally competent measures of the home and school involvement of parents of Asian heritage. As noted, the two parental involvement scales in the ECLS-K dataset tended to focus on activities that are less common in families of Asian American as compared to Caucasian American children, such as attending PTA/PTO meetings, participating in school/class events, or fundraising for school.

The current study focused on a representative sample of Asian American third graders with their biological mothers of Asian heritage in the United States. As noted, these Asian American children came from households with higher income and were more likely live in two-parent families than the third graders in the ECLS-K full sample and the larger U.S. population. The mothers of the sample children were more likely to be married, were more educated, were more likely to employed, and were more likely to hold similar or higher prestige of occupation than their counterparts in the ECLS-K full sample and the larger U.S. population. However, since the passage of the Immigration and Nationality Act of 1965, which put an end to highly restrictive immigration policies toward Asians, there has been more immigration of lower income, less-educated families of Asian heritage, especially Chinese, Filipino, and Asian Indians (Le, 2009). Many of these less-educated, lower income Asian immigrant families reside in urban areas and are employed as low-skilled workers in restaurants, hotels, and the hospitality trade. One study found that low-income Asian immigrant parents had very limited English skills, low education levels, and almost no interaction with their children's schools (Ji, Koblinsky & Wang, 2006). Future studies should explore the relationship between maternal education, maternal language acculturation, parental involvement, social

support, and child outcomes in this population of lower-income, urban immigrant families of Asian heritage. Research might also explore whether the patterns of relationship found in this study occur in families with children of Asian heritage from different Asian subgroups (e.g., East Asian, Southeast Asian). Studies on the role of language acculturation, in particular, might focus on these subgroup differences because some Asian countries have adopted English as one of their official languages (e.g., India, Singapore, Philippines).

Future studies should also use more complex models to examine moderating or mediating effects of study variables on child outcomes. For example, future research may use child gender as a moderator to examine whether the patterns of relationship found in this study differ for girls and boys; research might also explore whether the relationships revealed in this study differ for mothers and fathers or for parents with differing levels of mental health status. It would be also informative to examine whether the relationship between maternal social support and child outcomes is mediated by other variables, such as parenting styles or parenting stress.

Finally, future studies should examine whether the patterns of relationship found in this study occur in families and children of Asian heritage over time. The ECLS-K dataset, which is collecting data from children from kindergarten to 12th grade, makes such longitudinal research possible. Longitudinal studies address the chronosystem component of ecological theory, and provide important insights about how ecological factors at specific time periods contribute to optimal or adverse child development.

Conclusion

The current study utilized an ecological/integrative theoretical framework to

examine the role of maternal education, maternal language acculturation, maternal and family involvement in home activities, maternal and family involvement in school activities, and maternal social support in predicting Asian American third graders' academic achievement and socioemotional development. Overall, findings support ecological and integrative models of child development, with higher maternal education predictive of better reading and math skills and fewer internalizing behavior problems in children. Greater maternal language acculturation was linked to better child peer relations, and greater maternal and family involvement in school activities was related to fewer internalizing behavior problems among Asian American children. Current findings point to the need for policy makers, educators, and other family practitioners to introduce interventions that will enable mothers of Asian American children to obtain higher educational levels, improve their English language skills, and enhance mothers' and family members' engagement in their child's school activities. Such efforts may contribute to more optimal academic and socioemotional development among elementary age children of Asian heritage.

APPENDICES

Appendix A: Maternal Education

PEQ.020

Now I have a few questions about education and training. What is the highest grade or year of school that you have completed?

Never went to school.....	0
1 st grade.....	1
2 nd grade.....	2
3 rd grade.....	3
4 th grade.....	4
5 th grade.....	5
6 th grade.....	6
7 th grade.....	7
8 th grade.....	8
9 th grade.....	9
10 th grade.....	10
11 th grade.....	11
12 th grade but no diploma.....	12
High school diploma/equivalent or VOC/tech program after high school but no VOC/tech diploma.....	13
VOC/tech program after high school.....	14
Some college but no degree.....	15
Associate's degree.....	16
Bachelor's degree.....	17
Graduate or professional school but no degree.....	18
Master's degree (MA, MS).....	19
Doctorate degree (PHD, EDD).....	20
Professional degree after Bachelor's degree (Medicine/MD; Dentistry/DDS; LAW/JD/LLB; etc.).....	21
Refused.....	77
Don't know.....	99

Appendix B: Maternal Language Acculturation (Study-Specific)

Kindergarten Parent Questionnaire (Fall 1998- Base Year)

PLQ.070

How well do you....

	VERY WELL	PRETTY WELL	NOT VERY WELL	NOT WELL AT ALL	REF	DK
a. Speak English? Would you say very well, pretty well, not very well, or not well at all?	1	2	3	4	7	9
b. Read English?	1	2	3	4	7	9
c. Write English?	1	2	3	4	7	9
d. Understand someone speaking English?	1	2	3	4	7	9

Appendix C: Maternal and Family Involvement in Home Activities Scale (Study-Specific)

Third Grade Parent Questionnaire (Spring 2002)

HEQ.010 Now I'd like to talk with you about (Child)'s activities with family members. In a typical week, how often do you or any other family members do the following things with (Child)?

	NOT AT ALL	ONCE OR TWICE	3-6 TIMES	EVERY DAY	REF	DK
a. Tell stories to (Child)?	1	2	3	4	7	9
b. Sing songs with(Child)	1	2	3	4	7	9
c. Help (Child) to do arts and crafts?	1	2	3	4	7	9
d. Involve (Child) in household chores, like cooking, cleaning, setting the table, or caring for pets?	1	2	3	4	7	9
e. Play games or do puzzles with (Child)	1	2	3	4	7	9
f. Talk about nature or do science projects with (Child)	1	2	3	4	7	9
g. Build something or play with construction toys with (Child)	1	2	3	4	7	9
h. Play a sport or exercise together?	1	2	3	4	7	9
i. Practice reading, writing or working with numbers	1	2	3	4	7	9
j. Read books to (Child)	1	2	3	4	7	9

Appendix D: Maternal and Family Involvement in School Activities Scale
(Study-Specific)

Third Grade Parent Questionnaire (Spring 2002)

PIQ.020

Since the beginning of this school year have you or the other adults in your household

	YES	NO
a. Attended an open house or back-to-school night?*	1	2
b. Attended a meeting of a PTA, PTO, or Parent-Teacher Organization?	1	2
c. Gone to a regularly scheduled parent-teacher conference with (Child)'s teacher or meeting with (Child)'s teacher?*	1	2
d. Attended a school or class event, such as a play, sports event, or science fair?	1	2
e. Volunteered at the school or served on a committee?	1	2
f. Participated in fundraising for (Child)'s school?	1	2

* Item eliminated in the analyses following factor analysis of the subscales.

Appendix E: Maternal Social Support Scale (Study-Specific)

Third Grade Parent Questionnaire (Spring 2002)

CFQ. 020

Now I am going to read some statements. Please tell me whether each statement is never true for you, sometimes true for you, or always true for you.

Would you say it is never true for you, sometimes true for you, or always true for you?

	NEVER TRUE	SOMETIMES TRUE	ALWAYS TRUE	REF	DK
a. If I need to do an errand, I can easily find someone to watch (Child)	1	2	3	7	9
b. If I need a ride to get (Child) to the doctor, friends or family will help me	1	2	3	7	9
c. If (Child) is sick, friends or family will call or come by to check on how things are going	1	2	3	7	9
d. If (Child) is having problems at school, there is a friend, relative or neighbor I can talk it over with	1	2	3	7	9
e. If I have an emergency and need cash, family or friends will loan it to me	1	2	3	7	9
f. If I have troubles or need advice, I have someone I can talk to	1	2	3	7	9

Appendix F: Maternal Employment

EMQ.050

About how many total hours per week (do you/does (NAME)) usually work for pay, counting all (# of jobs IF MORE THAN ONE) jobs?

|_|_|_|

Enter # of weekly hours

Refused..... 777

Don't know..... 999

Appendix G: Maternal Occupation

Third Grade User's Manual Chapters 6-9

This score is derived from:

1. 1989 GSS prestige scores (score provided)

Occupation	Average Prestige Score
Handler, Equip, Cleaner, Helpers, Labor	29.60
Production Working Occupation	33.42
Service Occupations	34.95
Agriculture, Forestry, Fishing Occupations	35.63
Marketing & Sales Occupation	35.78
Transportation, Material Moving	35.92
Precision Production Occupation	37.67
Administrative Support, Including Clerk	38.18
Mechanics & Repairs	39.18
Construction & Extractive Occupations	39.20
Technologists, Except Health	48.69
Writers, Artists, Entertainers, Athletes	52.54
Executive, Admin, Managerial Occupation	53.50
Health Technologists & Technicians	57.83
Social Scientist/Workers, Lawyers	59.00
Registered Nurses, Pharmacists	61.56
Natural Scientists & Mathematicians	62.87
Teacher, Except Postsecondary	63.43
Engineers, Surveyors, & Architects	64.89
Teachers; College, Postsecondary Counselors, Librarians	72.10
Physicians, Dentists, Veterinarians	77.50

2. EMQ. 120 For whom (do/does/did) (you/(name))work when(you) last worked)?

Enter employer name

Refused..... 7

Don't know..... 9

3. EMQ.130 What kind of business or industry (is/was) this?

Enter industry description

Refused..... 7

Don't know..... 9

4. EMQ.140 What kind of work (are/is/were/was) you (name) doing?

Enter job duties

Refused..... 7

Don't know..... 9

Appendix H: Factor Analysis of Parent Involvement in School Activities

Rotated Component Matrix

	Component	
	1	2
P5 PIQ010A1 Attended open house	.337	.709
P5 PIQ020B1 Attended a PTA meeting	.603	-.120
P5 PIQ020C1 Attended parent-teacher conference	.380	-.712
P5 PIQ020D1 Attended school event	.633	.053
P5 PIQ020E1 Acted as school volunteer	.713	-.082
P5 PIQ020F1 Participated in fundraising	.563	.188

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

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