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SONYA CONNER
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REPRODUCING (DIS)ADVANTAGE: THE ROLE OF FAMILY-BASED, SCHOOL-BASED, AND CUMULATIVE-BASED PROCESSES

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF SOCIOLOGY

BY

_____
Dr. Ann M. Beutel, Chair

_____
Dr. Loretta E. Bass

_____
Dr. Stephanie Burge

_____
Dr. B. Mitchell Peck

_____
Dr. Kermyt G. Anderson

To my daughter, Nadia, in appreciation of the love and joy she brings to my life.

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to note that the content of this dissertation is solely the responsibility of the author and does not necessarily represent the official views of the ICPSR or the NICHD.

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Abstract

Pierre Bourdieu's theory of cultural and social reproduction (Bourdieu 1973; Bourdieu and Passeron 1977) offers a model that can be used to explain the existence of persistent educational stratification in the United States, which contributes to perpetuation of social inequality, more generally. This theoretical model purports three mechanisms through which structured social inequalities are perpetuated and reproduced: (1) the effective transmission of family-based cultural knowledge and skills to children, (2) teachers' and schools' preference for students who possess these family-based cultural resources (in favor of upper- and middle-class children), which influences academic achievement, and (3) the cumulative effect of high achievement at the start of school—as a result of having entered the school system with cultural resources valued by the education system—on subsequent achievement. While qualitative research has provided evidence in support of Bourdieu's framework, quantitative research has not confirmed Bourdieu's propositions. I used data from the NICHD Study of Early Child Care and Youth Development (SECCYD) to investigate the mechanisms through which family-based, school-based and cumulative processes contribute to early educational achievement. I asked the following questions: (1) How large are the SES effects on academic achievement (math and reading) prior to schooling (age 4½), and how much of the difference is mediated by family-based cultural resources (parental habitus and parenting practices)?; (2) Do kindergarten teachers perceive themselves as closer to students with higher levels of SES (net of the student's academic abilities), and do kindergarten teachers' ratings mediate the relationship

between SES and academic achievement in first grade?; (3) Does SES have effects on academic achievement post school entry (first grade), even when controlling for academic achievement prior to school entry, family-based cultural resources, and the student-teacher relationship? This study finds that family-based cultural resources partially mediate the effect of SES on first grade academic achievement, and the student-teacher relationship does not mediate the effect of SES on first grade academic achievement. Further, this study finds some support for a cumulative effect of (dis)advantage.

Chapter 1: Introduction

The ideology of the American Dream, the idea that everyone has the opportunity to achieve prosperity and success as long as they "work hard" and "play by the rules," is a commonly held belief in the United States (Hochschild 1995; McNamee and Miller 2004, 2009). This ideology assumes that everyone starts off on a level playing field and that rewards are based on individual merit. The majority of Americans subscribe to this perspective (Huber and Form 1973; Kluegel and Smith 1986; Ladd 1994), despite the fact that historical evidence and current realities run contrary to this notion (e.g., McNamee and Miller 2009). The belief in meritocracy is sustained by one of America's core cultural values, *individualism*—that is, that individuals should and *do* have freedom of choice about most aspects of their lives, including the freedom to achieve based on her or his individual merit. This logic lends itself to the view that if a person is unable to achieve upward mobility, she or he is either lacking in personal ability or ambition. Consequently, if social inequality exists, it is "justified" by the ideology of meritocracy, which assumes the most talented, hardworking, and deserving people get ahead (McNamee and Miller 2004, 2009).

An interesting paradox to the American Dream, as noted by such scholars as Hochschild and Scovronick (2004), is that most Americans fail to realize that a family's ability, or lack thereof, to invest in better neighborhoods with better schools or in educational programs and activities that bolster their

children's cognitive abilities and talents allows some children to start off with advantages not available to children with less "successful" (i.e., middle- or upper-class) parents. The advantages or disadvantages children inherit from their families culminate over time, creating disparate advantages in educational achievement—an essential tool for realizing the "American Dream"—and impacting an individual's life chances.

Still, should meritocracy not act as a buffer from a disadvantaged family socioeconomic background by providing equal educational opportunity for all children? In principle, an educational system in a meritocratic society should provide considerable opportunities for capable and hardworking children from lower status families to achieve educational success, and require children from higher status families to work just as hard in school to prove their merit. Thus, in a meritocratic society, there should be little to no association between social class background and educational achievement (McNamee and Miller 2009). Yet, inequalities in educational opportunities and achievement across social class and race are well-documented (Aschaffenburg and Maas 1997; Ballantine 2001; Bourdieu and Passeron [1970] 1977; Bowles and Gintis 1976, 2002; Kozol 1991; Sacks 2003). Furthermore, there is little variability in intergenerational status; most working class occupational positions are filled with individuals from working class family backgrounds (and racial-ethnic minorities) (e.g., Bowles and Gintis 1976). How is this possible?

Some claim that the explanation lies in the fact that meritocracy in American society is a myth (McNamee and Miller 2009). Rather than facilitating opportunities for social mobility, these critics see social institutions, namely the education system, as *perpetuating* social inequalities by providing more privileged individuals with greater opportunities to succeed and those who are less advantaged with greater chances to fail (McNamee and Miller 2009). Consequently, while schools provide tools for fostering cognitive ability, which can be used to achieve occupational and economic success, they also implement a "hidden curriculum," or unwritten social rules and expectations for behavior (Collins 1979).

According to this logic, in capitalist societies, such as the United States, the economy dictates the organization of schools and the socialization of children who attend them. They argue that children are sorted—largely through curriculum tracking and ability grouping within and between schools—based on class and race (Oakes 1995), and this sorting process prepares them for entering an unequal occupational structure (Bowles and Gintis 1976, 2002; Kozol 1991). From this viewpoint, the education system socializes lower class children to behave in submissive ways that prepare them to enter into lower paying, "blue collar" jobs directly after high school, while upper class children are taught to think critically and be autonomous, in preparation to move on to college right after high school and later become employed in professional occupations (Kohn 1969). Thus, the education

system produces distinct personality types and cognitive abilities based on one's social class position, rather than inherent skills, and these dissimilarities create disparate opportunities for different class groups. From this perspective, economic institutions impact the structure of educational institutions *and* individual human development (i.e., the acquisition of cognitive skills), both of which affect individual occupational attainment and economic success and serve to reproduce the existing stratified class structure (Bowles and Gintis 1976, 2002). Schools shape the values, expectations, and attitudes that prepare people from all class backgrounds to tolerate inequality, accept their "fate," and support an unequal system that they believe rewards individual merit (Bowles and Gintis 1976, 2002; Kozol 1991). Furthermore, within schools there is insistence on obedience, politeness, punctuality, neatness and respect for authority—all of which are favorable characteristics in the labor market —and children who possess appropriate attitudes and personalities are rewarded at school (Bowles and Gintis 1976, 2002; Farkas 2008).

According to economically-based stratification theories, then, schools perpetuate inequality and propagate the myth of the American Dream by making inequality seem legitimate, and they do so "by structuring social interactions and individual rewards to replicate the environment of the workplace" (Bowles and Gintis 2002:1). In their arguments, Samuel Bowles and Herbert Gintis (1976) note that, in general, educators are good hearted and well-intentioned teachers who, themselves, believe in meritocracy and try their

best to deliver it. Nevertheless, the fundamental structure of the school as a social institution is not a meritocratic institution, but a tool of socializing individuals for capitalist purposes (Bowles and Gintis 1976).

However, other stratification theorists, such as Pierre Bourdieu (1973), argue that economic explanations, such as those described above, do not thoroughly explain the process through which the educational system reproduces an unequal social structure; instead, educational inequalities can only be understood by examining both economic *and* cultural factors. Bourdieu agrees with theorists like Bowles and Gintis that the schools contribute to the reproduction of an unequal social structure; however, he posits that this process is influenced not by the economy and labor market, but primarily by the dominant *culture*. He does not let teachers "off the hook" in the same way as do Bowles and Gintis (2002). Instead, Bourdieu argues that teachers and administrators, along with students and their parents, play a role in the process of reproducing (dis)advantage within the school system and subsequently, society. Bourdieu differs from stratification theorists who focus exclusively on the role of social structure, and focuses instead on the interplay between social structure and relations between decision-making agents within *fields*, such as the education system.[1]

[1] Bourdieu does not view agents as "rational choice" actors, who make decisions based solely on weighing out the costs and benefits. On the contrary, he never removes the actor from the social context (e.g., structural constraints) in which decision-making occurs.

Through his theory of cultural and social reproduction, Bourdieu posited that the education system reproduces inequality by distributing rewards (e.g., in the form of grades or extra attention from teachers) to students not based on their "merit," but instead, on whether or not they belong to the dominant *cultural* group of society. Inherit in this theoretical argument as it applies to the school system in the U.S. is the idea that teachers typically come from middle-class backgrounds; therefore, they favor students who demonstrate possession of middle-class culture (styles, habits, attitudes, behaviors, etc.), which is inherited through family socialization processes. Moreover, embedded in the school system itself are ideas and biases that reflect middle-class culture. Thus, part of the school's "hidden curriculum" involves reproducing the cultural hierarchy (which is linked to economic resources) by rewarding appropriate *cultural* attitudes and behaviors (Bourdieu 1973; Bourdieu and Passeron 1977). The reproduction of inequality becomes invisible, appearing as the "natural" consequence of a meritocratic process. "Through socialization and education, relatively permanent cultural dispositions are internalized; these in turn, structure individual and group behaviour in ways that tend to reproduce existing class relations" (Swartz 1997:547).

Hence, children from higher socioeconomic backgrounds can typically draw on family-based cultural resources—parents' *habitus* (or world view), which is similar to that of most teachers and appreciated within the education system, and parenting/socialization practices (Lareau 2003) that develop the

child's *cultural capital* (cultural knowledge and skills valued within the education system) (Bourdieu 1977). (In subsequent sections, I discuss in further detail the concepts of habitus and cultural capital.)

LIMITATIONS OF PREVIOUS RESEARCH

Bourdieu's theoretical framework (Bourdieu 1973; Bourdieu and Passeron [1970] 1977) has been widely used to analyze the process through which family background contributes to the transmission of (dis)advantage in the educational process and reproduces culture and society. Yet, the applicability of the theory to the U.S. educational experience continues to be debated (Kingston 2001). One reason for this is that existing studies rarely examine all of the crucial components of Bourdieu's (Bourdieu 1973; Bourdieu and Passeron [1970] 1977) proposed theoretical explanation (Reay 2004). In particular, with regard to Bourdieu's theory, researchers have failed (presumably due to data constraints) to thoroughly consider how family-based processes (e.g., *parental habitus* and *parenting practices*) and school-based processes (e.g., teacher's perceptions) work in conjunction (and/or separately) to impact educational outcomes. Moreover, there has been a lack of consistency with regard to the operationalization of habitus and cultural capital, both of which are central to Bourdieu's thesis. Taken together, prior empirical investigations reveal limitations in a few important ways.

First, most research has used Bourdieu's concepts, especially the concept of habitus, as a theoretical framework, rather than operationalizing

them. Second, when researchers have operationalized the concepts of "habitus" and "cultural capital," they have used measures from time periods after students have entered school. Because the educational experiences of students may *shape* parental habitus and/or childrearing practices, using a measure at a time point prior to children's school entry is desirable. Further, because Bourdieu argues, and empirical evidence reveals, that students enter school with disparate advantages, it is important to investigate how these earlier advantages impact the educational process.

Third, of the studies that include an operationalization of Bourdieu's concepts, few have considered an important aspect of his theoretical model: whether or not the socioeconomic effect on achievement found before school becomes larger after students enter school. This is essential because according to Bourdieu, schools exacerbate existing inequalities. If, in fact, schools are meritocratic institutions, there should not be an increase in the achievement gap between pre- (before kindergarten) and post-school entry (after kindergarten). While it may be unrealistic to expect that schools can narrow the gap significantly (if even at all) by first grade, one thing is certain: they should not contribute to a widening of it. One of the final limitations of previous research is the failure to control for the children's achievement prior to school entry. Studies that have examined the relationship between cultural capital (usually investigating whether or not teacher's rate students who have cultural capital higher than those who do not) and achievement outcomes in a

particular grade have not controlled for the child's achievement *prior* to school entry. Thus, it remains unclear whether or not students' achievement prior to school entry (before entering kindergarten) impacts the relationship between family-based cultural resources, teacher perceptions, and academic achievement.

PURPOSE OF THE PRESENT STUDY

The current study uses data from the NICHD Study of Early Childcare and Youth Development (SECCYD) to explore the mechanisms through which family-based processes (socioeconomic status, habitus and parenting practices), school-based processes (student-teacher relationship), and cumulative-based processes (the accumulation of (dis)advantages as a result of family and/or school processes) impact academic achievement. Identifying these mechanisms may help to explain how cultural capital contributes to persistent socioeconomic inequality in education and the reproduction of inequality more generally. In an effort to contribute to an understanding of how Bourdieu's concepts might be useful in educational stratification and social mobility research, I join the empirical efforts of the researchers before me who have attempted to operationalize his concepts using quantitative data (Bodovski 2010; Bodovski and Farkas 2008; Cheadle 2005, 2008; Cheadle and Amato 2009; Dumais 2002, 2006; Wildhagen 2009). Bourdieu himself claimed that the strength of his concepts lies in their empirical relevance:

> Ideas like those of habitus, practice, and so on, were intended, among other things, to point out that there is a practical knowledge that has its own logic, which cannot be reduced to that of theoretical knowledge; that in a sense, agents know the social world better than theoreticians (Bourdieu 1991:252).

Nevertheless, Reay (2004) refers to the above quote as she warns of the danger in concepts, such as *habitus*, "becoming whatever the data reveal" (p. 438), due to conceptual (Circourel 1993) and methodological (Nash 1990) issues. Indeed, much of the criticism that Bourdieu's theory fails to explain educational stratification in the way Bourdieu predicted is linked to the fact that more often than not, researchers make causal arguments based on theoretical implications, rather than attempting to put theory into practice by operationalizing the concepts. As Reay (2004) and Mahar (1990) have noted, Bourdieu considered his concepts as *methods* for answering questions, rather than simply theoretical *ideas*.

Thus, as much as possible, I resist the urge of relying on theoretical implications of Bourdieu's concepts to make causal arguments, and instead, follow Reay's recommendation to work with the data under investigation to carefully operationalize the theoretical constructs (Reay 2004). In doing so, I attempt to address three important assumptions of Bourdieu's theory as it applies to educational stratification, cultural reproduction, and social inequality. These assumptions focus on the role of family-based, school-based, and cumulative processes.

1. *Family-based Processes: Class differences in socialization processes contribute to reproducing the existing social structure.* There is a relationship between socioeconomic background and social mobility, and this effect is mediated through familial socialization processes that contribute to an intergenerational transmission of a particular "world view" (habitus), cultural knowledge, practices and skills that create advantages (cultural capital) for some and disadvantages for others within certain social *field*s, such as educational settings.
2. *School-based Processes: The reproduction of social structure operates through a complex relationship between structure and agency.* Though agency is an important aspect of the theory, the role of structure is crucial. In the context of educational fields, teachers and administrators play a vital role in reproducing the existing structure because they are biased toward middle class students, since those students share a class-based culture similar to theirs.
3. *Cumulative-based Processes: Class (dis)advantage begins early in life, and (dis)advantages accumulate over time.* According to Bourdieu, we inherit (dis)advantage from our families; however, contrary to popular belief, disadvantages do not automatically disappear for those who are willing to "work hard" and "take their schooling seriously" (McNamee and Miller 2009). On the contrary, disadvantages acquired early in life tend to result in the accumulation of more disadvantages over time. Similarly, those who

start out with advantages can draw on those advantages to accumulate more. As the disadvantaged fall behind, the advantaged move even further ahead. Thus, it is assumed that the gap between the advantaged and disadvantaged of any given cohort widens over time, even early in the life course (O'Rand 1995, 1996).

CONTRIBUTIONS OF THE PRESENT STUDY

Despite debate surrounding Bourdieu's theoretical concepts, I take the position of others (e.g., Mills 2008; Reay 2004) who have argued that it is important for researchers to continue working through the difficulties of operationalization. It is my view that Bourdieu's conceptual framework allows for the investigation of social, cultural, and institutional processes that are often hidden from plain sight—so engrained in our social world and everyday interactions that they are overlooked. In essence, they provide us with tools that allow us to stretch the "sociological imagination" (Mills 1959) to the limit.

This has become increasingly important because as some advances are made for historically disadvantaged groups (e.g., women and racial-ethnic minorities), the disillusionment of meritocracy becomes more and more embedded into American ideology (Hochschild 1995; Hochschild and Scovronick 2004; McNamee and Miller 2009). This makes it more difficult for individuals to recognize the existence of discrimination built into systems and institutions and makes it difficult to recognize their own and others' biases, all of which contribute to the existing stratified social structure. For example, it is

may be much easier for the average American to understand educational inequality when s/he is presented with the example of between-school variation (which they might attribute to disparities in the funding of schools); however, it may be more difficult to understand within-school variation (e.g., the trend of students of lower socioeconomic backgrounds having lower academic achievement than students within the same school who come from higher socioeconomic backgrounds).

As such, uncovering the underlying micro- and meso-level social and cultural processes that contribute to social inequality—such as parents' childrearing beliefs and practices and teachers' bias toward privileged students—becomes increasingly important. Moreover, it is important to engage not only in qualitative studies, but also, to use quantitative data to demonstrate the generalizability of such processes. Thus, in an effort to contribute to an understanding of how Bourdieu's (1977) concepts might be useful in educational stratification and social mobility research, I join the empirical efforts of the few researchers before me who have attempted to operationalize Bourdieu's concepts using quantitative data.

In addition to operationalizing Bourdieu's concepts (rather than *only* discussing them to theoretically frame my study), my use of data from the NICHD SECCYD (which to my knowledge has not been used to examine Bourdieu's theoretical framework) allows me to address some of the limitations discussed earlier. First, in attempt to fully explore Bourdieu's theory, I use a

measure of *family-based cultural resources* that is multi-dimensional in nature, as it incorporates both "habitus" and "practice." As previously discussed, the operationalization of "habitus" is often neglected in this type of research. I use a measure of *parental habitus* (beliefs about childrearing and education), which reflects a habitus that is in line with the educational system's *institutional habitus* (Bourdieu and Passeron [1970] 1977). Additionally, I include a comprehensive measure of Bourdieu's notion of "practice" (*parenting practices*) to examine the role of socialization (crucial to Bourdieu's explanation of cultural capital transmission); this measure includes various aspects of the family socialization process, such as academic stimulation, language use, the promotion of autonomous behavior, and engagement in cultural activities (e.g., visiting a museum). As Warde (2004:10) points out, "Bourdieu's successors, and those seeking to apply his concepts in other empirical contexts…very often use habitus, capital and field as their major tools, but without any specific technical reference to practice or practices."

Second, for both the *parental habitus* and *parenting practices* measures, I use data collected *prior* to school entry (before age 4½). Importantly, the measures for parental habitus were collected when the child was only one month of age. Using such early measures provides a more precise measure of the parent's *own* world view and cultural orientation related to how they see their role in the educational process, before the influence of the child's behavior

and/or educational experiences has had a chance to impact the parent's view. As others have noted,

> …. the major effects of class differences in cultural capital and habitus should be apparent in children at a very young age, since they are part of the primary socialization experience. However, the existing quantitative research on cultural capital, habitus, and American education has focused on students in middle and high school, primarily due to the lack of large-scale data sets that study children of elementary school age. The research that does exist on young children's cultural capital has been qualitative and has examined social class differences in parental involvement in children's schooling, devoting little attention to the academic outcomes of the students themselves" (Dumais 2006:84).

Third, of the studies that include an operationalization of Bourdieu's (1977) concepts, few have considered an important aspect of his theoretical model: whether or not there is a cumulative effect of entering elementary school with family-based cultural (dis)advantages and if this effect is the result of school-based processes, namely, the *student-teacher relationship*. I do this by investigating whether or not socioeconomic effects on academic achievement prior to school entry (age 4 ½) become larger post school entry (first grade), and if the student-teacher relationship contributes to any growth. In order to empirically test Bourdieu's theory accurately, it is important to examine not only whether an achievement gap exists, but whether any gap grows over time, and whether school processes contribute to any growth.

Finally, the present study controls for achievement prior to school entry. This is an often neglected variable in studies that have linked student achievement to cultural capital and teachers' perceptions. The SECCYD used the same (age-appropriate) assessment to examine math and reading

achievement at various time points, and began implementing these assessments prior to elementary school entry. As such, I am able to control for achievement prior to school when examining the family-based, school-based and cumulative-based processes that are part of Bourdieu's theoretical framework.

Chapter 2: Theoretical Framework and Review of the Literature

BOURDIEU'S THEORY OF CULTURAL/SOCIAL REPRODUCTION

Pierre Bourdieu's scholarly career began at a time when contemporary post-industrial society began touting the idea of equality of opportunity and high social mobility. Unconvinced of such optimism, Bourdieu began laying out a theory that posited that society would continue to reproduce itself in a way that reflected the existing cultural and social divisions (e.g., Bourdieu (1973; Bourdieu and Passeron [1970] 1977).[2] He emphasized that despite the myth that intergenerational mobility could be achieved through formal education, social classes—especially the ruling and intellectual classes—would preserve their social privileges across generations. This would be done, according to Bourdieu, through a process of cultural reproduction, where by the dominant group maintains power over cultural values and norms in a generation, and they work to: (1) maintain the legitimacy of such cultural values and norms and delegitimize ideas and practices not in line with those of the dominant culture; (2) transmit these values and norms to subsequent generations; and (3) ensure that members of other classes do not gain access to cultural knowledge and skills valued by the dominant culture (which is essential in maintaining a social hierarchy). In this way, cultural knowledge

[2] Bourdieu's theory of reproduction developed over the course of his career and his idea emerge in several different works.

and skills act as a resource—what Bourdieu calls "cultural capital"— which members of the advantaged class use to maintain privilege and power.

In essence, the process of cultural reproduction involves transmitting through various agents of socialization the existing cultural values and norms from generation to generation. Bourdieu particularly viewed the institutions of family and education as central to this process.

> Against the notion of meritocracy that began to emerge in the 1960s, *Reproduction* sought to propose a model of the social mediations and processes which tend, behind the backs of agents engaged in the school system—teachers, students and their parents—and often *against their will*, to ensure the reproduction of cultural capital across generations and to stamp preexisting conditions in cultural capital with a meritocratic seal of academic consecration by virtue of the special symbolic potency of the title (credential) (Bourdieu and Passeron [1970] 1990: ix-x).

It is important to note that according to Bourdieu (1973), class is not a group that gathers together for struggle (as Marxists would argue); it has more of a theoretical, rather than, concrete existence. He defines class as 'sets of agents who occupy similar positions and who, being placed in similar conditions…have every likelihood of having similar dispositions and interests and therefore of producing similar practices and adopting similar stances' (cited in Wilkes 1990:114).

For Bourdieu (1973), individuals are defined not only by social class (i.e., economic) membership, but by the types of capitals (i.e., scarce resources) they are able to accumulate and articulate through social interactions. Those who have more capital, reap the benefits associated with having access to these limited, valuable resources. In work after *Reproduction* (e.g., Bourdieu 1986),

he described four types of capital that can be used to secure advantages: economic (i.e., income and wealth), social (i.e., connections and support), cultural (i.e., valued knowledge and skills), and symbolic (prestige, status, credentials). He argued that if everyone had access to capital, then there would be no advantage to it; thus, in order to maintain advantage, group members must ensure that access to capital remain limited and available only to members of the dominant class. Bourdieu explained that in a society structured by class—in which social mobility is seemingly possible—economic capital alone is not enough to maintain the stratified class structure. And, while Bourdieu argued that all four types of capitals are useful in understanding social mobility, *cultural capital* (which will be discussed in greater detail in subsequent sections) is most important because it is used in conjunction with economic capital as a means of engaging in what Bourdieu calls "symbolic violence"—force used against others in order to confirm that individual's placement in the social hierarchy, thereby maintaining the cultural/social order (Bourdieu 1984).

Recall that Bourdieu's (1973) theory of cultural and social reproduction postulates that in a stratified society, legitimation of the ideologies of the dominant class is crucial for reinforcing the hegemony of the dominant class. By virtue of its greater power, the dominant class imposes its cultural values in shaping the norms and expectations of society. In order to do this successfully, these dominant ideologies must establish themselves as *legitimate*, which

requires members of all class groups to view the social order (e.g., inequality) as the "natural order of things" and accept it as just "the way things are."

Bourdieu (1984) attributed this acceptance to what he called *misrecognition*. This is similar to the Marxist idea of "false-consciousness,"[3] in the sense that both concepts represent the inability of members of subordinate groups to recognize that the dominant group uses ideological control to maintain power over them (Marx and Engels [1845-49] 1970).[4] Unlike Marxists, however, who view the dominant group as tied together by their control over economic resources, Bourdieu (1984) viewed the dominant group of a society as linked by a shared *culture*—lifestyle, education, styles of clothing, tastes in music, etc. Bourdieu argued that members of the dominant culture engage in cultural/social domination over members of society who do not possess cultural traits of the dominant culture. He argued that this practice of symbolic violence occurs through everyday interactions and habits, by actors who are often unconscious of the domination (both those who dominate and those dominated).

Thus, for Bourdieu, dominant ideology (such as that of meritocracy) acts as "symbolic violence" because he saw it as, "the capacity to impose the means for comprehending and adapting to the social world by representing

[3] The thesis of false consciousness was that institutional and structural processes were used as a means of ideological control to obscure the exploitation of "proletariat" (wage laborers), so that they would not form a collective class-consciousness and due to numeric strength, revolt against the small group in power, the "bourgeoisie" (owners of the means of production).
[4] Though the term, "false consciousness" is often attributed to the work of Karl Marx, it was actually introduced by Fredrick Engels and does not actually appear in any of Marx's writings (Eagleton 1991).

economic and political power in disguised, taken-for-granted forms" (Swartz 1997:89). Members of the dominant group maintain power through the use of symbolic violence. As Bourdieu and Passeron ([1970] 1977:4) write, "….every power which manages to impose meanings and to impose them as legitimate by concealing the power relations which are the basis of its force, adds its own specifically symbolic force to those power relations."

To understand Bourdieu's theoretical model, it is important to discuss three core theoretical concepts—habitus, field, and cultural capital—as well as the primary mechanisms—family-based processes, school-based processes, cumulative processes—through which cultural and social (dis)advantage is reproduced.

Core Concepts: Habitus, Field and Cultural Capital

One of Bourdieu's major contributions to social stratification research has been his attempt to bridge two foci of sociological theory: a theoretical focus on the societal level and the relationships within it (structure) versus a theoretical focus on the level of acting individuals (agency) (Bourdieu 1977). Bourdieu's understanding of the relationship between structure and agency differs from that of other well-known structure-agency theorists (Giddens 1984; Sewell 1992). One of the key areas where Bourdieu (1977) diverged from the aforementioned scholars is in the conceptualization of agency, and in particular, the likelihood that agentic action will create drastic social change. Anthony Giddens (1984), for example, argued that individuals are

knowledgeable agents, capable of utilizing their knowledge, as well as their experiences, to act rationally within the opportunities, and even constraints, provided by social structures, which he referred to as a system of norms. Giddens laid out an argument of a reflexive relationship between structure and agency, explaining that just as structure constrains or facilitates possibilities for action, structures cannot exist without the action of the individuals who create them. From this perspective, social agents are capable of altering the existing social structure (e.g., changing the existing social hierarchy).

While Bourdieu (1977) agreed with Giddens' (1984) view that individuals can draw on knowledge and experience to guide their actions, he diverged from Giddens by emphasizing that individuals are not merely guided by social structure, they *internalize* social structure in such a way that even seemingly "rational" action is guided by deeply embedded ways of thinking and being (that are themselves a product of social structure). As such, in contrast to Giddens' (1984) view, Bourdieu (1977) argued that while agents are certainly capable of creating social change, such social change will not result in changing the stratified social system. In his attempt to overcome the "absurd opposition between individual and society" (Bourdieu [1987] 1990:31), Bourdieu (1977) introduced the concept of *habitus*[5] (along with *practice* and *field*) to explain how individuals use their capitals (i.e., economic, social, symbolic, and especially, cultural) in their relations with others, to reproduce existing

[5] The term actually originated from Aristotle and was further developed by Bourdieu.

stratified systems of hierarchy and domination (Bourdieu 1977, 1984, 1986; Bourdieu and Passeron [1970] 1977; Bourdieu and Passeron 1979). In the next section, Bourdieu's habitus and field concepts are discussed.

Habitus and Field

Bourdieu's (1977) concept of *habitus*[6] (consider the word "habit") refers to a set of durable, unconscious schemes, ethos, and dispositions—acquired early in life though family background and socialization experiences—that is "second nature" to the individual and forms the foundation of the individual's way of thinking and acting. While habitus structures action, habitus is also shaped by social structure. Consequently, one's "way of seeing the world" or "outlook on life" is directly related to objective realities, such as what opportunities are available to her or him. Habitus encompasses: "belief-premises, perception-appreciation, and a descriptive and prescriptive practical sense of objective possibilities and of the forthcoming" (Lau 2004:370). Habitus guides action (e.g., ways of speaking and behaving) and embodied styles (e.g, ways of dressing and carrying one's self). Thus, it is engrained not only in ways of thinking, but of "being."

Bourdieu originally described habitus as:

> A system of lasting, transposable dispositions which, integrating past experiences, functions at every moment as a matrix of perceptions, appreciations, and actions and makes possible the achievement of infinitely diversified tasks, thanks to analogical transfers of schemes

[6] "Habitus" is arguably Bourdieu's most complex and ambiguous concept, and as such, has been the most difficult to operationalize (Reay 2004).

> permitting the solution of similarly shaped problems (Bourdieu 1977 xx).

While each individual has a habitus, Bourdieu argued that there are similarities within classes because formulation of the habitus is directly linked to social structure:

> Systems of durable, transposable dispositions, *structured structures* predisposed to function as *structuring structures*, that is, as principles which generate and organize practices and representations that can be objectively adapted to their outcomes without presupposing a conscious aiming at ends or an express mastery of the *operations* necessary in order to attain them. Objectively 'regulated' and 'regular' without being in any way the product of obedience to rules, they can be collectively orchestrated without being the product of the organizing action of a conductor (Bourdieu 1990:53, original emphasis).

Thus, habitus is central to Bourdieu's theory of cultural and social reproduction because: 1) it is a way of signaling (unconsciously) one's culture, which impacts opportunities available when interacting with those of the dominant culture (thereby shaping opportunities for securing advantages), and 2) it shapes an individual's practices in ways that are either consistent or inconsistent with dominant cultural norms.

In order to understand how class-based habitus contributes to the cultural/social reproduction process, Bourdieu introduces the concept of *field,* social spaces of interaction (e.g., educational or religious institutions). To understand the interplay between habitus and field, one might consider the analogy of playing a football game. One might consider the example of playing a game (which requires strategy and competition). When players enter the field already having a "feel for the game" (due to repetitive practice of that particular

game) or "familiarity with the rules" not necessarily made available to all players, they are at an advantage over those who lack such familiarity.

Perhaps the best illustration of *habitus* can be found in Annette Lareau's (2003) groundbreaking ethnographic study of African American and white elementary school children (ages 9-12) and their families. Lareau applies Bourdieu's theoretical framework to explain class-based differences in socialization practices she observed among parents in her sample. She found that middle-class parents and working-class/poor parents had different orientations toward childrearing and education, and these orientations guided their parenting practices. She also found that middle-class parents viewed childhood as a dual opportunity—a chance for "play" and a "staging ground" for developing talents/skills of value later in life. As such, these parents actively assessed and fostered their child's talents, opinions, and skills, and used times of "play" to do so.[7] Working-class and poor parents, on the other hand, viewed childhood as a time children should be able to "play" and not concern themselves with the stresses of life; and, in contrast to viewing childhoods as a time to develop talents, they believed that caring for and supporting children (e.g., providing food, shelter, and nurturing) will help natural talents emerge.[8]

[7] For example, rather than let kids play soccer "for fun" in the backyard, middle-class parents would be much more likely to have their children join a soccer team because being on a team could help the child develop skills in the areas of team-work and competition, both of which are useful in educational and occupational settings.

[8] To be sure, Lareau also discusses economic barriers that interfered with working-class/poor parents' ability to engage "concerted cultivation," particularly with regard to fostering children's talents (since enrichment classes and extracurricular activities are costly). However, one's habitus is directly linked to her/his social location. Thus, recognizing that certain opportunities are out of reach for their children, working-class and poor parents may develop a

Lareau termed the middle-class habitus as "concerted cultivation" and the work-class/poor habitus as "accomplishment of natural growth."

Lareau found that due to their cultural orientation toward childrearing, middle-class parents made a concerted effort to cultivate their children's learning and development by: (1) transmitting linguistic capital to their children by refraining from the use of directives and allowing children to negotiate (promoting autonomy); (2) organizing structured educational and extracurricular activities for children, and by doing so, providing new fields within which children can build social capital (e.g., forming relationships with coaches); and (3) being involved in the child's school and when necessary, intervening on the child's behalf (e.g., volunteering or stepping in when a teacher gives the child a lower grade than what the child and/or parent feels is deserved).

"Natural growth" parents were more likely to: (1) use directives and limit opportunities for children to negotiate (a commonly held view is that children should respect adults/authority figures); (2) allow children time for "free play" (e.g., with relatives or neighborhood children) rather than placing them in structured activities; and (3) limiting their own involvement in the child's schooling (particularly in terms of intervening on behalf of their child). One of the reasons for their limited involvement had to do with having a habitus that made them feel it was not "their place" to question teachers and

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habitus that is in alignment with available opportunities. Nevertheless, some children and parents from poor families did express interest in participating in activities and attributed their lack of involvement to financial constraints.

school administrators, who working class and poor parents thought of as more qualified to make decisions about their child's educational experiences. The other reason had to do with a sense of distrust that working-class and poor parents have for social institutions, including schools.

Lareau points out that the use of "concerted cultivation" creates advantages for children, not because it is inherently better (e.g., simply by enhancing cognitive development), but because it is valued by the dominant culture. She outlines two mechanisms through which such advantages emerge for middle-class children. First, "concerted cultivation" creates advantages for middle-class children because it is in line with the dominant set of cultural repertoires in the United States regarding how children should be reared. Because social institutions, such as the education system, adopt and facilitate the use of dominant cultural repertoires, children whose parents are oriented toward "concerted cultivation" are favored and rewarded in school, and thus, have an advantage over children whose parents are oriented toward "accomplishment of natural growth."

> When children and parents move outside the home and into the world of social institutions, they find that these cultural practices are not given equal value. Middle-class children benefit, in ways that are invisible to them and to their parents, from the degree of similarity between the cultural repertoires in the home and those adopted by institutions" (Lareau 2003:317).

Second, parents transmit their own habitus and cultural capital to children. Middle-class parents, through their use of the concerted cultivation approach to childrearing, encourage their children to advocate for themselves

and to question and articulate their concerns, and children develop skills to interact with authority figures—through the development of linguistic capital (a more enhanced vocabulary and comfort in negotiating), as well as witnessing their parents' interactions within the school. Middle-class children are taught that teachers are not authority figures, but instead, partners in the education process. Thus, they develop a sense of entitlement with regard to the expectations they have of teachers and schools. In contrast, working class and poor families do not conform to the standards of educational institutions, thus resulting in lower and working class students inheriting a sense of distance, distrust, and constraint with respect to educational institutions (Lareau 2003). Lareau (2003:276) concludes that her findings ''do constitute a set of dispositions that children learn, or habitus."

Thus, the socialization of middle-class children tends to match the style of the dominant class, including language patterns, mannerisms, and attitudes that are expected in schools and institutions of power. Lareau's study shows that class-based differences in *parental habitus* (with middle-class parents having a "school-oriented" parental habitus) translate into disparate childrearing practices that differ in value by educational institutions, and these are the mechanisms through which advantages and disadvantages are transmitted from parents to children.[9]

[9] Ten years later, Lareau conducted a follow-up study and found that class-based differences in parenting continued as these children transitioned to adulthood, in ways that impacted decision-making about college and careers (Lareau 2011; Weininger 2008).

Cultural Capital

The concept of cultural capital is fundamentally linked to the concepts of habitus and field. According to Bourdieu's theory of cultural and social reproduction, to understand social inequality, one must recognize how *cultural capital* is used to maintain group advantage. Bourdieu argued that cultural capital is acquired typically at an early age, within the family, through a process of developing specific ''linguistic and cultural competencies'' and ''familiarity with culture'' (Bourdieu 1973:494).

Bourdieu (1986) distinguished between these three types of capital: objectified, institutionalized, and embodied. *Objectified cultural capital* consists of the possession of tangible cultural objects, such as scientific instruments or works of art. Knowledge of such cultural objects is also a form of objectified cultural capital (e.g., being able to recognize an important artist or scientist). While inheriting a piece of artwork (e.g., a Van Gogh painting) from a family member might translate into the inheritance of economic capital, for Bourdieu, the importance of objectified cultural capital lies in its symbolic significance because such objects (or more importantly, knowledge of them) coveys one's affiliation with the dominant culture. One cannot simply own the Van Gogh painting; one must actually be seemingly familiar with Van Gogh. Thus, when parents take their children to museums or on other types of cultural excursions (e.g, a visit to Washington D.C.), children can acquire knowledge that ends up being a form of cultural capital in the context of educational settings because

teachers and schools value that type of knowledge. Visiting a museum or taking a trip to the White House is not necessarily better than other activities; it merely is assumed to be so by the dominant class because drawing distinctions between groups based on their cultural consumption habits is a way of engaging in "symbolic violence," which allows stratification to persist (DiMaggio 1982).

Institutionalized cultural capital consists of institutional recognition, typically academic credentials or qualifications (Bourdieu 1986). Institutional recognition is the process through which one's cultural capital is transferred into economic capital. For example, indicating the possession of a college diploma on a resume acts as a symbol of competence and knowledge, which is valued by employers, who may make hiring decisions on the basis of such credentials.

Embodied cultural capital is described by Bourdieu as "[a] common code enabling all those possessing that code to attach the same meaning to the same words, the same types of behaviour and the same works" (Bourdieu 1976:193). Unlike objectified and institutionalized capital, embodied capital lacks a physical component. Embodied capital encompasses many of the things we take for granted in everyday practices, such as decisions related to: singing or reading to children, the type of music we allow children to listen to, the way we speak to children, and the accent or vocabulary we use when speaking to children. Decisions related to these parenting approaches translate into

particular expectations and values for children (i.e., they shape the child's habitus). Bourdieu referred to linguistic capital, "mastery of and relation to language" (Bourdieu 1990:114), as a form of embodied cultural capital because it represents a way of communicating that is acquired from one's cultural surroundings. Embodied cultural capital can influence educational experiences for children; if this type of capital is not inherited, it places children at a disadvantage in school. Embodied cultural capital is a necessary component of school readiness. For example, the primary skill that children must master upon entering school is the art of "sharing"; therefore, daycare centers and preschool teachers place heavy emphasis on working in groups. Additionally, schools expect students to be organized (e.g., by keeping their desks tidy), to not be aggressive (e.g., no fighting) and to participate in class when appropriate (e.g., raising their hands before answering a question). These rules are not necessarily essential for enhancing the cognitive performance of students, but they are nevertheless appreciated by teachers and schools. Higher status groups are more likely to create opportunities for their children to obtain and build these skills while lower status groups may mistakenly believe that a strict adherence to the rules will bring their child favor and opportunity (Lareau 2003).

When Bourdieu wrote about cultural capital, he referred to it as "highbrow" culture, a taste for certain forms of art, such as painting, music, literature, and drama. However, he was writing about the specific cultural

context of France. Some have argued that this definition of cultural capital may not be applicable to the United States and propose new conceptualizations of cultural capital (Lamont and Lareau 1988; Lareau and Weininger 2003). Dumais (2002) even asserted that it may be of little use to regard cultural capital at all and implied that we should instead focus on the role of cultural capital in explaining stratification processes:

> Swartz (1997) argued that "large differentiated societies like the United States, where there is not as strong a dominant culture as there is in France, cultural capital (when defined as knowledge of and participation in highbrow artistic activities) may not be as useful a concept" In the United States, then, it may not be so much whether one participates in cultural activities, but whether one has the habitus that leads one to expect an upper-white-collar career, that affects educational success and, in the case of social class, perpetuates the existing stratification structure" (Dumais 2002:57).

MECHANISMS FOR REPRODUCING CULTURAL/SOCIAL (DIS)ADVANTAGE

As I have highlighted in previous sections, Bourdieu's *cultural and social reproduction* thesis (Bourdieu and Passeron [1970] 1977) is concerned with the interplay between social class and family-based and school-based processes that contribute to (dis)advantage early in life, which leads to the accumulation of (dis)advantages throughout the course of one's life. Therefore, "as stipulated by Bourdieu (1973), possessing certain tastes, styles, ways of speech, skills, and knowledge" (Bodvoski and Farkas 2008:3) can translate into academic success because social institutions, including schools, value and reward these particular behaviors (see also Dumais 2006; Lareau 2003). Stanton-Salazar and Dornbusch (1995) found that students with cultural (and linguistic) capital

were able to transform this capital into "instrumental relations," or social capital (connections), with institutional agents (e.g., teachers), who were able to transmit valuable resources to the students, furthering their success in the school. This suggests that cultural capital can affect teachers' perceptions of students in biased ways. The following sections include a review of literature on the role family-based, school-based and cumulative-based mechanisms play in reproducing (dis)advantage.

Family-based Processes

According to cultural reproduction theory, one of the mechanisms through which the existing hierarchical cultural/social structure reproduces itself is through the transmission of advantages to their children (Lareau and Weininger 2003). Bourdieu purported that the acquisition of cultural resources occurs primarily through childhood socialization; thus, families, particularly parents, play a key role in the reproduction of social class inequality (Bourdieu 1973; Bourdieu and Passeron [1970] 1977):

> Each family transmits to its children, more in an indirect than in a direct manner, a certain cultural capital and a certain ethos, a system of implicit and profoundly interiorized values, which contributes to define, among other things, the attitudes toward cultural capital and toward the school system. The cultural heritage that under these two aspects differ by social class is responsible for the initial inequality of children before the school selection, and thus, to a large degree, for their unequal rates of success (Bourdieu 1966:388, cited in Heilbron 2009:19).

As the main socializing agent, families play a major role in affecting social mobility. There are three primary mechanisms through which parents transmit attitudes and behaviors to their children: (1) *social monitoring*, which

includes training children to behave in certain ways and monitoring children's behaviors; (2) *social learning/role modeling*, which includes demonstrating desired outcomes to children; and (3) *status inheritance,* which includes parents situating their children within particular social and economic contexts that predispose particular sets of cultural values (Moen, Erickson and Dempster-McClain 1997). The parenting style in each of these processes is largely dependent on the economic (i.e., income), human (i.e., education), social (i.e., relationships and support), and cultural (i.e., valued knowledge and skills) capital that a parent has acquired over her or his own life course (Becker 1964; Bourdieu 1986; Coleman 1988). A lack of capital can increase exposure to life stressors, which can impact one's parenting style, and parenting style is associated with developmental, behavioral, educational, and occupational outcomes (Bodovski and Farkas 2008; Dornbusch 1989). Indeed, studies show that individuals who come from families with limited economic, human, social, and cultural capital are disadvantaged throughout childhood, adolescence, and adulthood (e.g., Bodovski and Farkas 2008; Brooks-Gunn, Klebanov, and Duncan 1996; Cheadle 2005, 2008; Cheadle and Amato 2009; Chin and Philips 2004; Duncan 1991; Duncan et al. 1998; Farkas and Beron 2004; Farkas et al. 1990; Guo 1998; Lareau 2002, 2003; Lareau and Weininger 2008; O'Rand 1995, 1996).

The Role of Habitus

While studies have examined the role family-based capital, including cultural capital, plays in transmitting (dis)advantage, few studies have attempted to operationalize *habitus* (central to Bourdieu's theoretical argument) and empirically examine its influence in the reproduction process. Those that have done so have measured habitus as students' (Dumais 2002) or parents' (Bodovski 2010; Bodovski and Farkas 2008; Dumais 2006) expectations of educational or occupational attainment. Dumais (2002) examined the relationship between academic ability (measured as standardized cognitive test scores and GPA), cultural capital (measured as number of cultural activities in which children participated), and child habitus. Habitus was measured as: "whether or not the student said that he or she expected to have one the following occupations at age 30: professional, managerial, or business; business owner; or science or engineering" (2002:51). While Dumais failed to find any strong effects of cultural capital, net of student ability and social class, she did find that habitus affected students' grades.

The results linking educational outcomes to expectations are not surprising. Status attainment research has long established a relationship between expectations and educational and occupational attainment using data from the United States (e.g., Sewell, Haller, and Ohlendorf 1970; Sewell and Hauser 1976), as well as other developed nations and less developed nations (e.g., Beutel and Anderson 2008). Studies have shown that children's early

academic performance directly influences parents' educational expectations for their children (e.g., Sewell, Haller, and Portes 1969). Further, parents' expectations for their children impact children's expectations for themselves (e.g., Reynolds and Burge 2008; Sewell et al. 1969). Socioeconomic background and early academic performance also have direct effects on children's expectations (Sewell et al. 1970; Wilson and Portes 1975).

Using expectations as a measure for habitus is not inconsistent with Bourdieu's (Bourdieu and Passeron [1970] 1977) theoretical explanation because "perceived opportunities for success guide individuals' actions and eventually produce certain outcomes" (Bodovski and Farkas 2008:916). Yet, as Dumais (2002:51) points out, "It is extremely difficulty to represent one's habitus, or worldview, in a single variable, or even a large set of variables." The attempt to operationalize *habitus* at all is noteworthy. Nevertheless, as Dumais brings to our attention, a multidimensional measure that captures one's world view may be more desirable.

Bodovski and Farkas (2008) examined the relationship between parents' expectations for children's educational attainment (which they do not refer to as "habitus") and parenting practices that are consistent with the dominant cultural repertoire, referred to by Lareau (2003) as "concerted cultivation." Bodovski and Farkas (2008:916) found that parenting practices ("concerted cultivation") operated independently of parental expectations, which they interpret this way:

> concerted cultivation can be seen as a representation of Bourdieu's idea of habitus. Parents create different activities for their children (such as educational trips and extracurricular activities), get involved in schools, or have more or less extensive conversations with their children based on their ideas of what is possible to achieve and also what feels natural for them. Parents….value activities or involvement in their children's life for what it offers outside of the academic realm. Our findings clarify the process by which habitus is reproduced across generations. Parents' dispositions, preferences and perceptions of opportunities (driven largely by their social class) affect their actions with their child, and these, in turn, create the child's habitus.

They concluded that these middle-class parenting practices in kindergarten did not translate into value for early (first grade) educational achievement, and instead, functioned as "cultural consumption" activities on the part of parents (p. 916). It is rather interesting that Bodovski and Farkas refer to "concerted cultivation," rather than parental expectations, as habitus.[10]

While the studies by Dumais (2002; 2006) and Bodovski (Bodovski 2010; Bodovski and Farkas 2008) provide a more comprehensive application of Bourdieu's theory by including a measure of habitus, the mechanisms through which habitus is activated in the school context is not completely clear from their research. Taken together, these studies investigate the relationship between parental habitus (expectations), parenting practices, child's habitus (expectations), and academic achievement. However, Dumais (2002) and Bodovski (2010) do not include a measure of teachers' perceptions in their

[10] Also, their multi-dimensional measure of "concerted cultivation" actually seems to represent both habitus (parents' perceptions of their responsibilities regarding such activities as fostering the child's opinion, helping with homework, telling the child stories) and the transfer of cultural capital through parenting practices (parental school involvement and the child's participation in educational and cultural activities). In a later study, Bodovski (2010) uses parents' expectations as a measure of *parental habitus*.

studies, and Bodovski and Farkas (2008) found mixed support for the effect of teachers' perceptions. They found that parenting practices ("concerted cultivation") did not have a significant effect on teachers' judgments of students' language and literacy skills. Yet, teachers did rate students who exert more school effort and are better organized as having better language and literacy skills; however, although higher SES students tended to have greater school effort and tend to be better organized than their lower SES counterparts, only a modest share of the relationship between SES and teachers' ratings were explained by parents' use of concerted cultivation.

While not having an explicit measure of "child habitus," a large body of literature has shown that family resources strongly affect the *habits* of preschool and school-aged children. These resources include not only financial support, but also, the cognitive and emotional support provided by parents, as well as the physical home environment (Duncan and Brooks-Gunn 1997). Studies also show that resources vary significantly by family social class and race/ethnicity and explain large portions of the class and race/ethnicity differences in children's cognitive skills, as well as behaviors (e.g., Duncan and Brooks-Gunn 1997; Guo 1998; Mayer 1997; Roscigno 1998).

Furthermore, parents' own skills and habits can facilitate the process of cultural and social reproduction; lacking cultural skills and habits, working class/poor parents are unable to help their children obtain advantages, while middle class and upper class parents can draw on their skills and habits to

acquire advantages for their children (Lareau 2003; also see Farkas 2003 for a review of supporting empirical studies). While low-income parents may have certain skills that may be of value to them (e.g., surviving on a low income and coping with life stressors associated with living in poverty), the possession of such skills may not be valued or rewarded by schools; thus, they create little value for students (Lareau 2003). Likewise, high-income parents may have cultural skills and habits (such as taking family trips to museums or organizing extracurricular activities for their children) that are of little productive value, yet are useful because they enable their children to signal their cultural status to teachers, who reward it (Dumais 2002, 2006; Lareau 2002). Similarly, parents' literacy and math skills (which are correlated with social class) may be of value not only because of their direct educational value, but because teachers value such skills (Farkas 2003).

School-based Processes

Bourdieu challenges the "neo-liberal" idea that schools are instruments for the creation of equality and intergenerational mobility (Nash 1990). On the contrary, according to Bourdieu (Bourdieu and Passeron [1970] 1977), the education system performs three central functions (Swartz 1997). First, schools reproduce culture by transmitting "appropriate" technical knowledge and skills, as well as socializing students into a particular cultural tradition (largely the result of pedagogic practices by teachers that promote the cultural capital of the dominant class and reward students who have it). Second, schools reproduce

society by reinforcing social-class relations and perpetuating, rather than redistributing, the unequal distribution of cultural capital. Third, schools legitimize inequality by maintaining the existing social order. Due to *misrecognition*, those who are engaged with schools, such as teachers, students, parents and the communities, are unknowingly involved in perpetuating this social order. Bourdieu and Passeron ([1970] 1977) assert that schools accept only the cultural orientations of the dominant class, and in the United States, this tends to be the middle class (Lareau and Weininger 2003).

In essence, "the education system controls the allocation of status and privilege and contributes to the maintenance of an unequal social system by allowing cultural differences to shape academic achievement and occupational attainment" (Swartz 1997:190). One of the key mechanisms through which cultural differences shape academic achievement is through bias on the part of teachers who evaluate students with high-status cultural capital (who tend to be from higher SES backgrounds) more favorably than those without it (Farkas 2003).

Teachers' evaluations of students can dictate decisions that impact a child's educational trajectory. This typically takes shape in two ways: (1) teachers' assessments of students' skills impact their recommendations regarding into which ability groups children should be placed (Oakes 1985) and (2) students' internalization of teachers' perceptions of students' abilities and teachers' expectations associated with such perceptions impact students'

academic performance (Rosenthal and Jacobson 1968; Peters 1971). Despite students' abilities, teachers' decision-making regarding tracking and ability grouping can have concrete consequences for students' educational achievement. Several quantitative and qualitative studies have shown that the quality of education differs across ability groups and tracks. Such studies suggest that the instruction received in higher ability groups and tracks is more conducive to academic achievement than in lower ones. Students in higher ability groups are instructed by teachers who have more years of schooling and more experience than teachers in the lower ability groups, are taught more complex material, and are challenged more by teachers (Oakes 1985). While some have advocated the benefits of ability grouping, others have argued that tracking and ability grouping are carried out in ways that negatively impact students from socioeconomically disadvantaged backgrounds, as well as racial-ethnic minority students, because the structure of the tracking process, as well as teachers' ratings of students, are biased in favor of more advantaged students (Hallinan and Oakes 1994).

Bowles and Gintis (1976) were among the first American scholars to theorize that non-cognitive traits have more of an influence than cognitive abilities in predicting educational outcomes. They argued that teachers and schools reward class-based personality types, rather than academic skills, creating different opportunities for different class groups. Of these personality traits, the most favored are perseverance, dependability, and consistency. Over

the past few decades, support for Bowles and Gintis' position has emerged. Farkas and his colleagues (1990) found that for middle-school students, teachers' perceptions of students' work habits (homework, class participation, effort, and organization) exerted a larger effect than students' cognitive ability in determining grades. Additionally, when assigning grades, teachers also take into account students' basic skills, absenteeism, disruptiveness, appearance and dress (Farkas et al. 1990). Farkas and his colleagues reported that the differences in course grades across gender, race-ethnicity and socioeconomic groups were almost entirely accounted for by teachers' judgments of students' habits, and had the ability to increase some students' grades by a full letter.

Ainsworth-Darnell and Downey (1998) found similar results for high school students (tenth graders). They found that grades are strongly determined by teachers' judgments of students' work habits and that work habits substantially explain group differences in grade attainment. However, Ainsworth-Darnell and Downey did not control for prior cognitive performance, which makes it difficult to determine the relative contribution of skills and habits to educational attainment. Rosenbaum (2001) used test scores and non-cognitive behaviors to predict grades and found that both cognitive skills and non-cognitive behaviors determine the grades assigned by the teacher and that skills and habits significantly explain group differences in grades.

While the aforementioned studies did highlight teachers' preferences for particular habits, it is still unclear whether teachers feel closer to students who

possess high-status cultural resources. Bourdieu's theory of cultural and social reproduction stipulates that teachers judge students based on a perceived shared culture; thus, it seems important to investigate how teachers' perceptions of their relationship with students (e.g., feeling close to the student) relate to achievement outcomes.

Cumulative-based Processes

As Dumais (2006:84) pointed out, "one of the key components of Bourdieu's argument is that social class differences in cultural capital and habitus begin at birth, and increase over time." To support this idea, Dumais referenced Bourdieu (1997:47) and stated:

> …the initial accumulation of cultural capital, the precondition for the fast, easy accumulation of every kind of useful cultural capital, starts at the outset, without delay, without wasted time, only for the offspring of families endowed with strong cultural capital; in this case, the accumulation period covers the whole period of socialization.

Further, studies have showed that early academic achievement influences later school achievement, including high school graduation (Alexander, Entwisle, and Dauber 1993; Alexander, Entwisle, and Horsey 1997; Entwisle, Alexander, and Olson 1997; Ensminger and Slusarcik 1992).

According to cumulative advantage theory (Merton 1968, 1988) early risk factors shape short-term and long-term trajectories and the nature of these changes are conceptually linked with earlier experiences, abilities, and resources (O'Rand 1996). As a result of initial advantages or disadvantages accumulating over time, increasingly divergent trajectories between social

status groups develop over the life course, leading to distinct opportunities and outcomes for different status groups within society. Similar to cumulative advantage theory, Bourdieu's cultural and social reproduction theory asserts that early (dis)advantage begets later (dis)advantage.

Numerous studies have reported that economically disadvantaged children can have life trajectories different from those of their more advantaged counterparts because of social stigma/marginalization, limitations in opportunity structure, and excessive stress disadvantaged children may endure (Duncan et al. 1998; Elman and O'Rand 2004; Guo 1998; Kerckhoff 2003; O'Rand 1995, 1996). Moreover, disadvantage in early childhood, in particular, is correlated with lower educational achievement and attainment (Farkas 2003). For example, Duncan and colleagues (1998) found that being economically disadvantaged in early childhood was predictive of dropping out of school and explained that this is because early childhood disadvantage impacts preschool ability, which acts as a precursor to the formal school system. Children who do not acquire certain skills during the preschool years have a harder time learning later on, and teachers and schools classify these children as slow learners in kindergarten and first grade, which can have detrimental consequences for their progress in remaining grades. Indeed, having less desirable skills and habits in early elementary school results in even greater gaps in skills, habits, and performance in middle and high school,

which then lead to (dis)advantage in later schooling and employment (Farkas 2003).

Other scholars have argued that early economic disadvantage is but only one type of disadvantage that impacts life chances. Similar to Bourdieu's concept of "capitals," Shapiro (2004) argues that children inherit various forms of "head-start assets" (economic, social and cultural) that can give them a "head-start" in life compared to individuals who do not have these head-start assets.

Relating to the intergenerational transmission of (dis)advantage, it is clear that early advantages impact one's class and status position throughout life. Individuals who start off with assets will continue to accumulate assets, and those who lack them will accumulate disadvantages. What separates Bourdieu's theory of cultural and social reproduction from cumulative advantage theory is that Bourdieu specifically indicates that while families contribute to the reproduction of (dis)advantage, they could not do so without the help of schools. While class-based differences in cognitive ability/achievement emerge prior to school entry (Lee and Burkman 2002), these differences are exacerbated once students enter school. While some might attribute this to cognitive development, according to Bourdieu, this process occurs because teachers reward students who are culturally advantaged and penalize students who are not. This results in growth in the achievement gap throughout the schooling process. If institutions are meritocratic and

facilitators of equality, it should not be the case that the educational achievement gap present prior to school entry widens post school entry; however, it does. Bourdieu's theory of cultural and social reproduction provides a potential explanation for this, as he sees schools as directly engaged in the process of reproduction.

Summary of Mechanisms

In sum, knowledge and possession of high-status culture is argued by Bourdieu to be unequally distributed according to social class, passed down from generation to generation, and institutionalized as legitimate, which translates into distinction and privilege for those who possess it because it is rewarded, particularly in educational settings. Thus, in conjunction with economic, social and symbolic capitals, cultural capital actively reproduces (dis)advantage. The inheritance of (dis)advantage early in life leads to the accumulation of additional (dis)advantages throughout the course of one's life.

Critiques of Bourdieu's Theory and Limitations of Previous Research

Race, Gender and Cultural Capital

Bourdieu's theory of cultural and social reproduction has been critiqued for its failure to take into account the importance of race, ethnicity and gender in the reproduction process within highly stratified societies, such as the United States (Kalmijn and Kraaykamp 1996; Mickelson 2003; Robinson and Garnier 1985; Roscigno and Ainsworth-Darnell 1999). For example, Robinson and Garnier (1985) argue that because men are more often in managerial positions

than women, they tend to reproduce the gender structure by hiring people on the basis of gender similarity. As such, even women who have the same class background (and therefore same cultural capital) as men may face exclusion from high-level managerial positions.

Dumais (2002) found that gender and social class interact in ways that yield different benefits from cultural capital. In her sample of eighth-graders, she found that students' habitus (measured as occupational expectations) significantly predicted grades for girls and boys. However, females were more likely to participate in cultural activities (a measure of cultural capital) than boys, and cultural capital had a positive, significant effect on students' grades for females, but not for males, both with and without controls for parental habitus. Though Bourdieu has been criticized for the omission of gender in his theoretical model (Robinson and Garnier 1985), Bourdieu did recognize the potential influence of gender, as he claimed "sexual properties are as inseparable from class properties as the yellowness of lemons is inseparable from its acidity" (Bourdieu 1984:107). Nevertheless, findings by Dumais are notable, since Bourdieu was not directly attentive to the role of gender in his theory of cultural and social reproduction.

Bodovski (2010) used the Early Childhood Longitudinal Study (ECLS) data used by Bodovski and Farkas (2008) and used the same measures as predictors of fifth grade outcomes, but included African American students in her sample. She found that SES and parental expectations were positively

associated with parenting practices ("concerted cultivation"), and concerted cultivation was positively associated with higher educational achievement. However, in contrast to Lareau's (2003) findings, she found that race (and gender) interacted with social class to predict parenting practices and parental habitus (educational expectations). Even after controlling for SES, African American families were less engaged in the process of concerted cultivation than white families. She also found that parents expect higher educational attainment from daughters, rather than sons. This is similar to findings of other studies that have shown that parents have increased their expectations for daughters over the last several decades (Reynolds and Burge 2008).

Similar to Bodovski (2010), Cheadle (2008), using the ECLS data, found that net of other factors, parents' use of concerted cultivation was a significant mediating factor between race and educational achievement, completely explaining away the black-white math and reading gaps at the beginning of kindergarten and in grades first through third. Roscigno, Vincent and Ainsworth-Darnell (1999) found that African American students received less return on their cultural capital than white students.

Social Class and Cultural Capital: Cultural Reproduction or Cultural Mobility?

According to Bourdieu's *cultural reproduction* argument (e.g., Bourdieu 1973), familiarity with dominant culture is only available to the dominant cultural group because in order to maintain advantages associated with having access to this scarce resource, members of the dominant group actively work,

through the process of symbolic violence, to block others' access to the acquisition of high-status cultural knowledge and skills. As a result, members of lower-status groups are unable to secure advantages associated with high-status culture. In the context of educational settings, children from higher-status families possess appropriate cultural resources, which create advantages that translate into high educational achievement. Lower-status children, on the other hand, lack access to such cultural resources, thus resulting in disadvantages that lead to lower educational achievement. Because these cultural resources are typically acquired in the home and are linked to class background, Bourdieu would not consider it plausible that children from disadvantaged families could acquire these cultural resources from within the school itself, or from sources other than the family. For Bourdieu, even if children become exposed to high-status culture later, it would be unlikely, due in part to their class-based habitus, to signal high-status culture to teachers.

Critics have argued that, contrary to Bourdieu's argument, cultural capital can be used as a means of achieving upward and intergenerational social mobility. This *cultural mobility argument* posits that children, regardless of their class background, who are able to acquire cultural capital at home, have higher levels of academic achievement than those who do not acquire it, and high levels of achievement result in greater likelihood of educational and occupational attainment (DiMaggio 1982; de Graaf 1986). Furthermore, others have argued that the acquisition of cultural capital is available from sources

other than family and not only in childhood, but throughout the life course, and acquisition of cultural capital at various time points throughout the life course is related educational success (see Aschaffenburg and Maas 1997). In support of the cultural mobility argument, several studies found that less advantaged children are more likely to benefit from the possession of cultural capital than more advantaged children (De Graaf, de Graaf, and Kraaykamp 2000; DiMaggio 1982; Dumais 2006; Roscigno and Ainsworth-Darnell 1999), which may be because these students "stand out" to teachers as students who are making an effort to fit in well with the culture of the school (Dumais 2006; Lareau 1987).

While there has been much debate surrounding these competing theoretical arguments, researchers have still not adequately addressed concerns related to the operationalization of Bourdieu's concepts. Additionally, there has not been consistent evidence for the cultural reproduction model or the cultural mobility model, so the intergenerational transmission of social inequality is not fully understood.

SUMMARY AND STATEMENT OF THE PROBLEM

Class-based, high-status cultural resources (habitus and cultural practices that yield knowledge and skills) are derived through family socialization processes whereby cultural dispositions/orientations toward childrearing and education shape parenting practices, which contribute to educational achievement, primarily through the process of teachers' preferences

for high-status culture (Bourdieu and Passeron [1970] 1977). In the United States, "high-status" culture is based on middle-class ideologies. Children exposed to high-status culture at home are advantaged in schools, primarily because teachers recognize and reward this advantage, and exclude children who lack family-based cultural resources. This pedagogic action subjects culturally disadvantaged students to a form of "symbolic violence." However, this process is disguised as meritocratic and legitimate, based on reinforced cultural ideologies, such as American individualism (McNamee and Miller 2009). Through a process of what Bourdieu calls *misrecognition* (Bourdieu 1984), teacher and school bias, such as the evaluation of student achievement based on cultural competencies, rather than ability, goes unnoticed (Bourdieu 1974; Bourdieu and Passeron [1970] 1977). Thus, schools reproduce culture and limit intergenerational mobility, thereby reproducing a stratified educational and occupational structure.

Bourdieu's theoretical framework has been widely used to analyze the process through which family background contributes to the transmission of (dis)advantage in the educational process and reproduces culture and society. Yet, the applicability of the theory to the U.S. educational experience continues to be debated (Kingston 2001; Sullivan 2001). Researchers have failed (presumably due to data constraints) to thoroughly consider how family-based processes (e.g., parental habitus and practices) and school-based processes (e.g., teacher's perceptions of their closeness to students) work in conjunction

(and/or separately) to impact educational outcomes. Moreover, there has been a lack of consistency with regard to the operationalization of habitus and a neglect of the role of parenting practices (which facilitate the intergenerational transmission of cultural capital), both of which are central to Bourdieu's thesis. Finally, quantitative studies that include operationalizations of Bourdieu's concepts have often used measures that do not fully and/or accurately capture Bourdieu's concepts, particularly *habitus* (which itself is usually excluded from empirical analyses). In an attempt to contribute to understanding of the reproduction of class-based (dis)advantage, this study seeks to investigate the mechanisms through which family-based, school-based and cumulative-based processes contribute to educational achievement.

Chapter 3: Research Questions and Hypotheses

I attempt to address three important assumptions of Bourdieu's theory as they apply to educational stratification, cultural reproduction and social inequality. As outlined in the previous sections, these assumptions focus on the role of family-based, school-based, and cumulative processes. Figure 1 (see Appendix F) illustrates a conceptual model for understanding these mechanisms.

[Figure 1 About Here]

FAMILY-BASED PROCESSES

1. *How large are the SES effects on academic achievement (math and reading) prior to schooling (age 4 ½), and how much of the effect is mediated by family-based cultural resources (parental habitus and parenting practices)?*

   Parental habitus refers to parents' dispositions and beliefs toward childrearing, and in particular, the way parents see themselves in relation to the institution of education. *Parenting practices* refer to the child's familial socialization experiences as they relate to the development of middle/ upper-class knowledge, such as acquiring "proper" language use, learning to be autonomous, and participating in cultural activities (e.g., playing musical instruments and visiting museums). More details on all measures will be provided in the next chapter. Based on Bourdieu's theory, I expect to find SES differences in achievement outcomes; however, parental habitus

and parenting practices might not explain all of the variation in achievement outcomes. While Bourdieu would expect to find a collective "class habitus" related to dispositions toward childrearing and education, he would argue that habitus and parenting practices do not become cultural *capital* until used in the context of a particular field (in this case, educational settings). Teachers, themselves from middle-/upper-middle class backgrounds, reward a habitus—and particular behaviors and practices associated with that habitus—similar to their own (i.e., consistent with middle-/upper-class culture). Since this research question focuses on outcomes at age 4½ (prior to school entry), achievement outcomes should not be impacted much, if at all, by habitus and parenting practices at that age.[11]

SCHOOL-BASED PROCESSES

2. *Do kindergarten teachers perceive themselves as closer to students with higher levels of SES (net of the student's academic abilities), and do kindergarten teachers' ratings mediate the relationship between SES and academic achievement in first grade?*

If relationships between teachers and students were based exclusively on academic/curricular content, then one might expect that teachers rate themselves as closer to students who do well academically. However,

[11] Some of the children in the SECCYD had, in fact, participated in pre-school programs, and therefore, could have been impacted by teacher bias. However, many pre-school programs operate outside of the normative structure of the U.S. education system. Further, participation in such programs occurred prior to the formation of perceptions by the kindergarten teacher, which are relevant to this particular study.

research has shown that teachers' relationships with their students can be based on teachers' subjective preferences and biases related to students' non-academic characteristics (e.g., styles, skills, language use). In accordance with Bourdieu's own theory, I expect that teachers will perceive themselves as closer to students with higher levels of cultural resources, and that the level of closeness will not be mediated by the child's actual academic abilities (i.e., achievement scores prior to school entry). Further, according to Bourdieu's theory, teachers' ratings should mediate the relationship between SES and academic achievement.

CUMULATIVE-BASED PROCESSES

3. *Does SES have effects on academic achievement post school entry (first grade), even when controlling for academic achievement prior to school entry, family-based cultural resources, and the student-teacher relationship?*

According to Bourdieu, class-based family habitus and parenting practices translate into cultural "capital"—resources that create (dis)advantages for individuals in a field (education) that rewards styles, practices, knowledge and skills—that match the institutional habitus/ culture. Thus, I expect that the SES achievement gap present prior to school entry to widen post school entry (by first grade) because according to Bourdieu's theory, educational institutions exacerbate class inequalities by rewarding behaviors that are constitutive of the dominant culture in a society. If Bourdieu is correct, a majority of the increase between the level

of early advantage and the level of later advantage should be the result of institutional factors, namely bias on the part of teachers/schools that create advantages in academic achievement for already-advantaged students.[12]

[12] It is important to note that, due to data constraints, this study does not examine explicitly the extent to which child habitus (the internalization of educational schema, disposition, tastes/preferences derived from family-based habitus and cultural practices) serves as a mechanism of the potential cultural capital effect. It is implied that a child's habitus "signals" one's cultural background, leading to particular perceptions/evaluations by teachers, but this is not examined in the current analyses because measures that could be used in such an analysis are not available until the fifth grade.

Chapter 4: Data and Methods

DATA

The current study uses data drawn from Phases I and II of the NICHD *Study of Early Child Care and Youth Development* (SECCYD), a prospective longitudinal study of 1,364 American children, their families, and their teachers.[13] Families in the NICHD SECCYD sample were recruited to participate through hospital visits to mothers within 48 hours after the birth of their child in the first 11 months of 1991.[14] The 24 hospitals were located near 10 data collection sites (see Figure 2 in Appendix F) set in: Little Rock, Arkansas; Lawrence, Kansas; Wellesley, Massachusetts; Philadelphia, Pennsylvania; Pittsburgh, Pennsylvania; Charlottesville, Virginia; Irvine, California; Seattle, Washington; Morganton, North Carolina; and Madison, Wisconsin.[15] During selected 24-hr intervals, all women giving birth at the 24 hospitals were screened for eligibility. Of the 8,986 women who gave birth during the sampling period, 5,151 were eligible to participate in the study. Mothers were not eligible if they: were under 18 years of age, were not in good health, had a known substance abuse problem, were unable to converse in

[13] As of 2009, the SECCYD data have been acquired by Inter-University Consortium for Political and Social Research (ICPSR). See http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies?q=SECCYD for updated information on the SECCYD.

[14] Details of the enrollment process can be found in Appendix A.

[15] Figure 2 provides an illustration of the study sites and locations of participants. These sites were not necessarily chosen with a specific purpose in mind. Each researcher selected as an investigator of the NICHD SECCYD was affiliated with a particular university within the United States. The geographic locations represented in the study reflect the areas within which these universities are located; in order to be eligible for participation in the study, mothers had to live within one hour of a research site.

English; planned to relocate within the next year; had a multiple birth; had a newborn with obvious disabilities or who was kept in the hospital for more than seven days; had an adoption plan in place for the newborn; lived in a neighborhood considered unsafe for visits; and disagreed to being contacted in two weeks by the study staff (NICHD Early Child Care Research Network 2005). A conditional random sampling plan was used to ensure that the recruited families reflected the demographic diversity—across socioeconomic status, education and race/ethnicity—of each data collection site. The screening process involved reviewing hospital records, as well as interviewing mothers (NICHD Early Child Care Research Network 2005). All potential participants who met the eligibility criteria received phone calls two weeks later. The total study population is not a nationally representative sample of children born in the United States during 1991, and instead, is representative of those who gave birth in 1991 at one of the 24 hospitals selected for participation in the SECCYD.

[Figure 2 About Here]

During the two-week follow up phone interview, mothers were excluded if they reported that their child had stayed in the hospital for more than seven days or that they planned to move within three years. Additionally, 1,353 of the families called were excluded because they could not be contacted after three attempts or refused to participate in the study. A conditional random sampling method was used to select the remaining 3,798 families. Of

the 3,798 families, 2,352 families were called and 1,364 participated in the one-month home visit (NICHD Early Child Care Research Network 2005). The conditional random sampling plan employed was such that for the first 3-4 months of the 11-month enrollment period, the list of eligible families was arranged in random order and all families were contacted; for the remainder of the enrollment period, specific family characteristics (including race/ethnicity, income, and plans to return to work) were examined and the list of families at each site was arranged to increase representation of various subgroups. A subset of this group was selected in accordance with a conditional-random sampling plan that was designed to ensure that recruited families reflected the demographic diversity (economic, educational, and racial/ethnic) of the geographic area at each site (NICHD Early Child Care Research Network 2005).

The families in this study do not constitute a nationally representative sample. Nevertheless, participating families were similar demographically to other families living in their respective geographic area, though mothers in the sample were slightly more educated and families had slightly higher income levels. While oversampling of racial-ethnic minorities was not conducted, the diversity of the original sample (76% White, 13% African American, 6% Hispanic, and 5% Asian, Native American, or other ethnicities) is similar to that of the demographic make-up of the United States at the time of data

collection (U.S. Bureau of the Census 1991).[16] Mothers in the sample had an average of 14.4 years of education, and 11% of mothers had not completed high school. The average family income-to-needs ratio was 3.6 times the poverty threshold, slightly higher than middle class (indexed by an income-to-needs ratio of 3.0), and 14% of respondents were single mothers.

The SECCYD is designed to examine the significance of non-maternal childcare on children's developmental outcomes and is considered the most comprehensive observational study of children's early care and education experiences to date. As such, it contains rich information about children's family and school environments, measured from birth through age 15 (and pending funding, data collection will continue as the study cohort transitions to adulthood). Moreover, data were collected at multiple time points during this period. The unique characteristics of the SECCYD data make them particularly useful for addressing my study questions.[17]

Data collection began when study children were one month of age. Observations, telephone interviews, and paper questionnaires were used to gather data. Phone calls were made to the families every three months until the child was 36 months old, every four months until the child started kindergarten, and every six months while the child was in school, with a phone

[16] The exception is the Hispanic category, which is only about half of the actual percentage of Hispanics in the U.S.

[17] Ideally, a more desirable dataset for the current study would be nationally representative or alternatively, include an oversampling of lower-income, less-educated families. However, this dataset was chosen because the SECCYD data provide the *best measures, at the appropriate time points,* for addressing the study questions under investigation.

call in fall and one in spring (NICHD Early Child Care Research Network 2005). Assessments occurred when the children were 1, 6, 15, 24, 36 and 54 months old (age 4 ½); when they were in kindergarten and grades 1, 2, 3, 4, 5, and 6; and at age 15. This study uses data collected through the children's first grade year. Once the child started school, data were also collected from teachers. At each grade level, teachers received a packet of questionnaires to complete about the target child. For the present study, items from the *Student-Teacher Relationship Scale* and the *Teacher Report Form* questionnaires are particularly useful.

Other information (e.g., updates on the study child's household composition) was collected during the aforementioned time points, as well as between them.[18] Additional details about all data collection procedures, including information about the instruments and descriptions of how composites were derived and constructed can be found in the study's *Manuals of Operation* and *Instrument Documentation*.[19]

SAMPLE FOR THE PRESENT STUDY

The current study includes children with complete data on the academic achievement measure at first grade and age 4½, as well as the potential mediating variables and focal predictor variables. The following sections

[18] While assessments were not administered every year, researchers used phone contact and home visits to collect various other data, such as changes in income, employment, family structure, etc.
[19] See http://www.nichd.nih.gov/research/supported/seccyd/overview.

describe the specific measures used in this study and the time points when data on such measures were collected.

Phase I (1991-1995) of the SECCYD lasted from the time the study children were one month of age through 36 months of age. During Phase II of the study (1996-1999), 1,220 of the children and families were followed through first grade. Teachers became involved in the study if they had a study child in their class. The present study used a subsample of the original SECCYD sample that includes only cases that did not have any missing data for the primary indicators, potential mediators, and outcome variables (measures discussed in the next section), all of which were collected between one month and first grade. The final sample for analysis consisted of 627 cases.

Taking into account sample attrition as of first grade, as well as the use of a subsample of the data, the issue of selection bias must be considered. That is, it is possible that the cases in the analytical sample of the present study differ from those in the original SECCYD sample in ways that could bias results. Past SECCYD research has indicated that panel attrition and missing data on specific instruments does not create substantial sample bias (NICHD Early Child Care Research Network 2005). Descriptive analysis (reported later) generally confirms this; however, the sample used in the current study did differ from the original sample. Specifically, the present study sample included fewer poor and low income families, fewer non-white families, fewer single mother households, and mothers who were less educated. Children in the

current study's sample did not, however, differ from the children in the original sample on the focal study variables, including achievement scores, student-teacher relationship ratings, and family-based cultural resources.

MEASURES

Measures are presented in this section in subsections corresponding to their function in the analytic plan, as follows: (a) academic achievement as an outcome variable, (b) family-based cultural resources as both predictors and potential mediating variables, (c) student-teacher relationship as a potential mediating variable, (d) socioeconomic status (SES) as the primary predictor variable, and (e) control variables.

Outcome Variable

Academic Achievement

For the present study, ***academic achievement*** was measured by indicators of *math achievement* and *reading achievement* from the Woodcock-Johnson Psycho-Educational Battery Revised (WJ-R). The WJ-R is a wide-range, comprehensive set of individually administered tests for measuring cognitive abilities and achievement (Woodcock and Johnson 1989). A total of ten subscales of the WJ-R were administered to each study child during the following time points: 54 months (age 4½), first grade, third grade, fifth grade, and age 15; however, not all ten of the subscales were administered at every time point. Because I am interested in investigating achievement at first grade, controlling for achievement at age 4½, two subscales—a math subscale and a

reading subscale—of the WJ-R Tests of Achievement (WJ-R ACH) that were administered at both time points were chosen as measures of academic achievement. The WJ-R Tests of Achievement are typically used to determine a child's educational progress and measure broad curricular areas such as reading, mathematics, written language, general knowledge, and overall skills (Woodcock and Johnson 1989).

Math achievement. The WJ-R Tests of Achievement (WJ-R ACH), Section 25 is an *Applied Problems* assessment that measures the subject's skill in analyzing and solving practical problems in mathematics. In order to solve the problems, the subject must recognize the procedure to be followed and then perform relatively simple calculations.

Reading achievement. The WJ-R ACH, Section 22 is a *Letter-Identification* assessment. The first five Letter-Word Identification items involve symbolic learning, or the ability to match a pictographic representation of a word with an actual picture of the object. The remaining items measure the subject's reading identification skills in identifying isolated letters and words. In this test, it is not necessary that the subject knows the meaning of any word correctly identified. The items become more difficult as they present words that appear less and less frequently in written English.

Academic achievement was measured as a combined score of reading and math achievement, that is, it was computed as the mean of the summed

standardized scores for the WJ-R ACH Applied Problems and Letter-Identification assessments.

Primary Indicators/Mediators

Family-based Cultural Resources

Family-based cultural resources[20] was measured by three types of "parental habitus" and by "parenting practices." To my knowledge, neither of these types of indicators has been used in existing "cultural capital" research. "Parental habitus" goes beyond the typical use of a singular measure (e.g., expectations) of habitus by including several items that gauge parents' dispositions and orientations toward childrearing. The decision to use "parenting practices," as opposed to cultural capital, was made because it seems that what is often missing in research applying Bourdieu's concepts is his idea of "practice." In other words, it is often unclear how cultural capital becomes activated. Lareau (2003) was influential in filling in this gap by explaining that class-based differences in habitus (dispositions toward childrearing) guide practices ("concerted cultivation" vs. "natural growth") among parents. This is the process through which cultural capital is transmitted to children, and then rewarded by teachers and schools. I follow Lareau's (2003) lead, and while I do not use her specific parenting typology, I do include a measure that incorporates various aspects of parental socialization.

[20] Measures for both mothers' and fathers' cultural resources are ideal, but such data were not collected from fathers.

Parental habitus was measured using items from the *Ideas about Raising Children* questionnaire,[21] which was completed by parents when children were one-month old. This is a 30-item measure of traditional, authoritarian parental beliefs and progressive, democratic beliefs about childrearing. It is useful to the current study because it includes many questions assessing beliefs about childrearing/socialization, including beliefs in relation to the education system.[22] The transmission of cultural capital from parents to children is shaped by parents' class-based habitus (Bourdieu 1977). Lareau (2003) notes, for example, the differing availability of learning materials in concerted cultivation practicing families, and, in particular, the extent to which parents seek to cultivate children's interests by seeking out materials is related to their class-based habitus. Middle-class parents, unlike working-class and poor parents, see themselves as stakeholders in their child's education and development. Working class and poor parents, on the other hand, value their children's education, but view teachers as more competent and rely heavily on schools to facilitate their children's learning. Moreover, these parents have different dispositions toward childhood and childrearing, and this influences their

[21] The SECCYD used items from the *Ideas for Raising Children* to create a *Parental Modernity Scale of Childrearing Beliefs* scale, as well as two subscales, the *Progressive Beliefs* scale and the *Traditional Beliefs* scale. However, none of these scales in their current form adequately measures "parental habitus" in the way Bourdieu's theory proposes. Thus, I will use the *Ideas for Raising Children* questionnaire to create my own scale.

[22] Measures for parental habitus prior to school entry were used, which ensured proper causal ordering. According to Bourdieu's reasoning, habitus should already be formulated by adulthood; however, it is possible that parents' educational expectations for their children might be impacted by the child's school performance (Bodovski and Farkas 2008). Using a measure prior to school entry should lessen the likelihood that parental habitus is the result of the child's behavior/performance, but as noted, it is possible (though not probable) for parental habitus to change over time.

parenting practices in ways that create differential advantages for middle-class and working-class/poor children.

As Bourdieu's theory and Lareau's qualitative findings suggest, class-based differences in parental habitus impact the SES-gap in educational achievement because middle-class parents have a parental habitus that is more school-oriented (i.e., one that is in line with the education system's "institutional habitus," as discussed earlier). One aspect of such parental habitus relates to how parents view their own role in the educational experience of their children, as well as how what they believe about the roles of their children, teachers and schools. Second and third aspects of parental habitus relate differences in ideas about childrearing and socialization, namely, middle-class parents' disposition toward promoting autonomy in their children versus working class and poor parents' disposition toward conformity (Kohn 1969; Lareau 2003). All three types of parental habitus, which can be thought of as "education," "autonomy" and "conformity" dimensions of parental habitus, have been shown to influence achievement outcomes (e.g., Lareau 2011). Items from the Ideas About Raising Children questionnaire seem to reflect these three types of parental habitus. In an effort to investigate whether items from the SECCYD capture specific dimensions of *parental habitus,*

exploratory factor analysis using all items from the *Ideas About Raising Children Checklist* questionnaire was conducted.[23]

Based on the results of the factor analysis, three subscales were created and included in the analyses as measures of parental habitus: *education parental habitus, autonomy parental habitus,* and *conformity parental habitus.* The full list of items from the *Ideas About Raising Children Checklist* is located in Appendix B, and factor loadings and corresponding questions used for each scale are shown in Appendix C. Items from the *Ideas for Raising questionnaire* were rated on a 5-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. For each scale, items were summed, with higher scores representing higher levels of parental habitus. Reverse coding was done as necessary. Cronbach's alphas were .75 for the education parental habitus scale, .84 for the conformity parental habitus scale, and .63 for the autonomy parental habitus scale.

To my knowledge, no study has ever been able to assess parental habitus this early in a child's life. The majority of studies examining habitus (usually parents' expectations of their child's educational attainment), have been conducted with high school students, at a time when their parents may have already been influenced by interests and/or skills that their children have developed. One exception is Bodovski's (2010:143) examination of elementary

[23] This was done using Principal Component Analysis in SPSS, which considers the total variance in the data. As such, the term "component(s)" in the SPSS output represents the term, "factor(s)," so the two terms may be used interchangeably. Principal components analysis is the is recommended when the primary concern is to determine the minimum number of factors that will account for maximum variance in the data for use in subsequent multivariate analysis.

school students. She examined parental habitus (also measured using parents' expectations of attainment) for six-year-old children. As she pointed out,

> ….. parental expectations regarding their six-year-old's future educational attainments should be regarded as more reflective of *the parents'* own world-view and cultural orientation, representing the parents' perception of their own place in the social structure, and the opportunities that should therefore be available to their children (p. 143, original emphasis).

Accordingly, using measures this early (when the child is only one-month old) provides even more precise assessments of the parents' own world view and cultural orientation. The use of such early measures of parental habitus, as well as the introduction of a new measure related to education (i.e., education parental habitus) that goes beyond capturing only educational expectations, is an attempt to operationalize habitus in a way closer to what Bourdieu intended. Additionally, these measures allow for the avoidance of conflating habitus and cultural capital, which seems to have been done in some studies that have attempted to operationalize habitus (e.g., Bodovski and Farkas 2008). As Lau (2004:370) notes, it is important to reject "equating habitus to cultural capital (which also serves to safeguard habitus' specific explanatory value)…"

Parenting practices were measured using items from the Home Observation for Measurement of the Environment (H.O.M.E.) Inventory, which is made up of four composite measures: (1) Responsiveness; (2) Learning Materials; (3) Stimulation; and (4) Harsh Parenting (shown in Appendix D). These composites represent comparable constructs from two different versions of the H.O.M.E., the Infant-Toddler H.O.M.E. (a 38-item

checklist, assessed at 6 months and 15 months) and the Early Childhood H.O.M.E. (a 39-item checklist, assessed at 36 months).[24] A score of 0 (absent) or 1 (present) is given for each item; thus, the maximum possible score for the combined H.O.M.E. Inventory checklists is 115. The mean scores from the three combined (6-month, 15-month, and 36-month) H.O.M.E. Inventory checklists were used in the analyses.

This parenting practices measure seems particularly appropriate for the types of cultural resources that parents transfer to their children through socialization practices. For example, items focus on such things as *language stimulation* (e.g., "Parent uses correct grammar and pronunciation"), encouragement of *autonomous behavior* (e.g., "Child can express negative feelings without harsh reprisal"), and *participation in cultural activities* (e.g., "Child has been taken to a museum during the past year").

Student-Teacher Relationship

The Student-Teacher Relationship Scale (STRS) Short-Form is a 15-item Likert-type scale designed to assess teachers' perceptions of a particular student's relationship with them (Pianta 1999). The STRS has been widely used in studies with preschool and elementary school children. It is associated with children's and teachers' classroom behaviors and correlates with observational measures of quality of the teacher–child relationship (Birch and

[24] For a full list of items, see Appendix D. Note that the 6-month and 15-month assessments use the same H.O.M.E. Inventory items. The four composite measures, Responsiveness, Learning Materials, Stimulation, and Harsh Parenting, were created by the SECCYD, by taking the sum of the comparable constructs from the original Early Childhood and Infant-Toddler H.O.M.E. Inventory checklists.

Ladd 1997; Howes and Hamilton 1992; Howes and Ritchie 1999). It consists of three possible subscales: *Total, Conflict,* and *Closeness*. The STRS has been correlated with behavior, with correlations ranging from .40 to .67 (Pianta and Steinberg 1992). For example, using the STRS, Pianta and Steinberg (1992) found that students with positive relationships with their teachers were less likely to be retained than were children with similar achievement scores who had less positive relationships with their teacher. Further, positive student-teacher relationships were associated with better academic performances on standardized tests (Birch and Ladd 1997) and negative effects of socio-demographic risk on academic achievement outcomes (Hamre and Pianta 2005). At the same time, the research found that teachers who reported negative student-teacher relations had students with poor academic and behavioral outcomes. The *Closeness* subscale, which is comprised of six items from the STRS, was used in the analyses to assess whether teachers' perceptions of closeness to students were specific to students who possessed high levels of family-based cultural resources.[25]

Socioeconomic Status (SES)

Socioeconomic status is measured using two indicators: family income and maternal education. *Family income* is measured using dummy variables taken from income-to-needs ratios, collected during the first month interview, which are based on U.S. Census poverty thresholds in 1991 (U.S. Bureau of the

[25] See Appendix E for a full list of items from the STRS short form.

Census 1991). Families reported their annual household income from all sources, including government assistance. From these data, an income-to-needs ratio was computed, defined as family income divided by the poverty threshold for the appropriate family size, as established by the U.S. Census Bureau (U.S. Bureau of the Census 1991). An income-to-needs ratio of 1.0 denotes the poverty level; thus 1.0 or below is considered "poor" status. An income-to-needs ratio of 2.0 is considered the threshold for near-poverty and will be referred to as "low income" in these analyses. An income-to-needs ratio of 2.1-5.0 denotes "middle income" status (used as the reference group), and one greater than 5.0 signifies "high income" status.

Maternal education is measured using mother's education, as reported during the one month interview. Mothers reported the total number of years of education they had received and their highest level of degree attainment. Dummy variables were created for four education categories: high school graduate or less, some college, college graduate, graduate work or degree.[26] "Some college" was used as the reference category.[27]

[26] While father's education was considered as an additional measure of SES, missing data, as well as the inability to distinguish between "partner's" and "father's" educational attainment, prohibited the inclusion of this measure in the analyses.

[27] In an effort to investigate potential differences between education categories, reference groups for maternal education were rotated. In addition, though less than five percent of the sample make up the "less than high school" category, a dummy variable for this category was created and included in the rotations done for each set of reference group comparisons. It was never significant, and due to its small size, a decision was made to group high school graduate and less than high school categories into one category. There was no substantive difference in the findings when rotating the reference groups. As a result, a decision was made to use "some college" as the reference group. This decision was made because parents who have attended college should have access to educational resources (i.e., cultural capital) in ways that are not necessarily available to parents who have not attended college.

Family Controls

Maternal age was held constant in the analyses because of its potential impact on mothers' ability to invest in children. While there does not seem to be a direct effect of age on achievement outcomes, studies have shown that age may have an indirect effect through socioeconomic factors, such as education or the ability to make financial investments toward cognitive and academic stimulation and development (Duncan and Chase-Lansdale 2001). During the one-month interview, mothers were asked their date of birth. This variable was originally coded by the SECCYD as a continuous variable. For the purposes of this study, maternal age was recoded as a categorical variable, in which ages 18-24=1, 26-34=2, and 35 and older=3. Dummy variables were then created, with the 18-24 age category serving as the reference group.

Child Controls

Maternal reports of child gender and race-ethnicity were collected when the study child was one month of age. In the current study, *child gender* is a dichotomous variable (female=l). Dummy variables were created for the following *child race-ethnicity* categories: non-Hispanic white, non-Hispanic black, and other, with "non-Hispanic white" used as the reference group. It is important to note that the "other" category includes a heterogeneous representation of race/ethnic groups, and as such, inferences from statistical findings may be limited.

Family structure was measured using data collected from mothers at the one month interview. First, family structure categories were created for the following types of families: (1) nuclear family (two married, biological parents); (2) cohabiting family (two unmarried, biological parents); (3) biological mother and stepfather (married); (4) biological father and stepmother (married); (5) biological mother cohabiting with partner (who is not the father of the child); (6) biological father and cohabiting partner (who is not the mother of the child); (7) single mother family; (8) single father family; and (9) other family. Only four categories represented all of the family types for children in the sample: nuclear family, cohabiting family, single mother family, and other family. These four family types were coded into dummy variables, with "nuclear family" used as the reference group.

Birth order was included as a control variable because research suggests that family size may influence educational attainment through differences in the availability of resources to various family members (Becker 1991; Blake 1989). This is particularly the case with regard to having multiple children in the household because there are limited emotional and material resources available to a child, and additional siblings constrain the availability of such resources to a particular child (Becker 1991; Blake 1989; Guo and VanWey 1999). Accordingly, families with fewer children may be able to invest more of their available resources in each child. Some research has found, however, that the effect of the number of siblings on educational achievement is reduced

significantly once birth order is taken into account (Black, Devereaux and Salvanes 2005). Moreover, using a sample of boys from the 1990 U.S. Census, Conley and Glauber (2006) found that sibship size had no effect on educational achievement for first-born boys, but reduced second-born boys' likelihood of private school attendance and increased second-born boys' likelihood of being held back a grade in school. Thus, I include birth order as a control variable, as it may impact the effect of SES on achievement, as well as on potential mediators of achievement, namely parenting practices. Dummy variables were created for four birth order categories: second, third, and fourth or higher, with first as the reference group.

Center care prior to school entry is also used as a control variable (coded 1=yes, 0=no). As mentioned in the earlier discussion of "embodied capital," in an effort to prepare children for school, daycares and preschools may have an impact not only on cognitive achievement, but also on socialization processes that contribute to the inheritance of embodied capital.

Teacher Controls

One of the strengths of the SECCYD dataset is that it includes information from teachers. Studies that have examined the relationship between habitus, parenting practices, teacher perceptions and educational achievement were unable to control for the socioeconomic backgrounds of teachers (Bodovski 2010; Bodovski and Farkas 2008). Information about teachers was collected in the SECCYD, through a questionnaire sent to

kindergarten and first grade teachers, as well as teachers in higher grades (though only kindergarten and first grade are relevant for this particular study). This questionnaire asked about demographic information, as well as attitudes and behaviors related to teaching. Information collected from *kindergarten* teachers was used in the analyses. Teachers were asked about their behavior regarding the tracking of students into reading and math groups.

A dichotomous *kindergarten teacher tracking* variable (reports tracking for either reading or math=1). According to Bourdieu's cultural capital framework and theory of social reproduction, one of the mechanisms through which teacher's perceptions of their familiarity with and bias toward students with cultural backgrounds similar to their own impacts social mobility is through the process of tracking. Early in their schooling, children begin being tracked based on academic abilities, and this educational sorting stays with the child throughout her/his school career, helping to determine the amount and type of instruction the child receives, others' expectations, and the child's self-image and way of seeing her-/himself in the relation to the social world (Hallinan and Oakes 1994). Education research has supported the idea that such decisions made on the part of teachers during the early years of schooling have long-term consequences on students' success (Alexander et al. 1993; Alexander, Entwisle and Olson 2007; Entwisle, Alexander and Olson 1997). According to Bourdieu's theory, this tracking behavior is not necessarily reflective of students' academic ability, but instead, is based on teachers' bias toward certain

groups of students (Bourdieu 1977). As such, it seems important to control for tracking behavior to determine whether or not this contributes to the kindergarten student-teacher relationship, mediating the effect of cultural resources on first grade achievement. The ability to include teacher characteristics is a unique feature offered by the current study because this information is often excluded from cultural capital research (Kingston 2001).

Data Collection Site Controls

While SECCYD participants were selected in accordance with a conditional random sampling plan designed to ensure that the recruited families reflected the demographic diversity of each data collection site, it remains necessary to control for potential location/regional effects (e.g., cultural differences or SES differences). As such, dummy variables were created for each of the data collection sites, with Little Rock, AR as the reference group. Analytic concerns related to data collection site will be discussed in the next section.

Analytic Method and Analytic Issues

In order to address the research questions under inquiry, Ordinary Least Squares (OLS) regression techniques were used. The use of OLS is only appropriate for analyzing data if certain data assumptions are not violated. Thus, before outlining the specific analytic procedures used in the analyses, it is important to discuss some of the assumptions of OLS, as well as potential implications associated with choosing this particular analytical method. First,

OLS regression is only appropriate if the dependent variable is continuous, as is the case with the dependent variables used in these analyses.

Second, the use of OLS is recommended with the assumption that data are normally distributed. Examination of the data, using both graphical and numerical methods, revealed that achievement scores at age 4½ and at first grade were normally distributed. In an effort to compare the distribution of residuals for the study variables to the residuals in a normal distribution, histograms and boxplots for study variables were examined, it was found that distributions did not deviate from normality. In addition, a Shapiro-Wilk test was conducted, which tests the null hypothesis of normality. For each outcome variable, the test failed to reject the null hypothesis of normality at the .05 level of significance. This suggests that the data are normally distributed.

Third, while technically not a violation of OLS assumptions, multicollinearity of variables is a concern because it increases the variances and standard errors of the OLS estimates; thus, it was important to test for statistical significance of multicollinearity between study variables. Because several of the variables used in the regression equations were highly correlated, multicollinearity test using the Variance Inflation Factor (VIF) and Tolerance (TOL) statistics were performed. Doing so revealed that the correlations of predictor variables would not result in statistically significant inflation of variances and standard errors.

Finally, OLS assumes that observations are independent. Typically, situations where this assumption is violated include (1) clustered data, where observations are grouped (e.g., data on multiple children in the same classroom) and (2) the use of longitudinal, multilevel data, with repeated observations on each individual. The next few paragraphs will address how these issues relate to the current subsample of the SECCYD used in the analyses.

Because of data were collected from hospitals and schools, located in specific locations across the United States, the question of clustering effects emerged. As previously mentioned and further detailed in Appendix B, the SECCYD does not constitute a nationally representative sample. Data collection sites were chosen primarily based on the location of research teams involved in the study. Though a conditional random sampling plan was implemented to ensure that the demographics of the participants matched those of the respective data collection site, data collection took place at hospitals located close to the data collection site; thus, many of the same children were born at the same hospitals. It is possible that in the analyses used in this study, variables for location (i.e., the different cities) may have picked up unobserved variables/heterogeneity, such as regional differences, state differences, SES differences, and/or cultural differences. Thus, dummy variables for data collection site were created to be used as control variables. Nevertheless, dummy variables for data collection site do not negate the effects of clustering.

Since the current study uses data from children's teachers, the question of clustering within schools also had to be considered. An examination of the sample revealed that the subsample used in this study typically consisted of one child per classroom. However, in twenty cases, there were two children in a classroom, and in two cases there were three children in a classroom. Thus, although a small number of children were technically clustered within classrooms and schools in either kindergarten or first grade, they were not clustered at a rate that deflated standard errors through large violations of assumptions of independence (Guilkey and Murphy 1993). However, the standard errors obtained from OLS regression in the present study are underestimated because observations are not independent due to the clustering of individuals within hospitals.

Another concern related to the issue of clustering is the longitudinal nature of the SECCYD data. Related to the present study, it is important to note that OLS regression analyses examine between-child variation, but does not estimate within-child variation. This can be problematic when dealing with longitudinal data because between-child estimates of non-experimental data may be biased due to the exclusion of omitted variables. For example, some unobserved characteristics of children may be both time invariant and time varying. Multilevel models with estimates centered within child would help control for unobserved characteristics of the child and the child's family that are constant over time. Generally, multilevel models of longitudinal data (e.g.,

hierarchical linear modeling or structural equation modeling) account for the fact that observations are nested over time within children, thereby controlling for potential problems that could arise from repeated measures (e.g., correlated errors within each individual child). Thus, it is important to keep in mind that the use of repeated measures over time in the analytical sample may bias estimates. However, the only repeated measure, academic achievement, is measured at only two time points, at age 4½ and first grade.

In addition, while controls for a wide range of child and family characteristics associated with achievement outcomes are included, there are likely unmeasured and thus omitted variables that may bias my results. As previously mentioned, the SECCYD sample was not designed to be nationally representative and my analyses use a subsample with non-missing data; thus, the generalizability of results is limited and inferences should also be considered with caution.

Finally, as discussed in further detail below, this study used multiple regression with mediation models to investigate the effect of specific intervening variables (namely, family-based cultural resources and the student-teacher relationship) on the relationship between socioeconomic status on educational achievement. While this approach is commonly used by analysts and is appropriate, given the normal distribution of the sample and the use of continuous outcome variables, it should be noted that its ability to adequately confirm theoretical assumptions is limited. Mediation approaches using OLS

regression analysis are restricted to a single dependent variable being predicted by the inclusion of a predictor variable, and the addition of other variables (resulting in an additive effect). Thus, while arguments about the correlation effects of predictors and potential mediators can be made, causal extrapolations cannot. Other analytical techniques, such as Structural Equation Modeling (SEM) would allow for the combination of both statistical inferences and theoretical causal assumptions by making it possible to simultaneously examine the pathways through which SES impacts achievement outcomes. In sum, while statistical tests suggest that OLS regression is appropriate for this study (as described above), there are specific limitations to its application. Consequently, results should be interpreted with caution.

Analytic Techniques

As previously stated, in order to address the research questions under investigation, Ordinary Least Square (OLS) regression analysis was employed. Additionally, techniques laid out by Baron and Kenny (1986) were used to test for potential mediation in regression equations. Figure 3 (in Appendix F) depicts a non-mediation model, and Figure 4 (in Appendix F) depicts the mediational model.

[Figure 3 About Here]

[Figure 4 About Here]

Figure 4 serves as an aid in the explanation of the analytical procedures used in the current study. These procedures include four steps, as outlined by Baron and Kenny (1986). First, analysis should be run to ensure the explanatory variable, *X,* is correlated with the outcome variable, *Y.* Second, analysis should be run to determine that variable, *X*, is significantly associated with the mediating variable, *M.* Third, analysis should be run to examine whether *M* is significantly associated with *Y*. As shown in Figure 4, the relation between *X* and *M* is represented by a, and the relation between *M* and *Y,* adjusted for the effect of *X,* is represented by *b.* The relation between *X* and *Y* is represented by *c,* and the relation between *X* and *Y,* adjusted for the effects of *M,* is referred to as *c'.* Thus, the final step involves determining whether a causal argument for mediation can be made, which is the case when *a, b,* and *c* are statistically significant and when the absolute value of *c* is larger than the absolute value of *c'* (Baron and Kenny 1986). If the effect of the independent variable is smaller when the mediator is included in the analysis, then a partial mediation effect exists. If the independent variable has no effect on the dependent variable when the mediator is included, then a full mediation effect exists (Baron and Kenny 1986).

The subsequent sections address how Baron and Kenny's (1986) mediation techniques were used to address the research questions about family-based, school-based, and cumulative-based processes, respectively. Bivariate correlations were used to determine the relationship between *X* and *Y* (as

shown in Tables 2 for the family-based process analyses and Table 5 for the school-based and cumulative-based analyses). Thus, the ensuing sections focus on how steps two and three of Baron and Kenny's mediation procedures were carried out.

Family-based Processes

How large are the SES effects on academic achievement (math and reading) prior to schooling (age 4 ½), and how much of the effect is mediated by family-based cultural resources (parental habitus and parenting practices)?

The analyses for the family-based processes model proceeded in four steps. First, each of the family-based cultural resources *(M)* measures—education parental habitus, autonomy parental habitus, conformity parental habitus, and parenting practices—was regressed on the two SES *(X)* measures (family income/income-to-needs and maternal education). Because the effects of SES on a child's access to family-based cultural resources could be a function of family and demographic characteristics conflated with SES, a necessary step was to control for maternal age, family structure, child's birth order, and child's race/ethnicity. Additionally, because research suggests that parents may have gender-specific attitudes, beliefs, and practices related to childrearing (Messner 2009) and may invest differently in sons than daughters (Freese and Powell 1999), child gender was also held constant. A final control

for data collection site,[28] as this may have an impact on SES, as well as beliefs and practices related to childrearing and education. The inclusion of control variables allowed for the examination of significance for the potential remaining association between SES and family-based cultural resources *(a).*

Second, age 4 ½ academic achievement *(Y)* (mean of summed scores of a WJ-ACH reading assessment and a WJ-ACH math assessment) was regressed on the family-based cultural resources *(M)* variables. As with the first set of analyses, family, demographic, and data collection site controls were included to assess whether or not the relationship between family-based cultural resources and age 4½ achievement *(b)* was statistically significant, net the effect of potentially confounding variables. Third, the age 4 ½ achievement *(Y)* was regressed on the SES *(X)*, as well as control variables, which indicated whether the association between SES and age 4½ achievement *(c)* remained statistically significant.

Finally, age 4½ achievement was regressed on SES, family-based cultural resources, and the control variables simultaneously, which allowed me to examine the effect of the family-based cultural resources variables—if *a, b,* and *c* are statistically significant and if the absolute value of *c* is larger than the absolute value of *c'* (Baron and Kenny 1986).

[28] As previously mentioned, due to the sampling design of this study, data collection site was controlled in the analyses, but no specific conclusions about location effects were drawn. While some of the data collection site variables (not shown in the tables) were significant, supplementary analyses of regressions run without data collection site variables showed that the results for the key study variables were not impacted by the inclusion or exclusion of data collection site variables.

School-based Processes

Do kindergarten teachers perceive themselves as closer to students with higher levels of SES (net of the student's academic abilities), and do kindergarten teachers' ratings mediate the relationship between SES and academic achievement in first grade?

To answer these questions, steps similar to the ones described in the previous section are taken. First, the effect of SES (family income and maternal education) on teachers' perceptions of their closeness to students (measured by the student-teacher relationship scale/STRS) are estimated, controlling for child characteristics— child gender, child race-ethnicity, child center care attendance prior to school (measured by the proportion of time attended between birth and 36 months of age)—and data collection site. A measure of the child's prior academic achievement (the child's age 4½ WJ-R achievement score) is also included.

Second, the effect of the student-teacher relationship (at kindergarten) on first grade academic achievement is estimated, controlling for child gender, child race-ethnicity, child center care attendance, and data collection site. Third, the SES variables are added to the model, controlling for child gender, child race-ethnicity, child center care attendance, and data collection site, as well as the student's prior academic achievement (age 4 ½ achievement). These steps allowed for the determination of a mediation effect of the student-teacher relationship; if the effect of SES on first grade academic achievement is less in

the final model (with the student-teacher relationship measure included) than in the initial model, then an argument for mediation can be made.

Cumulative-based Processes

Does SES have effects on academic achievement post school entry (first grade) even when controlling for academic achievement prior to school entry, family-based cultural resources, and the student-teacher relationship?

To answer this question, a full regression model that includes all variables used in the family-based processes and school-based processes models was used. The inclusion of all variables in the same model allowed for the determination of whether an SES effect still existed, even when controlling for family-based cultural resources and the student-teacher relationship. If SES is not significant, then there may be a mediation effect of SES on academic achievement at first grade. Moreover, with the inclusion of a measure of prior academic achievement (at age 4½), a lagged dependent variable approach was used to determine the existence of any change in academic achievement between age 4½ and first grade, and whether SES contributed to any change.

Descriptive Analysis

Before proceeding with presentation of the regression results, descriptive statistics are presented. Table 1 provides comparative descriptive statistics for the subsample used in the present study (N=627) and the original SECCYD sample (N=1364). As previously mentioned, the current study sample included only participants who had a complete set of data on the study variables.

Presenting descriptive statistics for both the subsample and the original sample clarifies potential differences between the two groups. There was little difference in means on achievement outcomes at age 4 ½ and at first grade, family-based cultural resources, and student-teacher relationship scores. Regarding SES, families in the current study sample were slightly more affluent across family income and maternal education than families in the original sample, and in the national population (Note that the percentage also is higher than the proportion in the national population [U.S. Bureau of the Census 1991].) Mothers in the current sample were more likely to be over the age of 25 at the one month interview than mothers in the original sample, and they were more likely to be married to the biological father at the one month interview and less likely to be single mothers. Mothers in the current study sample were slightly more likely to have had more than one birth at the one month interview than mothers from the original sample. (Note that the percentage also is higher than the proportion in the national population [U.S. Bureau of the Census 1991].)

The child gender composition of each sample was about the same, but with regard to race/ethnicity, the percentage of white children was higher for the current study sample than for the original sample. Children in the current study spent a slightly larger proportion of time in center care between the ages of six and thirty-six months than did children in the original sample. Children's kindergarten teachers in the present study were more likely to have reported

tracking behavior than teachers of children in the original sample. Finally, the two samples differed substantially with regard to data collection site differences. Compared to the original sample, the current study sample included a higher proportion of children at seven of the ten data collection sites, fewer children at Seattle, Washington, and no children from Morganton, NC or Madison, WI. The sample differences related to location were the result of the exclusion of missing data on the study variables. Results for the regression analyses associated with the three research questions are presented in the next three chapters.

[Table 1 About Here]

Chapter 5: Family-based Processes Results

How large are the SES effects on academic achievement (math and reading) prior to schooling (age 4 ½), and how much of the effect is mediated by family-based cultural resources (parental habitus and parenting practices)?

Before reporting the results of the regression analyses, a few points will be made about SES group differences in family-based cultural resources and bivariate correlations between family-based cultural resources and age 4½ academic achievement variables. One-way Analysis of Variance (ANOVA) tests, as shown in Table 2 (in Appendix G), illustrate significant differences in means by income group for autonomy parental habitus ($p < .01$) and parenting practices ($p < .001$). The mean for autonomy parental habitus is lower for the poor group relative to the other income groups, and the means are lower among SES groups relative to higher ones for parenting practices. The ANOVA results indicate no significant differences among means by income group for education parental habitus or conformity parental habitus. There are significant differences by maternal education group for education parental habitus ($p < .001$), conformity parental habitus ($p < .05$), and parenting practices ($p < .001$), with higher means among more educated groups for education parental habitus and parenting practices and lower means among more educated groups for conformity parental habitus. There are no significant differences in means among the maternal education groups for autonomy parental habitus.

[Table 2 About Here]

The correlations in Table 3 (in Appendix G) shows that, with the exception of the autonomy parental habitus not being correlated with parenting practices or age 4½ academic achievement, all of the family-based cultural resources and age 4½ academic achievement variables are correlated at the $p < .05$ level (or higher). Conformity parental habitus is negatively correlated with the family-based cultural resources variables and age 4½ achievement; the other significant correlations in the table are positive.

[Table 3 About Here]

Table 4 presents regression analyses used to answer the family-based processes research question. As previously discussed, for mediation to occur, the following conditions must be met: (1) the association between the independent variable (SES) and the mediating variable (family-based cultural resources) is statistically significant, (2) the association between the mediating variable (family-based cultural resources) and the dependent variable (age 4½ academic achievement is statistically significant, (3) the association between the independent variable (SES) and the dependent variable (age 4 ½ academic achievement) is statistically significant, and (4) the association between the independent variable (SES) and the dependent variable (age 4½ academic achievement) is reduced upon the addition of the mediating variable (family-based cultural resources) to the model.

Following the four conditions, the first step was to assess the significance of the association between SES and each of the family-based cultural resources variables. Table 4 (in Appendix G) reveals that even with the inclusion of child, family and data collection site control variables, there are statistically significant associations between SES (either income-to-needs or maternal education) and all of the measures for family-based cultural resources, with the exception of the conformity-based dimension of parental habitus.

For education parental habitus, there was a positive and statistically significant effect of mothers holding a college degree ($b = 0.110$, $p < .05$). A high family income was negatively and marginally associated with autonomy parental habitus ($b = -.073$, $p < .10$), and a low family income was negatively and marginally associated with parenting practices ($b = -.061$, $p < .10$). All of the maternal education variables were significantly associated with parenting practices, with a negative association for high school diploma or less ($b = -.195$, $p < .001$) and positive associations for college degree and post-graduate education ($b = 0.090$, $p < .01$ and $b = 0.088$, $p < .05$, respectively). Controlling for family, child, and data collection site variables, SES seemed to better predict the variance in parenting practices (Adjusted $R^2 = .492$) than in parental habitus, each of which predicted less than 5% of the variance in their respective models.[29]

[29] For all analyses, rather than reporting the standard, unadjusted R-squared (R^2) statistic, I present the Adjusted R^2 statistic, a more conservative estimation of the explained variance in the model. Corrected effects, such as Adjusted R^2, are rarely reported; however the failure to report corrected effects may result in inaccurate interpretation of results (Leach and Henson

[Table 4 About Here]

The results for OLS regression analyses with age 4½ academic achievement as the dependent variable are presented in Table 5. Model 1 in Table 5 (in Appendix G) shows that controlling for family and child characteristics and data collection site, the association between family-based cultural resources and academic achievement at age 4½ is significant. However, this is only true for the education dimension of parental habitus (b = .094, p <.05) and parenting practices (b = .334, p <.001). Model 2 in Table 5 shows that there is no statistically significant association between family income and age 4½ achievement, but does show a statistically significant relationship between maternal education and age 4½ achievement. Relative to having a mother with some college, having a mother with a high school degree or less is significantly and negatively correlated with achievement (b = -.179, p <.001), while having a mother who holds a college degree or has post-graduate education is positively associated with achievement (b = .093, p <.05 and b = .126, p < .01, respectively).

Adding the family-based cultural resources variables in Model 3 reduced the magnitude of all the maternal education coefficients, but the association between having a high school diploma or less and children having lower

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2007). In particular, because general linear model analyses, such as OLS regression, estimates all variance in a sample, including the variance unique to the sample data (attributable to sampling error), the standard R^2 statistic has been shown to overestimate the explained variance (Leach and Henson 2007; Yin and Fan 2001). Since adding variables inflates the R^2, Adjusted R^2 attempts to fix this problem by taking the degrees of freedom into account (Adjusted R^2 = (R2 – k/n-1) (n-1/n-(k+1)).

academic achievement scores (b = -0.128, p <.05), and between having a post-graduate education and children having higher academic achievement scores (b = .099, p <.05), remained statistically significant. As a point of comparison, the achievement scores for children of mothers with a high school diploma or less were lower than those for children of mothers who had some college at the time of the child's birth. Family income was not statistically significant. As a result, the inclusion of the family-based cultural resources variables, Model 3 explained slightly more of the variance in achievement at age 4½ than did Model 2 (Adjusted R^2=.295 for Model 2 and .331 for Model 3). Overall, having a mother who had less than some college education (relative to a mother who had at least some college), having a mother who did not have a strong education parental habitus, being a second or higher birth order child, and being black (relative to being white) were negatively associated with academic achievement at age 4½ and predicted about a third of the variance in Model 3 (Adjusted R^2=.331).

[Table 5 About Here]

To summarize, this set of analyses was designed to investigate whether family-based cultural resources mediated the association between SES and children's math and reading achievement at age 4½. While the association between family income and parenting practices was statistically significant (in Table 4), family income was not significantly related to academic achievement at age 4½. The failure to meet the condition for mediation suggests that

parenting practices do not mediate the relationship between family income and achievement at age 4½. Maternal education was significantly related to achievement at age 4½, and this effect was partially mediated by parental habitus related to education and parenting practices.

In addition to the focal associations, it is worth noting that having a mother at least 35 years of age at the time of birth, relative to mothers between the ages of 26 and 34 at the time of birth, was positively and significantly associated with educational parental habitus (in Table 4). On the other hand, relative to living in a nuclear family household, living with cohabiting biological parents or living in an "other" household, and being black were negatively associated with having a mother who had a strong education parental habitus. None of the family or child controls were significantly associated with an autonomy-based or a conformity-based habitus; however, several of them were statistically associated with having parenting practices conducive to the transfer of cultural capital from parents to children. Finally, having a mother who was between the ages of 18 and 25 (relative to ages 26-34) at the time of birth, living in a cohabiting or single-mother household (relative to a nuclear family type), being a second or higher birth order child, and being black, were negatively associated with age 4½ achievement.

Chapter 6: School-based Processes Results

Do kindergarten teachers perceive themselves as closer to students with higher levels of SES (net of the student's academic abilities), and do kindergarten teachers' ratings mediate the relationship between SES and academic achievement in first grade?

The next set of analyses was designed to investigate the school-based processes that may mediate the association between SES and academic achievement. In particular, I hypothesized that teachers' perceptions of closeness to students may mediate the relationship between SES and achievement scores at first grade. For mediation to occur, the following conditions must be met: (1) the association between SES and the mediating teachers' ratings of their closeness to students (referred to as the student-teacher relationship) is statistically significant, (2) the association between student-teacher relationship and academic achievement at first grade is statistically significant, (3) the association between SES and first grade achievement is statistically significant, and (4) the association between the SES and first grade achievement is reduced upon the addition of student-teacher relationship to the model.

Analyses of bivariate correlations (shown in Table 6, located in Appendix G) reveal that the parental habitus and parenting practice variables are not associated with the student-teacher relationship, but achievement score change is marginally associated with the student-teacher relationship. Further, achievement score change, education habitus, parenting practices, and age 4½

achievement are significantly correlated with first grade achievement. All of the family-based cultural resources variables, except education parental habitus, are significantly correlated with achievement change, though conformity parental habitus is less significant (r = -.071, p <.10) than autonomy (r = -.086, p <.05) and parenting practices (r = -.080, p <.05). Interestingly, age 4½ achievement is negatively associated with the change in achievement (r = -.257, p <.000), while first grade achievement is positively associated with the difference in achievement.

[Table 6 About Here]

Table 7 (in Appendix G) shows the results of regression analyses with kindergarten student-teacher relationship as the dependent variable. As illustrated in Model 1 of Table 6, having a mother with less than some college was negatively and statistically associated (b = -.084, p <.10) with having a close relationship with the teacher (as reported by teachers); however, the F statistic shows that the model is not significant. Once the child control variables were added to the equation in Model 2, the association between having a mother with less than some college and the student-teacher relationship was no longer significant. Being female was positively and marginally associated with having a close student-teacher relationship (b = .078, p <.10). The F statistic shows that Model 2 is significant (F=1.842, p <.05). Once the addition of prior academic achievement is added, in Model 3, the association between being female and having a close student-teacher

relationship becomes significant at the $p < .05$ level. Prior academic achievement was not significant, nor was the F statistic for the model.

Based on these results, it appears that the hypothesis that student-teacher relationships mediate the association between SES and first grade achievement cannot be supported. Potential explanations for this finding will be discussed in Chapter 8.

[Table 7 About Here]

To answer the second part of the research question, Table 8 (in Appendix G) shows the results for OLS regression analyses with first grade achievement as the dependent variable and the student-teacher relationship as a potential mediator.[30] Not surprisingly (given the results in Table 6), the student-teacher relationship was not significant in Model 1 (which included only child and data collection site controls) or in Model 2 (in which the SES variables and prior academic achievement variable were added). Being black is negatively associated with first grade achievement, even in Model 2 ($b = -.036$, $p < .01$). Interestingly, Model 2 shows that when controlling for child and data collection site variables, as well as prior achievement, being poor and having high income were both positively associated with achievement at first grade, relative to having a middle income. Being female, however, was significantly and negatively associated with achievement at first grade in Model 2 ($b = -.103$, $p < .01$). The inclusion of prior academic achievement, which was significantly

[30] According to Baron and Kenny (1986), the lack of correlation between the mediating variable and the dependent variable is reason to conclude that *M* does not mediate the association between *X* and *Y*, but the remaining results for analyses used to address this research question are presented.

and positively related to first grade achievement, led to Model 2 explaining over 40% more of the variance in first grade achievement than did Model 1.

[Table 8 About Here]

Chapter 7: Cumulative-based Processes Results

Does SES have effects on academic achievement post school entry (first grade), even when controlling for academic achievement prior to school entry, family-based cultural resources, and the student-teacher relationship?

The analyses used to address this question serve a dual purpose. First, the use of a full regression model that includes all variables used in the family-based processes and school-based processes models is designed to assess whether an SES effect exists at first grade, even when controlling for the potential mediating variables, family-based cultural resources and the student-teacher relationship. If SES is not significant, then there may be a mediation effect of SES on academic achievement at first grade. The second purpose is to determine if there is a change in achievement between age 4½ and first grade, which is investigated by including in the final model a measure of academic achievement at age 4½. Bourdieu purported that entering school with (dis)advantage begets (dis)avantage because the school system rewards students who are already privileged (based on high status, class-based culture). Using the lagged dependent variable approach allows for the examination of existence of any change in academic between age 4½ and first grade, and whether SES contributes to any change.

Rather than report results only for the full model, results are presented in stages, beginning with a regression of achievement at first grade on SES, and then adding the mediating variables, control variables, and age 4½

achievement, respectively. Data collection site is held constant in all models. Model 1 in Table 9 (in Appendix G) shows the results for associations between SES and first grade achievement. Being poor (b = -.080, p <.10) and having less than some college (b = -.156, p <.001) are negatively and significantly associated with first grade achievement, relative to being middle income and having a mother who has had some college, respectively. On the other hand, being from a family with high income (b =.166, p <.001) and having a mother who has a college degree or more were positively and significantly associated with first grade achievement. The family-based cultural resources variables were added in Model 2. The effects of SES variables remained positive and significant (though lower in magnitude), with the exception of being poor, which lost significance. Having a mother who engaged in a higher number of parenting practices conducive with the transfer of cultural capital was positively and significantly associated with higher first grade achievement scores (b = .269, p <.001).

In Model 3, child, family, and teacher controls are added, and this did not change the positive association or statistical significance of the SES and parenting practices variables (shown in Model 2). The significance of the two maternal education variables, however, became reduced. Model 3 also shows that being the third child (b = -.117, p <.01) born to one's mother was negatively associated with first grade achievement scores, relative to being a first born child. Additionally, being black is negatively associated with first

grade achievement (b = -.182, p <.001). Importantly, with the inclusion of the predictors, potential mediators, and control variables, this model explains only 20.6% of the variance in first grade achievement scores, versus 18.6% for Model 2.

In the final model, prior achievement (age 4½ WJ-ACH) is added to the model. Controlling for prior achievement results in statistical significance being lost for all of the maternal education variables, parenting practices, and birth order; however, being the fourth or higher child in the birth order becomes marginally significant at the p <.10 level. Nevertheless, being poor regains marginal significance and high income retains significance. Being black is still negatively and statistically associated with achievement (b = -.091, p < .05). Being female becomes statistically significant, and is negatively associated with first grade achievement. Finally, age 4½ achievement is positively and statistically associated with achievement at first grade. Not only is prior achievement statistically significant, but the inclusion of this variable increased the explained variance such that Model 4 explained over twice as much of the variance (Adjusted R^2=.504) as was explained by Model 2 or Model 3 and three times more than the variance explained by the Model 1.

[Table 9 About Here]

Chapter 8: Discussion of Findings

FAMILY-BASED PROCESSES

Taken together, the findings related to family-based processes suggest that while family-based cultural resources contribute to educational achievement, they do not fully mediate the relationship between SES and achievement. Further, parenting practices, which was significant in every model until the full model with prior academic achievement included (see Table 9 in Appendix G), seems to be a much better predictor of achievement than does parental habitus, though there are some effects of habitus. While the measures of parental habitus used in the present study are arguably more comprehensive measures of parental habitus than are typically used, it is possible that these measures also fail to fully capture Bourdieu's complex concept of habitus.

This study did not consider parents' expectations of educational and occupational attainment, which have been used in several studies as a measure for habitus. The idea that expectations predict achievement outcomes has been well-documented in the literature. Thus, while expectations may not serve as a better *measure* (particularly when used as the sole measure) for habitus than the measures used in the present study, it may very well be a better *predictor* of achievement outcomes. Despite its inability to predict academic achievement, it is worth noting that in line with Bourdieu's theory and Annette Lareau's (2003) work, the correlations shown in Table 3 (in Appendix G) revealed that

education parental habitus was positively and significantly associated with parenting practices. This suggests that parental habitus may guide parenting practices. Moreover, supplemental analyses (results not shown) of the variables in Model 3 of Table 5 (in Appendix G) run first with education parental habitus but without parenting practices, then with parenting practices but without education parental habitus, showed both education parental habitus and parenting practices were positively and significantly associated with achievement at age 4½. Each variable explained about a third of the variance in the model. Each of these models mirrored the model in which both variables were included (i.e., Model 3 in Table 5), with no differences regarding significance of predictor variables, and very little difference regarding the overall explanation of variance. Thus, both appear to influence age 4½ achievement. Nevertheless, the family-based cultural resources—education parental habitus and parenting practices—only partially mediated the effect of SES on achievement at age 4½.

SCHOOL-BASED PROCESSES

An important finding in this study is that the student-teacher relationship did not mediate the relationship between SES and achievement at first grade. As discussed earlier, much of the research applying Bourdieu's theory of cultural and social reproduction to educational inequality in the U.S., does so not by empirically testing each part of his theoretical argument, but rather, by using his concepts—particularly "cultural capital"—to frame findings

of a positive "cultural capital effect" on achievement outcomes. In doing so, scholars make the claim that according to cultural/social reproduction theory, teachers, who typically come from middle-class backgrounds (the dominant culture in the U.S.), reward students who possess cultural capital. Because these students come from middle-/upper-class backgrounds, the dominant culture and existing unequal social structure is reproduced.

Thus, while typically not included in their empirical analyses, scholars of educational inequality have often relied on the effect of teachers' perceptions as a primary explanation of the positive association of cultural capital and achievement outcomes. Not only did the present study not find a *mediating* effect of the teachers' perceptions of their relationship with students, but the existence of any *association* between teachers' perceptions of the student-teacher relationships and first grade academic achievement was also not found. These findings resemble those of a recent study by Wildhagen (2009), who used structural equation models to examine tenth grade teachers' perceptions of students as a potential mechanism for the cultural capital effect on achievement, which was measured using students' GPA and a reading and math tests administered by the National Educational Longitudinal Study. Wildhagen's measures of teachers' perceptions were perceptions of students' punctuality (arriving to class on time), completion of homework, and class effort. She found that teachers' perceptions did not mediate the effect of cultural capital, *nor of SES*, on any of the measures of achievement outcomes.

Wildhagen (2009) suggests that it is possible that teachers' perceptions of other student characteristics may be a more important predictor of achievement outcomes. Using a different measure of teachers' perceptions (i.e., of their closeness to students), this study finds that teachers' perceptions do not mediate the effect of SES on achievement. There are several potential explanations for this finding. As Wildhagen points out, teachers' perceptions of certain student characteristics, other than those she examined, may be more important than others. For example, as discussed previously, several studies conducted by George Farkas and his colleagues (1990) found that teachers' perceptions of student's work habits to be the most powerful predictor of course grades.

It is also possible that students' perceptions of the student-teacher relationship matter more than do teachers' perceptions. Social psychological theories (expectations states and self-fulfilling prophecy) suggest that the formation of one's self-image and self-efficacy are linked to the expectations others have of them (Correll 2004). Moreover, empirical findings reveal that teachers' expectations, whether high or low, impact students (e.g., Peters 1971). When students perceive that a teacher holds high expectations for their performance, they may believe that they are capable of more challenging work, while those who believe a teacher has lower expectations for them have lower self-confidence about their abilities and/or lower motivation and effort, which may translate into poor performance (Peters 1971).

Finally, teachers' perceptions of the student-teacher relationship (as well as student tracking, which also was not significant) may be more applicable when considering achievement outcomes in the school context. In other words, it is plausible that students can score highly on the WJ-Achievement Tests, yet have grades or a GPA, do not reflect such ability. Indeed, that is precisely what Bourdieu's theory suggests—that achievement outcomes are not a reflection of ability alone, and have much to do with biases on the part of teachers and school officials. The SECCYD does not include direct measures of students' achievement outcomes (e.g., school grades or GPA); therefore, it was not possible to explore this association.

CUMULATIVE-BASED PROCESSES

The hypothesis that early achievement impacts later achievement was supported. In the final model in Table 9, achievement at age 4½ explained most of the variance in first grade achievement. In fact, the model that included prior academic achievement explained over twice as much as the model with all the variables (all potential predictors, mediators and controls), except prior academic achievement. Thus, the idea of cumulative (dis)advantage seems to have been supported. Children with higher SES had higher achievement scores at age 4½. Achievement scores at age 4½ significantly predicted achievement scores at first grade, and among the predictor variables included in this study, explained most of the variance in first grade achievement scores.

Taken together, the findings suggest that education habitus and parenting practices contribute to achievement at age 4½ (though they only partially mediate the SES effect on it), and early achievement is significantly associated with first grade achievement. While many studies could consider the role of parental involvement during schooling (e.g., attending parent-teacher conferences, being a part of the PTA), the findings of this study suggest that early cultivation is just as, if not more, important. On the other hand, it is possible that parents who engage in parenting practices that facilitate the transfer of cultural capital to their children early in life continue to do so throughout schooling. To avoid the issue of temporal ordering, measures of parenting practices prior to schooling were used in the present study; however, supplementary analyses showed that parenting practices (as measured using the H.O.M.E. Inventory) were stable over time. The same parents who facilitate cultural capital transfer through parenting practices may be those who become involved in schools.

Nevertheless, based on the analyses conducted in this study, it appears that entering school with academic advantages (e.g., higher achievement scores) may contribute to the SES gap in first grade achievement. This may have important implications for long-term educational achievement and attainment. In research by Alexander et al. (2007), achievement in first grade significantly predicted the likelihood of dropping out of high school and attending college. These same researchers found that part of what contributes

to the SES achievement gap are class differences in the summer experiences of students (Alexander et al. 2007; Downey, von Hippel and Broh 2004). To support this idea, they point to the fact that SES gaps in achievement are higher at the beginning of the first grade school year than at the end of the first grade school year. Importantly, first grade achievement was measured using scores from the second half of the school year (during the spring). Thus, the results found in the present study of an SES effect on achievement may be more conservative than they would be had scores from the fall been used (Alexander et al. 2007).

THE IMPACT OF RACE/ETHNICITY AND GENDER

While Bourdieu (1973) focused on class-based differences in inequality, it is important to note the significance of race and gender in this study. Regarding race, being black was consistently negatively and significantly associated with achievement (at age 4½ and at first grade). Supplementary analyses (results not shown) showed that racial differences in math scores may be accounting for race differences in achievement. Being black was negatively and significantly associated with math scores at both age 4½ and at first grade, but there were no significant associations between being black and reading achievement at either time point.

The results in this study also show that when controlling for a wide range of child and family characteristics, being black is negatively associated with education parental habitus and parenting practices that facilitate the

transfer of cultural capital, and as previously discussed, such parenting practices are positively associated with achievement at age 4½. Supplementary analyses (results are found in Appendix H) show that the coefficient for black was significant in the models shown in the first supplementary table, which includes interaction terms for SES and family-based cultural resources but does not include interaction terms using race. However, when being black was interacted with the parenting practices variable, as shown in the second supplementary table, the significant association between being black and achievement at age 4½ disappeared. The significant association between being black and achievement at age 4½ also disappeared when black was interacted with family income (also shown in the second supplementary table). Taken together, the supplementary results suggest that race differences in family income and parenting practices may be contributing to the association between being black and age 4½ achievement.

An unexpected finding was that the effects of gender seem to contradict the cumulative-based argument regarding achievement. Recall that the academic achievement outcome measure is a composite score of both math and reading Woodcock Johnson Achievement tests. Though not reported as the results of this study, supplemental analyses may help to explain the finding regarding the association between gender and achievement. When models were run separately by math test and reading test and included the same controls used in these analyses, no statistically significant findings emerged for the

association between gender and reading achievement. However, girls scored *higher* than boys on the math portion at age 4½; yet, they score *lower* than boys at first grade.

The association between gender (i.e., being female) and achievement was positive and statistically significant at age 4½ (Model 3 of Table 5) and negative and statistically significant at first grade. Thus, it is possible while girls may enter school academically advantaged in math, they may not necessarily maintain such advantages. Considering the fact that parenting practices as it is measured in this study (using the H.O.M.E. Inventory) are stable over time for children in the SECCYD, it may be the case that schools contribute in some way to changing the association (from positive to negative) for girls' achievement in math. While teachers may feel closer to girls than boys (as previously reported), those feelings of closeness may not translate into having high math expectations for girls. It is also possible that parents' expectations for boys become higher and/or their expectations become lower in relation to math achievement. It is also possible, however, that parents' expectations for girls have changed since the time these data were collected (in the early 1990s).

Regardless of which agent(s) of socialization contribute to children's perceptions of what is expected of them, they may come to internalize these beliefs in ways that impact their actual academic performances. For example, Shelley Correll (2004) has found self-fulfilling effects of gender beliefs on math abilities. Using an experimental design, Correll (2004) found that when subjects

who were administered a specific test were told that on average, males do better on the test than females, male students rated their performance more highly than did female students. No gender differences were observed among subjects in the control group. Correll's findings suggest that beliefs about difference can produce gender gaps in mathematical self-confidence, even in the absence of actual differences in ability or performance. Thus, while girls in this study performed better at age 4½, their scores may have begun to drop post school entry, as they began being exposed to gendered beliefs related to education, and in particular those related to math. Likewise, this is a time when boys may begin being exposed to the idea that boys are "good" at math and science.

Chapter 9: Conclusion

Education is seen as one of the foremost tools in addressing inequality issues in the United States. However, the socially advantaged receive better grades in school, perform better on standardized tests and are more likely to graduate high school and complete college. With education viewed as the predominate path to economic success, it is hard to overestimate the significance of the connection between social (dis)advantage and academic success.

Implications for Bourdieu's Theoretical Framework

While many studies have used Bourdieu's theoretical framework to explain educational inequality, there has not been consistent support for the theory. Such lack of support has been attributed primarily to: (1) data constraints (which create problems with testing important components of the theory) and (2) issues with operationalization of Bourdieu's core concepts, particularly "habitus," which based on Bourdieu's description, is quite ambiguous (often leading to the exclusion of this concept from analyses).

By using a dataset which has not yet been used to empirically examine Bourdieu's theoretical framework, this study attempted to address some of the limitations of existing research in this area. This study departed from the typical inclusion of "cultural capital" in studies of children's educational outcomes. Instead, it examined the potential mediating effect of *family-based cultural resources*, which incorporated measures of parental habitus and

parenting practices—and, according to Bourdieu, contribute to the transmission of cultural capital—on the relationship between socioeconomic status and educational achievement.

Consistent with some existing studies, the findings from this study did not fully support Bourdieu's theory. Importantly, neither parental habitus, nor parenting practices (i.e., family-based cultural resources), fully mediated the effect of SES on achievement at first grade. Further, teachers' feelings of closeness to their students did not mediate associations between SES and achievement. Although family-based cultural resources did not fully mediate the relationship between SES and achievement at age 4½, *education* parental habitus and parenting practices were significantly associated with achievement at age 4½ This is important because age 4½ achievement proved to be the strongest predictor of first grade achievement, explaining the majority of the variance in achievement scores. Thus, empirical tests of Bourdieu's theory of cultural and social reproduction may need to take into account how parental habitus and the facilitation of cultural capital transmission *prior* to schooling contribute to the reproduction of (dis)advantage.

Another important finding of this study is the role of race and gender in the process of reproducing (dis)advantage. The associations between being black and age 4½ academic achievement and being black and first grade achievement remain significant when controlling for numerous family and child characteristics but lose significance when interaction terms for race and

income and race and parenting practices are included in analyses. Further development of Bourdieu's theory of cultural/social reproduction should consider the significance of race in the process of reproducing (dis)advantage.

Likewise, future work on the reproduction of (dis)advantage should consider theories of gender that help explain how early advantage for girls may not necessarily contribute to later advantage. In particular, this study found that although achievement at age 4½ was positively and significantly associated with achievement at first grade, the cumulative effects of entering school with advantage (i.e., high achievement) did not hold true for girls. Interestingly, after controlling for child and family characteristics and data collection site, but not age 4½ achievement, being female was the only significant, though marginal, predictor of teachers' perceptions of closeness to their students (i.e., Model 2 of Table 7 in Appendix G). Taken together, these findings suggest a reevaluation of Bourdieu's theory is needed in three respects: (1) with regard to the impact of teachers' perceptions on the process of reproducing (dis)advantage; (2) with regard to the cumulative (dis)advantage aspect of the theory (which apparently may not be applicable for all groups, such as females, and (3) the need for combining gender socialization and/or structural theories with Bourdieu's theoretical arguments. Regarding the third point, if teachers feel closer to female students, and female students feel more comfortable interacting with teachers (as suggested by the measure used to assess student-teacher closeness); it would seem that this feeling of closeness does not

contribute to higher achievement. Even though girls enter the classroom with higher achievement, it is possible that due to biases and gender stereotypes, teachers do not have high academic expectations for female students, at least with regard to math. This may especially be the case with regard to math, which is the area that contributed to the "loss" in achievement between age 4½ and first grade (though as noted in Chapter 8, this trend may be shifting).

IMPLICATIONS FOR FAMILY AND EDUCATION POLICY

Having an understanding of the micro- and meso-level processes that contribute to inequality better equips policymakers who aim to narrow the achievement gap in education. Finding that family-based cultural resources explain some of the effect by SES on academic achievement could direct policymakers in their efforts to create effective strategies for reducing the achievement gap.

This study showed that children who entered the educational system with higher achievement scores maintained their class-based advantages over students who had lower scores. Considering the fact that in the United States, gaps in achievement are highest by SES, compared to race, ethnicity, or gender (Loeb 2007), programs designed to facilitate achievement/ability prior to schooling seem particularly important. Because white children entered school with higher achievement scores than students who were black, the consideration of race must also be taken into account. Further, policies must consider the influence of gender on achievement outcomes. Based on the

findings of this study, programs designed to close the gap in education for lower SES, black, and female students should focus on math achievement. Early childhood programs designed to enhance math skills for black students may be helpful in increasing math achievement prior to schooling, which could subsequently narrow the gap in achievement by first grade. For female students, however, it may be important to focus on programs designed to enhance math skills early in the schooling process. Considering the gender gap in majoring in math and science fields in college, as well as the gender gap in math and science related occupations (which contribute to gender gaps in income and wealth) (Weinberger and Kuhn 2007), such programs seem particularly important.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The results of this study come with several caveats. First, while this study considered the role of parental habitus in the process of reproducing (dis)advantage, it did not consider the role of *child* habitus. This is an important part of Bourdieu's theoretical framework. The school-based processes that help to explain the reproduction of (dis)advantage may involve not only favoritism by teachers, but also, a child's habitus (comfort level with teachers and the school process/setting) that influences the child's ability to master academic material and/or develop a greater taste for learning abstract and intellectual concepts, which may have an impact on achievement outcomes, net of teachers' perceptions. Status attainment research and other studies that have

used "expectations" (of teachers, parents, and children) as a measure of cultural capital, have shown that expectations are associated with achievement outcomes. Students' expectations for themselves are influenced by the expectations they perceive others (namely parents and teachers) to have for them, and children's expectations predict educational achievement and attainment (e.g., Reynolds and Burge 2008). Thus, it is important to consider how child's habitus (whether in the form of self-expectations or another measure) influences achievement outcomes. The inclusion of child's habitus in future studies would provide a more thorough examination of the relationship between structure and agency inherent to Bourdieu's theory of cultural and social reproduction.

Second, this study did not consider the role of school effects on associations between SES and educational achievement. Studies using the SECCYD have shown that most classrooms attended by SECCYD children were not high-quality learning environments, which contribute to high achievement (Pianta 2007). In classrooms that did facilitate learning, however, students from disadvantaged backgrounds were able to make significant (though small) gains in achievement scores over time. Thus, school effects should be considered in future studies.

Third, as discussed in the Methods chapter (Chapter 4), there are multiple reasons why these results should be interpreted with caution. This study used OLS regression, and while steps were taken to deal with issues

related to the independence of observations, it is still possible that results were compromised. Despite these limitations, this study fills a gap in the literature on educational inequality and social stratification by investigating the applicability of Bourdieu's theory of cultural and social reproduction to explain socioeconomic differences in educational achievement.

Finally, while the SECCYD dataset includes measures that allowed for a more thorough examination of Bourdieu's theoretical framework, one of the limitations of this dataset is that it is not nationally representative; thus the findings of this study are generalizable only to the families living within the communities in which the data were collected (i.e., those who happened to be living near the data collection site), and who agreed to participate in the study.

Despite the aforementioned limitations, there are several strengths to this study. This study was a first attempt at using the SECCYD dataset to test Bourdieu's theory of cultural/social reproduction and educational stratification. As the review of literature in Chapter 5 reveals, many of the studies using quantitative data to test Bourdieu's theory have used the same dataset (i.e., the ECLS). While various operationalization and analytical strategies using the same dataset are necessary and useful, it is important for researchers to use multiple datasets when examining the applicability of theoretical frameworks. This study fills a gap in the existing literature by introducing a new dataset for testing the applicability of Bourdieu's theory.

Another strength of this study is that it attempted to test Bourdieu's theory in a more comprehensive way. For example, "habitus" is often neglected in research on the socioeconomic gap in educational achievement, and when habitus has been included, it is usually captured using a single variable, namely expectations of educational or occupational attainment (Bodovski 2010; Bodovski and Farkas 2008; Dumais 2002). This study examined three different types of *parental habitus*, using data collected from an assessment instrument that includes numerous questions related to beliefs about childrearing and education. Such beliefs reflect a habitus that is in line with the educational system's *institutional habitus* (Bourdieu and Passeron [1970] 1977). Additionally, I included a comprehensive measure of Bourdieu's notion of "practice" (*parenting practices*) to examine the role of socialization, which is crucial to Bourdieu's explanation of cultural capital transmission; this measure included various aspects of the family socialization process, such as academic stimulation, language use, the promotion of autonomous behavior, and engagement in cultural activities (e.g., visiting a museum). Importantly, for both the *parental habitus* and *parenting practices* measures, data collected *prior* to school entry (before age 4½) were used.

An additional strength of this research is that an important, and often neglected, aspect of Bourdieu's theoretical model was considered: whether or not there is a cumulative effect of entering elementary school with family-based cultural (dis)advantages and whether school-based processes, namely, the

student-teacher relationship, contribute to cumulative (dis)advantage. Finally, this study controlled for achievement prior to school entry, which is an important, but often missing, variable in studies that have linked student achievement to cultural capital and teachers' perceptions.

In conclusion, this study advances our understanding of the applicability of Bourdieu's theory of cultural and social reproduction to the study of educational (dis)advantage. This study also provides suggestions for research on the relationship between socioeconomic status and educational achievement, which continues to be a critical area of investigation for sociologists.

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Appendix A: NICHD SECCYD Enrollment Process

TECHNICAL NOTE 204

TO: Steering Committee
FROM: Data Acquisition and Analysis Center
DATE: January 28, 1999
RE: The NICHD Study of Early Child Care Enrollment Process

A. Description of Sites and Hospitals

The NICHD selected ten sites to participate in the design and implementation of the NICHD Study of Early Child Care based on competing scientific merit. The institutional affiliations for the sites are listed below.

1. University of Arkansas, **Little Rock, Arkansas**
2. University of California, **Irvine, California** / University of California, Los Angeles
3. University of Kansas, **Lawrence, Kansas** / University of Texas, Austin
4. University of New Hampshire, Durham / Wellesley College, **Wellesley, Massachusetts**
5. University of Pittsburgh, **Pittsburgh, Pennsylvania** / Pennsylvania State University
6. Temple University, **Philadelphia, Pennsylvania**
7. University of Virginia, **Charlottesville, Virginia**
8. University of Washington, **Seattle, Washington**
9. University of North Carolina, Chapel Hill / Western Carolina, **Morganton, N.C.**
10. University of Wisconsin, **Madison, Wisconsin** / University of Texas, Dallas

The investigators from these sites and the NICHD staff developed a common protocol that has been used to follow children from birth to first grade. At each site, hospitals were enlisted to provide birthing records for potential newborn infant enrollees. Factors such as location, availability, previous working relations with the site investigators, and the nature of the patient load contributed to the selection of hospitals within sites. The general vicinity of the hospitals associated with each site are **highlighted** in the list above.

B. Three Stages of Enrollment

The enrollment process consisted of three stages: a hospital screening on newborn infant / mother dyads within 48 hours following birth; a two-week phone call to the mothers on a sample of dyads found to be eligible at screening; and a one-month interview with the families that were eligible after the two-week phone call, agreed to the one-month interview, and kept the appointment. Families were officially enrolled to the study upon successful completion of all data collection through the one-month interview. Recruitment was accomplished during the first eleven months of 1991, resulting in the screening of 8986 dyads and the enrollment of 1364 families.

1) Hospital Screening

On a weekly basis, each site was expected to screen a minimum of 20 newborn infants / mother dyads in the participating hospitals for potential enrollment to the study. This screening was to net 10 or more eligible dyads at each site per week for a two-week phone call. For the purpose of screening, a 24-hour birthing interval for a hospital was selected and all babies born during that interval were screened. Up to four 24-hour birthing intervals across the site's hospitals could be selected in a week to accomplish the screening and eligibility goals of 20 and 10, respectively. Over the course of recruitment, birthing intervals were to cover the days of the week and the participating hospitals within a site somewhat uniformly. Sites were encouraged to screen many more dyads than the minimum requirement. For each newborn infant / mother dyad, the hospital screening consisted of two steps. First, information available in the hospital (without contact with the mother) was reviewed with respect to the study exclusion criteria. If the dyad met any one of the exclusion criteria at this step, no contact with the mother was required. Data on each of these ineligible dyads consist of an identification number and reason(s) for exclusion. (Note: Multiple reasons for exclusion were allowed to be cited, but not required. Therefore, the actual number of screened dyads exhibiting a specific exclusion criterion cannot be determined.) For each dyad that could not be ruled-out as eligible based on the available information in the hospital, the screening process proceeded to the second step with a visit to the mother.

The exclusion criteria for the hospital screening were:

- Mother < 18 at delivery
- Multiple birth
- Mother not fluent in English
- Family expects move from area within year
- Medical complication of baby
- Medical complication of mother
- Baby being put up for adoption
- Refusal of two week phone call
- Family lives too far away
- Family in another study
- Family neighborhood unsafe
- Mother refuses hospital interview
- Other

The hospital visit with the mother was used to further access the eligibility (as defined by the exclusion criteria above) and to collect the following additional background information:

- Child's gender & weight
- Ethnic/racial identification of the mother
- Mother's age and education
- Presence of a partner in the home & his education
- Mother's employment status in the past 6 months
- Mother's plans to return to work or school in the next year
- Baby's gestational age

2) Two-week phone calls

Each week the data from the hospital screenings were sent to the Data Coordinating Center at NICHD. The Data Coordinating Center used the screening data to generate calling lists of eligible families for the two-week phone calls. These lists were sent to the sites and the sites were instructed to start at the top of the list and call families in sequential order until four calls were completed to eligible and consenting families for the one-month interview. The two-week phone calls included additional exclusion criteria. Namely:

- Baby in hospital > 7 days
- Moving within 3 years
- Three unsuccessful calls
- Refusal
- Other

For the first three to four months of the eleven month enrollment, the calling list for a site was simply the list of eligible families arranged in random order. Subsequently, specific characteristics of the enrolled families were monitored and adjustments were made at the Data Coordinating Center to the order of the calling list for each site to increase the opportunity for adequate representation of various subgroups. Specifically, each site's enrollment was expected to have the following marginal constraints: at least 10% single parent households; at least 10% mothers with less than a high school education; and at least 10% ethnic minority mothers. The Data Coordinating Center described the ordering procedure as conditionally random. In a couple of instances, sites were instructed to recruit an additional hospital to better meet the marginal constraints. The enrolled families at each site were to split approximately 60%, 20%, and 20% on the mothers' plans to return to work full time, part time, and not at all during the next year, respectively. This approximate distribution occurred naturally without further conditioning on the calling list order.

3) One month interview

Families were officially enrolled to the study upon successful completion of all data collection through the one-month interview. For any family that had agreed to the interview but did not keep the appointment, the site was to select additional families on the current week's calling list.

Appendix B: Ideas About Raising Children Questionnaire

Here are some statements other parents have made about rearing and educating children. For each one, please fill in the box that best indicates how you feel in general, not just about your own baby.

1 = Strongly Disagree
2 = Mildly Disagree
3 = Neutral, Not Sure
4 = Mildly Agree
5 = Strongly Agree

1.	Since parents lack special training in education, they should not question the teacher's teaching methods.	1 2 3 4 5
2.	Children should be treated the same regardless of differences among them. among them.	1 2 3 4 5
3.	Children should always obey the teacher.	1 2 3 4 5
4.	Preparing for the future is more important for a child than enjoying today.	1 2 3 4 5
5.	Children will not do the right thing unless they must.	1 2 3 4 5
6.	Children should be allowed to disagree with their parents if they feel their own ideas are better.	1 2 3 4 5
7.	Children should be kept busy with work and study at home and at school.	1 2 3 4 5
8.	The major goal of education is to put basic information into the minds of the children.	1 2 3 4 5
9.	In order to be fair, a teacher must treat all children alike.	1 2 3 4 5
10.	The most important thing to teach children is absolute obedience to whoever is in authority.	1 2 3 4 5
11.	Children learn best by doing things themselves rather than listening to others.	1 2 3 4 5
12.	Children must be carefully trained early in life or their natural impulses will make them unmanageable	1 2 3 4 5
13.	Children have a right to their own point of view and should be allowed to express it	1 2 3 4 5
14.	Children's learning results mainly from being presented basic information again and again.	1 2 3 4 5
15.	Children like to teach other children.	1 2 3 4 5
16.	The most important thing to teach children is absolute obedience to parents.	1 2 3 4 5
17.	The school has the main responsibility for a child's education.	1 2 3 4 5
18.	Children generally do not do what they should unless someone sees to it.	1 2 3 4 5
19.	Parents should teach their children that they should be doing something useful at all times.	1 2 3 4 5
20.	It's all right for a child to disagree with his/her parents.	1 2 3 4 5
21.	Children should always obey their parents.	1 2 3 4 5
22.	Teachers need not be concerned with what goes on in a child's home.	1 2 3 4 5
23.	Parents should go along with the game when their child is pretending something.	1 2 3 4 5
24.	Parents should teach their children to have unquestioning loyalty to them.	1 2 3 4 5
25.	Teachers should discipline all the children the same.	1 2 3 4 5
26.	Children should not question the authority of their parents.	1 2 3 4 5
27.	What parents teach their child at home is very important to his/her school success.	1 2 3 4 5
28.	Children will be bad unless they are taught what is right.	1 2 3 4 5
29.	A child's ideas should be seriously considered in making family decisions.	1 2 3 4 5
30.	A teacher has no right to seek information about a child's home background.	1 2 3 4 5

Appendix C: Factor Loadings of Parental Habitus Scales

	Component		
	1 Conformity	2 Education	3 Autonomy
Q21 KIDS SHLD ALWYS OBEY PARENTS	**.814**	.139	-.088
Q16 KIDS MUST LEARN ABS OBEDIDENCE/PARENTS	**.732**	.334	-.166
Q26 KIDS SHLDN'T QUESTION PARNTS' AUTHORITY	**.717**	.129	-.141
Q10 KIDS MUST LEARN ABS OBED/ANY AUTHORITY FIG	**.649**	.448	-.139
Q3 KIDS SHOULD ALWYS OBEY TEACHR	**.634**	.311	-.067
Q9 FAIR TEACHER TREATS ALL KIDS ALIKE	.235	**.813**	.014
Q2 KIDS SHOULD ALL BE TREATED THE SAME	.134	**.777**	-.017
Q25 TEACHERS SHOULD DISCPLNE ALL SAME	.206	**.669**	.020
Q1 PARENTS SHOULDN'T QUESTION TEACHERS' METHODS	.094	**.513**	-.210
Q17 SCHOOL HAS MAIN RESPONSIBLITY FOR EDUCATION	.273	**.451**	-.172
Q8 GOAL OF EDUCATION IS BASIC INFORMATION IN CHILD MIND	.322	**.448**	-.014
Q13 KIDS SHOULD EXPRESS OWN POINT OF VIEW	-.042	-.077	**.738**
Q6 KIDS SHOULD BE ABLE TO DISGREE	-.235	.078	**.659**
Q20 OK FOR CHILD TO DISAGREE WITH PARENTS	-.243	-.144	**.652**
Q29 KIDS' IDEAS SHOULD BE CONSIDERED	.043	-.085	**.643**

Note: 3-factor loading explained 51.95% of the variance (factor 1=19.72%, factor 2=19.09%, and factor 13.14%).

Appendix D: H.O.M.E. Inventory Items

EARLY CHILDHOOD H.O.M.E. ITEMS (36 MONTHS)

Responsiveness

1. Parent uses correct grammar and pronunciation
2. Parent's voice conveys positive feeling toward child.
3. Child is permitted some choice in breakfast or lunch menu.
4. Parent hold child close 10 to 15 minutes per day.
5. Parent converses with child at least twice during visit.
6. Parent answers child's questions or requests verbally.
7. Parent usually responds verbally to child's speech during visit.
8. Parent praises child's qualities or behavior at least twice during visit.
9. Parent helps child demonstrate some achievement during visit.
10. Child's art work is displayed some place in the house.

Learning Materials

1. Child has toys that teach color, size, and shape.
2. Child has 3 or more puzzles.
3. Child has record player (CD player, tape player) and at least 5 children's records (tapes, CDs).
4. Child has toys permitting free expression
5. Child has toys or games requiring refined movements.
6. Child has toys or games that help teach number concepts.
7. Child has at least 10 children's books.
8. At least 10 books (books for adult readers) are visible in the household.
9. Family buys and reads daily newspaper.
10. Family subscribes to at least 1 magazine.
11. Child has toys that help teach the names of animals.
12. Child has musical instrument (toy or real).

Stimulation

1. Child is encouraged to learn shapes.
2. Child is encouraged to learn the alphabet.
3. Child is encouraged to learn colors.
4. Child is encouraged to learn patterned speech (nursery rhymes, songs).
5. Child is encouraged to learn spatial relationships.
6. Child is encouraged to learn numbers.
7. Child is encouraged to learn to read a few words.
8. Child is taken on outing by a family member at least once every 2 weeks.
9. Child has been on a trip of at least 50 miles during the past year.
10. Child has been taken to a museum during the past year.
11. Parent uses complex sentence structure and vocabulary.

Harsh Parenting

1. Child can express negative feelings without harsh reprisal.
2. Child can hit parent without harsh reprisal.
3. Parent does not scold or derogate the child more than once during the visit.
4. Parent does not use physical restraint during the visit.
5. Parent neither slaps nor spanks child during visit.
6. Parent reports no more than one instance of physical punishment during the last week.

INFANT-TODDLER H.O.M.E. ITEMS (6 MONTHS AND 15 MONTHS)

Responsiveness

1. Parent spontaneously vocalizes to child at least twice during visit (excluding scolding).
2. Parent responds to child's vocalizations with a vocal or verbal response.
3. Parent tells child name of some object during the visit or says the name of a person or object in a "teaching" style.
4. Parent's speech is clear, distinct, and audible.
5. Parent initiates verbal exchanges with visitor-asks questions, makes spontaneous comments.
6. Parent expresses ideas freely and easily and uses statements of appropriate length for conversation (e.g., provides more than brief answers to visitor queries).
7. Parent permits child to occasionally to engage in "messy" types of play.
8. Parent spontaneously praises child's qualities or behavior twice during the visit.
9. When speaking of or to child, parent's voice conveys positive feeling.
10. Parent caresses or kisses child at least once during visit.
11. Parent shows positive emotional response to praise of child offered by visitor.
12. Parent does not interfere with child's actions or restrict child's movement more than three times during visit.
13. Parent tends to keep child within visual range and to look at him often.

Learning Materials

1. At least 10 books are present and visible within the home.
2. Child has one or more muscle activity toys or pieces of equipment.
3. Child has push or pull toy.
4. Child has stroller, walker, kiddie-car, scooter or tricycle
5. Parent provides toys or interesting activities for child during visit.
6. Child has learning equipment appropriate for age (cuddly toy, role-playing toy).
7. Child has furnishings appropriate for age (mobile, table-chair, highchair, playpen).
8. Child has eye-hand coordination toys – items that go into and out of a receptacle, fit together toys, beads to string, etc.
9. Child has eye-hand coordination toys that permit combinations – stacking or nesting toys, building blocks, duplos, tinker toys, etc.
10. Child has toys for literature and music (books that play music, records, tapes, musical instruments)
11. Parent provides toys that challenge new skills.
12. Child has 3 or more books of his/her own.

Stimulation

1. Someone takes child to grocery store at least once a week.
2. Child gets out of house at least 4 times a week.
3. Parent talks to child while doing household tasks.
4. Parent consciously encourages developmental advance.
5. Parent invests "maturing" toys with value via her/his attention.
6. Parent structures child's play periods.
7. Parent reads stories to child at least 3 times weekly.
8. Family visits or receives visits from relatives approximately once a month.

Harsh Parenting

1. Parent does not shout at child during visit.
2. Parent does not express overt annoyance with child during visit.
3. Parent neither slaps nor spanks child during visit.
4. Parent reports no more than 1 instance of physical punishment occurred during the past week.
5. Parent does not scold or criticize or "run down" the child during the visit.

Appendix E: Student-Teacher Relationship Scale (Short-Form)

Please reflect on the degree to which each of the following statements currently applies to your relationship with this child. Using the scale below, circle the appropriate number for each item.

1 = Definitely Does Not Apply
2 = Does Not Really Apply
3 = Neutral, Not sure
4 = Applies Somewhat
5 = Definitely Applies

1.	I share an affectionate, warm relationship with this child.	1 2 3 4 5
2.	The child and I always seem to be struggling with each other.	1 2 3 4 5
3.	If upset, this child will seek comfort with me.	1 2 3 4 5
4.	This child is uncomfortable with physical affection or touch with me.	1 2 3 4 5
5.	This child values his/her relationship with me.	1 2 3 4 5
6.	When I praise the child, he/she beams with pride.	1 2 3 4 5
7.	This child spontaneously shares information about himself/herself.	1 2 3 4 5
8.	This child easily becomes angry with me.	1 2 3 4 5
9.	It is easy to be in tune with what this child is feeling.	1 2 3 4 5
10.	This child remains angry or is resistant after being disciplined.	1 2 3 4 5
11.	Dealing with this child drains my energy.	1 2 3 4 5
12.	When this child is in a bad mood, I know we're in for a long and difficult day.	1 2 3 4 5
13.	This child's feelings towards me can be unpredictable or can change suddenly.	1 2 3 4 5
14.	This child is sneaky and manipulative with me.	1 2 3 4 5
15.	This child openly shares his/her feelings and experiences with me.	1 2 3 4 5

Note: The *Student-Teacher Closeness* subscale is computed as the sum of items 1, 3, 5, 7, 9 and 15.

Appendix F: Figures

Figure 1. Conceptual Model of Mechanisms Linking Academic Achievement Outcomes to Socioeconomic Status (SES)

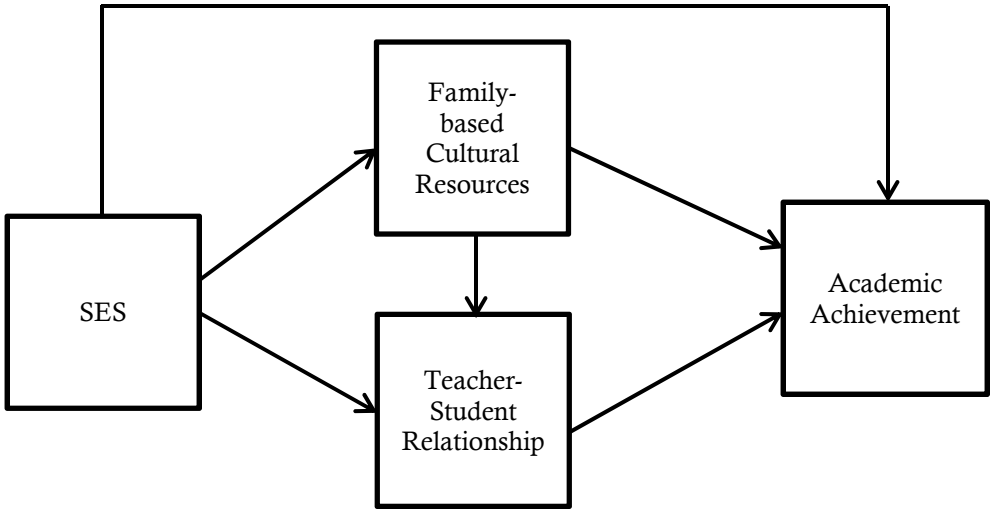


Figure 2. Geographic Locations of Data Collection Sites

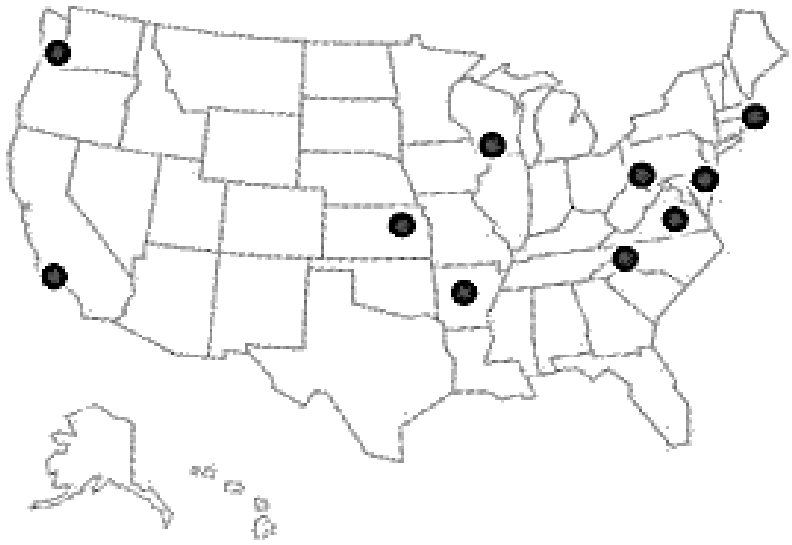


Photo credit: http://www.nichd.nih.gov/publications/pubs/upload/seccyd_06.pdf

Figure 3. Unmediated model in which c is the total effect of X on Y

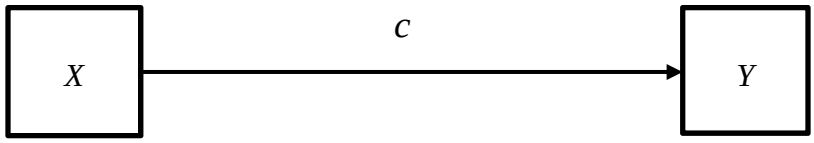
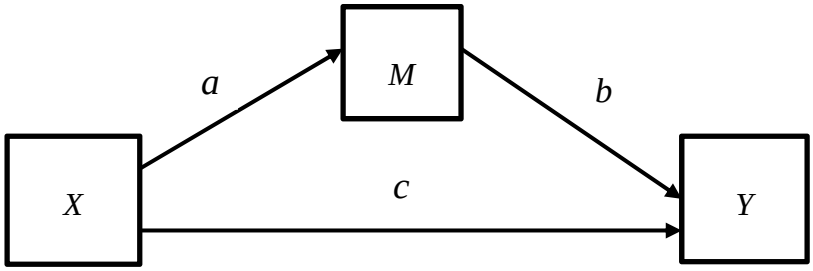


Figure 4. Mediation model in which the effect of X on Y is mediated by c



Appendix G: Tables

Table 1. Descriptive Statistics for Study Variables (N=627) and Original SECCYD Comparisons (N=1364).

	Current Sample		SECCYD Sample		Current Sample		SEECYD Sample	
	N	%	N	%	Mean	SD	Mean	SD
Achievement Outcomes								
WJ-R ACH: 1st Grade					112.3	14.3	111.4	14.6
WJ-R ACH: Age 4½					102.2	12.5	101.0	13.0
Family-based Cultural Resources								
Education Parental Habitus					16.2	5.2	16.63	5.2
Autonomy Parental Habitus					16.6	2.4	16.51	2.4
Conformity Parental Habitus					16.3	5.0	16.48	4.9
Parenting Practices					94.0	10.7	93.30	11.3
Student-Teacher Relationship								
STRS: Kindergarten					34.2	5.4	34.23	5.3
Income-to-Needs Ratios (1 mo.)								
Poor: 0-1.0	92	14.7	275	21.6				
Low-Income: 1.1-1.9	134	21.4	291	22.9				
Middle Income: 2.0-5.0	301	48.0	541	42.5				
High Income: greater than 5.0	100	15.9	166	13.0				
Maternal Education (1 mo.)								
HS Diploma or Less	145	23.1	426	31.2				
Some College	210	33.5	455	33.4				
College Degree	163	26.0	284	20.8				
Post-Graduate Education	109	17.4	198	14.5				
Maternal Age (1 mo.)								
18-25	153	24.4	447	32.8				
26-34	366	58.4	735	53.9				
35+	108	17.2	182	13.3				
Family Structure (1 mo.)								
Nuclear Family	492	78.5	967	70.9				
Cohabiting	84	13.4	190	13.9				
Single Mother	45	7.2	198	14.5				
Other	6	1.0	9	0.7				
Child Birth Order								
First	260	41.5	611	44.8				
Second	250	39.9	474	34.8				
Third	84	13.4	199	14.6				
Fourth or Later	33	5.1	80	5.7				
Child Gender								
Female	306	48.8	705	51.7				
Male	321	51.2	659	48.3				
Child Race/Ethnicity								
Non-Hispanic White	497	79.3	1042	76.4				
Non-Hispanic Black	68	10.8	173	12.7				
Other	62	9.9	149	11.0				
Center Care Prior to School Entry								
Proportion: 0-36 mos.					0.2	0.3	0.2	0.3
Kindergarten Teacher Tracking								
Yes	167	26.6	285	20.9				
No	460	73.4	1079	79.1				

Table 2. Means and ANOVA Results of Family-based Cultural Resources by SES (N=627).

	Education Parental Habitus		**Autonomy Parental Habitus**		**Conformity Parental Habitus**		**Parenting Practices**	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
SES								
Family Income								
Poor	19.413	5.045	15.859	2.764	16.652	4.987	83.424	13.515
Low Income	19.261	5.555	16.806	2.367	16.753	9.232	90.784	9.232
Middle Income	19.993	4.971	16.767	2.135	16.123	5.073	96.711	8.563
High Income	20.520	5.243	16.370	2.440	15.830	4.608	100.000	6.145
F	1.443		4.260**		.935		67.643***	
Maternal Education								
HS Diploma or Less	18.628	5.126	16.545	2.598	17.166	5.222	85.062	12.362
Some College	19.333	5.023	16.552	2.315	16.510	4.798	93.286	9.146
College Degree	20.963	5.098	16.687	2.176	15.467	5.148	98.785	6.834
Post-Graduate Education	20.725	5.121	16.514	2.367	15.927	4.745	100.220	6.447
F	7.194***		.161		3.307*		9.136***	

Note: *p<.05, **p<.01, ***p<.001. F-test statistics are reported for ANOVA results.

Table 3. Bivariate Correlations of Family-based Resources and Age 4½ Achievement (N=627)

	Education Parental Habitus	**Autonomy Parental Habitus**	**Conformity Parental Habitus**	**Parenting Practices**	**Age 4½ Academic Achievement**
Education Habitus					
Autonomy Habitus	.224***				
Conformity Habitus	-.605***	-.345***			
Parenting Practices	.186***	.048	-.121**		
Age 4½ Academic Achievement	.170***	.035	-.100*	.489***	

Note: †p<.10, *p<.05, **p<.01, ***p<.001

Table 4. OLS Regression Analyses with Family-based Cultural Resources Regressed on Predictors (N=627).

	Education Parental Habitus			Autonomy Parental Habitus			Conformity Parental Habitus			Parenting Practices		
	b	SE	Sig	b	SE	Sig	b	SE	Sig	b	SE	Sig
SES												
Family Income												
(Middle Income)												
Poor	.107	.817	.057	-.144	.378	.012	-.051	.771	.372	-.094	1.230	.022
Low Income	.043	.581	.352	.021	.269	.661	-.015	.801	.754	-.061	.874	.069
High Income	-.009	.607	.832	-.073	.280	.095	.004	.570	.928	.032	.913	.304
Maternal Education												
(Some College)												
HS Diploma or Less	-.045	.586	.350	.013	.271	.787	.054	.595	.268	-.195	.882	.000
College Degree	.110	.557	.020	.033	.258	.495	-.072	.575	.136	.090	.839	.010
Post-Graduate Education	.063	.650	.188	.018	.300	.707	-.028	.546	.568	.088	.978	.011
Family Controls												
Maternal Age												
(26-34)												
18-25	-.001	.603	.979	.055	.279	.282	-.047	.591	.354	-.141	.908	.000
35+	.107	.582	.012	-.017	.269	.690	-.056	.570	.194	.029	.875	.347
Family Structure												
(Nuclear Family)												
Cohabiting	-.098	.667	.026	.033	.308	.463	.045	.653	.312	-.117	1.003	.000
Single Mother	-.045	1.049	.393	-.020	.484	.713	.005	1.028	.927	-.105	1.578	.006
Other	-.078	2.128	.052	-.062	.983	.126	.003	2.086	.931	-.034	3.202	.242
Child Birth Order												
(First)												
Second	-.050	.467	.258	-.005	.216	.918	.002	.458	.957	-.102	.703	.002
Third	.004	.669	.931	.044	.309	.320	-.007	.655	.878	-.126	1.006	.000
Fourth or Higher	-.012	.984	.771	.015	.455	.730	.052	.964	.228	-.136	1.480	.000
Child Controls												
(Non-Hispanic White)												
Non-Hispanic Black	-.093	.798	.054	.033	.369	.498	.068	.782	.163	-.232	1.200	.000
Other	.019	.724	.649	-.005	.334	.904	.049	.709	.249	-.041	1.089	.177
Female	-.062	.408	.116	.002	.188	.967	.039	.400	.330	.035	.614	.224
Constant		.787	.000		.376	.000		.024	.000		1.184	.000
Adjusted R^2		.042			.017			.024			.492	
F-Test		2.147**			1.452†			1.635*			26.302***	

Note: †p<.10, *p<.05, **p<.01, ***p<.001. Analyses also controlled for data collection site variables (not shown).

Table 5. OLS Regression Analyses with Age 4½ Academic Achievement Regressed on Predictors (N=627).

	Model 1			Model 2			Model 3		
	b	SE	Sig	b	SE	Sig	b	SE	Sig
Family-based Cultural Resources									
School-oriented Parental Habitus									
Education	.094	.106	.031				.094	.104	.029
Autonomy	.005	.193	.897				.010	.191	.774
Conformity	.025	.112	.571				.035	.110	.421
Parenting Practices	.334	.053	.000				.250	.055	.000
SES									
Family Income									
(Middle Class)									
Poor				-.074	1.703	.124	-.058	1.685	.227
Low Income				-.064	1.211	.105	-.053	1.184	.174
High Income				.037	1.265	.315	.031	1.236	.397
Maternal Education									
(Some College)									
HS Diploma or Less				-.179	1.221	.000	-.128	1.222	.002
College Degree				.093	1.161	.022	.063	1.142	.118
Post-Graduate Education				.126	1.355	.002	.099	1.328	.014
Family Controls									
Maternal Age									
(26-34)									
18-25	-.041	1.209	.329	-.011	1.257	.798	.025	1.242	.551
35+	-.003	1.184	.931	-.010	1.212	.781	-.025	1.188	.480
Family Structure									
(Nuclear Family)									
Cohabiting	-.052	1.373	.167	-.068	1.389	.073	-.031	1.374	.402
Single Mother	-.022	1.926	.582	-.013	2.185	.770	.017	2.143	.696
Other	-.023	4.417	.499	-.029	4.435	.402	-.013	4.352	.712
Child Birth Order									
(First)									
Second	-.096	.996	.011	-.108	.973	.005	-.078	.957	.037
Third	-.164	1.385	.000	-.166	1.393	.000	-.135	1.376	.000
Fourth or Higher	-.132	2.061	.000	-.157	2.050	.000	-.124	2.034	.001
Child Controls									
(Non-Hispanic White)									
Non-Hispanic Black	-.129	1.678	.002	-.201	1.662	.000	-.137	1.682	.001
Other	.020	1.495	.579	.021	1.508	.564	.028	1.475	.433
Female	.087	.845	.010	.095	.850	.095	.091	.831	.006
Constant		6.753	.000		1.639	.000		6.871	.000
Adjusted R^2		.305			.295			.331	
F-test		13.658***			11.901***			12.051***	

Note: †p<.10, *p<.05, **p<.01, ***p<.001. Analyses also controlled for data collection site variables (not shown).

Table 6. Bivariate Correlations of Predictors and Controls with Student-Teacher Relationship and 1st Grade Academic Achievement (N=627).

	Student-Teacher Relationship	**1st Grade Academic Achievement**	**Achievement Change (Age 4½-1st grade)**
Student-Teacher Relationship			
1st Grade Academic Achievement	-.006		
Achievement Change	.066†	.530***	
Education habitus	-.029	.116***	-.044
Autonomy habitus	-.003	-.034	-.086*
Conformity habitus	-.010	-.034	.071†
Parenting Practices	-.065	.369***	-.080*
Prior Academic Achievement: Age 4½ WJ-ACH	-.064	.683***	-.257***

Note: †p<.10, *p<.05, **p<.01, ***p<.001. Analyses also controlled for data collection site variables (not shown).

Table 7. OLS Regression Analyses with Student-Teacher Relationship Regressed on Predictors (N=627).

	Model 1			Model 2			Model 3		
	b	SE	Sig	b	SE	Sig	b	SE	Sig
SES									
Family Income									
(Middle Income)									
Poor	.064	.696	.163	.038	.747	.431	.036	.751	.461
Low Income	.036	.600	.431	.030	.601	.507	.028	.603	.536
High Income	-.007	.642	.877	-.009	.641	.828	-.008	.643	.854
Maternal Education									
(Some College)									
HS Diploma or Less	-.084	.602	.072	-.075	.603	.112	-.080	.615	.097
College Degree	.055	.583	.243	.063	.589	.184	.066	.592	.170
Post-Graduate Education	-.036	.668	.445	-.026	.671	.581	-.023	.676	.632
Child Controls									
(Non-Hispanic White)									
Non-Hispanic Black				.070	.807	.130	.065	.829	.175
Other				-.048	.756	.246	-.048	.756	.246
Female				.078	.431	.051	.080	.433	.046
Prior Academic Achievement									
Age 4½ WJ-ACH							-.025	.020	.593
Constant		.689	.000		.741	.000		2.213	.000
Adjusted R^2		.014			.021			.020	
F-test		1.659			1.842*			1.748	

Note: †p<.10, *p<.05, **p<.01, ***p<.001. Analyses also controlled for data collection site variables (not shown).

Table 8. OLS Regression Analyses with 1st Grade Academic Achievement Regressed on SES, Controls and Student-Teacher Relationship as a Potential Mediator (N=627).

	Model 1			Model 2		
	b	SE	Sig	b	SE	Sig
Student-Teacher Relationship	.042	.102	.273	.033	.076	.253
SES						
Family Income						
(Middle Income)						
Poor				.077	1.405	.028
Low Income				.038	1.126	.238
High Income				.077	1.200	.012
Maternal Education						
(Some College)						
HS Diploma or Less				-.025	1.154	.472
College Degree				.059	1.107	.084
Post-Graduate Education				.046	1.267	.175
Child Controls						
(Non-Hispanic White)						
Non-Hispanic Black	-.319	1.815	.000	-.036	1.549	.006
Other	-.075	1.875	.097	-.036	1.413	.222
Female	-.033	1.086	.386	-.103	.811	.000
Center Care 0-36 mos.	.106	2.024	.007	.021	1.538	.471
Prior Academic Achievement						
Age 4½ WJ-ACH				.664	.038	.000
Constant		4.039	.000		4.995	.000
Adjusted R^2		.103			.507	
F-test		1.002***			34.899***	

Note: ***p<.001. Analyses also controlled for data collection site variables (not shown).

Table 9. Full Model with 1st Grade Academic Achievement as the Dependent Variable (N=627).

	Model 1			Model 2			Model 3			Model 4		
	b	SE	Sig	b	SE	Sig	b	SE	Sig	b	SE	Sig
SES												
Family Income												
(Middle Income)												
Poor	-.080	1.710	.059	-.004	1.784	.922	.039	2.097	.456	.075	1.659	.069
Low Income	-.036	1.474	.394	.002	1.457	.962	.006	1.471	.889	.040	1.165	.229
High Income	.108	1.570	.008	.094	1.546	.018	.094	1.536	.017	.073	1.215	.020
Maternal Education												
(Some College)												
HS Diploma or Less	-.156	1.480	.000	-.088	1.500	.047	-.105	1.521	.020	-.020	1.211	.579
College Degree	.166	1.433	.000	.120	1.425	.006	.099	1.420	.023	.057	1.124	.101
Post-Graduate Education	.164	1.641	.000	.116	1.631	.007	.109	1.655	.013	.046	1.314	.191
Family-based Cultural Resources												
Parental Habitus												
Education				.056	.130	.231	.047	.130	.318	.016	.056	.653
Autonomy				-.044	.239	.270	-.028	.238	.480	.017	.104	.271
Conformity				.029	.138	.545	.035	.137	.470	-.034	.188	.777
Parenting Practices				.269	.063	.000	.182	.069	.000	.011	.108	.694
Student-Teacher Relationship				-.007	.098	.860	.024	.098	.526	.034	.078	.254
Family Controls												
Maternal Age												
(26-34)												
18-25							.023	1.548	.617	.005	1.224	.892
35+							-.038	1.476	.329	-.022	1.167	.471
Family Structure												
(Nuclear Family)												
Cohabiting							-.027	1.708	.506	-.005	1.350	.867
Single Mother							-.002	2.662	.965	-.013	2.104	.742
Other							-.010	5.405	.797	-.001	4.272	.985
Child Birth Order												
(First)												
Second							-.067	1.191	.104	-.016	.944	.630
Third							-.117	1.728	.005	-.031	1.379	.348
Fourth or Higher							-.020	2.541	.611	.060	2.206	.099
Child Controls												
(Non-Hispanic White)												
Non-Hispanic Black							-.182	2.097	.000	-.091	1.672	.013
Other							-.025	1.836	.517	-.042	1.452	.170
Female							-.044	1.036	.224	-.106	.824	.000
Center Care 0-36 mos.							.035	1.979	.363	.018	1.565	.552
Teacher Controls												
Teacher Tracking							.005	1.211	.891	-002	.957	.947
Prior Academic Achievement												
Age 4½ WJ-ACH										.667	.040	.000
Constant		1.870	.000		9.063	.000		9.503	.000		8.005	.000
Adjusted R^2		.139			.181			.206			.504	
F-test		8.801***			8.708***			6.251***			20.903***	

Note: ***p<.001. Analyses also controlled for data collection site variables (not shown).

Appendix H: Supplementary Analyses

Supplementary Table 1. Achievement Outcomes Regressed on Predictors and SES-Family-based Cultural Resources Interactions.

	Age 4 ½			1st Grade		
	b	SE	Sig	b	SE	Sig
SES						
Family Income						
(Middle Income)						
Poor	-.478	20.749	.416	-1.026	20.097	.040
Low Income	-.529	18.256	.377	.672	17.693	.187
High Income	-.978	23.579	.157	.000	22.919	1.000
Maternal Education						
(Some College)						
HS Diploma or Less	-.460	17.340	.431	.880	16.787	.077
College Degree	.313	20.448	.663	.637	19.849	.297
Post-Graduate Education	.520	23.970	.474	-.054	23.321	.931
Family-based Cultural Resources						
Parental Habitus						
Education	.051	.205	.544	-.027	.199	.704
Autonomy	-.008	.410	.922	.030	.398	.646
Conformity	.017	.213	.839	.057	.207	.433
Parenting Practices	.159	.109	.085	.006	.105	.939
Family Controls						
Maternal Age						
(26-34)						
18-25	.037	1.285	.398	.014	1.252	.716
35+	-.022	1.227	.549	-.817	-.026	.414
Family Structure						
(Nuclear Family)						
Cohabiting	-.038	1.420	.331	-.003	1.376	.923
Single Mother	.044	2.222	.340	.004	2.156	.919
Other	-.012	4.467	.730	-.007	4.326	.802
Child Birth Order						
(First)						
Second	-.068	.999	.081	.007	.971	.838
Third	-.136	1.423	.000	-.034	1.406	.306
Fourth or Higher	-.123	2.113	.001	.068	2.074	.036
Child Controls						
(Non-Hispanic White)						
Non-Hispanic Black	-.142	1.775	.001	-.090	1.741	.018
Other	.014	1.532	.708	-.054	1.488	.083
Female	.089	.857	.010	.011	1.602	.716
Center Care 0-36 mos.						
Teacher Controls						
Teacher Tracking				.000	.968	.995
Student-Teacher Relationship				.026	.079	.384
Academic Ability						
Age 4½ WJ-ACH				.656	.040	.000
SES * Family-based Cultural Resources						
Poor x Education	.156	.365	.454	.166	.354	.350
Poor x Autonomy	-.118	.592	.664	.314	.574	.172
Poor x Conformity	.168	.401	.397	.331	.388	.050
Poor x Parenting Practices	.204	.129	.508	.299	.262	.380
Low Income x Education	.287	.269	.109	-.134	.262	.380
Low Income x Autonomy	-.006	.569	.985	-.439	.551	.104
Low Income x Conformity	.058	.294	.736	-.231	.286	.113
Low Income x Parenting Practices	.145	.134	.719	.139	.130	.683
High Income x Education	.225	.295	.221	.206	.286	.187
High Income x Autonomy	.206	.580	.464	-.044	.562	.855
High Income x Conformity	.241	.327	.129	.261	.318	.055

High Income x Parenting Practices	.364	.192	.519	-.331	.187	.492
High School x Education	-.302	.313	.142	.206	.286	.187
High School x Autonomy	.366	.528	.222	-.163	.513	.522
High School x Conformity	-.176	.329	.383	-.407	.319	.018
High School x Parenting Practices	.412	.115	.217	-.132	.111	.641
College x Education	-.021	.272	.919	.129	.263	.465
College x Autonomy	-.045	.560	.893	-.285	.545	.313
College x Conformity	-.087	.294	.612	-.078	.286	.591
College x Parenting Practices	-.090	.159	.769	-.348	.155	.461
Post-grad x Education	-.059	.307	.769	.050	.297	.767
Post-grad x Autonomy	-.266	.620	.396	-.309	.604	.250
Post-grad x Conformity	-.032	.337	.854	-.077	.327	.597
Post-grad x Parenting Practices	-.051	.188	.929	.440	.183	.368
Constant	82.907	14.362	.000	14.473	.024	.000
Adjusted R^2		.511			.511	
F-test		6.717***			12.695***	

Note: ***p<.001. Analyses also controlled for data collection site variables (not shown).

Supplementary Table 2. Achievement Outcomes Regressed on Predictors and Race and Gender Interactions.

	Age 4 ½			1st Grade		
	b	SE	Sig	b	SE	Sig
SES						
Family Income						
(Middle Income)						
Poor	-.066	-2.331	.353	.201	2.420	.001
Low Income	-.071	-2.160	.235	.126	1.751	.013
High Income	.089	3.031	.134	.064	1.952	.199
Maternal Education						
(Some College)						
HS Diploma or Less	-.120	-3.571	.070	.042	1.916	.460
College Degree	.057	1.628	.358	.093	1.706	.078
Post-Graduate Education	.072	2.379	.248	-.007	1.990	.895
Family-based Cultural Resources						
Parental Habitus						
Education	.095	.230	.031	-.005	.103	.901
Autonomy	.017	.090	.649	-.054	.190	.085
Conformity	.040	.099	.381	.000	.109	.997
Parenting Practices	.203	.085	.005	.124	.083	.045
Family Controls						
Maternal Age						
(26-34)						
18-25	.027	1.278	.536	-.002	1.237	.952
35+	-.027	1.225	.460	-.023	1.178	.470
Family Structure						
(Nuclear Family)						
Cohabiting	-.030	1.409	.436	-.016	1.356	.617
Single Mother	.029	2.216	.533	-.022	2.139	.569
Other	.001	4.528	.967	-.012	4.357	.675
Child Birth Order						
(First)						
Second	-.071	.979	.065	-.022	.947	.496
Third	-.136	1.426	.000	-.026	1.403	.444
Fourth or Higher	-.118	2.097	.002	.049	2.049	.125
Child Controls						
(Non-Hispanic White)						
Non-Hispanic Black	-.329	14.040	.347	.469	15.843	.175
Other	-.144	15.063	.688	.133	14.489	.661
Female	-078	9.929	.845	1.109	10.864	.004
Center Care 0-36 mos.				.025	1.564	.410
Teacher Controls						
Teacher Tracking				-.004	.964	.886
Student-Teacher Relationship				.021	.079	.482
Academic Ability						
Age 4½ WJ-ACH				-.126	.057	.002
SES * Black/Female						
Poor x Black	-.010	4.862	.913	-.086	4.683	.274
Low Income x Black	-.001	4.932	.991	-.009	4.738	.870
High Income x Black	-.055	8.814	.167	.026	8.548	.447
High School x Black	-.032	3.263	.557	-.020	3.218	.670

College x Black	.005	6.943	.894	-.027	6.772	.406
Post-grad x Black	-.023	8.665	.559	.022	8.361	.508
Poor x Other	-.007	4.291	.890	-.050	4.131	.228
Low Income x Other	-.052	3.944	.267	.032	3.792	.409
High Income x Other	-.060	4.307	.185	.066	4.165	.087
High School x Other	-.065	3.783	.250	.018	3.643	.704
College x Other	-.036	4.524	.425	.062	4.361	.103
Post-grad x Other	-.009	4.735	.426	.013	4.571	.728
Poor x Female	.025	2.943	.883	-.105	2.840	.044
Low Income x Female	-.046	2.303	.660	-.136	2.221	.006
High Income x Female	.029	2.571	.432	-.034	2.478	.491
High School x Female	.028	2.462	.642	-.091	2.395	.085
College x Female	.028	2.343	.659	-.077	2.257	.158
Post-grad x Female	.058	2.682	.341	.068	2.595	.188
Parenting Practices * Black/Female						
Parenting Practices x Black	.220	.144	.453	-.204	.150	.444
Parenting Practices x Other	.285	.158	.406	-.224	.152	.440
Parenting Practices x Female	.138	.102	.726	-.698	.103	.044
Age 4 ½ Achievement * Black/Female						
Age 4½ WJ-ACH x Black				-.280	.136	.300
Age 4½ WJ-ACH x Other				.507	.135	.180
Age 4½ WJ-ACH x Female				-.698	.103	.044
Constant		9.611	.000		10.565	.101
Adjusted R^2		.318			.518	
F-test		6.966***			13.008***	

Note: ***p<.001. Analyses also controlled for data collection site variables (not shown).