ACADEMIC SOCIALIZATION AND THE TRANSITION TO ELEMENTARY SCHOOL: PARENTS' CONCEPTIONS OF SCHOOL READINESS, PRACTICES, AND CHILDREN'S ACADEMIC ACHIEVEMENT TRAJECTORIES

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ABSTRACT

ACADEMIC SOCIALIZATION AND THE TRANSITION TO ELEMENTARY SCHOOL: PARENTS' CONCEPTIONS OF SCHOOL READINESS, PRACTICES, AND CHILDREN'S ACADEMIC ACHIEVEMENT TRAJECTORIES

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By the time children enter kindergarten, significant socioeconomic and racial gaps in academic achievement exist (Coley, 2002; Rouse, Brooks-Gunn, & Mclanahan, 2005). Kindergarten is considered to be a pivotal point of educational transition, as academic achievement upon kindergarten entry is associated with subsequent academic success (Claessens, Duncan, & Engel, 2009; Hair, Halle, Terry-Humen, Lavelle, & Calkins, 2006). Although parents' socioeconomic status and level of education are related to their children's early achievement, home-based parental involvement during early childhood also contributes to children's school readiness (Rouse et al., 2005). Taylor, Clayton, and Rowley (2004) offer a model of academic socialization which suggests that parents' beliefs about schooling influence parenting practices, both of which contribute to children's transition to elementary school. The current study tests the theory that parents' school readiness beliefs influence parenting practices, which in turn influence children's academic achievement during the transition to elementary school. The impact of academic socialization on children's achievement trajectories in reading, mathematics, and general knowledge was examined using latent growth curve modeling. Parents' school readiness beliefs predicted children's beginning academic achievement and growth over time. Parents' transition practices partially mediated the relationship between their own readiness beliefs and children's beginning academic achievement and growth over time. The findings broaden our understanding of home-based parental involvement during early childhood by illuminating the inherent connection between parents' school readiness beliefs,

parenting practices, and children's early academic achievement during the transition to elementary school.

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CHAPTER 1

INTRODUCTION

Although gaps in educational achievement have narrowed over the past three decades, the persistent demographic divide in educational outcomes continues to be of great concern in the United States (Jencks & Phillips, 1998; Reardon & Robinson, 2008). These gaps exist in and out of the classroom, extending from early childhood across the lifespan (Rouse, Brooks-Gunn, & Mclanahan, 2005). By the time children enter kindergarten, significant socioeconomic and racial gaps in school readiness already exist (Coley, 2002; Rouse et al., 2005). On average, children from affluent families are more likely to know the alphabet, be able to identify sounds, and understand more complex mathematical concepts before kindergarten (Coley, 2002). Data from the Early Childhood Longitudinal Study (ECLS-K), a large, nationally-representative survey, show that upon kindergarten entry, the average cognitive scores of affluent children are approximately three-fifths of a standard deviation higher than those of children from lower socioeconomic backgrounds (Coley, 2002; Lee & Burkham, 2002).

The transition to kindergarten is regarded as a pivotal developmental period, as patterns of achievement and behavior established in the initial school years can have profound impacts on children's developmental trajectories for school success or failure (Alexander, Entwisle, & Bedinger, 1994; Entwisle & Alexander, 1999; Entwisle, Alexander, & Olsen, 2005). Recent findings indicate that cognitive and noncognitive skills upon school entry relate to later achievement (Bodovski & Farkas, 2007; Claessens, Duncan, & Engel, 2009; Hair, Halle, Terry-Humen, Lavelle, & Calkins, 2006; Li-Grining, Votruba-Drzal, Maldonado-Carreno, & Haas, 2010) and virtually all researchers associate socioeconomic status and parental level of education

with school readiness and subsequent academic success (Booth & Crouter, 2008; Brooks-Gunn & Markman, 2005; Duncan & Magnuson, 2005).

Although status variables such as socioeconomic status and parental level of education are clearly related to children's early learning and development, parenting characteristics and parent-child interactions have also been shown to contribute to children's transition to elementary school (Booth & Crouter, 2008; Brooks-Gunn & Markman, 2005). Parents play a key role in children's early learning and attitudes toward school and achievement through a process of socialization (Bempechat, 1992; Ginsberg, Bempechat, & Chung, 1992; Maccoby, 1992). Taylor, Clayton, and Rowley's (2004) model of academic socialization suggests that parents' attitudes, values, and beliefs about school influence parenting behaviors and transition practices, which in turn influence children's transition to elementary school. Transition practices are conceptualized as behaviors that are designed to prepare children for starting school and have been operationalized as reading to the child, saying the alphabet, practicing counting, and so forth (Barnett & Taylor, 2009; Taylor, Clayton, & Rowley, 2004).

Despite the increasing emphasis on families' contributions to children's school readiness and transitions to elementary school (Booth & Crouter, 2008; Pianta, Cox, & Snow, 2007), research examining the role of academic socialization on young children's early achievement has received less attention (Barbarin et al., 2008; Barnett & Taylor, 2009; Taylor et al., 2004). It seems plausible that differences in parents' readiness beliefs and transition practices contribute to the early academic achievement gap. Establishing a link between parents' school readiness beliefs and transition practices may enhance conceptual models of home-based parent involvement, ultimately highlighting important targets for interventions aimed at maximizing the positive parental contributions to children's early learning and transitions to elementary school.

The purpose of this study is to examine the relationship between parents' school readiness beliefs, transition practices, and children's academic achievement over time using nationally representative data drawn from the Early Childhood Longitudinal Study-Kindergarten cohort (ECLS-K). The primary contribution of this study is to understand the degree to which parents' school readiness beliefs influence their transition practices, which in turn influence children's academic achievement during the transition to elementary school. In other words, this study will examine the degree to which parents' readiness beliefs directly and indirectly influence children's academic achievement as they begin elementary school.

The study begins by examining variability within parents' readiness beliefs and transition practices as well as children's achievement trajectories. The first set of research questions addressed, are as follows.

1. Do parents' school readiness beliefs vary by socioeconomic status and race/ethnicity?
2. Do parents' transition practices differ by socioeconomic status and race/ethnicity?
3. Do children's academic achievement trajectories vary by socioeconomic status and race/ethnicity?

The study then examines the degree to which parents' school readiness beliefs and transition practices influence children's academic achievement trajectories. This was accomplished by estimating the direct and indirect effects of parents' readiness beliefs and transition practices on children's academic performance trajectories. The second set of research questions addressed, are as follows.

4. To what extent do parents' school readiness beliefs influence children's academic achievement upon kindergarten entry and over time?

5. To what extent do parents' transition practices influence children's academic achievement upon kindergarten entry and over time?
6. To what extent do parents' transition practices mediate the relationship between their school readiness beliefs and children's academic achievement upon kindergarten entry and over time?

CHAPTER 2

LITERATURE REVIEW

This chapter begins with a review of existing literature relevant to the prediction of children's academic achievement during the transition to elementary school. The review begins with an overview of racial/ethnic and socioeconomic academic achievement gaps as children transition to elementary school. Academic socialization provides the conceptual framework for the present study and is explicated next. Current studies examining parents' conceptions of school readiness are discussed. Then, recent empirical research that has tested hypothesized models using more traditional statistical techniques (e.g., standard multiple regression) is described, followed by studies that test mediating models using sophisticated, multivariate statistical techniques (e.g., path analysis). A description of the limitations of existing research follows, and the chapter concludes with an example of how this study will address these limitations.

Existing Research

Achievement Gaps as Children Progress through Elementary School

Considerable attention has focused on the persistent racial, ethnic, and socioeconomic disparities in academic achievement in the United States. National studies repeatedly show that the average African American student scores below the average European American student on standardized tests of reading and mathematics skills, as does the average Hispanic student (Jencks & Phillips, 1998; Reardon & Gallindo, 2009; Reardon & Robinson, 2008). The average student from a low socioeconomic status family scores much lower on such tests than students from higher socioeconomic status families (Reardon, 2011; Reardon & Robinson, 2008). The next section presents information on achievement gaps between African American and European American children as well as differences between Hispanic and European American children as

they progress through elementary school, followed by a discussion of achievement gaps between children from high- and low-socioeconomic-status homes.

The most commonly cited contemporary evidence on the development of achievement gaps in elementary school comes from the Early Childhood Longitudinal Study—Kindergarten cohort of 1998-1999 (ECLS-K), which includes kindergarten through eighth grade data on a nationally representative sample of children who were enrolled in kindergarten in the fall of 1998. Analysis of the ECLS-K data show that on average, gaps between African American and European American children in reading and mathematics assessments are sizable upon kindergarten entry, about one-half and three-quarters of a standard deviation, respectively (Fryer & Levitt, 2004; Reardon & Robinson, 2008). Measured in standard deviation units, these gaps widen slightly through kindergarten and first grade, and then widen more rapidly between first and fifth grade, by which time the gap in reading is about three-quarters of a standard deviation, and the mathematics gap is a full standard deviation (Reardon & Robinson, 2008).

In regards to the achievement gap between Hispanic and European American students, the most detailed evidence comes from the ECLS-K study, which includes a large sample (approximately 4,000) of Hispanic children. In addition, because the ECLS-K study administered the mathematics test orally in either English or Spanish (depending on the child's language proficiency), the estimates for the differences in mathematics scores should not be biased by differences in English proficiency. Analysis of the ECLS-K data indicates that differences between Hispanic and European American children's reading and mathematics achievement is very similar in magnitude to the observed differences between African American and European American children's achievement. However, the gap between Hispanic and European American children in reading and mathematics decreases during the elementary school

years, while the gap between African American and European American children widens during the same period (Fryer & Levitt, 2004; Reardon & Gallindo, 2009; Reardon & Robinson, 2008). In reading, the gap shrinks from one-half to about one-third of a standard deviation, and the gap in mathematics shrinks from three-quarters to one-half of a standard deviation (Reardon & Gallindo, 2009; Reardon & Robinson, 2008).

The development of achievement gaps based upon socioeconomic status can be difficult to examine because unlike race, ethnicity, or gender, socioeconomic characteristics of a family may change over time, and often change quite dramatically. In addition, socioeconomic status can be measured in several ways by using a variety of different indicators, such as parental level of education, occupational status, and family income. Using a composite indicator of socioeconomic status in the ECLS-K data set, Lee and Burkham (2002) found that in reading and mathematics during the fall term of kindergarten, children from homes in the lowest quintile (low-income) scored a full standard deviation below children from homes in the highest quintile (high-income) and a half of a standard deviation below children from homes in the third quintile (middle-income). Reardon and Robinson's (2008) analysis of the ECLS-K data found that upon kindergarten entry, children already showed gaps in reading and mathematical abilities, where children with parents who have less formal education scored more than a standard deviation below children with parents who have a college education. The gaps narrowed by 10 % during the first two years of schooling, but then widened slowly through the fifth grade.

It is a well known phenomenon that race/ethnicity and socioeconomic status are closely intertwined in the United States. Using multiple socioeconomic status indicators, Fryer and Levitt (2005) were able to show that socioeconomic factors explained almost all of the difference in African American and European American children's mathematics achievement (85%) at the

beginning of kindergarten, and all of the difference in reading achievement during the same time period. By the third grade, however, socioeconomic factors only accounted for approximately 60% of the difference in reading and mathematics achievement. This finding was significant because it suggests that socioeconomic factors explain, in large part, differences in achievement at the start of formal schooling, but do not account for differences in the rate of growth during school. Fryer and Levitt (2005) also found that, on average, African American children continue to lose ground in reading and mathematics relative to European American children, even while taking into account important sociodemographic covariates as well as school and teacher fixed effects. Seasonal comparison research offers a plausible hypothesis for these findings by suggesting that children experience equivalent gains during the school year but decline during the summer and winter vacations, due to family and neighborhood factors (Entwisle & Alexander, 1992, 1994). However, in a recent study using multilevel growth curve models, Downey, Von Hippel, and Broh (2004) found that African American children experienced less rapid growth in reading and mathematics in comparison to European American children during kindergarten and first grade, but no significant differences in the rate of learning during the summer.

The extent to which socioeconomic factors account for differences between Hispanic and European American children's academic achievement in elementary school appears to be quite different. Fryer and Levitt (2005) show that socioeconomic factors account for 75 to 80% of the gap between Hispanic and European American children in kindergarten and 85 to 100% of the gap in the third grade. The authors suggest that as Hispanic children's English proficiency improves, socioeconomic factors explain an increasing portion of the variance in achievement. Reardon and Gallindo (2006) also show that differences between Hispanic and European

American children conditional on socioeconomic status narrow from kindergarten through fifth grade, while the corresponding gap between African American and European American children increases during the same time.

In sum, research clearly demonstrates that racial, ethnic, and socioeconomic achievement gaps exist during the transition to elementary school. The gap between African American and European American children is apparent at the onset of formal schooling. This gap continues to widen during elementary school in ways that are not completely explained by socioeconomic family background characteristics or school quality. The same patterns are not found for Hispanic children as they transition to elementary school; socioeconomic differences account for a large portion of the gap between Hispanic and European American children's reading and mathematics achievement and the gap appears to narrow as children progress through elementary school. Although it is clear that family background and schooling each play some role in the development of achievement gaps, the extant research is less clear about the processes and mechanisms that occur prior to formal schooling and produce racial, ethnic, and socioeconomic achievement disparities. The theory of academic socialization is presented as a plausible hypothesis in the following section.

Conceptual Framework

Parents are considered to be the primary agents of socialization during early childhood. The process by which parents shape children's cognitive and non-cognitive skills is broadly encompassed by the term *socialization* (Bempechat, 1992; Ginsberg et al., 1992; Maccoby, 1992; Maccoby & Martin, 1983). The conceptual model of academic socialization put forth by Taylor, Clayton, and Rowley (2004) draws upon Brofenbrenner's (1986) ecological theory of development as well as Pianta and Walsh's (1996) contextual systems model. The ecological

theory of development suggests that intrafamilal and extrafamilial factors shape children's developmental trajectories, while the contextual systems model emphasizes intrafamilial and school system factors. The conceptual model of academic socialization reflects the tenets of ecological theory as well as the contextual systems model but extends the conventional understanding of these relationships across systems by taking into account parents' beliefs about schooling. Academic socialization suggests that parents' cognitions about schooling influence parenting behaviors, which in turn, influence children's early outcomes during the transition to elementary school (Taylor et al., 2004). Taylor, Clayton, and Rowley's (2004) conceptual model of academic socialization also reflects tenets of ecological theory and contextual systems model by suggesting that children's academic socialization is influenced by one's socioeconomic and cultural contexts. Academic socialization provides the conceptual framework for the present study, as this model integrates several important features of parenting that can influence children's early learning and development: who the parents are, what they believe about schooling, and what they do.

Parental involvement is a multidimensional construct that includes not only direct involvement in children's schools, such as volunteering in classrooms and attending parent-teacher conferences, but also home-based involvement (Epstein & Connor, 1992; Hill & Taylor, 2004; Suizzo & Stapleton, 2007). Parental involvement for young children entering kindergarten has been operationalized as attending school meetings, volunteering in classrooms, and serving on committees (Barnett & Taylor, 2009; Taylor et al., 2004), all of which, has been found to be associated with their children's early school success (Grolnick & Slowiaczek, 1994; Hill, 2001; Hill & Craft, 2003). However, there is a home-based component of parent involvement, outlined by Epstein and Conner (1992), which includes parental interaction with children in the home.

Scott-Jones (1995) builds upon this framework of parental involvement by suggesting that parental interaction can be conceptualized in four ways: valuing, monitoring, helping, and doing. One important aspect of home-based parental involvement involves helping interactions. Helping interactions are specific parent-child learning activities focused on the acquisition of basic academic skills in reading, mathematics, and other subject matter (Scott-Jones, 1995) and can be thought of as part of the academic socialization process for young children, which Taylor et al. (2004) define as transition practices. Parental transition practices may include reading to the child, singing songs, or practicing counting, all of which are intended to prepare children for starting school (Barnett & Taylor, 2009; Taylor et al., 2004).

The current study also draws upon a social constructivist theoretical formulation advanced by Wertsch (1979), based on the work by Vygotsky (1978) to further develop the construct of transition practices. Parents help young children acquire skills and knowledge in an expert-novice relationship by serving as the supportive, knowledgeable "others" as children acquire new skills and knowledge. The interactions of children with adults provide *other regulation* needed for the child to perform cognitive tasks. From interactions with adults involving other regulation, children gradually develop the capacity for self-regulation. According to this theory, children's mental activity exists first on a social or inter-psychological level. Gradually, after social interactions with parents or other knowledgeable persons, children's mental activity occurs at an individual or intra-psychological level. This model of children learning from a knowledgeable parent in an everyday social context and gradually advancing to independent performance is termed *apprenticeship* in the work of Rogoff (1990). In the current study, transition practices are conceptualized as a form of home-based parental involvement that focuses on parental helping interactions which provide a type of other

regulation or apprenticeship opportunity to help prepare children for elementary school. Therefore, transition practices are considered to be targeted parent-child interactions which are intended to support children's successful transition to elementary school.

Academic socialization suggests that home-based parental involvement mediates the relationship between who parents are, what they believe about schooling, and children's early outcomes. The main support for the mediating role of parent behaviors comes from literature that examines the simple associations between pairs of status variables, such as socioeconomic status and parent behaviors, parent behaviors and children's academic achievement. The literature posits that parents, as primary caregivers, are the main agents for the promotion of positive academic experiences during children's early years. The evidence comes from intervention research (e.g., Boyce, Innocenti, Roggman, Norman, & Ortiz, 2010; Olds & Kitzman, 1993; Olds et al., 2007; Schweinhart et al., 2005; Senechal & Young, 2008; Stormshak, Kaminski, & Goodman, 2002), qualitative studies (e.g., Heath, 1983; Milne & Plourde, 2006), and quantitative studies (e.g., Cooper, Crosnoe, Suizzo, & Pituch, 2010; Foster, Lambert, Abbott-Shim, McCarty, & Franze, 2005; Lamb Parker, Boak, Griffin, Ripple, & Peavy, 1999; Orr, 2003; Smith, Brooks-Gunn, & Klebanov, 1997; Votruba-Drzal, 2006).

Several aspects of parenting behaviors have been shown to play an essential role in children's early achievement. One important aspect, and the most frequently researched area, focuses on the home literacy environment. Aulls and Sollars (2003) reported that differences in preschool children's print awareness, book knowledge, and code knowledge are related to the quality of the literacy activities provided at home. Similarly de Jong and Leseman (2001) demonstrated that a high level of home literacy enhances vocabulary and reading achievement in children. In the seminal longitudinal study conducted by Hart and Risley (1995), the authors

observed 42 families over a period of three years, demonstrating that the quantity and quality of parent-child interactive language during the first three years of life is related to the differences between vocabulary development in children of higher versus lower socioeconomic status families. Activities such as telling stories, singing songs, and making books have also been shown to encourage the acquisition of literacy skills (Boyce et al., 2010; Bryant, Maclean, Bradley, & Crossland, 1990; Glazer, 1989; Maclean, Bryant, & Bradley, 1987; Sonnenschein, Brody, & Musterman, 1996). In a meta-analytic review, Senechal and Young (2008) found that interventions in which parents tutored their children using specific literacy activities produced better results compared to interventions where parents only read to their child or listened to their child read. It is clear from the research that parental behaviors, more specifically the quantity and quality of parent-child interactions, plays an important role in children's early learning and development. However, these parenting behaviors vary by important sociodemographic characteristics.

Research suggests that home-based parental involvement, as evidenced by the frequency of parents engaging young children in language and literacy-related activities as well as educational activities, varies by parental socioeconomic status (Hart & Risley, 1995; Heath, 1983; Lareau, 2003), level of education (Farkas & Hibel, 2008), and race/ethnicity (Brooks-Gunn & Markman, 2005). In a recent analysis of the Panel Study of Income Dynamics, which used time-diary data to measure how young children spend their time, Phillips (2011) found significant socioeconomic and racial differences in parenting and the amount of time children spend in different contexts and activities. The author found that, on average, infants, toddlers, and preschoolers from high-income families spend more time in novel environments such as indoor and outdoor recreation places, church, businesses or other institutions, relative to children

from lower-income families. In addition, among school-age children, low-income children seemed to converse less frequently with parents compared to children from high-income families. Holding measures of socioeconomic status as well as child and parent health constant, Phillips (2011) demonstrates that, on average, African American infants, toddlers, and preschoolers spend four hours less time per week conversing with adults in comparison to young European American children. The author also demonstrates that, on average, high-income children, from infancy to age six, spend more time engaged in literacy activities than their low-income counterparts. Furthermore, African American infants are read to less often than their European American counterparts from similar backgrounds, but this disparity decreases as children age. Phillips (2011) notes that although these differences are seemingly small, the disparities in weekly reading time implies a gap of over 100 hours of reading exposure by the time children enter school. These recent findings are consistent with previous research which suggests that children from different sociodemographic backgrounds have different learning experiences during early childhood.

Academic socialization as proposed by Taylor et al., (2004) has received limited attention in the literature, but it is widely assumed that parents' school readiness beliefs will influence their behaviors, and ultimately affect children's early learning and development (Barbarin et al., 2008; Miller, 1988; West, Germino-Hausken, & Collins, 1995). Studies have empirically examined the relationship between hypothesized predictors within the academic socialization framework, that is, who the parents are, what they believe, what they do, and their children's early outcomes. In the next section, this research is reviewed. The focus of the review is on the findings of complex, multivariate models that have explored hypothesized mechanisms underlying children's early achievement. Sophisticated statistical modeling techniques that

allow for the investigation of interrelationships among multiple predictors simultaneously offer potential advantages over methods that explore fewer predictors. The following section will begin by reviewing studies which employ traditional multiple linear regression models to test the relationships between parental status variables, behaviors, and early child outcomes. Then the review focuses on empirical studies that examine the relationship between parents' school readiness beliefs, behaviors, and children's early academic outcomes using standard linear regression techniques as well as path analysis to examine the mediation of parental beliefs and early child outcomes by parenting behaviors.

Empirical Studies

Who parents are, what parents do, and early child outcomes. Studies have empirically analyzed the relationship between family background, home-based parent involvement, and early developmental outcomes for children using large-scale nationally representative data sets. In the seminal study on this topic, Smith et al. (1997) analyzed data drawn from the Children of the National Longitudinal Survey of Youth (CNLSY) and the Infant Health and Development Program (IHDP) studies to examine the consequences of living in poverty on young children's early cognitive, verbal, and early academic achievement. Results from multiple regression analyses found that parental income was associated with child outcomes and measures of home-based parental involvement (measured by the HOME inventory scale, which is a global measure of parenting practices), partially mediated the correlation between parental income and child outcomes as well as maternal education and child outcomes. In another study using the same data, Phillips, Brooks-Gunn, Duncan, Klebanov, and Crane (1998) examined the relationship between family background, parenting practices, and young children's verbal and cognitive performance. Standard multiple regression analyses were also

conducted; findings indicated that parental income, maternal education, and measures of home-based parent involvement were all significant predictors of children's vocabulary development.

Studies analyzing the more recent ECLS-K data by Lee and Burkham (2002), as well as Farkas and Hibel (2008), have also found that family status variables, such as socioeconomic status, the maternal level of education, and measures of home-based parent involvement, were significant predictors of children's overall kindergarten achievement in reading and mathematics. Cooper et al., (2010) employed multilevel modeling techniques to analyze ECLS-K data, and found that home-based parental involvement in education partially mediates the association between family poverty and children's mathematics and reading achievement, but also discovered differences paralleling racial/ethnic heritage.

Several quantitative studies have used mediation models (path analysis) to investigate the mediating role of distal (socioeconomic) and proximal (early home-based parental involvement) predictors and children's school achievement. Votruba-Drzal (2006) used New York Longitudinal Study (NYLSY) data, in which an abbreviated version of the HOME inventory measured home-based parental involvement as evidenced by the amount of cognitive stimulation and emotional support the parent provided the child. The author investigated the mediating role of early childhood parent involvement in the association between family income and reading, mathematics, and behavior problems in middle childhood. The findings indicate that the quality of early childhood home-based parent involvement mediates the influence of family income during early childhood on reading, mathematics, and behavior problems, and shows that the effects of family interaction are even more influential on reading skills and behavior problems than on mathematics achievement. Other studies have also found that measures of home-based parental involvement mediates the relationship between risk factors and pre-kindergarten

achievement, self-regulation, and social behavior (Mistry, Benner, Biesanz, Clark, & Howes, 2010), between income and emergent literacy (Foster et al., 2005), and between income and children's ability to pay attention (Dilworth-Bart, Khurshid, & Vandell, 2007).

These studies contribute to the literature in several important ways. These studies clearly indicate that distal and proximal predictors contribute to children's early learning and development. Path analysis models also provide evidence that home-based parental involvement mediates the relation between parents' sociodemographic factors and early child outcomes. The question that remains, what influences the nature and degree of home-based parental involvement? The conceptual model of academic socialization suggests that parental beliefs or expectations about schooling influence parenting behaviors, which then influence child outcomes. The subsequent section reviews studies which examine the relationship between parental school readiness-related beliefs and expectations, behaviors, and children's early academic outcomes using standard correlation or regression methods, followed by a review of a study that employs path analysis to examine the mediation of parental beliefs and child outcomes by parental involvement.

What parents believe about readiness, what parents do, and early child outcomes. Studies examining parental beliefs can generally be divided into two major categories: beliefs about children's developmental processes, and beliefs about children's specific abilities (Goodnow & Collins, 1990; Miller, 1988). These studies have focused on parental beliefs about the ages that children are expected to perform certain tasks (Hess, Kahiwagi, Azuma, Price, & Dickson, 1980; Rosenthal & Gold, 1989), traits or values parents want to develop in their children (Kohn, 1969; Levine, 1988; Okagaki & Frensch, 1998; Okagaki & Sternberg, 1993), theories about child development (Goodnow, 1998; Keels, 2009; Kinlaw, Kurtz-Costes, &

Goldman-Fraser, 2001), and more recently, conceptions of school readiness (Barbarin et al., 2008; Diamond, Reagan, & Bandyk, 2000). To understand the relationship between what parents believe about school readiness and early academic outcomes, it is useful to begin with a discussion about the role of parents' educational expectations on children's academic achievement because it is assumed that parents' expectations influence parent behaviors, which in turn, influence children's achievement.

Although the term *parental expectation* has been defined in various ways in the literature, most researchers characterize parental expectations as realistic beliefs or judgments that parents have about their children's future achievement as reflected in course grades (Alexander et al., 1994; Entwisle & Alexander, 1996; Hill, 2001), highest level of schooling attained (Goldenberg, Gallimore, Reese, & Garnier, 2001), college attendance (Glick & White, 2004), as well as expectations for mastery of early developmental tasks (Hess, Holloway, Dickson, & Price, 1984; Hess et al., 1980). Much of the research evidence for the connection between parents' expectations and academic outcomes has focused on adolescents from various ethnic groups (e.g., Chen & Lan, 1998; Goyette & Xie, 1999; Reynolds & Gill, 1994; Smith-Maddox, 1999). A few studies have focused specifically on how parental educational expectations influence outcomes for elementary school-age children (Hess et al., 1984; Hill, 2001; Wentzel, 1998), including children from diverse backgrounds (Davis-Kean, 2005; Entwisle & Alexander, 1996; Halle, Kurtz-Costes, & Mahoney, 1997), and how these early expectations affect outcomes through children's school careers (Goldenberg et al., 2001; Hess et al., 1984). In general, parental expectations have been found to play an important role in students' academic success. Students whose parents hold high expectations receive higher grades, achieve higher scores on

standardized tests, and persist longer in school than do those whose parents hold relatively low expectations (Davis-Kean, 2005; Halle et al., 1997; Hess et al., 1984; Pearce, 2006).

Despite the role parental educational expectations play in children's academic success, it seems logical that parents' conceptions of school readiness are more likely to shape early academic outcomes through home-based parental involvement before children transition to elementary school. The concept of school readiness has evolved over the past few decades, from its formal introduction by the National Education Goals Panel (NEGP 1997), to more recent efforts by Ackerman and Barnett (2005) and Snow (2006). The general conceptualization is that school readiness encompasses the skills, knowledge, and dispositions associated with later success in school (Ackerman & Barnett, 2005; Crinic & Lamberty, 1994; Snow, 2006). Despite the growing emphasis on school readiness, research examining parents' school readiness beliefs is somewhat limited (Barbarin et al., 2008). The extant literature is descriptive, often comparing parents' readiness beliefs to teachers', and rarely examines the link between school readiness beliefs and children's academic achievement.

Parents conceive of school readiness largely in terms of academic skills, such as naming letters and numbers (Barbarin et al., 2008; Harradine & Clifford, 1996; West et al., 1995). Several studies have shown that parents and teachers have different views of school readiness, with parents placing more emphasis on academic skills, such as knowing letters and numbers, in comparison to kindergarten teachers who place more emphasis on social and emotional development (Haines, Fowler, Schwartz, Kottwitz, & Rosenhoetter, 1989; Harradine & Clifford, 1996). These differing parent-teacher beliefs are most pronounced when parents are from low-income homes (Piotrkowski, 2004; Piotrkowski, Botsko, & Mathews, 2000) and have had less formal education (West et al., 1995).

Parents' readiness beliefs may be influenced by their social or cultural contexts (Graue, 1993; West et al., 1995). Graue's (1993) ethnographic study found that working class parents living in a small rural community were more likely to base school readiness beliefs and expectations on their own kindergarten experiences, where identifying the children's elementary school entrance date was parents' most important school-related activity. In contrast, the more affluent parents in the community were active data collectors who held and utilized highly developed ideas about educational practices and school readiness issues, based on information gathered from conversations within their social network of teachers, school administrators, and parents.

Using data from the National Household Education Survey, West et al. (1995) examined how parents' readiness beliefs were associated with sociodemographic characteristics. The National Household Education Survey included seven school readiness-related questions focused on behavioral and pre-academic tasks. These questions asked parents to rate on a 5-point Likert scale how important it is for the child to be able to take turns and share, communicate needs, be curious about approaching new activities, sit still and pay attention, know the letters of the alphabet, count to 20, and be able to use pencils and paint brushes before entering kindergarten. Chi-square analyses indicated that parents with lower levels of formal education placed greater emphasis on school readiness attributes such as sitting still and paying attention, counting, knowing the alphabet, and using pencils in comparison to parents with higher levels of formal education. Diamond, Reagan and Bandyk (2000) also analyzed the NHES data to examine the relationship between parents' conceptions of readiness to race, ethnicity, and development. Using principal component analysis, the authors developed a unitary construct representing parents' conceptions of school readiness. Comparison of mean factor scores revealed that all

parents, regardless of race or ethnicity, placed relatively high levels of importance on children displaying certain skills and attributes prior to kindergarten.

These studies contribute to the literature by offering some insight into parents' conceptions of school readiness. Overall, the studies suggest that all parents have concerns about their child's transition to elementary school. There is some evidence that parents' school readiness beliefs are linked to one's social and cultural contexts, yet the evidence is inconclusive. Although the literature around parents' current school readiness views is limited (Barbarin et al., 2008), there are a handful of studies which examine the relationship between parents' school readiness beliefs or expectations for mastery of developmental tasks, and children's early academic outcomes. This research is reviewed next.

Parents' expectations for mastery of early developmental skills have also been shown to be related to later achievement (Hess et al., 1984; Hess et al., 1980). In a longitudinal study examining the predictive relationship between maternal characteristics and academic performance within a small sample of European American families, Hess et al. (1984) found that developmental expectations and maternal behaviors were related to measures of school readiness and sixth grade achievement. The measure of maternal developmental expectations was a composite score based upon items from a developmental expectation questionnaire that asked mothers to rate the age range during which their child would master types of developmental tasks (e.g., take care of own clothes, help with household tasks, eat at table), and acquire school-relevant skills (e.g., tell time up to a quarter of an hour), predict their child's educational and occupational status as an adult, and specify concerns about hypothetical challenges their child may have in school. Measures of maternal behaviors assessed at the onset of the study focused on teaching and communication style, as well as affective interaction between mother and child.

School readiness assessments were administered to children ages 5 and 6 and measured knowledge in the areas of reading and mathematics. When the children were 12 years old, they took the vocabulary and mathematics concepts subtest of the Iowa Tests of Basic Skills (ITBS). Results from regression analyses indicated that maternal expectations for achievement and behaviors (specifically, communication and the use of descriptors during play) assessed during the preschool years were positively related to measures of school readiness. Measures of maternal teaching style, communication, affective tone, and maternal expectations continued to predict children's later performance.

Using data from 452 children participating in a public pre-kindergarten program, Barbarin et al. (2008) examined the relationship between parents' conceptions of school readiness, race and ethnicity, socioeconomic status, and kindergarten outcomes. In order to ascertain parents' conceptions of school readiness, the authors asked the following questions in an open-interview process: (a) In your opinion, what must your child know or be able to do by the time she or he starts school in kindergarten?; (b) What knowledge or ability must a child possess to be ready for school? The authors used content analysis to develop the following response clusters of parents' school readiness beliefs: (a) nominal knowledge (the ability to name objects, letters, colors, and numbers); (b) inferential reasoning (higher order thinking skills); (c) independence (the capacity for self-care and autonomy); (d) motor skills (the ability to engage in activities that require fine and gross motor skills); (e) language/early literacy (skilled use of language and emergent literacy, e.g., use vocabulary, link letters to sounds, read; (f) numeracy (beginning skills in mathematics, e.g., add, subtract, and count money); (g) social competence (the ability of a child to develop positive relationships with peers and adult caregivers); (h) self-regulation (the capacity of the child to comply with behavioral expectations of the school); and

(i) general knowledge (information that the child needs for problem solving, self-identification, and handling situations when away from home, e.g., knowledge of name, age, and home address).

Frequency analyses revealed that parents conceived of readiness largely in terms of nominal knowledge, followed by language/early literacy, with inferential skills rarely mentioned. Chi-square analyses indicated no significant association between parents' readiness beliefs and poverty status. There were significant differences by parental employment status. In general, employed parents placed more importance on school readiness and were more likely to cite inferential reasoning as an important readiness trait in comparison to non-employed parents. There were also statistically significant differences in parents' beliefs in the areas of social competence and self-regulation. In general, African American parents placed less emphasis on social competence and self-regulation in comparison to European Americans and Hispanic, but these differences were only significant for low-income parents. Correlations between parents' readiness beliefs and child outcomes indicated that parents who believed numeracy and general knowledge to be important school readiness attributes had children with greater knowledge of letters, numbers, and colors, while parents who emphasized inferential skills had children with greater vocabularies, phonemic awareness, and applied problem solving skills.

How do parents' beliefs about schooling influence home-based parental involvement? In a recent study, Barnett and Taylor (2009) examined the relationship between parents' previous schooling experiences and current kindergarten transition practices with a sample of 79 mothers from a diverse community using structured interviews. Mothers' recollections were of their own experiences with schools, teachers, and peers as well as their parents' school involvement. The mothers' statements were coded for emotional positivity or negativity. Transition practices were

operationalized as academic-oriented activities, such as reading to the child or saying the alphabet. Using multiple linear regression techniques, the authors found that parents who had positive recollections of their parents' school involvement engaged in more transition practices, while accounting for parental income, self-esteem, and self-efficacy constant.

Sy and Schulenberg (2005) tested a mediating model which hypothesized that parental beliefs and expectations influence measures of parental involvement which, influence children's achievement over time in European American and Asian American families using latent growth curve modeling. Using data drawn from the ECLS-K data set, the authors developed latent constructs representing parental beliefs, expectations, and involvement. The construct representing parental beliefs included three measures that assessed the importance parents placed on children's early academics, such as knowing the alphabet, counting, and using writing materials. The parents' educational expectations factor consisted of one measure which asked parents about the highest level of education they expected their child to attain. Parent involvement was divided into two categories: in-the-home and outside-of-the-home involvement. The constructs representing parent involvement in the home included creating a home literacy environment and setting rules for watching television. The home literacy environment construct was made up of two measures that assessed the frequency that parents read and told stories to the child. One indicator variable was used to develop the construct representing family rules for television viewing. Parent involvement outside of the home was divided into two categories: school participation and educational activities outside of the home. The construct representing school participation included three indicator variables that measured the number of times parents volunteered in the classroom, attended open house night, participated in back-to-school events, or attended general school events. Educational activities outside of the home were based on

three measures asking if parents took the child to the zoo, aquarium or petting farm, library, museum, art gallery, or historical site. The model tested the theory that parents' beliefs and expectations influenced measures of parental involvement, which in turn, influenced children's achievement.

Results indicated that Asian American parents had higher mean beliefs and expectation scores in comparison to European American parents. Analysis of the multigroup model indicated that European American parents' beliefs had a positive influence on home literacy activities, television viewing rules, and school participation. Asian American and European American parents' educational expectations had a positive influence on home literacy activities, television rules, and educational activities, while the relationship between expectations and parents' school participation varied. There was a significant negative relationship between educational expectations and school involvement for Asian American parents, in contrast to the significant positive association found for European American parents.

Measures of parental involvement were positively related to European American and Asian American children's achievement. Home literacy activities had a significant positive relationship with children's beginning reading achievement in kindergarten and growth through the first grade. There was also a positive relationship between home literacy activities and mathematics achievement in kindergarten, but a negative relationship with growth. In addition, there was a significant positive relationship between school participation and reading or mathematics growth over time. There was no statistically significant relationship between educational activities outside of the home and children's reading or mathematic growth in kindergarten. Overall, parental beliefs were positively related to parental involvement, more

specifically home literacy and school participation, which in turn had a positive influence on European American and Asian American children's academic achievement.

Although our knowledge about parents' current views of readiness is somewhat limited (Barbarin et al., 2008), these studies contribute to the literature in several important ways. The findings reveal that parents do hold certain beliefs and expectations about children's readiness for school. There is also some evidence that parents' conceptions of school readiness vary by social and cultural contexts, yet these findings are inconclusive. Although much of the research is based upon analyses of large-scale secondary data, it has been argued that survey questions may fail to capture parents' nuanced ideas around school readiness (Diamond et al., 2000). Barbarin et al. (2008) used open-ended interview questions, which allowed parents to share their conceptions of readiness in contrast to simply answering survey questions. Results from the content analysis confirmed previous findings which suggest that parents placed greater emphasis on nominal knowledge, such as knowing the letters of the alphabet and counting, in comparison to other areas of school readiness (Harradine & Clifford, 1996; Piotrkowski et al., 2000; West et al., 1995). Therefore, one could argue there is some evidence that survey instruments are somewhat valid measures of parents' school readiness beliefs.

The studies reviewed thus far have significance for parents of young children transitioning to elementary school. There was some evidence to suggest that parents' conceptions of school readiness are positively related to children's early academic achievement. In addition, there was some initial evidence to support the idea that parental beliefs and expectations are positively related to parental involvement (operationalized as the home literacy environment, school participation, and educational activities outside of the home), which then influences European American and Asian American children's early academic achievement.

However, additional research is warranted to examine these relationships in other populations of interest.

The studies reviewed have several limitations, some of which are related to generalizability or methodological issues. The Hess et al. (1984) study examined the relationship between parents' expectations for early developmental skills and academic achievement drawing upon a small and select sample of European American children; therefore, the findings could not be generalized to a larger population. Although the Barbarin et al. (2008) findings were based on a larger and more diverse sample in comparison to the study conducted by Hess et al. (1984), there were still issues of generalizability. The study sample was drawn from participants of a publicly funded pre-kindergarten program in several states and the authors reported that there were a disproportionate number of low-income parents in the sample. Thererfore, findings from the Barbarin et al. (2008) study can only be generalized to parents participating in publicly funded pre-kindergarten programs. Methodologically, the study conducted by Barbarin et al. (2008) provided a more nuanced understanding of parental conceptions of school readiness; however, the study uses correlation methods to estimate the relationship between parents' conceptions of school readiness and child outcomes. The use of correlation allows the investigator to analyze the association between parent beliefs and child outcomes, but does not control confounding variables or estimate the relative contribution of predictors, as is the case in standard linear regression. Although the studies could not generalize their findings to the larger national population, they do offer initial insight about the relationship between parents' school readiness-related beliefs and children's academic outcomes in elementary school.

The study conducted by Sy and Schulenberg (2005) employed sophisticated modeling techniques to analyze the relationship between parental beliefs, involvement, and early academic achievement based on a nationally representative sample of European American and Asian American children in the United States. Therefore, the findings from the study have greater generalizability. There were, however, several methodological issues. For example, the ECLS-K study used a multistage sampling design where children are clustered within schools, schools are clustered within strata, and strata are clustered within primary sampling units. The researchers, however, did not address the hierarchical nature of the data, which may result in biased estimates. Second, all of the latent exogenous factors (predictors) were comprised of ordinal variables, yet the authors treated them as continuous variables instead of using a continuous/categorical variable methodology (CVM) as described by Muthén (1984). Failure to treat categorical/ordinal data appropriately may also result in biased parameter estimates. Finally, the study does not include any formal tests of mediation, so there are no estimates of direct, indirect, or total effects available. Despite the methodological shortcomings, this study illustrates the ways in which a mediating model can be used to examine the complex relationship between parental beliefs, parental involvement, and children's achievement over time.

It is broadly assumed that parents' school readiness beliefs influence parenting practices, and ultimately children's academic achievement. Research, however, has not provided clear and strong support for this pathway (Barbarin et al., 2008; Graue, 1992; Murphey, 1992; West et al., 1995). Establishing a link between parents' school readiness beliefs and transition practices may help us understand additional factors contributing to the academic achievement gap and may ultimately help us highlight potential targets for interventions. This study fills a gap in the literature and builds upon previous research by using a nationally representative data set to

examine the relationship between parents' conceptions of school readiness, transition practices, and children's academic achievement during the transition to elementary school. The study tests the theory that parents' conceptions of school readiness influence parents' transition practices, and therefore influence children's academic achievement trajectories. The study also explores the ways in which parents' socioeconomic and cultural contexts shape academic socialization as a possible explanation for the early academic achievement gap.

In this study, academic socialization is conceptualized as parents' school readiness beliefs and transition practices designed to prepare children for school. Parents' school readiness beliefs are operationalized as the importance parents place on a child mastering developmental skills, such as knowing letters of the alphabet, counting, and communicating as well as the importance placed on displaying social skills, such as sharing and being calm. Transition practices are operationalized as targeted interactive parent-child learning experiences in the home which are designed to support children's successful transition to elementary school. Academic achievement is measured in domains of reading, mathematics, and general knowledge during kindergarten and first grade. The conceptual model tested in this study is illustrated in Figure 1. The model suggests that parents' school readiness beliefs influence parents' transition practices and children's academic achievement. The model also suggests that parents' transition practices mediate the relationship between parents' conceptions of school readiness and children's academic achievement. Finally, the model proposes that parents' conceptions of school readiness and transition practices are influenced by one's race, ethnicity, and socioeconomic status.

Purpose of Study

The purpose of the current study is to examine the relationship among parents' school readiness beliefs, transition practices, and children's academic performance over time. The first task is to describe variation within parents' readiness beliefs, transition practices, and children's academic achievement by socioeconomic status and race/ethnicity. The first set of research questions are as follows.

1. Do parents' school readiness beliefs vary by socioeconomic status and race/ethnicity?
2. Do parents' transition practices vary by socioeconomic status and race/ethnicity?
3. Do children's academic achievement trajectories vary by socioeconomic status and race/ethnicity?

The second task is to examine the degree to which parents' readiness beliefs and transition practices influence children's academic achievement trajectories. This was accomplished by estimating the direct and indirect effects of parents' readiness beliefs and transition practices on children's academic performance trajectories. The second set of research questions are as follows.

4. To what extent do parents' school readiness beliefs influence children's academic achievement upon kindergarten entry and over time?
5. To what extent do parents' transition practices influence children's academic achievement upon kindergarten entry and over time?
6. To what extent do parents' transition practices mediate the relation between parents' school readiness beliefs and children's academic achievement upon kindergarten entry and over time?

Several studies have examined differences in parents' readiness beliefs by sociodemographic characteristics, and findings are inconclusive (Barbarin et al., 2008; Diamond et al., 2000; Graue, 1993b; West et al., 1995). I expected parents' readiness beliefs to vary by sociodemographic characteristics. It is hypothesized that socioeconomic status will be positively related to parents' school readiness beliefs. That is, more affluent parents will place greater emphasis on children's school readiness skills and attributes. It is also hypothesized that European American parents will place greater emphasis on school readiness skills and attributes in comparison to African American and Hispanic parents.

Consistent with previous research, it is hypothesized that parents' transition practices will vary by sociodemographic characteristics (Brooks-Gunn & Markman, 2005; Phillips, 2011). It is hypothesized that socioeconomic status will be positively related to parents' transition practices. In other words, affluent parents will report engaging in more transition practices. It is also hypothesized that European American parents will report engaging in greater amounts of transition practices in comparison to African American and Hispanic parents.

Based upon previous findings, children's beginning knowledge (Coley, 2002; Lee & Burkham, 2002; Zill & West, 2001) and growth over time is expected to vary by sociodemographic characteristics (Bodovski & Farkas, 2007; Fryer & Levitt, 2004; Reardon, 2011; Reardon & Gallindo, 2009; Reardon & Robinson, 2008). It is hypothesized that socioeconomic status will exert a strong positive influence on children's beginning achievement and growth over time. Children from more affluent homes will begin school with higher achievement scores and experience more rapid academic growth. It is also hypothesized that European American children will have higher beginning achievement scores and greater rates of growth in comparison to African American and Hispanic children.

Consistent with previous research examining the relationship between parents' beliefs and expectations on children's academic performance (Barbarin et al., 2008; Hess et al., 1984), parents' readiness beliefs are expected to be positively related to children's academic achievement upon kindergarten entry and over time. It is hypothesized that readiness beliefs will exert a positive influence on children's beginning knowledge and rate of academic growth. It is also hypothesized that parents' school readiness beliefs will exert a stronger influence on children's beginning knowledge in comparison to the influence exerted on academic growth over time. Based on the home environment and parent involvement literature it is hypothesized that parents' transition practices will be related to children's achievement trajectories. It is hypothesized that parents' transition practices will be positively related to children's kindergarten achievement and rates of academic growth.

Given the shortage of empirical studies which use mediating models to investigate parents' conceptions of school readiness and their relative impact on transition practices and children's achievement, analyses investigating these relationships in this study are somewhat exploratory and hypotheses are based on logical assumptions. It seems reasonable to argue that the degree to which parents emphasize school readiness skills and attributes will influence their use of transition practices, which in turn influence children's early academic achievement. It is hypothesized that parents' transition practices will mediate the relationship between parents' beliefs and children's academic achievement in kindergarten and over time. The indirect effect of parents' readiness beliefs on children's achievement will exert greater influence on children's beginning knowledge in comparison to the influence exerted on academic growth over time.

CHAPTER 3

METHODS

Data Source and Sample

The sample for this study consisted of a subset of children and parents who participated in the Early Childhood Longitudinal Study-Kindergarten cohort (ECLS-K), which was developed under the sponsorship of the U.S. Department of Education, National Center for Education Statistics (National Center for Education Statistics, 2000). The design of the ECLS-K was guided by an ecological framework of children's development and schooling that emphasizes the interrelationships between child, family, school, and community (NCES, 2000). This multisource, multi-method study includes interviews with parents, teachers, school administrations, and direct child assessments in the cognitive, psychosocial, and physical domains. The ECLS-K data set allows researchers to analyze the complex relationships between children's early learning and school experiences and compare them to later elementary school performance.

The ECLS-K study used a multistage probability sample design to select a nationally representative sample of children attending kindergarten in 1998-1999. In the base year children were selected for the ECLS-K study using a multistage probability design. During the first stage of sampling, counties or groups of counties were selected with probability proportional to size. The primary sampling unit (PSU) measure of size was based on the number of 5 year old children in a county, with a slight modification to facilitate the oversampling of children from Asian/Pacific Islander heritage. This procedure resulted in a total of 100 primary sampling units.

The second stage of sampling involved selecting private and public schools that offered kindergarten programs. For each PSU, a frame of public and private schools offering kindergarten programs was constructed using existing school universe files. The selection of

schools was systematic, with probability proportional to a weighted measure of size based on the number of kindergartners enrolled in the school. As with the PSU sample, the measure of size was constructed by taking into account the desired oversampling of Asian and Pacific Islander children. Public and private schools constituted distinct sampling strata. In total, 1,280 schools were sampled for the original frame. Of these, 953 were public schools and 460 were private schools.

The third stage of sampling involved the selection of children within sampled schools. From each school, an independent sampling stratum was formed within each school based on a complete roster of enrolled children. One stratum contained Asian and Pacific Islander children, and the second, all other students. Within each stratum, students were selected using equal probability systematic sampling, using a higher rate for the stratum with Asian and Pacific Islander children. In general, the target number of children sampled at any one school was 24. Once the sampled child was identified, parent contact information was obtained from the school in order to gain consent for the child assessment and parent interview.

The ECLS-K spring first grade data collection targeted all base year respondents. While all students still enrolled in their base year schools were re-contacted, only 50% of children who transferred from their kindergarten school were followed for data collection. The spring first grade sample was freshened to include current first graders who had not been enrolled in kindergarten during 1998-1999, and therefore, had no chance of being included in the base year kindergarten sample. This freshening process used a half-open interval sampling procedure which was implemented in the same 50% subsample of ECLS-K base year schools where transfer students were followed for data collection. This process added 133 schools to the second stage of sampling and 165 first grade students in the ECLS-K sample. This resulted in a

sample of 18,249 children. As a result of the complex sampling design, claims made about the national kindergarten population of 1998 and first grade population of 1999 as a whole from this data set require the use of a sample weight.

Criteria for Selecting Data File Sample

A subsample of children was selected for the present study. Since the focus of the study is on the achievement gap between historically underachieving children and their more affluent European American counterparts in kindergarten, only children of African American, Hispanic, and European American racial and ethnic heritage were included. The present study made use of cognitive assessments in reading, mathematics, and general knowledge in the fall of kindergarten in 1998, the spring of kindergarten in 1999, and the spring of first grade in 2000, in addition to parent interview data collected during the fall of kindergarten.

The analytic sample was selected based on several steps. First, children who were of European American, African American, or Hispanic racial/ethnic heritage were selected. This resulted in a sample size of 15,913. Second, children who were assigned a weight of zero in the ECLS-K data set due to missing cognitive, psychosocial, and physical assessment data during one of the data collection periods were excluded from the sample. This step resulted in a sample of 13,130 children.

Instruments

Data for the ECLS-K were collected from a variety of sources. These included direct assessments of students, parent/guardian interviews, and teacher and school administrator surveys. This study uses data drawn from child assessments collected in the fall and spring of kindergarten and spring of first grade, as well as parent interview data collected in the base year. Although direct child assessments were collected at four points, from kindergarten through the

first grade, the fall of first grade assessments were limited to a 30% subsample and inclusion of this data would limit the sample size to 30% of the original sample. Therefore, data from third wave of data collection was excluded from this analysis. The instruments, data collection processes, and measures are described below.

Direct child assessments. Direct one-on-one child assessments were conducted in the cognitive, psychomotor, and physical domains. The ECLS-K cognitive battery consisted of questions in three subject areas: language and literacy, mathematical thinking, and general knowledge. Prior to administering the cognitive assessment battery in the fall of the base year, a language screening assessment was administered to students identified by their school records or teacher as coming from a home in which English was not the primary language. The Oral Language Development Scale (OLDS) was given to those children who had a non-English language background. The language screener determined if the children understood English well enough to receive the direct child assessments in English. Children who passed the OLDS screening received the full direct battery of assessments, while children who spoke Spanish were administered the Spanish translation form of the mathematics and psychomotor assessments, and an alternate form of the OLDS.

The direct cognitive assessments consisted of a set of two-stage assessments. The first stage consisted of a routing section for each subject area, and was followed by several alternative second-stage forms depending on the child's performance on the first stage assessment. The routing sections consist of 12 to 20 items with a broad range of difficulty. The second-stage forms varied by level of difficulty so that a child would be administered questions appropriate to his or her current level of ability for each cognitive domain. The reading and mathematics

assessments had low, medium, and high difficulty second-stage options, while the general knowledge assessment had two second-stage alternatives.

The cognitive assessment scores were equated with Item Response Theory (IRT). IRT made it possible to calculate scores that could be compared regardless of which second-stage form a child took. This scaling method places children's scores on a continuous ability scale using items from the routing test, plus a core set of items shared among the different second-stage forms. This process estimates the score a child would have achieved if all of the items on all forms of the test had been administered (NCES, 2000)

Parent/guardian interview. The majority of parents participating in the base year data collection were interviewed in the fall of 1998 and again in the spring of 1999. Parents or guardians were asked to provide important information about the sampled child, the home environment, parent expectations and behaviors, and family characteristics by using a computer-assisted telephone interview or a computer-assisted personal interview for families without a telephone. Typically, the respondent for the parent interview was the mother of the child; however, the respondent could have been a father, adoptive parent, foster parent, grandparent, another relative, or a non-relative guardian living in the household with the child. Preference for respondents was given to the child's mother, then another parent or guardian, followed by another household member.

The parent interview was conducted primarily in English, but provisions were made to interview parents who spoke other languages. The questionnaire was translated into Spanish, which was then printed on hardcopy. Bilingual interviewers were trained to conduct the parent interview in either English or Spanish. If the interview was conducted in Spanish, the

interviewer used the hardcopy questionnaire and then entered respondents' answers in the computer-assisted interview program.

Measures

Child outcome indicators.

Reading. The language and literacy (reading) assessment measured children's basic literacy skills which include print familiarity, letter recognition, beginning and ending sounds of a word, rhyming, word recognition, receptive vocabulary, and comprehension, which includes listening comprehension and understanding words in context. Comprehension items were targeted to measure skills in initial understanding, developing interpretation, personal reflection, and demonstrating critical stance. Reliability estimates for the reading assessments were .93 in the fall of kindergarten, .95 in the spring of kindergarten, and .97 for the spring of first grade (NCES, 2000).

Mathematics. The mathematics assessment items were designed to measure conceptual and procedural knowledge as well as problem solving skills. Approximately one half of the test consisted of questions focusing on number sense, number properties, and operations, while the remainder addressed understanding patterns and number relationships as well as formulating conjectures and identifying solutions. Reliability estimates for the mathematics assessments were .92 in the fall of kindergarten, .94 in the spring of kindergarten, and .94 for the spring of first grade (NCES, 2000).

General knowledge. The general knowledge assessment measured understanding of social studies and science content. The items captured information on children's conceptions of the social, physical, and natural world, as well as their ability to draw inferences and comprehend implications. The social studies subdomain included questions which measured children's

knowledge in a wide range of disciplines including history, government, culture, geography, economics, and law. The science subdomain included questions from the fields of life, earth, space, and physical science. Reliability estimates for the general knowledge assessments were .88 in the fall of kindergarten, .89 in the spring of kindergarten, and .89 for the spring of first grade (NCES, 2000).

Parental beliefs and practices.

Parents' school readiness beliefs. Development of the parents' school readiness beliefs construct was guided by empirical research. According to previous research, parents of young children hold certain beliefs about school readiness (Barbarin et al., 2008; Diamond et al., 2000; Graue, 1993), as well as expectations for mastery of developmental milestones (Hess et al., 1984; Hess et al., 1980). The latent construct representing parents' school readiness beliefs was comprised of seven measures that asked parents to rate the importance of a child exhibiting specific academic skills and behavioral attributes before entering kindergarten. For example, questions measuring the importance parents placed on academic skills focused on counting, knowing the alphabet, and drawing before entering kindergarten (e.g., How important do you think it is that a child knows the letters of the alphabet before going to kindergarten?). Questions measuring the importance parents placed on behavioral attributes focused on being calm, sharing, and communicating. Parents were asked to respond to each prompt using a 5-point Likert-type scale, which was coded into five categories with scores in parentheses: (1) not important, (2) not very important, (3) somewhat important, (4) very important, and (5) essential. Cronbach's alpha for the six school readiness beliefs items was .77.

Parents' transition practices. The latent construct representing parents' transition practices was based on theory as well as empirical research. According to Vygotsky (1978) and

Wertsch (1979), children develop through interaction and dialogue with adults such as parents, teachers, or older siblings. Through engagement in challenging activities and play with a more knowledgeable other, children will perform activities successfully (Vygotsky, 1978; Wertsch, 1979). Empirical studies also indicate that engaging children with interactive learning opportunities improves children's cognitive outcomes (Senechal & Young, 2008). Interactive learning opportunities or helping interactions (Scott-Jones, 1995) during early childhood are conceptualized as transition practices. This construct was comprised of eight variables measuring the frequency of targeted interactive parent-child learning activities in the home. Parents responded to prompts that asked about the frequency in which they engaged their child in a variety of interactive activities that included: reading, telling stories, singing songs, playing games, playing sports, teaching about nature, making art, and building things together. The coding scheme for these measures was divided into four categories with scores in parentheses: (1) not at all, (2) once or twice a week, (3) 3 to 6 times a week, and (4) everyday. Cronbach's alpha for the eight transition practice items was .72.

Covariates.

Socioeconomic status. Family socioeconomic status (SES) was a composite variable available in the ECLS-K data set. The components used to create the SES composite were: (a) father/male guardian's level of education; (b) mother/female guardian's level of education; (c) father/male guardian's occupation; (d) mother/female guardian's occupation; and (e) household income. Occupation was re-coded to reflect the average of the 1989 General Social Science Survey (GSS) prestige score. This was computed as the average of the corresponding prestige score for the 1980 Census occupational categories covered by the ECLS-K occupation variable

(NCES, 2000). The resulting composite was the average of the five measures, each of which was standardized to have a mean of 0 and a standard deviation of 1 (NCES, 2000).

Child's race and ethnicity. The parent/guardian reported the child's race during the baseline parent interview. The categories for this variable included: European American, non-Hispanic; African American, non-Hispanic; Hispanic, race specified; Hispanic, no race specified; Asian; Native Hawaiian or other Pacific Islander; American Indian or Alaska Native and more than one race specified, non-Hispanic. Categories for Hispanic, race specified and Hispanic, no race specified were combined into one category, and American Indian or Alaska Native with more than one race specified, non-Hispanic were combined into another category, resulting in five categories: European American, African American, Hispanic, Asian American (Asian), and other. A final race/ethnicity category was created with the following categories: European American, African American, and Hispanic racial or ethnic heritage. Dummy variables were created with European American as the reference category.

Data Analytic Strategy

The statistical analysis technique used to test hypotheses was latent growth curve modeling (LGCM), which falls within the broad family of structural equation modeling (SEM). Latent growth curve models allow the researcher to model change over time by estimating individual growth trajectories as latent intercept and slope factors across the sample while including predictors of change (Duncan, Duncan, & Stryker, 2010; Singer & Willet, 2003). This technique is therefore aligned with the study's purpose, which is to describe and predict change in children's academic achievement during the transition to elementary school. The LGCM for this study used raw data analyzed in Mplus version 5 with a mean and covariance structure (Muthén & Muthén, 1998-2007). Descriptive analyses were conducted using Stata 11

(StataCorp., 2009). Means and standard deviations were computed for continuous variables and frequencies were computed for ordinal variables.

There are several aspects of SEM which made it a particularly advantageous statistical technique for this analysis. First, SEM takes a confirmatory or hypothesis-testing approach to the analysis of a structural theory bearing on some phenomenon (Byrne, 2011). Since the pattern of relations was specified a priori, SEM lends itself well to the analysis of data for inferential purposes. Second, SEM provides estimates of error variance parameters, which allows for the assessment and correction of measurement error in contrast to traditional multivariate procedures (Kline, 2011; Raykov & Marcoulides, 2006). Finally, SEM is also capable of testing theoretical models known as *structural regression models* which test relationships between unobservable constructs, termed *latent* variables (Kline, 2011; Raykov & Marcoulides, 2006). These characteristics of SEM make this statistical technique aligned with the study's purpose, which aims to examine the relationship between several latent constructs (i.e., parents' readiness beliefs and transition practices, and children's achievement trajectories).

The full structural equation model is comprised of two parts, the measurement model (or factor analytic model) and the structural model (Kline, 2011; Raykov & Marcoulides, 2006). The measurement model focuses solely on the extent that *observed* variables are linked to their underlying latent factors by analyzing the covariation among the set of observed variables for a latent construct (Kline, 2011; Raykov & Marcoulides, 2006). The measurement model uses a confirmatory rather than an exploratory factor analysis approach, implying that latent constructs are based on knowledge of a theory, empirical research, or both. The relations between observed measures and underlying constructs that are represented by *factor loadings* (i.e., regression

paths) must be postulated a priori. The squared factor loading represents the percent of variance in the observed variable explained by the latent variable.

The structural model allows for the specification of a regression structure among the latent variables (Kline, 2011; Raykov & Marcoulides, 2006). In other words, one can hypothesize the impact of one latent variable on another in the modeling of causal direction. The measurement model depicts the link between the latent variables and their observed measures, while the structural model depicts the predictive relationship among latent variables themselves. The full structural model is capable of simultaneously assessing the magnitude and significance of relations among exogenous (i.e., predictors) and endogenous (i.e., mediators and outcomes) variables in the model which are represented by a series of structural (i.e., regression) equations.

Structural equation models are schematically portrayed using particular configurations of four geometric symbols: a circle, square, single-headed arrows, and double-headed arrows (Kline, 2011; Raykov & Marcoulides, 2006). By convention, circles or ellipses represent unobserved latent variables or factors, and squares or rectangles represent observed variables (Kline, 2011; Raykov & Marcoulides, 2006). Single-headed arrows represent the impact of one variable on another, while a double-headed arrow represents covariance or correlation between pairs of variables (Kline, 2011; Raykov & Marcoulides, 2006). The schematic representation of a model under study is represented by a *path diagram*, which is equivalent to the mathematical representation whereby a set of equations relates endogenous (dependent) variables to their exogenous (explanatory) variables.

Estimation

In accordance with Kline (2011) and Raykov and Marcoullides (2006) the latent growth curve model was tested in several steps in order to identify sources of potential problems. The

first step involved estimating the measurement model, which includes the unconditional growth model, whereas the second stage involved estimating the full structural model. Estimation and determination of the fit for both the measurement model and the full structural model involved the same considerations; therefore, these are outlined first.

The ECLS-K data was collected using a stratified cluster sample design in order to obtain a nationally representative sample of the population of kindergarten students in 1998-1999. Without accounting for this sampling design, design effects may occur that decrease the accuracy of estimates. To account for this design, unbiased estimates and standard errors can be calculated in Mplus version 5 (Muthén & Muthén, 1998-2007) with sample design information, which was provided in the ECLS-K data set via cluster, strata, and weight variables. Therefore, all analyses, including descriptive and latent growth curve models, took into account the sample design by employing the stratum, cluster, and child panel weights (necessary for longitudinal study). Use of the sample weight allowed a generalization of the findings to African American, Hispanic, and European American children who entered kindergarten in 1998-1999 and first grade children in 1999-2000.

Another important consideration is the scale of observed variables in the model. The current study includes ordinal and continuous variables; therefore, a continuous/categorical variable methodology (CVM) as described by Muthén (1984) must be utilized. This approach allows for the estimation of models with any combination of dichotomous, ordinal, or continuous variables (Kline, 2011). In CVM, bivariate associations among observed variables are estimated with polychloric correlations, which assume that a normal, continuous process underlies each observed variable (Flora & Curran, 2004). The CVM approach described by Muthén and Asparouhov (2002) is implemented in Mplus version 5 by specifying the mean and variance

adjusted weighted least square (WLSMV) estimator. The WLSMV is a robust estimator which accounts for issues of non-normality and non-independence in the data (Kline, 2011).

Missing data is almost always an issue in longitudinal studies (Singer & Willet, 2003). Failure to appropriately address missing data in longitudinal research can substantially reduce the sample size and compromise the accuracy of model fit and parameter estimates (Newman, 2003). Table 1 presents the proportion of missing data for all variables in the models. All models are estimated with the WLSMV estimator which uses a combination of full information likelihood method and pairwise present method to handle missing data.

Based on recommendations from Kline (2005) and Hancock and Mueller (2010), model fit was evaluated using several indicators to assess the goodness-of-fit of hypothesized models: Chi-square goodness-of-fit index, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Squared Error of Approximation (RMSEA). A non-significant Chi-square value indicates adequate model fit, however, this value can be very sensitive to large sample sizes (Kline, 2011) and is viewed by most as overly strict given its power to detect even trivial deviations of data from the proposed model (Mueller & Hancock, 2010). RMSEA values less than .05 indicate good fit, values greater than .05 and less than .08 indicate reasonable fit, values between .08 and .10 indicate mediocre fit, and values greater than .10 indicate poor fit (Browne & Cudeck, 1993). CFI and TLI values greater than .95 signify a good fit (Hu & Bentler, 1999).

Measurement Model

The measurement models in Figures 2-4 represent the following latent constructs: parents' school readiness beliefs, parents' transition practices, latent intercept, and latent slope. In the figures, squares represent observed variables and ellipses represent latent constructs. The single-headed arrows or paths represent the effect of one variable on another while the double-

headed arrows represent a correlation or covariation between variables. Although these are all latent constructs there were important differences in terms of identification due to differences in the measurement of observed variables as well as scaling procedures. The discussion of identification begins with parents' readiness beliefs and transition practices as they required similar treatment.

Identification of latent variables requires that the researcher identify observed variables and link these variables to the observed construct. Latent variables are unobserved and therefore have no definite metric scale. Therefore, the researcher must fix one unstandardized factor loading for the direct effect on an observed variable equal to 1.0; this is referred to as the *reference variable* scaling method (Kline, 2011). The indicator with the unit loading identification (ULI) is referred to as the *reference variable*. Specifying a reference variable assigns a scale to the factor which is related to the explained variance of the reference variable (Kline, 2011).

Figures 2-4 display the path diagrams, representing the measurement models under study. Parents' readiness beliefs, was comprised of six observed ordinal variables, while transition practices was comprised of eight observed ordinal variables. The parents' readiness beliefs factor has a reference variable represented by the numeral 1 that appears next to the path coefficient for the direct effect of the readiness belief factor on the importance of knowing the alphabet indicator. The frequency of a parent reading to child is the reference variable for the transition practices factor.

Modeling change or growth requires that the continuous dependent variable be measured on at least three occasions; scores have the same units across time and can be said to measure the same construct (achievement) at each assessment; and data must be time structured, that is, cases

are all tested at the same intervals. The ECLS-K direct child assessments in reading, mathematics, and general knowledge met all of those requirements. Each observation or measurement is represented as an indicator of two latent growth factors, the intercept (initial status) and slope factor (linear change) (Kline, 2011; Singer & Willet, 2003). The intercept factor represents the baseline level of achievement (kindergarten achievement) corrected for measurement error. Because the intercept is analogous to the intercept in a regression equation, the unstandardized loadings on this factor are all fixed to 1 (Kline, 2011; Singer & Willet, 2003). The loadings on the slope factor are fixed to constants which correspond to times of measurement or the approximate intervals at which data were collected across the two years under study, excluding wave 3 which is a 30% subsample. This specification depicted in Figures 2-4 begin with 0 for the first measurement and end with 3, which is consistent with other research analyzing latent growth curve models using academic achievement data from ECLS-K (e.g., Sy & Shulenberg, 2005). The specification depicts a linear trend and can be interpreted as change per year.

The means of the intercept and slope factors in this model are free parameters. The mean of the intercept factor represents the average achievement adjusted for measurement error for the whole sample of students in the fall of kindergarten 1998. The variance of the intercept factor represents the amount of variation there was in achievement of individual children at wave 1. The mean of the slope factor represents the average rate of change in achievement each year for the entire sample of students. The variance of the slope factor indicates the amount of variation for individual students' growth each year. The change model allows the intercept and slope factors to covary which is illustrated by the double arrow between the two factors. Finally, the

measurement model as a whole contains all four latent factors under study, and as such they are correlated with each other and this is illustrated by double arrows between each factor.

Full Structural Model

The full structural model, also known as the structural regression model, included the measurement model with specific tests of hypotheses about effect (Kline, 2011). Figures 5-7 represent mathematical equations depicting the full structural regression models under study. The single-headed arrows from parents' readiness beliefs to the intercept and slope represent the direct effect of parental beliefs on children's beginning kindergarten achievement (intercept) and growth over time (slope). The single-headed arrows from parents' transition practices to the intercept and slope represent the direct effect of transition practices on beginning kindergarten achievement and growth over time. The single-headed arrow from readiness beliefs to transition practices represents the direct effect of parents' readiness beliefs on transition practices. The path from parents' beliefs through transition practices to the intercept and slope allows the tests for mediation. There were also tests for the direct effect of socioeconomic status and race/ethnicity on parents' readiness beliefs, transition practices, intercept, and slope (not shown in Figures 5-7). These full structural models simultaneously assess the magnitude and significance of relations among exogenous (i.e., parents' readiness beliefs, race/ethnicity, and socioeconomic status) and endogenous (i.e., transition practices, intercept, and slope) variables in the model.

Summary of Analytic Approach

To describe and examine differences in parents' school readiness beliefs and transition practices while simultaneously assessing the degree to which academic socialization predicts children's academic achievement trajectories during the transition to elementary school, a latent

growth model was tested in two steps. In order to estimate structural model estimates, the measurement model must first show reasonable model fit. Therefore, reading, mathematics, and general knowledge measurement models will be estimated first to determine the adequacy of model fit. Goodness-of-fit indices for each model will be examined as measures of model fit. Each measurement model will be revised as necessary to produce reasonable model fit as measured by these indices. This analysis will be followed by estimation of the full structural model to determine the relationship between academic socialization and children's academic achievement trajectories. The full structural model will include race/ethnicity and socioeconomic status variables as covariates, which enables the variation of parents' readiness beliefs, transition practices, and children's achievement trajectories to be examined. All statistical hypothesis testing will use $\alpha = 0.05$ to determine statistical significance.

CHAPTER 4

RESULTS

This chapter begins with a description of the sample characteristics. Latent growth curves were modeled in the content areas of reading, mathematics, and general knowledge. As described in the previous section, analyses for this study were conducted in two stages. Therefore, findings for each model will begin with a description of the measurement model and be followed by a discussion of the structural model.

Descriptive Statistics

Demographic characteristics of the sample are displayed in Table 1. The analytic sample consisted of 13,133 children. This sample consisted of 49% females, and had a racial/ethnic composition of 62% European American, 17% African American, and 21% Hispanic. Achievement scores for reading, mathematics, and general knowledge are also presented. The correlation matrices for each model are presented in Tables 2-4.

Modeling Growth: Academic Socialization and Reading Achievement

Given that reasonable model fit is needed to obtain trustworthy parameter estimates, the goodness-of-fit for the reading measurement model was assessed first (see Figure 2). An initial Chi-square value of 742.593 ($p < .001$) was obtained and review of Lagrange Multipliers (modification indices) indicated that modeling covariance between error terms for importance alphabet and importance count variables would result in a significant decrease in the Chi-square value. The next specification allowed error terms for the importance alphabet and importance count variables to covary. This specification resulted in a Chi-Square value of 552.58 ($p < .001$) which indicates that the hypothesized measurement model differs significantly from a perfectly fitting model. However, the Chi-square value is affected by a large sample size (Kline, 2011).

More specifically, if the sample size is large, the value of the Chi-square may lead to rejection of the model even though differences between observed and predicted covariances are slight (Kline, 2011). Therefore, additional fit statistics must be considered and are summarized in Table 5. An RMSEA of .036 was obtained, which suggests good model fit, according to the recommendations of Brown and Cudeck (1993). A CFI of .96 and TLI of .97 were obtained which also suggest good model fit (Hu & Bentler, 1999). Given the large sample size of this model (N = 13,108), and because the RMSEA, CFI, and TLI values suggest good model fit, this measurement model was retained.

The intercept value for the reading measurement model was 26.35 (SE = .293), $p < .001$. This indicates that the fall kindergarten mean reading score for the entire population was 26.35. The slope value for the measurement model was 13.27 (SE = .104), $p < .001$. This value represents the mean rate of growth for the entire population, which would be interpreted as an increase of 13.27 points at each data collection period. The variance for the intercept was 83.96 (SE = 1.47), $p < .001$. The statistically significant variance estimate represents the amount of variation in the intercept factor. The variance for the slope was 18.30 (SE = .770), $p < .001$. This value also represents the amount of unexplained variance for the slope factor. Therefore, the next logical step would be to include exogenous (predictor) variables into the model to further explain the amount of variance in the intercept and slope terms.

The next step in the analysis involved estimating the full structural model to determine the relationship between academic socialization and children's academic performance trajectories in reading (see Figure 5). The full structural model was estimated and Table 5 presents a summary of fit statistics. The obtained Chi-square value was 578.73 ($p < .001$). Examination of alternative fit statistics indicates the model is a good fit for the data with an

RMSEA of .034, CFI of .96, and a TLI of .96. Table 6 presents the unstandardized and standardized factor loadings for the latent factors in the model. Factor loadings were all statistically significant at the $p < .001$ level. The standardized factor loadings for parents' readiness beliefs indicators were between .60 and .70, while factor loadings for transition practices fell between .46 and .60. The R^2 values represent the amount of explained variance for that indicator variable by the factor. The full structural model was retained and parameter estimates were evaluated. Results will be discussed as they pertain to the sets of research questions addressed by this study.

Research questions 1-3: variation within beliefs, behaviors, and reading achievement

The first task was to describe the ways in which parents' readiness beliefs, transition practices, and reading achievement varied by socioeconomic status and race/ethnicity. Table 7 presents a summary of unstandardized and standardized parameter estimates. In this table, columns represent exogenous factors or covariates (explanatory variables) and rows represent endogenous factors (dependent variables).

It was hypothesized that parents' school readiness beliefs would vary by socioeconomic status and race/ethnicity. Examination of parameter estimates in Table 7, row 3, column 5 indicates that there was no statistically significant relationship between socioeconomic status and parents' school readiness beliefs. Holding socioeconomic status constant, there was a significant relationship between race/ethnicity and parents' school readiness beliefs, but only for African American parents. On average, African American parents placed greater importance on children's school readiness skills and attributes in comparison to European American parents. In general, Hispanic parents' school readiness beliefs were not statistically different from European American parents. The R^2 value for the latent factor representing parents' readiness beliefs was

.003, indicating that only .3% of the variation in parents' readiness beliefs was explained by socioeconomic status and race/ethnicity.

It was hypothesized that parents' transition practices would vary by socioeconomic status and race/ethnicity. Examination of parameter estimates in Table 7, row 4, column 5 indicate that there was a positive, statistically significant relationship between socioeconomic status and parents' transition practices, holding all else constant. In general, affluent parents reported engaging young children in more transition practices. Holding socioeconomic status constant, there was a statistically significant relationship between race/ethnicity and transition practices, but only for Hispanic parents. On average, Hispanic parents reported engaging in fewer transition practices with their child in comparison to European American parents. There was no statistically significant difference between the amount of transition practices reported by African American and European American parents. The R^2 value for the latent factor representing parents' transition practices was .08, showing that 8% of the variation in transition practices was explained by socioeconomic status and race/ethnicity.

The next step was to describe children's reading achievement and examine the ways in which performance varied by socioeconomic status and race/ethnicity. The mean of the intercept factor was 27.08 (SE = .265), p < .001, indicating that the sample mean score for European American children from a home with an average socioeconomic status (SES = 0) had a mean reading score of 27.08 in the fall of kindergarten. The slope factor was 13.78 (SE = .113), p < .001. Thus, the average increase in reading for a European American child from an average socioeconomic status household was 13.08 at each data collection point (i.e., spring of kindergarten, spring of first grade). The residual covariance between the slope and intercept terms was 8.88, p < .001. This indicates that children who have higher intercepts also have

higher slopes and children with lower intercepts have lower slopes. In other words, a child who begins kindergarten with a high initial level of reading will have a more rapid rate of growth. Alternatively, a child who begins kindergarten with a low level of reading will experience a less rapid rate of growth.

It was hypothesized that children from affluent homes begin kindergarten with higher reading scores. It was also hypothesized that European American children begin kindergarten with higher reading scores in comparison to African American and Hispanic children. Parameter estimates of interest are presented in Table 7, row 1, columns 5-7. There was a significant positive relationship between socioeconomic status and the intercept factor, holding race and ethnicity constant. In general, children from more affluent homes begin kindergarten with higher scores on the reading assessment. Interpretation of the unstandardized estimate would indicate that a one-unit change in socioeconomic status would result in an increase of 4.13 points on the fall kindergarten reading assessment. There was also a significant negative relationship between race/ethnicity and the intercept factor, conditional on socioeconomic status. On average, African American and Hispanic children began kindergarten with lower reading assessment scores in comparison to European American children. Interpretation of these estimates would indicate that on average, African American and Hispanic children scored 1.75 and 2.17 points lower, respectively, on the fall kindergarten reading assessment in comparison to European American children from similar socioeconomic status backgrounds.

It was hypothesized that children from affluent homes would experience more rapid rates of growth in reading. It was also hypothesized that African American and Hispanic children would experience lower rates of growth in reading in comparison to European American children. Parameter estimates of interest are presented in Table 7, row 2, columns 5-7. Holding

race and ethnicity constant, there was a significant positive association between socioeconomic status and the slope factor. This indicates that children from more affluent homes experienced more rapid rates of growth in reading. Holding socioeconomic status constant, there was a significant, negative association between race/ethnicity and the slope factor. In general, African American and Hispanic children had less rapid rates of growth in comparison to European American children. Interpretation of the path coefficients would indicate that on average, African American and Hispanic children from average socioeconomic status homes had a growth rate of 12.38 (13.78-1.47) and 13.18 (13.78-.60) points respectively, in comparison to European American children from an average socioeconomic status home who had a 13.78 point growth rate.

Based on fitted trajectories Figure 8 provides a visual representation of the estimated differences in children's reading achievement trajectories by race and ethnicity, conditional on socioeconomic status. Examination of the figure depicts the rate of reading growth for European American, African American, and Hispanic children as they transition to elementary school. On average, European American children begin kindergarten with higher reading scores and experience faster rates of growth in comparison to African American and Hispanic children. The figure also illustrates that Hispanic children begin kindergarten with slightly lower average reading scores in comparison to African American children, yet Hispanic children's average rate of growth is large enough to close this gap by the end of first grade.

Research questions 4-6: academic socialization and reading achievement

The next task was to examine the direct effects of parents' readiness beliefs on children's academic performance trajectories. It was hypothesized that parents' readiness beliefs would exert a positive influence on children's academic performance in kindergarten and rate of

growth. However, this effect would decrease over time; in other words, parents' readiness beliefs would exert a greater influence on children's initial kindergarten reading performance in comparison to the effect exerted on growth over time.

Parents' readiness beliefs had a significant positive direct effect on children's beginning reading achievement, conditional on socioeconomic status and race/ethnicity. Holding socioeconomic status and race/ethnicity constant, there was a significant positive relationship between parents' readiness beliefs and the slope factor. Interpretation of the unstandardized estimates presented in Table 7, column 3 suggests that a one unit change in parents' readiness beliefs would result in a 1.87 point increase in beginning reading achievement and a .48 increase in growth.

Table 7 also presents the standardized coefficients for the structural model of academic socialization and children's reading achievement, which enables one to compare the intensity of effects of the different exogenous variables on the endogenous variables within the same model. The standardized regression coefficient describes how many standard deviations of change in the dependent variable are associated with a change of 1 *SD* in the independent variable (Hedges, 2008). Interpretation of the path coefficient would indicate that a 1 *SD* increase in the importance parents place on school readiness would result in a .13 *SD* increase in the fall of kindergarten reading assessment score. There was also a positive significant association between parents' readiness beliefs and the slope factor, $\beta = .07$, comparison of the standardized coefficients indicates that the influence of parents' readiness beliefs on children's reading performance declines over time.

As was hypothesized for parental beliefs, transition practices would have a positive effect on children's academic performance in kindergarten and over time. Holding socioeconomic

status and race/ethnicity constant, parents' transition practices exerted a significant positive direct effect on children's beginning reading achievement and no effect on growth over time. Interpretation of the unstandardized estimate indicates that a one unit change in transition practices would result in a .49 point increase in beginning reading achievement. Examination of the standardized estimates in Table 7 indicates that parents' readiness beliefs are a stronger predictor of children's beginning reading achievement in comparison to transition practices. The overall model explained 17% of the variation in children's beginning reading achievement and 11% of variation in growth.

The final task was to examine whether transition practices mediated the relation between parents' readiness beliefs and children's academic performance in kindergarten and over time. It was hypothesized that parents who placed more importance on school readiness would report engaging in more transition practices, which in turn influence children's reading achievement. Parameter estimates in Table 7 indicate there was a significant positive relationship between parents' readiness beliefs and transition practices. Formal tests of mediation were conducted and confirmed this to be the case. Estimates are presented in the top row of Table 12, which include unstandardized path coefficients, standard errors, and estimates of the total, direct, and indirect effects. Indirect effects of parent beliefs on children's beginning reading achievement, although small, were nonetheless significant, but the significant direct effect from parents' beliefs to the intercept suggests only partial mediation. The unstandardized total effect estimate indicates that a one unit increase in the importance parents place on school readiness would result in an approximate two point gain in beginning reading achievement and a half of a point increase in growth over time. The standardized estimate for the total effect of parents' beliefs and transition practices on children's beginning reading achievement was $\beta = .14$ and $\beta = .07$ for growth over

time which indicates the total effect is stronger on beginning reading achievement and decreases as children transition to elementary school.

Modeling Academic Socialization and Mathematics Achievement

The goodness-of-fit for mathematics was modeled first (see Figure 3). The initial mathematics measurement model had a Chi-square value of 720.017 ($p < .001$). Review of Lagrange Multipliers indicated that modeling covariance of error terms for importance alphabet and importance count would result in a significant decrease in the Chi-square value. In the second mathematics measurement model, error terms for the importance alphabet and importance count variables were allowed to covary. This specification resulted in a mathematics measurement model with a Chi-Square value of 517.50 ($p < .001$). Other fit statistics were considered and are summarized in Table 5. An RMSEA of .035 was obtained, which suggests good fit, according to the recommendations of Brown and Cudeck (1993). A CFI of .96 and TLI of .96 were obtained which also suggest good model fit (Hu & Bentler, 1999). Given that these fit statistics suggest good model fit, this mathematics measurement model was retained.

The intercept value for the measurement model was 20.68 ($SE = .293$), $p < .001$. This indicates that the mean mathematics score for the entire population was 20.68. The slope value for the measurement model was 10.97 ($SE = .08$), $p < .001$. This value represents the mean rate of growth for the entire population, which would be interpreted as an increase of 10.97 points at each data collection period. The variance for the intercept and slope were 73.65 ($SE = 1.24$) and 11.822 ($SE = .391$), $p < .001$, respectively. These statistically significant variance estimates represents the amount of variation in the intercept and slope factors. Therefore, the next logical step would be to include exogenous variables into the model to explain the variance in the intercept and slope terms.

The next step in the analysis involved estimating the full structural model to determine the relationship between academic socialization and children's academic achievement trajectories in mathematics (see Figure 6). The full structural model was estimated and Table 5 presents a summary of fit statistics. The obtained Chi-square value was 503.08 ($p < .001$). Examination of alternative fit statistics indicates the model was a good fit for the data with an RMSEA of .031, a CFI of .96, and a TLI of .96. Factor loadings for the full structural mathematics model were all statistically significant at the $p < .001$ level and are presented in Table 8. The standardized factor loadings for parents' readiness beliefs indicators were between .60 and .70, while the standardized factor loadings for transition practices fell between .46 and .60. The full structural model was retained and parameter estimates were evaluated. Results will be discussed as they pertain to the sets of research questions addressed by this study.

Research questions 1-3: variation within beliefs, behaviors, and mathematics achievement

The first task was to describe the ways in which parents' readiness beliefs, transition practices, and children's academic achievement varied by socioeconomic status and race/ethnicity. Parameter estimates regarding variation of parents' beliefs and practices followed a similar pattern to those discussed in the structural model of reading achievement. Table 9 presents a summary of unstandardized and standardized parameter estimates.

It was hypothesized that parents' school readiness beliefs would vary by socioeconomic status and race/ethnicity. There was no statistically significant relationship between socioeconomic status and parents' school readiness beliefs. Holding socioeconomic status constant, there was a significant relationship between race/ethnicity and parents' school readiness beliefs, but only for African American parents. In general, African American parents placed a little more importance on school readiness in comparison to European American

parents. In general, Hispanic parents' school readiness beliefs were not statistically different from European American parents. The R^2 value for the latent factor representing parents' readiness beliefs was .003, indicating that only .3% of the variation was explained by socioeconomic status and race/ethnicity.

It was also hypothesized that parent's transition practices would vary by socioeconomic status and race/ethnicity. Again, there was a positive, statistically significant relationship between socioeconomic status and parents' transition practices, holding all else constant. In general, affluent parents reported engaging young children in more transition practices. Holding socioeconomic status constant, there was a statistically significant relationship between race/ethnicity and transition practices, but only for Hispanic parents. On average, Hispanic parents reported engaging in fewer transition practices with their child in comparison to European American parents. There was no statistically significant difference between the amount of transition practices reported by African American and European American parents from similar socioeconomic status backgrounds. The R^2 value for the latent factor representing parents' transition practices was .08, which indicates that only 8% of the variation was explained by socioeconomic status and race/ethnicity.

The next step was to describe children's mathematics achievement and examine the ways in which performance varied by socioeconomic status and race/ethnicity. The mean of the mathematics intercept factor was 22.31 (SE = .195), $p < .001$. Interpretation of the intercept value would indicate that European American children from an average socioeconomic status home had a score of 22.31 on the mathematics assessment in the fall of kindergarten. The slope factor was 11.41 (SE = .079), $p < .001$. Thus, the average increase in mathematics achievement for European American children from an average socioeconomic status home was 11.41 points at

each data collection point. The residual covariance between the intercept and slope terms was 4.85, $p < .001$. Interpretation of this estimate indicates that a child who begins kindergarten with a high initial level of mathematics achievement will experience a more rapid rate of growth. Conversely, a child who begins kindergarten with a low level of mathematics achievement will experience a less rapid rate of growth.

It was hypothesized that children from affluent homes would begin kindergarten with higher mathematics scores. It was also hypothesized that European American children begin kindergarten with higher mathematics scores in comparison to African American and Hispanic children. Parameter estimates of interest are presented in Table 9. There was a significant positive relationship between socioeconomic status and the intercept, holding race and ethnicity constant. In general, children from more affluent homes begin kindergarten with higher scores on the mathematics assessment. Interpretation of the unstandardized estimate would indicate that a one-unit change in socioeconomic status would result in an increase of 3.93 points on the fall kindergarten mathematics assessment. There was also a significant negative relationship between race/ethnicity and the intercept factor, holding socioeconomic status constant. On average, African American and Hispanic children began kindergarten with lower mathematics scores in comparison to European American children. Interpretation of these estimates would indicate that on average, African American and Hispanic children from average socioeconomic status households scored 3.38 and 2.17 points lower, respectively, on the fall kindergarten mathematics assessment in comparison to European American children from average socioeconomic status homes.

It was also hypothesized that mathematics growth would be greater for children from more affluent homes. In addition, African American and Hispanic children would experience

less rapid rates of growth in mathematics in comparison to European American children. Examination of parameter estimates indicates a significant positive association between socioeconomic status and the slope factor. In general, children from more affluent homes experience greater rates of mathematics growth. A significant negative association occurred between race/ethnicity and the slope factor. On average, African American and Hispanic children have lower rates of growth in mathematics in comparison to European American children from similar socioeconomic status households. Interpretation of the path coefficient would indicate that on average, African American children and Hispanic children from average socioeconomic status homes have a rate of growth of 9.73 and 10.91 points respectively, in comparison to European American children from similar socioeconomic status homes who have a growth rate of 11.41 points.

Figure 9 provides a visual representation of the estimated differences in children's mathematics achievement trajectories by race and ethnicity, conditional on socioeconomic status. On average, European American children begin kindergarten with higher mathematics scores and experience faster rates of growth in comparison to African American and Hispanic children. Based on fitted trajectories the figure also illustrates that Hispanic children begin kindergarten with lower average mathematics scores in comparison to African American children; yet, Hispanic children's average rate of growth is so rapid that Hispanic children have higher average mathematics scores in comparison to African American children by the end of the first grade.

Research questions 4-6: academic socialization and mathematics achievement

The next task was to examine the direct effect of parents' readiness beliefs on children's mathematics achievement trajectories. It was hypothesized that parents' readiness beliefs would exert a positive influence on children's mathematics performance in kindergarten and growth.

This effect, however, would decrease over time. Holding socioeconomic status and race/ethnicity constant, there was a significant positive relationship between parents' readiness beliefs and the intercept factor. Table 9 presents the unstandardized and standardized coefficients for the structural model of academic socialization and children's mathematics achievement. Parents' readiness beliefs exert a statistically significant positive effect on children's beginning mathematics achievement. Interpretation of the path coefficient would indicate that a 1 *SD* increase in the importance parents place on school readiness beliefs would result in a .10 *SD* increase in mathematics achievement upon kindergarten entry. There was also a positive significant association between parents' readiness beliefs and the slope factor, β =.06, which indicates that the positive effect exerted by parents' readiness beliefs on children's reading performance declines as children transition to elementary school.

It was also hypothesized that parents' transition practices would have a positive effect on children's academic performance in kindergarten and over time. However, the effect of parents' transition practices would decrease as children transitioned into elementary school. Holding socioeconomic status and race/ethnicity constant, there was a small significant positive relationship between parents' transition practices and the intercept. There was no statistically significant relationship between parents' transition practices and the slope. This indicates that parents' transition practices have a small positive effect on children's mathematics achievement at the beginning of kindergarten but no influence over time. Examination of the standardized estimates would indicate that parents' beliefs exerted a greater influence on children's beginning mathematics achievement and growth over time. The overall model explained 24% of the variation in children's beginning reading and 10% of variation in growth.

The final task was to examine if transition practices mediated the relation between parents' readiness beliefs and children's mathematics achievement in kindergarten and over time. It was hypothesized that parents who placed more importance on school readiness skills and attributes would report engaging young children in more transition practices which would ultimately influence children's mathematics achievement. Parameter estimates in Table 9 indicate there was a significant positive relationship between parents' readiness beliefs and transition practices. Formal tests of mediation were conducted and confirmed that transition practices mediated the relation between parents' beliefs and children's mathematics achievement upon kindergarten entry. Estimates are presented in Table 12. Indirect effects of parent beliefs on children's beginning mathematics performance although small were nonetheless significant, but the significant direct effect of parents' beliefs on the intercept suggests only partial mediation. The unstandardized total effect estimate indicates that a one unit increase in the importance parents place on school readiness would result in an approximate 1.4 point gain in beginning mathematics achievement and a quarter of a point increase in growth through the first grade. The standardized total effects of parents' beliefs on children's mathematics achievement upon kindergarten entry was β=.10 and β=.05 for children's growth in mathematics indicating that the effect of parents' beliefs and transition practices decreases over time.

Modeling Academic Socialization and General Knowledge Achievement

The general knowledge measurement model was estimated (see Figure 4) and followed an estimation pattern similar to the reading and mathematics measurement models. The initial general knowledge measurement model had a Chi-square value of 842.43 ($p < .001$). Review of Lagrange Multipliers indicated that modeling covariance of error terms for importance alphabet and importance count would result in a significant decrease in the Chi-square value. In the

subsequent general knowledge measurement model, error terms for the importance alphabet and importance count variables were allowed to covary. This specification resulted in a general knowledge measurement model with a Chi-Square value of 682.77 ($p < .001$). Again additional fit statistics were considered and are summarized in Table 5. This measurement model obtained an RMSEA of .044, a CFI of .92, and TLI of .93. Based on the RMSEA, CFI, and TLI values that suggest an adequate fit, the measurement model was retained.

The intercept value for the measurement model was 22.68 ($SE = .185$), $p < .001$. This indicates that the mean general knowledge score for the entire population was 22.68. The slope value for the measurement model was 3.96 ($SE = .035$), $p < .001$. This value represents the mean rate of growth for the entire population, which would be interpreted as an increase of 3.96 points at each data collection period. The variance for the intercept was 54.41 ($SE = 1.79$), $p < .001$. The statistically significant variance estimate represents the amount of variation in the intercept factor. The variance for the slope was 1.89 ($SE = .243$), $p < .001$. The small variance estimate indicates that much of the variance in the slope is already explained by the measurement model. The next logical step would be to include exogenous variables into the model to explain the remaining variance of the intercept and slope terms.

The final step in the analysis involved estimating the full structural model to determine the relationship between academic socialization and children's academic performance trajectories in general knowledge (see Figure 7). The full structural model was estimated and a Chi-square value was 506.04 ($p < .001$) was obtained. Examination of alternative fit statistics indicates the model was a good fit for the data with an RMSEA of .034, a CFI of .95, and a TLI of .95. The unstandardized and standardized factor loadings of model indicators for the full structural model are presented in Table 10. Factor loadings were all statistically significant at the

$p < .001$ level. The standardized factor loadings for parents' readiness beliefs indicators were between .60 and .70, while the factor loadings for transition practices fell between .46 and .60. The full structural model was retained and parameter estimates were evaluated as they pertain to the sets of research questions addressed by this study.

Questions 1-3: variation within beliefs, behaviors, and general knowledge achievement

The first analysis began by describing the ways in which parents' readiness beliefs, transition practices, and children's general knowledge achievement varied by socioeconomic status and race/ethnicity. Parameter estimates for parent beliefs and behaviors followed a similar pattern to those discussed in the structural models of reading and mathematics achievement. Table 11 presents a summary of unstandardized and standardized parameter estimates.

It was hypothesized that parents' school readiness beliefs would vary by socioeconomic status and race/ethnicity. There was no statistically significant relationship between socioeconomic status and parents' school readiness beliefs. On average, African American parents placed more importance on school readiness in comparison to European American parents. Hispanic parents' school readiness beliefs were not statistically different from European American parents. The R^2 value for the latent factor representing parents' readiness beliefs was .003, indicating that only .3% of the variation was explained by socioeconomic status and race/ethnicity.

It was also hypothesized that parents' transition practices would vary by socioeconomic status and race/ethnicity. Parameter estimates indicate a statistically significant relationship between socioeconomic status and parents' transition practices, holding all else constant. In general, more affluent parents reported engaging young children in more transition practices. Holding socioeconomic status constant, there was a statistically significant relationship between

race/ethnicity and transition practices, but only for Hispanic parents. On average, Hispanic parents reported engaging in fewer transition practices with their children in comparison to European American parents from similar socioeconomic status backgrounds. There was no statistically significant difference between the amount of transition practices reported by African American and European American parents. The R^2 value for the latent factor representing parents' transition practices was .08, indicating that only 8% of the variation was explained by socioeconomic status and race/ethnicity.

The next task was to describe children's general knowledge achievement trajectories and examine the ways in which performance varied by socioeconomic status and race/ethnicity. The mean of the general knowledge intercept factor was 24.20 (*SE* = .134), $p < .001$. Interpretation of this parameter estimate indicates that a European American student from an average socioeconomic status home has a mean score of 24.2 on the fall kindergarten general knowledge achievement assessment. The slope factor was 4.12 (*SE* = .042), $p < .001$. Thus, the average increase in general knowledge achievement was 4.12 points at each data collection point for a European American child from an average socioeconomic status household. The residual covariance between the general knowledge intercept and slope was -2.66, $p < .001$. Interpretation of this estimate indicates that a child who begins kindergarten with a high initial level of general knowledge will have less rapid growth. Alternatively, a child who begins kindergarten with a lower level of general knowledge will experience a more rapid rate.

It was hypothesized that children from affluent homes would begin kindergarten with higher general knowledge scores. It was also hypothesized that European American children begin kindergarten with higher general knowledge scores in comparison to African American and Hispanic children. Parameter estimates of interest are presented in Table 11. There was a

significant positive association between socioeconomic status and intercept factor. In general, children from affluent homes began kindergarten with higher general knowledge scores. Interpretation of the unstandardized estimate would indicate that a one-unit change in socioeconomic status would result in an increase of 3.28 points on the fall kindergarten general knowledge assessment. There was also a significant negative relationship between race/ethnicity and the intercept factor, holding socioeconomic status constant. On average, African American and Hispanic children began kindergarten with lower general knowledge scores in comparison to European American children. Interpretation of these estimates would indicate that on average, African American children and Hispanic children from average socioeconomic status homes scored 3.38 and 2.17 points lower, respectively, on the fall kindergarten general knowledge assessment in comparison to European American children from average socioeconomic status households.

It was also hypothesized that general knowledge growth would be greater for children from more affluent homes. In addition, African American and Hispanic children would experience lower rates of growth in general knowledge in comparison to European American children. Socioeconomic status had no statistically significant relationship with the general knowledge slope factor. There was a significant negative association between race/ethnicity and the slope factor, but only for Hispanic children. Interpretation of the path coefficient would indicate that on average, Hispanic children from an average socioeconomic status household would have a rate of growth of 3.79 points in comparison to European American children from similar socioeconomic backgrounds who had an average growth rate of 4.13 points at each data collection point.

Based on fitted trajectories Figure 10 depicts the rate of general knowledge growth for European American, African American, and Hispanic children, irrespective of socioeconomic status, as they transition to elementary school. On average, European American children begin kindergarten with higher general knowledge scores than African American children from similar socioeconomic status backgrounds but experience similar rates of growth. The figure also illustrates that Hispanic children begin kindergarten with higher average general knowledge scores in comparison to African American children. Despite having a slightly more rapid rate of growth than Hispanic children, African American children still have lower average general knowledge scores by the end of first grade in comparison to Hispanic children.

Research questions 4-6: academic socialization and general knowledge achievement

The next task was to examine the direct effects of parents' readiness beliefs on children's general knowledge achievement trajectories. It was hypothesized that parents' readiness beliefs would exert a positive influence on children's general knowledge performance in kindergarten and growth rate. However, this effect would decrease over time. Holding socioeconomic status and race/ethnicity constant, there was a small significant positive relationship between parents' readiness beliefs and the intercept factor. Parents' readiness beliefs had no statistically significant influence on the slope factor. This indicates that parents' readiness beliefs had a small positive effect on children's general knowledge achievement at the beginning of kindergarten but no influence over time. Interpretation of the unstandardized coefficients in Table 11 suggests that a one unit increase in the importance parents place on school readiness would result in a .40 point increase in children's general knowledge assessment score in kindergarten. Table 11 presents the standardized coefficients for the structural model of academic socialization and children's general knowledge achievement. Interpretation of the path

coefficient would indicate that a 1 *SD* increase in the importance parents place on school readiness would result in a .04 *SD* increase in general knowledge achievement upon kindergarten entry.

It was also hypothesized that parents' transition practices would have a positive effect on children's academic general knowledge performance in kindergarten and over time. However, the effect of parents' transition practices would decrease as children transitioned into elementary school. Holding socioeconomic status and race/ethnicity constant, there was a small significant positive relationship between parents' transition practices and the intercept but not the slope. This indicates that parents' transition practices had a small positive effect on children's general knowledge achievement at the beginning of kindergarten but no influence over time. Interpretation of the unstandardized estimate in Table 11 suggests that a one unit increase in transition practices would result in a 1.02 point increase on the general knowledge assessment upon kindergarten entry. Interpretation of the standardized path coefficient in Table 14 indicates that a 1 *SD* increase of parents' transition practices would result in a .07 *SD* increase in general knowledge achievement upon kindergarten entry. In contrast to the estimates from the reading and mathematics models, transition practices exerted a stronger influence on children's beginning general knowledge achievement in comparison to the influence exerted by parental beliefs. The overall model explained 32% of the variation in children's beginning general knowledge achievement and 1% of variation in growth.

The final task was to examine whether transition practices mediated the relation between parents' readiness beliefs and children's academic performance in kindergarten and over time. Again, parents' readiness beliefs had a positive influence on transition practices. Formal tests of mediation were conducted and confirmed that transition practices mediated the relation between

parents' beliefs and children's mathematics achievement upon kindergarten entry. Estimates are presented in Table 12. Indirect effects of parent beliefs on children's beginning general knowledge performance, although minimal, were nonetheless significant but the direct effect of parents' beliefs on the intercept suggests only partial mediation. The unstandardized total effect estimate indicates that a one unit increase in the importance parents place on school readiness would result in a little more than a half of a point increase in beginning general knowledge achievement. The standardized total effects of parents' beliefs on children's general knowledge achievement upon kindergarten entry was $\beta = .05$, indicating that a 1 *SD* increase in parents' readiness beliefs would result in a half of a standard deviation increase in children's beginning general knowledge achievement.

CHAPTER 5

DISCUSSION

Considerable attention has been focused on the persistent racial, ethnic, and socioeconomic disparities in academic achievement during elementary school. Although researchers associate socioeconomic status and parental level of education with school readiness and subsequent academic success, parents play a pivotal role in supporting children's early learning and development through a process of socialization (Bempechat, 1992; Ginsberg et al., 1992; Maccoby, 1992). The theory of academic socialization suggests that parents' attitudes, values, and beliefs about school influence parenting behaviors and in turn influence children's transitions to elementary school, all of which is shaped by one's socioeconomic and cultural contexts (Taylor et al., 2004). Although researchers have assumed parents' school readiness beliefs influence parenting practices, and ultimately children's early academic achievement (Barbarin et al., 2008; West et al., 1995), there are few studies which use mediating models to support this claim (see Sy and Schulenberg, 2005 for an exception). If this relationship exists, it seems plausible that differences in parents' conceptions of school readiness beliefs and transition practices contribute to the early academic achievement gap.

The principal goals of this study was to examine variation within parents' readiness, beliefs, transition practices, and children's achievement trajectories while simultaneously assessing the degree to which parents' school readiness beliefs and transition practices contributed to children's academic achievement during the transition to elementary school. The study began by describing the ways in which parents' school readiness beliefs and transition practices varied by race, ethnicity, and socioeconomic status. Children's achievement trajectories were estimated in reading, mathematics, and general knowledge, and differences

were described by race/ethnicity and socioeconomic status. The relationships between parents' school readiness beliefs, transition practices, and children's achievement trajectories were examined in this study.

This chapter summarizes findings related to variability in parental beliefs and practices as well as the relative influence of hypothesized predictors on the growth of reading, mathematics, and general knowledge as children transition to formal schooling. In addition to providing an overview of these findings, implications of results for theory, research, and practice are discussed. Finally, the chapter concludes with a description of limitations of the study and directions for future research.

Summary of Findings

Parental Beliefs and Practices

The first task of the study was to describe the ways in which parents' readiness beliefs and transition practices varied by race, ethnicity, and socioeconomic status. It was hypothesized that socioeconomic status would be positively related to school readiness beliefs. In other words, more affluent parents would place more importance on children mastering certain school readiness skills and attributes, such as knowing the letters of the alphabet, counting, communicating, and being calm. It was also hypothesized that race/ethnicity would be related to school readiness beliefs, with European American parents placing greater emphasis on school readiness in comparison to African American or Hispanic parents.

Results from each model indicated that parents' readiness beliefs were not related to socioeconomic status. Readiness beliefs, however, were related to parents' race or ethnicity. Findings indicated that African American parents, on average, placed a little more importance on

school readiness skills and attributes in comparison to European American parents. There was no difference between European American and Hispanic parents' school readiness beliefs.

It was also hypothesized that parents use of transition practices would vary by socioeconomic status and race/ethnicity. More specifically, socioeconomic status would be positively related to transition practices and European American parents would report engaging their young child in more transition practices in comparison to African American and Hispanic parents. Results indicated that socioeconomic status positively predicted parental reports of engaging children in transition practices prior to kindergarten. There was no difference between the amount of transition practices employed by European American and African American parents. That is, holding socioeconomic status constant, European American and African American parents reported engaging young children in similar amounts of transition practices prior to kindergarten. Hispanic parents, on the other hand, reported engaging their child in fewer transition practices in comparison to European American parents from similar socioeconomic backgrounds.

Overall, the findings presented thus far indicate that all parents place importance on children exhibiting certain school readiness skills and attributes, but African Americans place slightly more importance on school readiness in comparison to European American parents. In terms of engaging children in transition practices prior to kindergarten, the findings indicated that more affluent parents report engaging in greater amounts of transition practices. Irrespective of socioeconomic status, Hispanic parents reported engaging their children in fewer transition practices in comparison to European American parents.

Before discussing the structural relationships between parents' readiness beliefs, transition practices, and children's achievement trajectories during the transition to elementary

school, it is important to note the consistency of the results within the existing literature and the conceptual model of academic socialization. Although research examining parents' readiness beliefs is somewhat limited, there is evidence to indicate that all parents express concern for their child's readiness for school and transition to elementary school (Barbarin et al., 2008; Diamond et al., 2000; Graue, 1993). Several studies have suggested that parents' conceptions of school readiness beliefs vary by parental level of education (West et al., 1995) or socioeconomic status (Graue, 1993). Other studies have found that parental readiness beliefs do not vary by race (Diamond et al., 2000) or socioeconomic status (Barbarin et al., 2008). Several studies comparing parental and teacher conceptions of school readiness in a high-need preschool have found that parents place more emphasis on academically-oriented school readiness skills in contrast to teachers (Piotrkowski et al., 2000).

This study found that differences in parents' readiness beliefs, although statistically significant, was not very large and parents' race and ethnicity did not account for much of the variation in beliefs. This suggests that all parents believed that children's acquisition of certain readiness-related skills and attributes prior to kindergarten was important, which is consistent with previous findings (Barbarin et al., 2008; Diamond et al., 2000; Graue, 1993). However, the findings also suggest that African American parents placed a little more emphasis on school readiness in comparison to European American parents which is in contrast to previous research which found that conceptions of readiness did not differ by racial or ethnic background (Diamond et al., 2000). The findings from this study do not indicate that parents' conceptions of school readiness are shaped to a large extent by parents' race, ethnicity, or socioeconomic status. It appears that other mechanisms may contribute to parents' conceptions of school readiness,

such as recollections of previous schooling experiences and parental involvement as suggested by Barnett and Taylor (2009).

The concept of transition practices is fairly recent and has not received much attention in the literature. The literature on home-based parental involvement during early childhood is more extensive and generally focuses language and literacy in the home. Research suggests the quality and quantity of language in the home is related to children's early language and literacy development (Aulls & Sollars, 2003; Hart & Risley, 1995). Parent-child interactive activities such as telling stories, singing songs, and making books also encourage literacy development (Boyce et al., 2010; Bryant et al., 1990; Maclean et al., 1987). Research, however, indicates that differences in home-based parental involvement during early childhood are associated with parents' socioeconomic status, race, and ethnicity (Bouth & Crouter, 2008; Brooks-Gunn & Markman, 2005; Hart & Risley, 1995; Heath, 1983; Phillips, 2011). Findings from this study indicate that parental reports of engaging children in transition practices are positively related to socioeconomic status which is consistent with previous research (Brooks-Gunn & Markman, 2005; Farkas & Hibel, 2008; Hart & Risley, 1995; Phillips, 2011; Reardon, 2011). This study also finds that African American parents report engaging young children in a similar amount of transition practices as European American parents from similar socioeconomic status backgrounds. This is a noteworthy finding because much of the literature suggests that, on average, African American parents engage their young children in fewer language and literacy-related activities (Brooks-Gunn & Markman, 2005; Phillips, 2011) and education-related activities (Farkas & Hibel, 2008; Phillips, 2011) in comparison to European American parents.

The theory of academic socialization suggests that parents' beliefs, expectations, and behaviors will be shaped by one's socioeconomic and cultural contexts. Overall, findings from

this study offer support for this assumption, but mostly in terms of parents' use of transition practices. Although results indicated that African American parents' placed a little more importance on school readiness, very little of the variation in readiness beliefs was explained by parents' racial or ethnic heritage. On the other hand, parents' transition practices varied by race, ethnicity, and socioeconomic status. Affluent parents reported engaging their children in more transition practices. Consistent with previous research which indicates that children from higher socioeconomic status families experience more home-based education related experiences and activities than children from lower socioeconomic status families (Reardon, 2011). Hispanic parents, on average, reported engaging their children in fewer transition practices in comparison to European American parents from similar socioeconomic backgrounds. The findings from this study suggest that transition practices are shaped to a larger extent by one's race, ethnicity, and socioeconomic status in comparison to parents' conceptions of school readiness.

The central questions investigated in this study addressed the degree to which parents' conceptions of school readiness and transition practices contribute to children's academic achievement during the transition to elementary school as a means to better understand the achievement gap and consider possible interventions aimed at maximizing home-based parental involvement. Several hypotheses were under consideration. In this study, the predictive relationship between academic socialization and children's academic achievement was estimated. The following sections will summarize these findings in the academic domains of reading, mathematics, and general knowledge.

Reading Achievement

It was hypothesized that children's beginning reading achievement and growth over time would vary by socioeconomic status and race/ethnicity. It was hypothesized that parents' school

readiness beliefs and transition practices would have a positive direct effect on children's reading achievement upon kindergarten entry and over time. Furthermore, it was hypothesized that parents' transition practices would mediate the relation between parents' school readiness beliefs and children's reading achievement.

Results indicated that socioeconomic status was a positive predictor of children's beginning reading achievement and growth over time. In general, children from more affluent homes began kindergarten with higher reading scores and experienced more rapid rates of growth in reading achievement. Socioeconomic status was the strongest predictor of children's reading achievement and academic growth. Irrespective of socioeconomic status, African American and Hispanic children began kindergarten with lower average scores in reading and experienced slower average rates of growth in comparison to European American children. These findings are consistent with previous research which indicates that race, ethnicity, and socioeconomic status are related to children's reading achievement in kindergarten (Farkas & Hibel, 2008; Lee & Burkham, 2002; Rouse et al., 2005) and subsequent achievement (Fryer & Levitt, 2004). An especially noteworthy finding based on fitted trajectories is that Hispanic children began kindergarten with slightly lower average reading scores in comparison to African American children from similar socioeconomic status backgrounds, but their average rate of growth was rapid enough to have higher average reading scores by the end of first grade. Overall, the model suggests that children who begin school with higher reading scores have more rapid rates of growth, and children who begin school with lower reading achievement have slower rates of growth. This phenomenon has been described in previous literature as the Matthew Effect (Bast & Reitsma, 1997; Stanovich, 1986).

Parents' school readiness beliefs positively predicted beginning reading achievement and growth over time. Children whose parents placed more importance on school readiness had higher average reading scores upon kindergarten entry and experienced more rapid rates of growth. Comparison of standardized estimates indicates that parental readiness beliefs exerted more of an effect on children's beginning knowledge and half the effect on growth over time than the effect exerted by race or ethnicity. Although socioeconomic status exerted the largest effect on beginning reading achievement and growth, parents' beliefs exerted almost half the effect on children's beginning reading scores and almost a third of the effect on growth over time than the effect exerted by socioeconomic status.

Parents' transition practices were also positively related to children's beginning reading achievement but had no significant association to reading growth rates. Parents' readiness beliefs exerted a positive influence on transition practices, and formal tests of mediation indicated that transition practices partially mediated the relationship between parents' school readiness beliefs and children's beginning reading achievement and growth over time. Parents who placed more emphasis on school readiness skills and attributes reported engaging children in more transition practices prior to kindergarten, which in turn had a modest positive total effect on children's beginning reading achievement. A one unit increase in the importance African American and Hispanic parents place on school readiness would result in almost a two point increase in beginning reading achievement which would close the gap between children of color and their European American counterparts reading scores at school entry. Differences in rates of growth would also decrease. It should be noted that parents' readiness beliefs exerted a stronger direct effect on reading achievement in kindergarten in comparison to the effect exerted by transition practices. This finding is counterintuitive, as one would expect parental practices to

exert a greater effect on children's academic achievement than parental beliefs. This is because transition practices only partially mediated the relationship between parental beliefs and children's reading achievement.

Mathematics Achievement

Mathematics achievement trajectories were also under consideration in this study. Again it was hypothesized that children's beginning mathematics achievement and growth over time would vary by socioeconomic status and race/ethnicity. Results indicated that socioeconomic status was a positive predictor of children's beginning mathematics achievement and growth. Socioeconomic status was the strongest predictor of children's mathematics achievement and growth over time. In general, children from more affluent homes began kindergarten with higher mathematics scores and experienced more rapid growth rates in mathematics through the first grade. These findings are consistent with previous research, which indicates that socioeconomic status is positively associated with children's achievement in mathematics during early elementary school (Bodovski & Farkas, 2007; Farkas & Hibel, 2008; Lee & Burkham, 2002).

Findings also indicated that European American children began kindergarten with higher average mathematics scores and experienced more rapid average rates of growth in comparison to African American and Hispanic children from similar socioeconomic backgrounds. Based on fitted trajectories, Hispanic children, on average began kindergarten with slightly lower average mathematics scores in comparison to African American children from similar socioeconomic backgrounds, but Hispanic children's rate of growth was rapid enough to close this gap and have higher average mathematics scores than African American children by the end of first grade. Similar to reading achievement, this model indicates that children who begin school with higher

mathematics scores have more rapid rates of growth, and children who begin school with lower mathematics achievement will have a slower rate of growth.

Once more, it was hypothesized that parents' school readiness beliefs and transition practices would have a positive direct effect on children's mathematics achievement upon kindergarten entry and over time. It was also hypothesized that parents' transition practices would mediate the relation between parents' school readiness beliefs and children's mathematics achievement. Results indicated that parents' school readiness beliefs exerted a positive influence on children's beginning mathematics achievement and rates of growth. Parents' beliefs exerted more than half the effect on children's beginning mathematics achievement in comparison to the effect exerted by race and ethnicity and almost a third of the effect exerted by socioeconomic status. Although the effect of parents' beliefs on children's mathematics achievement decreases over time, it continues to exert a quarter of the effect exerted by socioeconomic status.

Parents' transition practices were also positively related to children's beginning mathematics achievement but not to growth over time. Parents' readiness beliefs exerted a positive influence on transition practices, and formal tests of mediation supported the claim that transition practices partially mediated the relationship between parents' school readiness beliefs and children's beginning achievement and growth over time. Parents who placed more importance on school readiness reported engaging children in more transition practices prior to formal schooling, which in turn had a small positive effect on children's beginning mathematics achievement. Again parents' readiness beliefs exerted a greater influence on children's beginning mathematics achievement in comparison to the effect of transition practices. Transition practices partially mediated the relationship between parents' school readiness beliefs and children's mathematics achievement.

General Knowledge Achievement

This study also investigated children's general knowledge achievement trajectories. It was hypothesized that socioeconomic status as well as race and ethnicity would predict children's beginning general knowledge achievement and growth over time. Very few studies have examined differences in children's general knowledge using the ECLS-K data set (see Farkas, 2008 for an exception) and no studies to my knowledge have examined growth in general knowledge achievement. Results indicated that socioeconomic status was positively related to children's general knowledge achievement in kindergarten but not growth over time. Socioeconomic status was the strongest predictor of children's general knowledge achievement at the onset of kindergarten. In general, children from more affluent homes began kindergarten with higher general knowledge scores. Findings also indicated that, in general, European American children began kindergarten with higher general knowledge scores and experienced more rapid rates of growth in comparison to African American and Hispanic children, irrespective of socioeconomic status. Socioeconomic status and racial/ethnic heritage were the strongest predictors of children's beginning general knowledge. These findings are consistent with results presented by Farkas (2008). A new and particularly striking finding based on fitted trajectories is that, on average, Hispanic children had higher general knowledge scores at the beginning of kindergarten in comparison to African American children. Despite having a less rapid rate of growth, by the end of first grade Hispanic children maintained higher average general knowledge scores in comparison to African American children from similar socioeconomic status backgrounds.

Overall, socioeconomic status, race, and ethnicity had little to no effect on children's general knowledge growth rates, suggesting that schools exert a stronger effect on children's

general knowledge achievement over time. Children, irrespective of racial or ethnic heritage, have similar rates of growth, however, European American children still have higher average general knowledge scores in comparison to African American and Hispanic children from similar socioeconomic backgrounds at the end of first grade. Finally, in contrast to the findings for reading and mathematics growth, model estimates indicated that children who begin school with higher general knowledge scores have slower rates of growth, while children who begin school with lower levels of general knowledge achievement will have a faster rate of growth.

Again it was hypothesized that parents' school readiness beliefs and transition practices would have a positive direct effect on children's general knowledge achievement and growth over time. It was also hypothesized that parents' transition practices would mediate the relation between parents' school readiness beliefs and children's general knowledge achievement. Parents' school readiness beliefs positively predicted beginning general knowledge achievement. Parents who placed more importance on school readiness had children with higher general knowledge scores upon kindergarten entry. Parents' readiness beliefs had no significant association to growth rates in general knowledge.

Parents' transition practices were also positively related to children's beginning general knowledge achievement but had no association to rates of growth. Contrary to the effects reported in the reading and mathematics models, parents' transition practices exerted a greater influence on children's beginning general knowledge achievement than the effect exerted by parental readiness beliefs. Parents' transition practices, however, only exerted one-fifth of the influence exerted by socioeconomic status and barely a quarter of the influence exerted by race and ethnicity on children's beginning general knowledge achievement. Parents' readiness beliefs exerted a positive influence on transition practices, and formal tests of mediation indicated that

transition practices partially mediated the relationship between parents' school readiness beliefs and children's beginning general knowledge achievement. Parents who placed more importance on school readiness skills and attributes reported engaging children in more transition practices, and transition practices had a small positive effect on children's general knowledge achievement at the beginning of kindergarten. Despite the positive influence that transition practices exert on general knowledge achievement, children's socioeconomic status, race, and ethnicity exerted a much greater influence.

Academic Socialization and Achievement

Overall, parents' school readiness beliefs and transition practices had a small-to-modest effect on children's reading, mathematics, and general knowledge on beginning achievement and a small effect on growth in reading and mathematics achievement, thereby supporting the theory of academic socialization. Consistent with previous research, socioeconomic status, race, and ethnicity continued to be strong predictors of academic growth in reading and mathematics during elementary school. As a whole, the findings demonstrated that children from higher socioeconomic status homes began formal schooling with higher reading, mathematics, and general knowledge scores. Socioeconomic status was the strongest predictor of beginning reading, mathematics, and general knowledge achievement and reading and mathematics growth over time. In general, European American children began kindergarten with higher reading, mathematics, and general knowledge achievement and experienced more rapid rates of growth in reading and mathematics compared to African American and Hispanic children from similar socioeconomic backgrounds.

Based on fitted trajectories, the findings suggest that Hispanic children, in general had a rate of growth in reading and mathematics similar to European American children from similar

socioeconomic backgrounds, in contrast to African American children who, on average, had less rapid rates of growth in comparison to European American children. Although the achievement gap between European American and Hispanic children did not decrease during the transition to elementary school, it did not widen. While the gap between European American and African American children from similar socioeconomic backgrounds appear to widen as children transition to elementary school. The findings from fitted trajectories also suggest that Hispanic children experience more rapid rates of growth in reading and mathematics in comparison to African American children from similar socioeconomic backgrounds. These results are consistent with previous research which demonstrates that the achievement gap in reading and mathematics between Hispanic and European American children decreases as children progress through elementary school while the gap between African American and European American children widens (Reardon & Gallindo, 2009; Reardon, 2008).

Despite the role of socioeconomic status, race, and ethnicity on children's early achievement, academic socialization which was conceptualized as parents' school readiness beliefs and transition practices also contributed to children's academic achievement. Parent's readiness beliefs exerted a small-to-moderate direct effect on children's reading and mathematics achievement upon kindergarten entry and continued to exert a small effect on growth over time. This finding supports previous research which demonstrates that parents' conceptions of school readiness or expectations for mastery of developmental milestones are positively associated with children's early academic (Barbarin et al., 2008; Hess et al., 1984; Hess et al., 1980) and later academic achievement (Hess et al., 1984).

The results from this study are consistent with previous literature which suggests that home-based parental involvement during early childhood, as evidenced by interactive parent-

child engagement, is positively associated with children's early academic outcomes (Boyce et al., 2010; Bryant et al., 1990; Glazer, 1989; Hart & Risley, 1995; Maclean et al., 1987; Senechal & Young, 2008; Sonnenschein et al., 1996). Although parents' transition practices exerted a positive influence on children's early achievement, it exerted no influence on academic growth over time. Furthermore, transition practices exerted less influence on children's achievement in reading and mathematics than parents' readiness beliefs. Transition practices only partially mediated the relationship between parental readiness beliefs and children's achievement. What can explain such a counterintuitive finding? One possible explanation is that items which comprise parents' transition practices measured the frequency of transition practices reported by parents, not the duration of activity, or the quality of those interactions. According to Hart and Risley (1995) the quality of language is a strong predictor of children's language and literacy development. It should be noted, however, that parents' transition practices exerted a larger influence on children's general knowledge achievement at the beginning of kindergarten in comparison to parents' readiness beliefs. One plausible explanation for this finding relates to the broad conceptualization of transition practices, which includes items that measure the frequency that parents report engaging young children in a variety of interactive learning opportunities, such as teaching the child about nature and building things together.

Limitations, Strengths, and Future Directions for Research

A major contribution of the current study is the finding that parents' school readiness beliefs exert a positive influence on transition practices, which in turn exert a positive influence on children's achievement. Few studies have used a mediating model to examine the relationship between parental beliefs, involvement, and children's achievement (see Sy and Schulenberg, 2006 for an exception) and no study to my knowledge has used a path analysis

model to examine the relationship between parents' conceptions of school readiness, practices, and children's achievement trajectories. Formal tests of mediation confirmed that parents' transition practices partially mediated the relation between parents' conceptions of school readiness and children's academic achievement in reading, mathematics, and general knowledge. Therefore, results from this study support the theory of academic socialization which posits that parental beliefs influence parenting practices, which in turn influences children's transitions to elementary school.

A major strength of this study was that it investigated children's academic achievement in reading, mathematics, and general knowledge across time. In general, previous research has examined achievement gaps using differences in mean scores, differences in standardized scores, and by so-called metric-free gap measures (Reardon & Robinson, 2007). These approaches use cross-sectional data, to show differences in children's academic achievement, measured at specific time points, such as first grade, third grade, and fifth grade. This study, in contrast, used a longitudinal data analysis approach, which allows the estimation of individual growth trajectories while including predictors of change. The findings presented from this study provide a more nuanced description of differences in academic achievement trajectories between European American, African American, and Hispanic children during the transition to formal schooling. It should be noted that longitudinal analyses often suffer from problems with missing data. Although missing data was handled with a combination of a full information likelihood method and pairwise present method, the potential for bias is always present when large amounts of data are missing for variables of interest.

Few studies have considered the ways in which parenting practices mediate the relationship between parental beliefs and children's early academic outcomes. It is a common

assumption that parents' school readiness beliefs will influence the ways that parents engage children in specific activities as a means to support children's readiness for school and successful transition to elementary school. Findings from this study validate the assumption that parents' beliefs influence their behaviors which in turn influence children's academic outcomes. This study investigated the relationship between parents' conceptions of school readiness, transition practices, and children's academic growth using structural equation modeling, a sophisticated multivariate analysis technique that allowed for the simultaneous investigation of variability in predictors and the relative impact of hypothesized predictors on outcomes of interest. The specific type of structural equation modeling employed was latent growth curve modeling, which was used to model change across time using longitudinal data. This approach is a methodological strength of the study and contributes to the achievement gap literature by providing a more detailed and nuanced picture of the mean differences in academic growth between European American, African American, and Hispanic children during the transition to elementary school.

Given the correlational nature of this study, it is not clear whether the relationship between parents' school readiness beliefs, transition practices, and children's achievement is causal. Although caution is needed in interpreting these results given that they are correlational, one implication of the findings is that parental conceptions of school readiness positively influence parenting practices. This provides evidence that we must expand our understanding of home-based parental involvement during early childhood and highlights potential targets for interventions which maximize the important role of parents as their child's first teacher. Thus, these findings suggest that providing parents with information about school readiness and ways to support children's early learning and development may help children successfully transition to

elementary school. Therefore, experimental and quasi-experimental studies are needed to evaluate the effectiveness of intervention programs which inform parents about school readiness issues and transition practices as a means to increase children's academic achievement during the transition to elementary school.

Despite the advantages of using existing large-scale data sets, such as the potential to increase external validity of the study due to the large nationally representative sample, there are several disadvantages of this approach which limit the findings of this study. For one, these studies are generally correlational and may fail to include confounding variables. Another issue pertains to measurement error, or the use of imprecise measures, which may underestimate the influence of a predictor. For example, data were not included that measure the quality of parents' transition practices, and research indicates that the quality of parent-child interactions during early childhood is a strong predictor of children's vocabulary development (Hart & Risley, 1995; Landry & Smith, 2008; Landry, Smith, & Swank, 2003). In future studies, it would be worthwhile to investigate findings reported here with more refined measures of parenting practices, collected through observation by trained researchers.

Another limitation of this study relating to the use of large-scale data concerns its use of self-reported data. While the outcome data of interest for this study consisted of direct-child assessments, the predictors examined all relied on self-reported data from parents. Parent responses may be compromised by their inability to accurately report the frequency of transition practices. There may also be issues of social desirability when reporting the frequency of engaging in transition practices. In other words, parents may provide socially desirable responses to questions about school readiness. It is hard to imagine a parent suggesting that it is not important for a child to be calm or be able to communicate prior to beginning kindergarten.

Also, survey questions measuring parents' school readiness beliefs may not adequately address the skills and behaviors parents believe are necessary upon kindergarten entry. Perhaps there are a group of parents who strongly believe a child should be able to identify sounds in words or do simple addition and subtraction before entering kindergarten. If so, do these parents engage children in different ways that support the acquisition of those skills?

Given the wide variability within the groups examined in this study, interpretation based on broad group definitions should be tentative. In particular, recent scholars have estimated that results from grouped analyses of people identified as Hispanic may not always be appropriate (Reardon & Gallindo, 2009). Future studies could examine variability in academic achievement trajectories for Hispanic subpopulations based upon parental country of origin or generational status.

The findings of the present study suggest several fruitful avenues of future work. Measures of children's social and emotional development as outcomes of interest were not considered here, but present a compelling expansion to the present work. Recent scholars have argued that children's approaches toward learning, which include persistence, emotional regulation, attentiveness, and flexibility (Fantuzzo et al., 2007; McWayne, Fantuzzo, & McDermott, 2004) may lay the foundation of basic academic skills that facilitate later acquisition of more advanced academic skills (Cunha, Heckman, Lochner, & Masterov, 2006). A recent study using data from the ECLS-K study has demonstrated that children's approaches toward learning are positively related to children's academic growth trajectories (Li-Grining et al., 2010). Parents' conceptions of school readiness and transition practices may predict children's social and emotional development during the transition to elementary school.

A particularly interesting finding, based on fitted trajectories, was the observed differences between Hispanic and African American children's academic achievement growth trajectories. Future research could explore these observed differences, specifically between children attending similar schools. Subsequent studies could include additional family and school characteristics as predictors of children's achievement trajectories in order to identify additional sources of variability between European American, African American, and Hispanic children's academic achievement as they progress in elementary school.

Conclusion

This study investigated the relationship between parents' conceptions of school readiness, transition practices, and children's academic growth using latent growth curve modeling. The findings demonstrated that on average, children from more affluent homes began school with higher levels of achievement and experienced more rapid rates of growth in reading, mathematics, and general knowledge in comparison to less affluent children. The results also illustrated that European American children in general began kindergarten with higher levels of academic achievement and experienced more rapid rates of academic growth in comparison to African American and Hispanic children from similar socioeconomic backgrounds. Moreover, fitted trajectories illustrated that although Hispanic children may begin kindergarten with lower average achievement in reading and mathematics compared to African American children, Hispanic children have more rapid rates of academic growth and have higher average scores the end of first grade. Therefore, this study highlights the importance of considering individual variation in children's achievement trajectories over time, particularly during important developmental transitions.

The primary substantive contribution of this study is that the findings broaden our understanding of home-based parental involvement during early childhood by illuminating the positive relationship between parents' school readiness beliefs, parenting practices, and children's early academic achievement. The findings suggest that parents who placed more importance on school readiness reported engaging children in more transition practices. Parents' school readiness beliefs were directly and indirectly related to children's beginning academic achievement. Considering parents' beliefs as an indirect predictor of children's academic achievement provides a more nuanced understanding of one way in which parents influence children's early education. The findings provide support for the theory of academic socialization posited by Taylor et al. (2004) which suggests parents' beliefs and values about schooling influence parenting behaviors, which in turn, influence children's transition to formal schooling.

This study also examined differences in parents' conceptions of school readiness. Although African American parents placed a little more importance on school readiness in comparison to European American parents, in general, the findings suggest that all parents place importance on children displaying certain school readiness skills and attributes regardless of racial, ethnic, or socioeconomic background. Although parents' readiness beliefs had a positive direct and indirect effect on children's early academic achievement and growth over time, there were no major differences in parents' conceptions of school readiness by race, ethnicity, or socioeconomic status. Therefore, the findings from this study do not indicate that gaps in children's early academic achievement are attributed to differences in parents' conceptions of school readiness.

This study has important practical implications for potential interventions aimed at reducing the early achievement gap. If parents' beliefs about school readiness positively

influence parenting practices, then possible interventions can look toward informing parents about school readiness even before the birth of their children and throughout their children's early developmental years. Having a broader understanding of the types of knowledge, skills, and attributes that contribute to a child's successful transition to elementary school in combination with a deeper understanding of developmentally appropriate practices which support children's early learning and development empowers parents to maximize their child's potential during early childhood.

Although parents have the potential to play an important role, the findings from this study are consistent with previous research which indicates that socioeconomic status exerts a strong positive influence on children's early academic achievement. Parental beliefs and transition practices were not able to overcome the cumulative advantage bestowed upon children from affluent families with highly educated parents. In the current policy context, there is an increasing awareness on the role of parents in supporting children's early learning and development, and a growing consensus for policy to shift more attention toward early interventions (Heckman, 2011). These early interventions should provide culturally sensitive encouragement and support for parents by informing parents about school readiness issues and developmentally appropriate ways to engage young children in order to support their transition to elementary school.

APPENDICES

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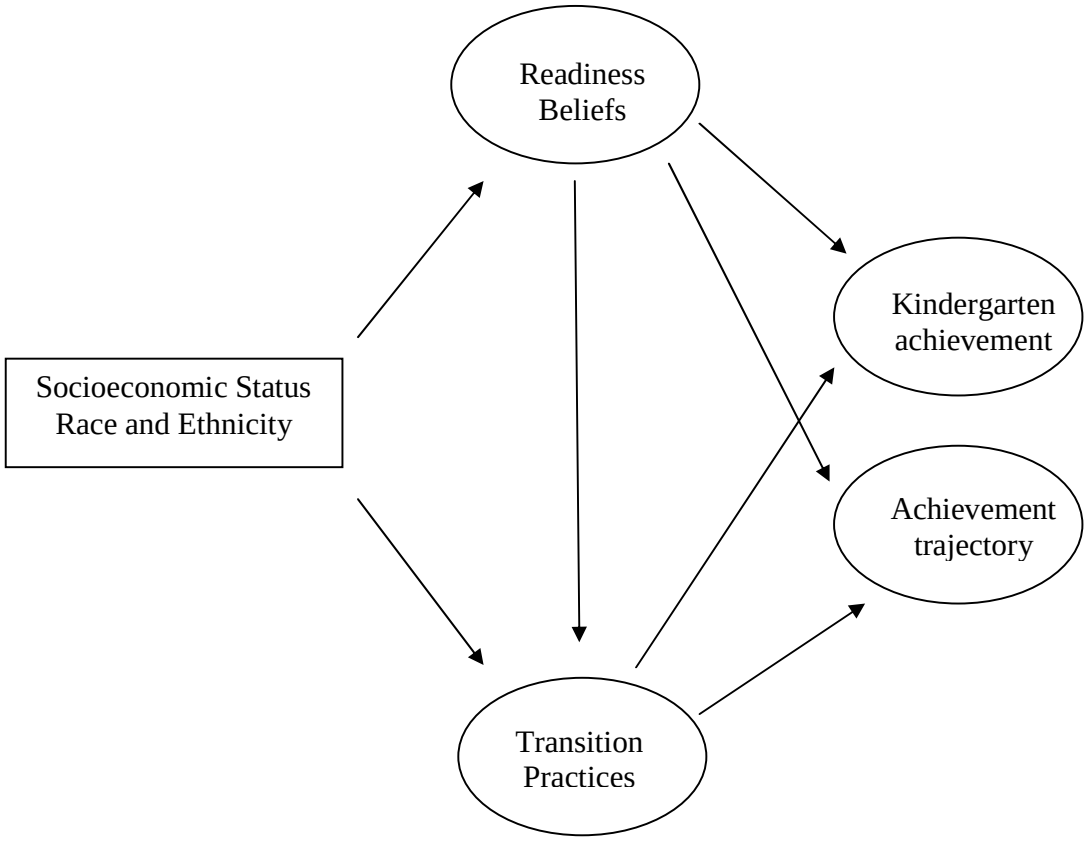

Figure 1. Conceptual model representing the influence of academic socialization on children's achievement.

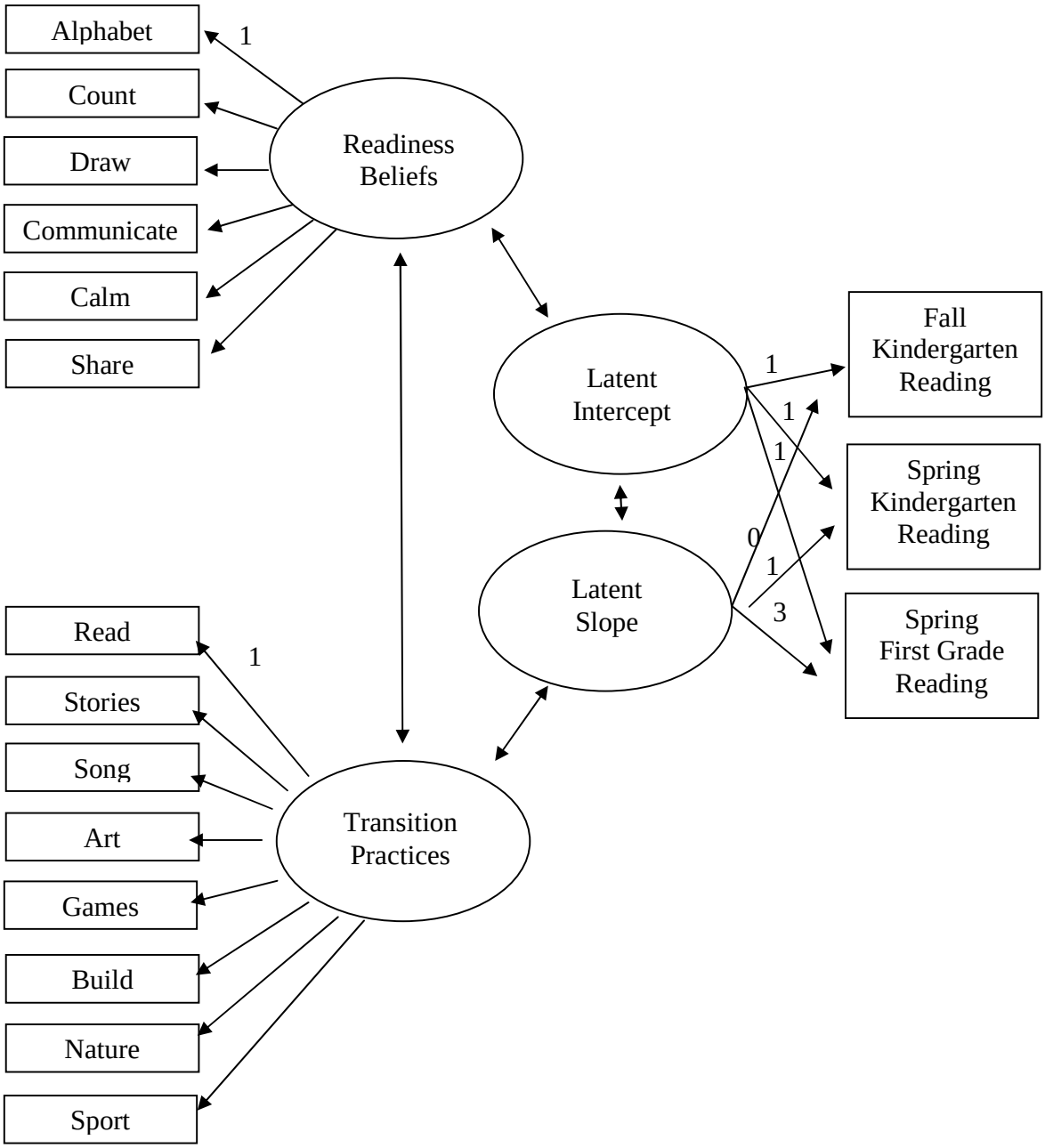

Figure 2. Measurement model of academic socialization and reading achievement. Final measurement model allows importance alphabet and importance count error terms to covary; not illustrated in path diagram.

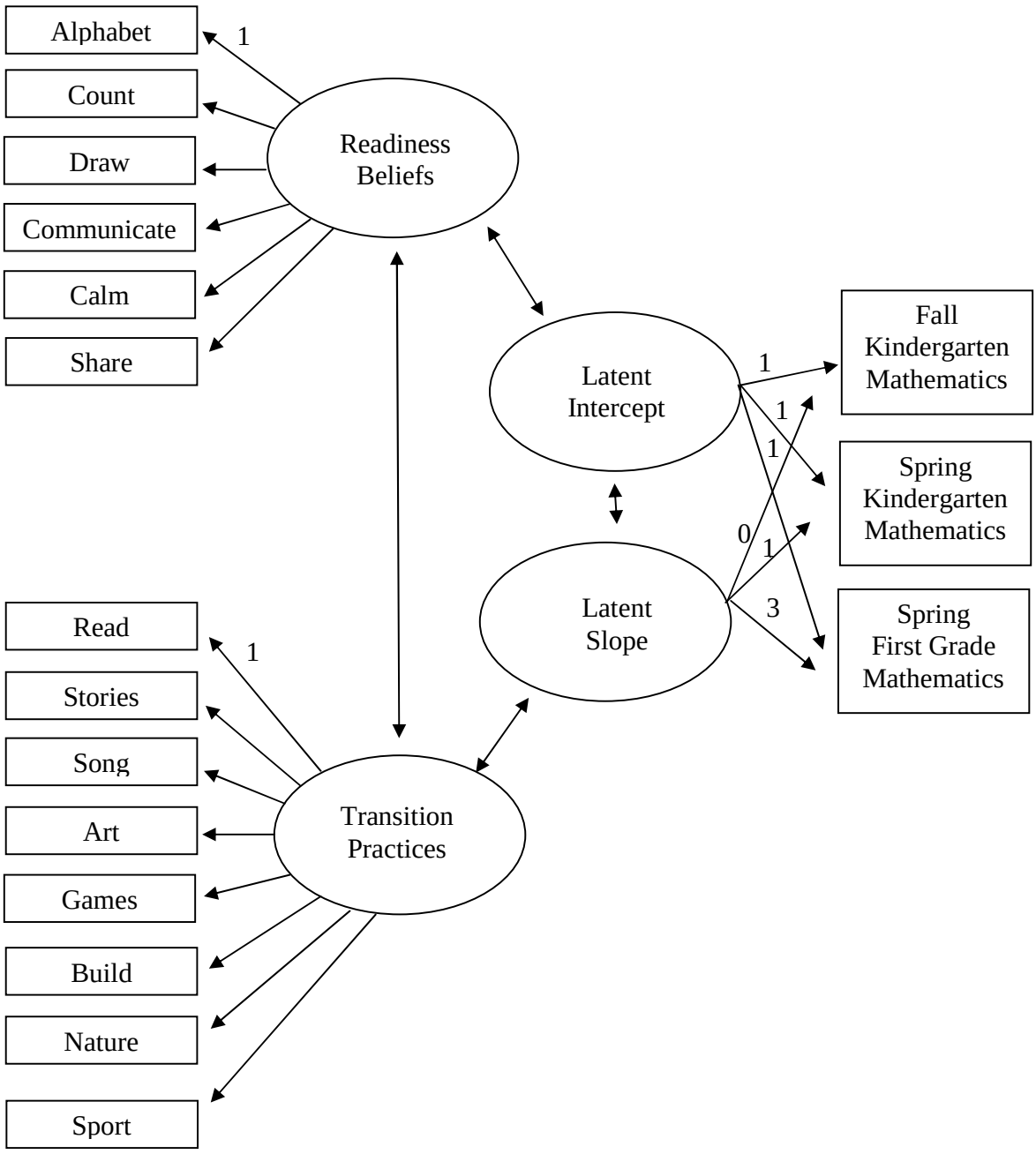

Figure 3. Measurement model of academic socialization and mathematics achievement. Final measurement model allows importance alphabet and importance count error terms to covary; not illustrated in path diagram.

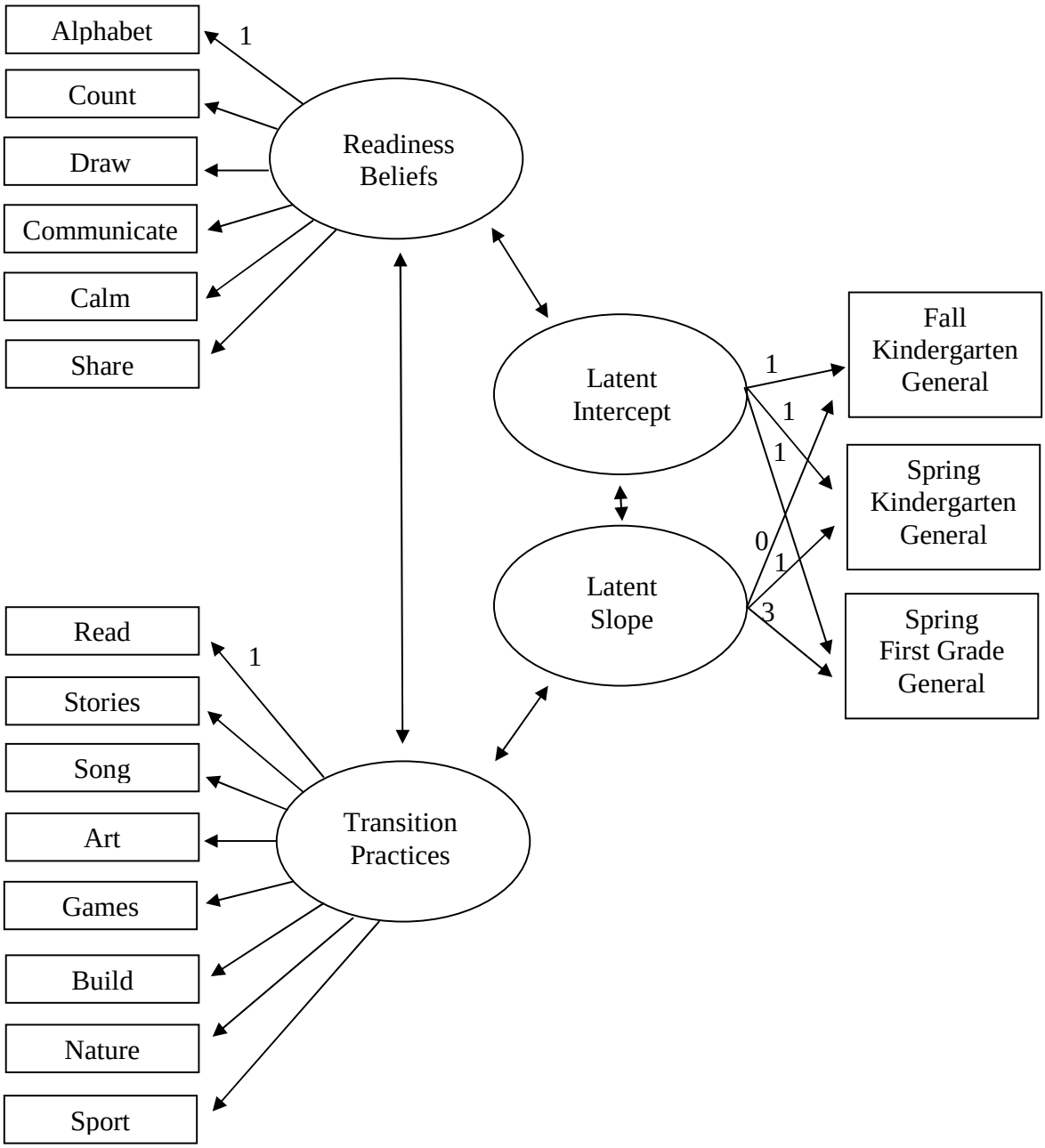

Figure 4. Measurement model of academic socialization and general knowledge achievement. Final measurement model allows importance alphabet and importance count error terms to covary; not illustrated in path diagram.

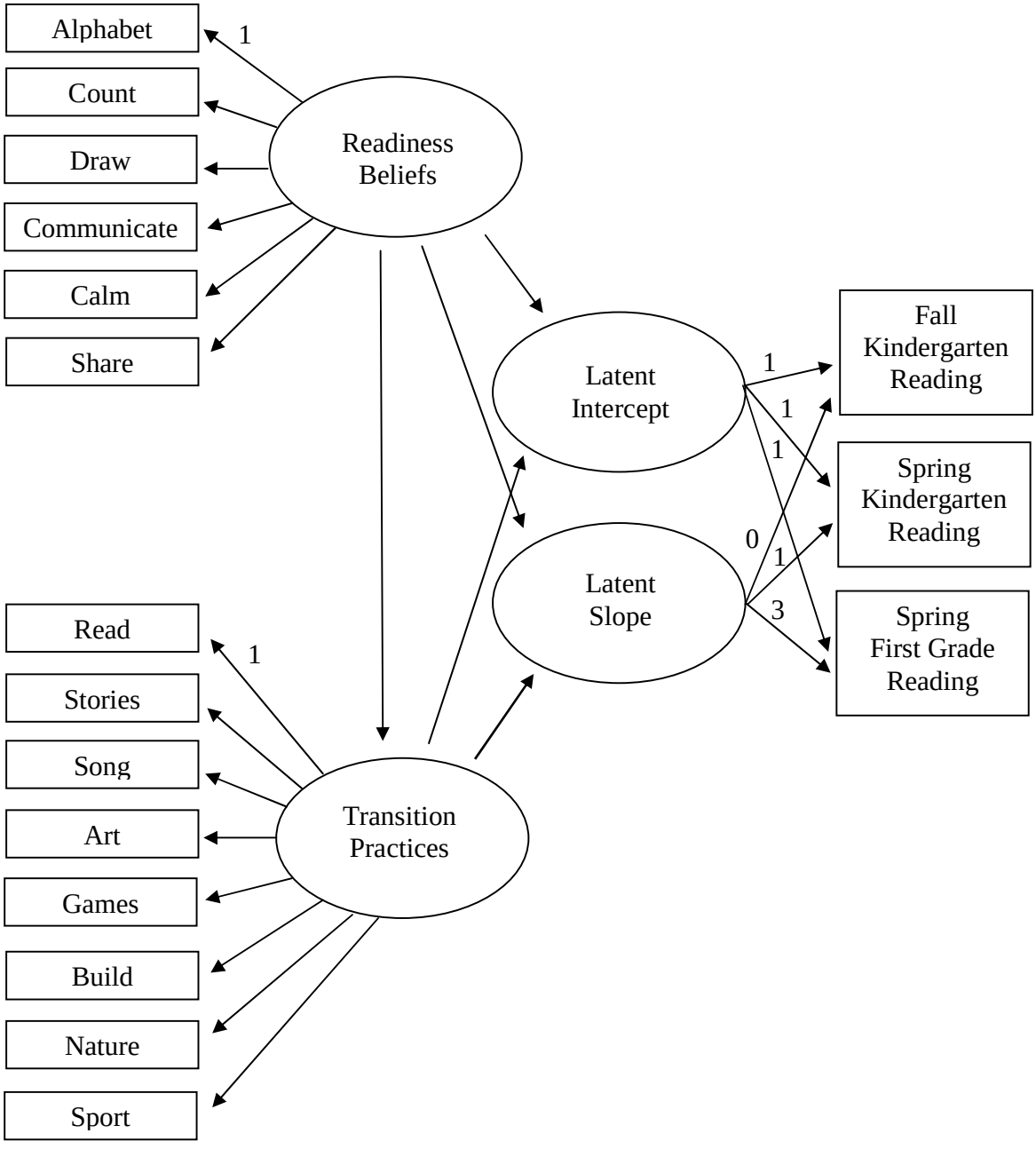

Figure 5. Structural model of academic socialization as a predictor of reading achievement. Socioeconomic status and race/ethnicity (African American and Hispanic dummy coded with European American as reference category) included in full structural model as covariates; not illustrated in path diagram.

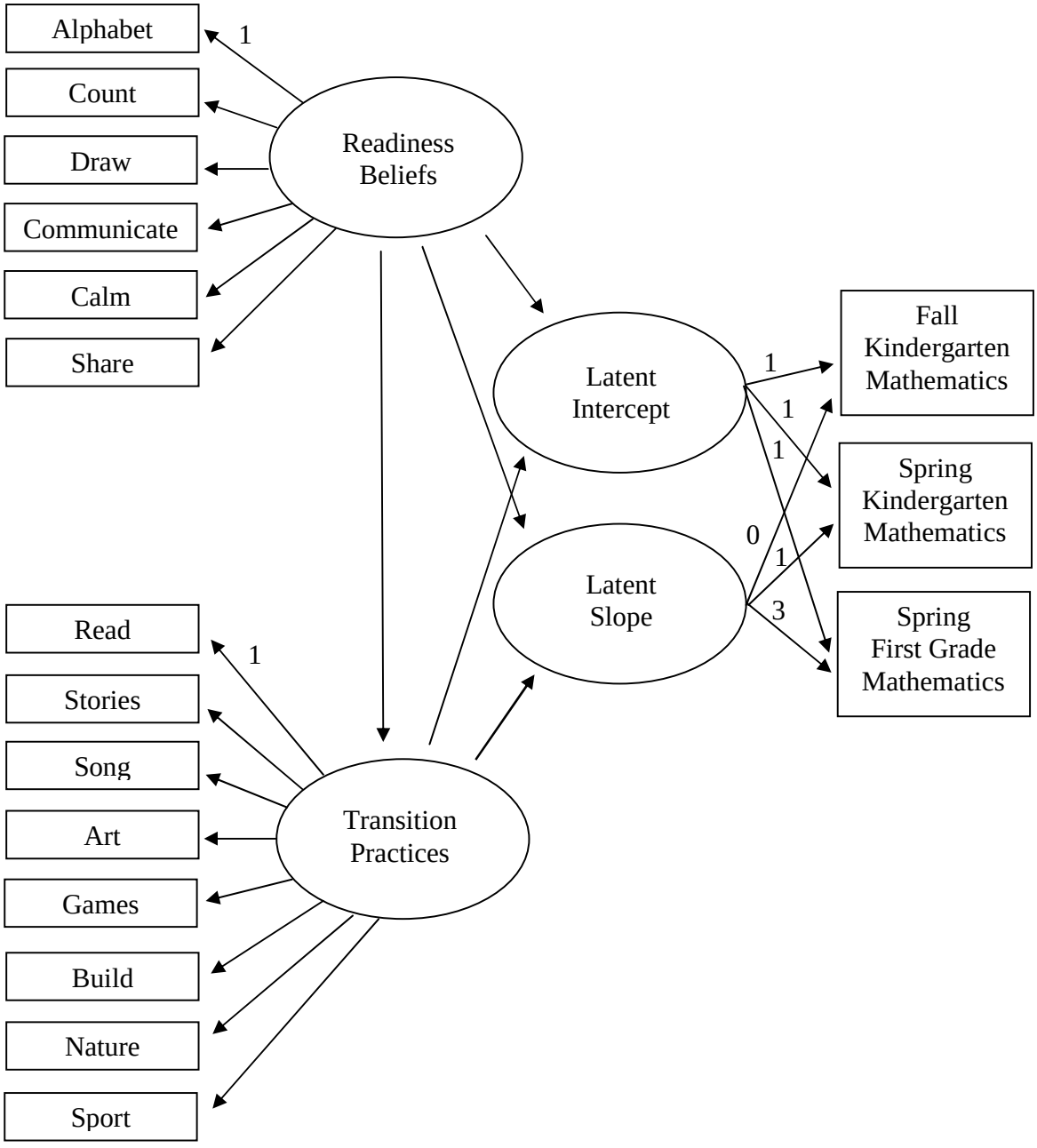

Figure 6. Structural model of academic socialization as a predictor of mathematics achievement. Socioeconomic status and race/ethnicity (African American and Hispanic dummy coded with European American as reference category) included in full structural model as covariates; not illustrated in path diagram.

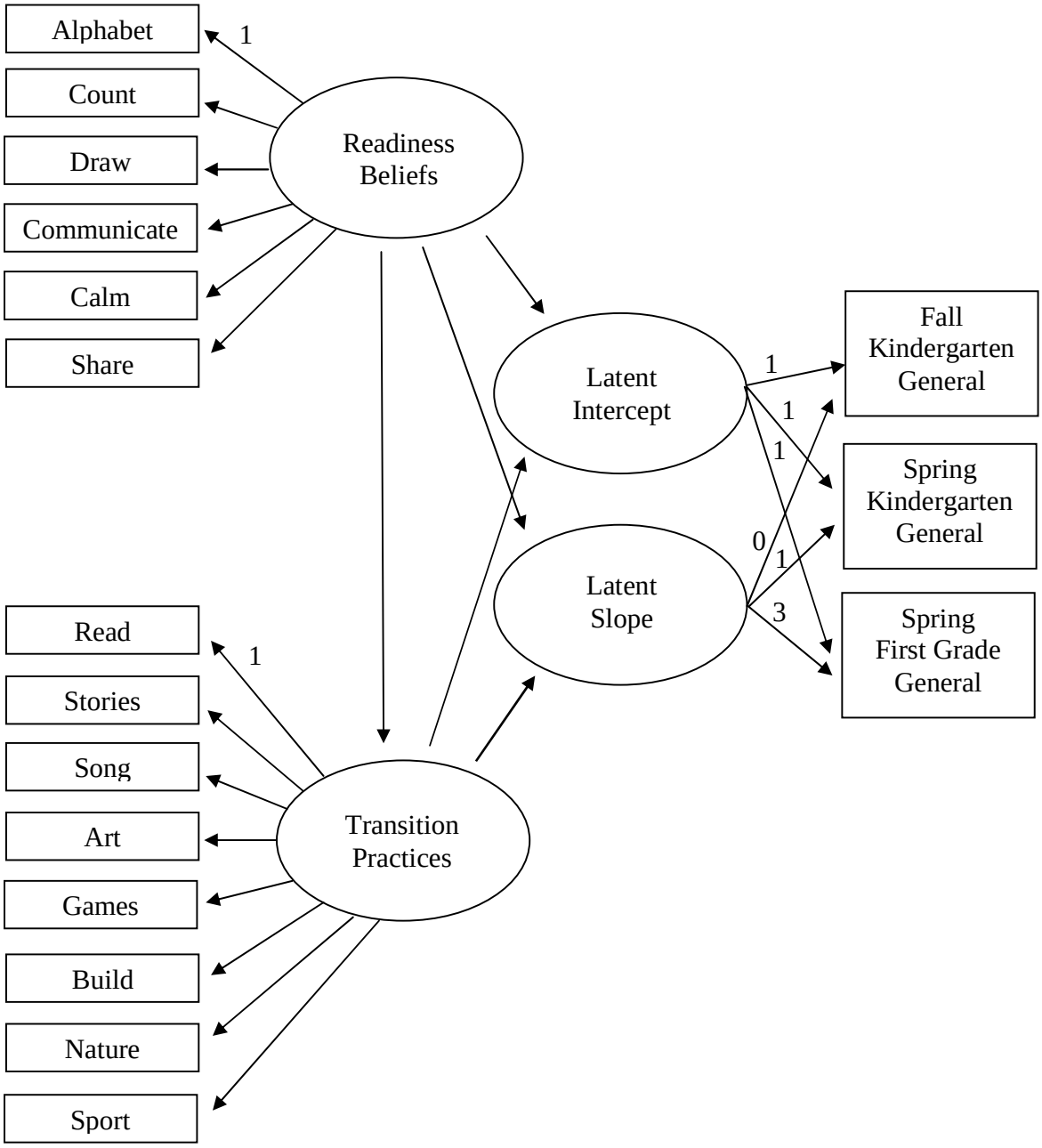

Figure 7. Structural model of academic socialization as a predictor general knowledge achievement. Socioeconomic status and race/ethnicity (African American and Hispanic dummy coded with European American as reference category) included in full structural model as covariates; not illustrated in path diagram.

Table 1

Summary Statistics and Missing Rates for Model Variables

Variable	*M*	*SD*	*N*	Missing rate (%)
Reading				
Fall kindergarten	26.90	9.53	12,261	7
Spring kindergarten	37.93	12.75	12,556	4
Spring first grade	66.87	20.58	12,857	2
Mathematics				
Fall kindergarten	20.97	8.61	13,061	1
Spring kindergarten	30.85	11.36	13,090	1
Spring first grade	53.95	15.99	13,102	1
General knowledge				
Fall kindergarten	22.23	7.44	12,238	7
Spring kindergarten	27.10	7.77	12,541	4
Spring first grade	34.28	7.58	12,850	2
Covariates				
Socioeconomic status	-.038	.78	12,816	2
Race/Ethnicity			13,133	0
European American	.62			
African American	.17			
Hispanic	.21			
Parent Belief indicators				
Importance count			12,452	5
Not important	.01			
Somewhat important	.07			
Important	.32			
Very important	.43			
Essential	.17			
Importance Share			12,458	5
Not important	.00			
Somewhat important	.00			
Important	.05			
Very important	.61			
Essential	.34			
Importance Draw			12,458	5
Not important	.00			
Somewhat important	.02			
Important	.24			
Very important	.52			
Essential	.22			
Importance Calm			12,456	5
Not important	.00			
Somewhat important	.01			
Important	.15			

Table 1 (cont'd)

Very important	.59		
Essential	.25		
Importance Alphabet		12,457	5
Not important	.01		
Somewhat important	.05		
Important	.25		
Very important	.50		
Essential	.19		
Importance Communicate		12,459	5
Not important	.00		
Somewhat important	.00		
Important	.06		
Very important	.58		
Essential	.36		
Transition practices			
Frequency Read		12,453	5
not at all	.01		
once or twice a week	.19		
3 to 6 times a week	.35		
everyday	.45		
Frequency tell stories		12,449	5
not at all	.08		
once or twice a week	.36		
3 to 6 times a week	.31		
everyday	.25		
Frequency sing songs		12,452	5
not at all	.05		
once or twice a week	.23		
3 to 6 times a week	.28		
everyday	.44		
Frequency play games		12,454	5
not at all	.04		
once or twice a week	.35		
3 to 6 times a week	.39		
everyday	.22		
Frequency make art		12,447	5
not at all	.07		
once or twice a week	.41		
3 to 6 times a week	.32		
everyday	20		
Frequency teach about nature		12,443	5
not at all	.20		
once or twice a week	.48		
3 to 6 times a week	.22		
everyday	.10		

Table 1 (cont'd)

Frequency build		12,444	5
not at all	.18		
once or twice a week	.44		
3 to 6 times a week	.25		
everyday	.13		
Frequency play sports		12,449	5
not at all	.10		
once or twice a week	.36		
3 to 6 times a week	.33		
everyday	.20		

Note. *N* varies due to missing data.

Table 2

Correlations Among Parents' Readiness Beliefs, Transition Practices, and Reading Achievement Outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Child outcomes																	
1. Fall K	-																
2. Spring K	.82	-															
3. Spring 1st	.67	.77	-														
Parent beliefs																	
4. Count	.07	.07	.03	-													
5. Share	.09	.10	.11	.36	-												
6. Draw	.07	.07	.05	.46	.47	-											
7. Calm	.01[a]	.03	.03	.36	.47	.43	-										
8. Alphabet	.08	.07	.04	.63	.36	.50	.44	-									
9. Communicate	.11	.12	.12	.24	.50	.37	.41	.33	-								
Practices																	
10. Read	.22	.21	.20	-.01[a]	.11	.05	.00[a]	-.02[a]	.09	-							
11. Story	.07	.07	.08	.07	.06	.07	.01[a]	.07	.08	.43	-						
12. Sing songs	.03	.05	.05	.07	.12	.08	.04	.07	.12	.21	.27	-					
13. Play games	.06	.05	.04	.05	.09	.06	.04	.07	.07	.28	.33	.26	-				
14. Art project	.04	.04	.05	.05	.07	.09	.03	.03	.08	.27	.28	.26	.34	-			
15. Teach nature	.12	.12	.12	-.01[a]	.12	.06	.01[a]	.00[a]	.12	.28	.30	.26	.30	.30	-		
16. Build	-.01[a]	-.01[a]	-.01[a]	.03	.05	.03	.01[a]	.00[a]	.01[a]	.25	.29	.20	.36	.32	.32	-	
17. Play sports	-.04	-.03	-.02	.05	.07	.02	.03	.03	.06	.20	.24	.24	.32	.27	.26	.32	-

Note. Polychoric correlations estimated between ordinal variables. Polyserial correlations estimated between ordinal and continuous variables. [a] Coefficient is *not* significant at the $p < .05$ level.

Table 3

Correlations Among Parents' Readiness Beliefs, Transition Practices, and Mathematics Achievement Outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Child outcomes																	
1. Fall K	-																
2. Spring K	.82	-															
3. Spring 1st	.71	.78	-														
Parent beliefs																	
4. Count	.03	.01	.01[a]	-													
5. Share	.13	.13	.12	.36	-												
6. Draw	.10	.06	.05	.47	.47	-											
7. Calm	.00[a]	.01[a]	.00[a]	.36	.47	.43	-										
8. Alphabet	.02	.01[a]	-.01[a]	.63	.36	.50	.44	-									
9. Communicate	.13	.13	.11	.24	.50	.37	.41	.33									
Practices																	
10. Read	.20	.18	.17	-.01[a]	.11	.05	.00[a]	-.02[a]	.09	-							
11. Story	.07	.05	.06	.07	.06	.07	.01[a]	.07	.08	.43	-						
12. Sing songs	.04	.02	.01[a]	.07	.12	.08	.04	.07	.12	.21	.27	-					
13. Play games	.08	.08	.05	.05	.09	.06	.04	.07	.07	.28	.33	.26	-				
14. Art project	.06	.06	.05	.05	.07	.09	.03	.03	.08	.27	.28	.26	.34	-			
15. Teach nature	.14	.14	.13	-.01[a]	.12	.06	.01[a]	.00[a]	.12	.28	.30	.26	.30	.30	-		
16. Build	.02	.03	.02	.03	.05	.03	.01[a]	.01[a]	.01[a]	.25	.29	.20	.36	.32	.32	-	
17. Play sports	.02	.02[a]	.01[a]	.05	.06	.02	.03	.03	.06	.20	.24	.24	.32	.27	.26	.32	-

Note. Polychoric correlations estimated between ordinal variables. Polyserial correlations estimated between ordinal and continuous outcomes. [a] Coefficient is *not* significant at the $p < .05$ level.

Table 4

Correlations Among Parents' Readiness Beliefs, Transition Practices, and General Knowledge Achievement Outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Child outcomes																	
1. Fall K	-																
2. Spring K	.86	-															
3. Spring 1st	.79	.84	-														
Parent beliefs																	
4. Count	-.08	-.09	-.09	-													
5. Share	.10	.12	.14	.36	-												
6. Draw	.03	.04	.02	.48	.46	-											
7. Calm	.04	-.03	-.04	.36	.47	.43	-										
8. Alphabet	-.10	-.08	-.09	.63	.36	.50	.44	-									
9. Communicate	.13	.14	.14	.24	.50	.37	.41	.33									
Practices																	
10. Read	.25	.26	.25	-.01[a]	.11	.05	.00[a]	-.02[a]	.09	-							
11. Story	.08	.09	.09	.07	.06	.07	.01[a]	.07	.08	.43	-						
12. Sing songs	.02	.03	.02	.07	.12	.08	.04	.07	.12	.21	.27	-					
13. Play games	.05	.05	.05	.05	.09	.06	.04	.07	.07	.28	.33	.26	-				
14. Art project	.09	.09	.09	.05	.07	.09	.03	.03	.08	.27	.28	.26	.34	-			
15. Teach nature	.21	.22	.21	-.01[a]	.12	.06	.01[a]	.00[a]	.12	.28	.30	.26	.30	.30	-		
16. Build	.03	.03	.05	.03	.05	.03	.01[a]	.01[a]	.01[a]	.25	.29	.20	.36	.32	.32	-	
17. Play sports	-.02	.00[a]	.01[a]	.05	.07	.02	.03	.03	.06	.20	.24	.24	.32	.27	.26	.32	-

Note. Polychoric correlations estimated between ordinal variables. Polyserial correlations estimated between ordinal and continuous variables. [a] Coefficient is *not* significant at the $p < .05$ level.

Table 5

Summary of Model Fit Indices for all Measurement and Structural Models Under Study

	χ^2	*df*	*p* <	CFI	TLI	RMSEA	*N*
Reading							
Measurement model	552.58	30	.001	.96	.97	.036	13,108
Structural model	578.73	36	.001	.96	.96	.034	12,801
Mathematics							
Measurement model	517.50	30	.001	.96	.96	.035	13,128
Structural model	503.08	37	.001	.96	.96	.031	12,812
General knowledge							
Measurement model	682.77	26	.001	.92	.93	.044	13,118
Structural model	506.04	32	.001	.95	.95	.034	12,806

Note. N varies due to missing values.

Table 6

Factor Loadings of Indicators for Structural Model of Academic Socialization and Reading Achievement

Factors/Items	Unstandardized factor loadings	Standardized factor loadings	R^2
Readiness beliefs			
Importance alphabet[a]	1.00	.66	.44
Importance count	.90***	.60	.35
Importance draw	1.06***	.70	.49
Importance communicate	.92***	.61	.37
Importance calm	1.00***	.66	.43
Importance share	1.07***	.70	.50
Transition practices			
Frequency read[a]	1.00	.52	.27
Frequency tell stories	1.15***	.58	.33
Frequency sing songs	.90***	.46	.21
Frequency make art	1.06***	.55	.30
Frequency play games	1.17***	.60	.36
Frequency build together	1.05***	.55	.30
Frequency teach nature	1.03***	.54	.29
Frequency play sports	.96***	.50	.25
Latent Intercept			
Fall kindergarten reading[b]	1.00	.98	
Spring kindergarten reading[b]	1.00	.73	
Spring first grade reading[b]	1.00	.46	
Latent Slope			
Fall kindergarten reading[b]	0	0	
Spring kindergarten reading[b]	1.00	.34	
Spring first grade reading[b]	3.00	.64	

Note. [a] Unstandardized factor loading was fixed to equal 1.0 and was not tested for significance. [b] Unstandardized factor loadings were fixed to estimate growth curve. Model fit statistics, X^2 (36, N = 12,801) = 578.73, RMSEA = .034, CFI =.96, TLI = .96. R^2 value represents the amount of variation for the observed variable explained by the latent factor. R^2 fall kindergarten reading = .96; R^2 spring kindergarten reading = .81; R^2 spring kindergarten reading = .83. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7

Structural Model Estimates of Academic Socialization as a Predictor of Reading Achievement

Latent factor	1	2	3	4	5	6	7
1. Intercept			1.87*** / .13	.49* / .03	4.13*** / .34	-1.75*** / -.07	-2.17*** / -.09
2. Slope			.48*** / .07	.13 / .02	1.42*** / .25	-1.47*** / -.12	-.60*** / -.06
3. Beliefs					-.02 / .02	.09** / .05	-.01 / .01
4. Practices			.12*** / .15		.12*** / .17	-.03 / .02	-.15*** / -.11
Covariates							
5. SES							
6. African American							
7. Hispanic							

Note. The first estimate is unstandardized, and the second is standardized. Columns represent exogenous factors (predictors) and rows represent endogenous factors (outcomes). Model fit statistics, X^2 (36, N = 12,801) = 578.73, RMSEA = .034, CFI =.96, TLI = .96. Mean intercept = 27.08, Mean slope = 13.78. R^2 intercept =.174; R^2 slope =.105; R^2 beliefs =.003; R^2 behavior =.075. * $p < .05$, ** $p < .01$, *** $p < .001$.

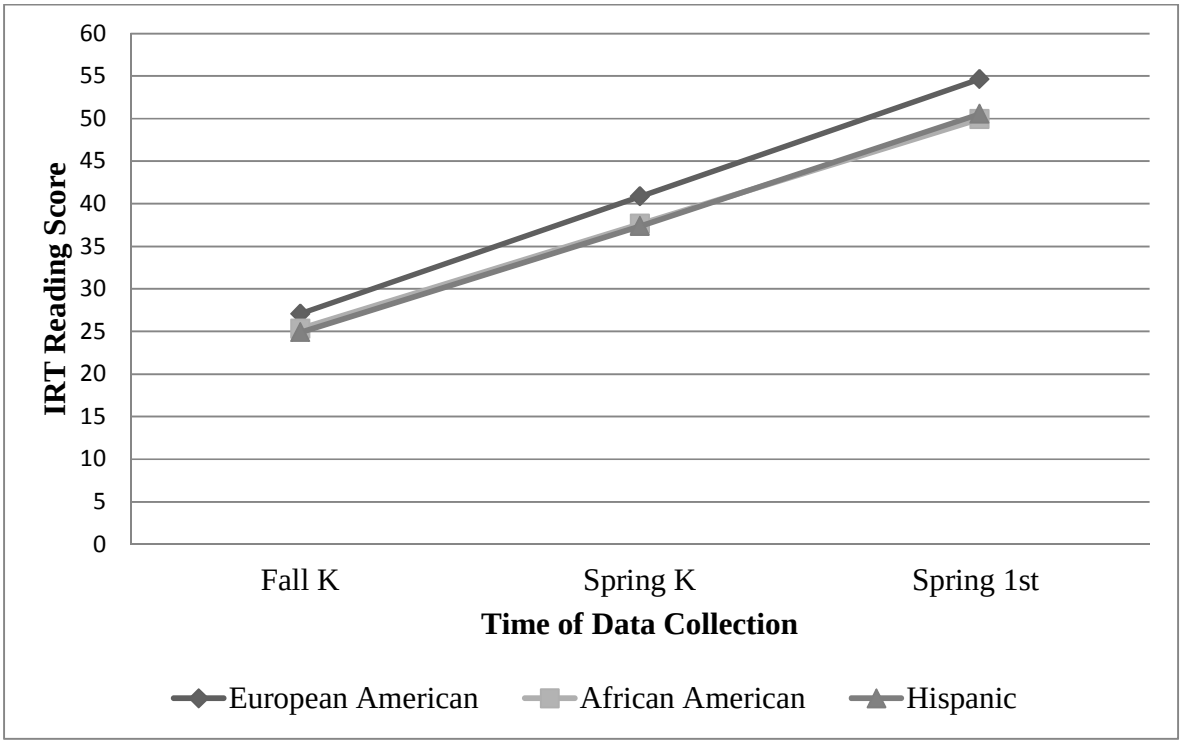

Figure 8. Reading achievement trajectories by race and ethnicity conditional on socioeconomic status

Table 8

Factor Loadings of Indicators for Structural Model of Academic Socialization and Mathematics Achievement

Factors/Items	Unstandardized factor loadings	Standardized factor loadings	R^2
Readiness beliefs			
Importance alphabet[a]	1.00	.65	.43
Importance count	.90***	.59	.35
Importance draw	1.07***	.70	.49
Importance communicate	.93***	.61	.37
Importance calm	1.01***	.66	.44
Importance share	1.09***	.71	.50
Transition practices			
Frequency read[a]	1.00	.52	.27
Frequency tell stories	1.12***	.58	.33
Frequency sing songs	.89***	.46	.21
Frequency make art	1.07***	.55	.30
Frequency play games	1.17***	.61	.36
Frequency build together	1.07***	.55	.30
Frequency teach nature	1.04***	.54	.29
Frequency play sports	.96***	.50	.25
Latent Intercept			
Fall kindergarten mathematics[b]	1.00	.98	
Spring kindergarten mathematics[b]	1.00	.75	
Spring first grade mathematics[b]	1.00	.53	
Latent Slope			
Fall kindergarten mathematics[b]	0	0	
Spring kindergarten mathematics[b]	1.00	.29	
Spring first grade mathematics[b]	3.00	.62	

Note. [a] Unstandardized factor loading was fixed to equal 1.0 and was not tested for significance. [b] Unstandardized factor loadings were fixed to estimate growth curve. R^2 value represents the amount of variation for the observed variable explained by the latent factor. Model fit statistics, X^2 (37, N = 12,812) = 503.08, RMSEA = .031, CFI = .96, TLI = .96. R^2 fall kindergarten mathematics =.96; R^2 Spring kindergarten mathematics =.78; R^2 Spring first grade mathematics = .88.
* p < .05, ** p < .01, *** p < .001.

Table 9

Structural Model Estimates of Academic Socialization as a Predictor of Mathematics Achievement

Latent factor	1	2	3	4	5	6	7
1. Intercept			1.34*** / .10	.47* / .03	3.93*** / .36	-3.38*** / -.15	-3.75*** / -.17
2. Slope			.30*** / .06	-.04 / .01	.870*** / .21	-1.68*** / -.19	-.50** / -.06
3. Beliefs					-.02 / -.02	.09** / .05	-.01 / -.01
4. Practices			.12*** / .15		.12*** / .17	-.03 / -.02	-.15*** / -.11
Covariates							
5. SES							
6. African American							
7. Hispanic							

Note. The first estimate is unstandardized, and the second is standardized. Columns represent exogenous factors (predictors) and rows represent endogenous factors (outcomes). Model fit statistics, X^2 (36, N = 12,812) = 503.08, RMSEA = .031, CFI = .96, TLI = .96. Mean intercept = 22.31 Mean slope = 11.41. R^2 intercept = .24; R^2 slope = .10; R^2 beliefs = .003; R^2 behavior = .075. * $p < .05$, ** $p < .01$, *** $p < .001$.

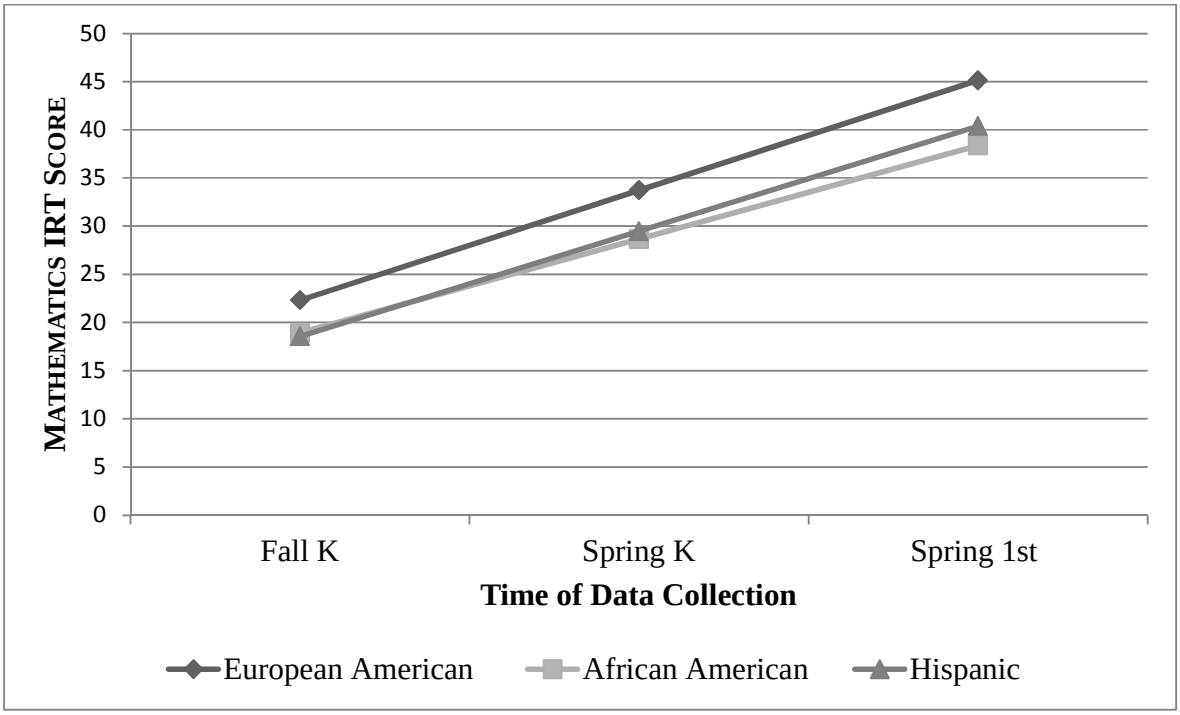

Figure 9. Mathematics achievement trajectories by race/ethnicity conditional on socioeconomic status

Table 10

Factor Loadings of Indicators for Structural Model of Academic Socialization and General Knowledge Achievement

Factors/Items	Unstandardized factor loadings	Standardized factor loadings	R^2
Readiness beliefs			
Importance alphabet[a]	1.00	.65	.42
Importance count	.90***	.58	.34
Importance draw	1.09***	.70	.49
Importance communicate	.95***	.61	.37
Importance calm	1.03***	.66	.44
Importance share	1.10***	.71	.50
Transition practices			
Frequency read[a]	1.00	.52	.27
Frequency tell stories	1.10***	.58	.33
Frequency sing songs	.88***	.46	.21
Frequency make art	1.06***	.55	.31
Frequency play games	1.15***	.60	.36
Frequency build together	1.04***	.55	.30
Frequency teach nature	1.04***	.54	.29
Frequency play sports	.94***	.49	.24
Latent Intercept			
Fall kindergarten general[b]	1.00	.96	
Spring kindergarten general[b]	1.00	.93	
Spring first grade general[b]	1.00	.96	
Latent Slope			
Fall kindergarten general[b]	0	0	
Spring kindergarten general[b]	1.00	.19	
Spring first grade general[b]	3.00	.58	

Note. [a] Unstandardized factor loading was fixed to equal 1.0 and was not tested for significance. [b] Unstandardized factor loadings were fixed to estimate growth curve. Model fit statistics, X^2 (32, N = 12,806) = 506.04, RMSEA = .034, CFI = .95, TLI = .95. R^2 value represents the amount of variation for the observed variable explained by the latent factor. R^2 fall kindergarten general = .93; R^2 spring kindergarten general = .83; R^2 spring first grade general = .99. * p < .05, ** p < .01, *** p < .001.

Table 11

Structural Model Estimates of Academic Socialization as a Predictor of General Knowledge Achievement

Latent factor	1	2	3	4	5	6	7
1. Intercept			.40** / .04	1.02*** /.07	3.28*** / .35	-5.58*** / -.29	-3.72*** / -.21
2. Slope			.02 / .01	-.05 / -.02	.01 / .01	.04 / .01	-.34*** / -.10
3. Beliefs					-.02 / .02	.09** / .05	-.01/ -.01
4. Practices			.12*** / .15		.12*** / .17	-.03 / -.02	-.15*** / -.11
Covariates							
5. SES							
6. African American							
7. Hispanic							

Note. The first estimate is unstandardized, and the second is standardized. Columns represent exogenous factors (predictors) and rows represent endogenous factors (outcomes). Model fit statistics, X^2 (32, N = 12,806) = 506.04, RMSEA = .034, CFI = .95, TLI = .95. Mean intercept = 24.20, Mean slope = 4.12. R^2 intercept = .324; R^2 slope = .01; R^2 beliefs = .003; R^2 behavior = .076. * $p < .05$, ** $p < .01$, *** $p < .001$.

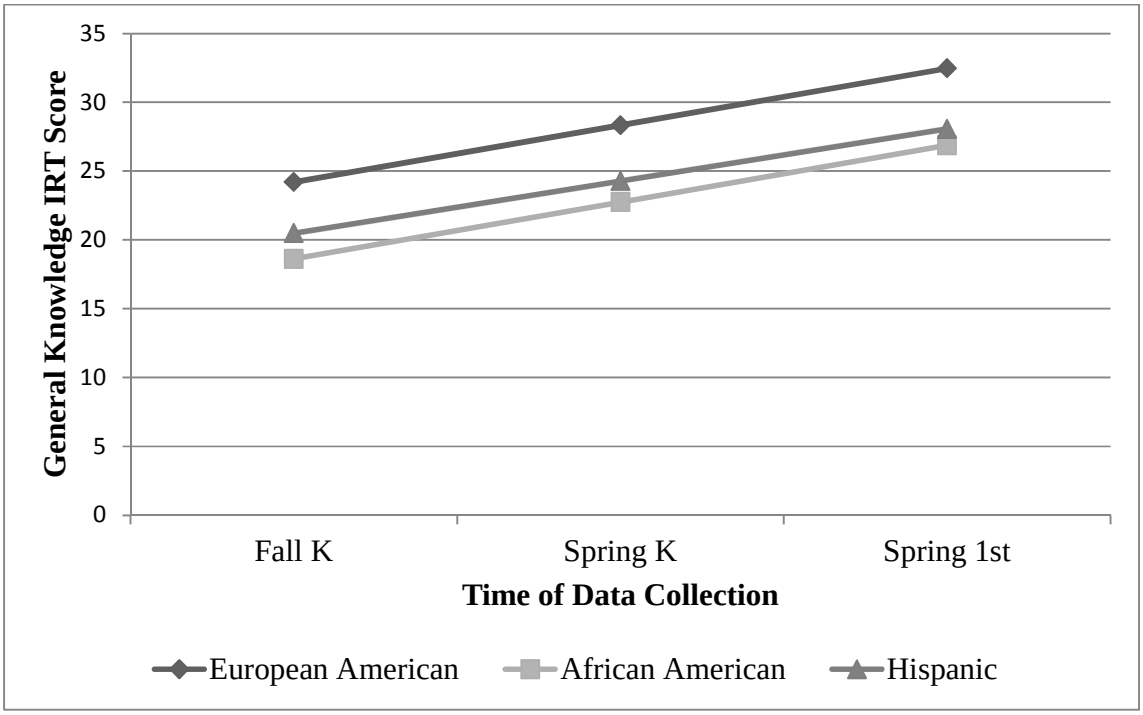

Figure 10. General knowledge achievement trajectories by race and ethnicity conditional on socioeconomic status

Table 12

Tests of Mediation for Structural Equation Models from Parents' Beliefs to Achievement Outcomes

	Total effect		Direct effect		Indirect effect	
Path	Unstandardized (*SE*)	Standardized	Unstandardized (*SE*)	Standardized	Unstandardized (*SE*)	Standardized
Reading						
Belief → intercept	1.928 (.17)***	.135	1.869 (.17)***	.131	.059 (.03)*	.004
Belief → slope	.494 (.11)***	.074	.479 (.11)***	.072	.015 (.018)	.002
Mathematics						
Belief → intercept	1.398 (.14)***	.107	1.34 (.14)***	.103	.057 (.02)**	.004
Belief → slope	.274 (.093)**	.054	.280 (.09)**	.055	-.005 (.01)	-.001
General knowledge						
Belief → intercept	.518 (.134)***	.046	.391 (.134)**	.035	.127 (.024)***	.011
Belief → slope	.010 (.035)	.005	.016 (.036)	.007	-.006 (.007)	-.003

Note. Effect sizes are standardized regression coefficients and can be interpreted as the standard deviation change in the outcome variable associated with a change of 1 SD in parent beliefs and behaviors (Hedges, 2008). Indirect effects are based on a series of mediators; the resulting coefficients are quite small even though each of the contributing path coefficients are sometimes in the medium range. * $p < .05$, ** $p < .01$, *** $p < .001$.

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