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Extracurricular activities and achievement growth in kindergarten through first grade: The mediating role of non-cognitive skills

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ABSTRACT

Extracurricular activities (EAs) are thought to foster the development of a host of non-cognitive skills—persistence, communication, and collaboration, among others—that are presumed to facilitate children's school success. While this logic is intuitively appealing, there have been few formal tests of this idea. This study tests this logic using panel data from the Early Childhood Longitudinal Study—Kindergarten Class of 2010–11 ($N = 10{,}422$) to assess the extent to which children's involvement in EAs influences the development of their non-cognitive skills and ultimately their achievement growth from the beginning of kindergarten to the end of first grade. Results from structural equation models indicate that increased EA participation is associated with gains in reading and math achievement, but the evidence provides little support for the claim that these associations are mediated by children's non-cognitive skills. Implications for policy makers and school and community-based practitioners are discussed.

Do parents' investments in their children's lives influence early disparities in learning outcomes? This question on the transmission of educational advantage from parents to their children has preoccupied social scientists for some time (e.g., Haller & Portes, 1973; Sewell, Haller, & Ohlendorf, 1970). Hauser, Tsai and Sewell (1983), for example, concluded that although social background (parents' education, father's occupation, and family income) directly affects children's long-term educational and occupational attainments, some of the effect is mediated by other variables including the perceived encouragement of parents and the educational expectations of significant others (Domina, Conley, & Farkas, 2011; Picou & Carter, 1976).

More recently, researchers have focused on mediating mechanisms related to parents' child rearing practices (Cheadle, 2009). One set of practices that has been linked with academic success and ultimately educational attainment is *concerted cultivation*, first conceptualized by Lareau in her influential ethnography (2011) and operationalized in a number of quantitative efforts (e.g., Bodovski & Farkas, 2008: Roksa & Potter, 2011) that have tested its association with an array of short- and long-term educational outcomes. A key component of this parenting style is children's participation in extracurricular activities (EAs). Participation in EAs is widely thought to support the development of non-cognitive skills—persistence, communication, and collaboration, among others—that are presumed to facilitate children's success in school settings. While this logic is intuitively appealing, there have been few formal tests of this idea (a notable exception is Covay & Carbonaro, 2010) using measures and causal analytical models on data drawn from the most recent nationally representative sample of young children.

This study tests this logic using panel data from the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) to assess the extent to which children's involvement in EAs influences the development of their non-cognitive skills and ultimately their math and reading achievement growth from the beginning of kindergarten to the end of first grade. With a notable focus on young children (approximately ages 5–7) and drawing from a social reproduction framework that links their participation in EAs to the development of non-cognitive skills, this study first tests whether participation in EAs varies by family background. Next, this study examines the association between participation in EAs and children's growth in academic achievement. As a last step, this study assesses the extent to which non-cognitive skills mediate the presumed association between participation in EAs and achievement growth.

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1. Background

1.1. Parenting styles and social reproduction

Many studies have found that gaps in educational outcomes are apparent upon children's entry into kindergarten and widen shortly thereafter (Entwisle, Alexander, & Olson, 1997). Many of these studies have attributed these gaps to pronounced differences in families' social backgrounds and the valuable opportunities that advantaged families provide for their children (Cheadle, 2008). Differences in families' material resources (i.e., income) lead to disparities in pre-school experiences (Magnuson, Meyers, Ruhm, & Waldfogel, 2004), childcare arrangements (Gialamas, Mittinty, Sawyer, Zubrick, & Lynch, 2015), neighborhood quality (Entwisle, Alexander, & Olson, 2005), among others, which contribute to sizable differences in academic achievement upon kindergarten entry. Early achievement gaps, however, are not only related to material resources, but also in the different class-based perceptions and orientations that parents have regarding their role in the development of their children's cognitive and non-cognitive skills (Cheadle, 2009; Weininger & Lareau, 2009). Lareau's work (2011) demonstrated how these variations are associated with two different parenting logics, with less advantaged families practicing the "accomplishment of natural growth" style versus more advantaged families and the "concerted cultivation" parenting style. The latter style reflects a significant investment on the part of middle and upper-middle class parents in their children's educational success, resulting in the stratification of life experiences that potentially exacerbate initial class-based inequalities and, therefore, represent a key mechanism in the intergenerational transmission of social class (Cheadle, 2008).

Lareau's distinction between these two class-based parenting styles draws from a social reproduction framework (Aschaffenburg & Maas, 1997; Bourdieu, 1977) that argues that the transmission of educational advantages from parent to child is not only attributable to differences in material resources, but also the cultural resources transferred to children through different parenting practices (Bodovski & Farkas, 2008). Bernstein (1975), for example, was one of the first to draw attention to the different patterns of speech that middle-class parents used when interacting with their children, what he referred to as "elaborated code." In addition to speech patterns, more advantaged families socialize their children to internalize attitudes and skills that prepare children for school success. This idea is the foundation of Bourdieu's theory of cultural capital (1977), in which he argued that certain cultural resources acquired at home get rewarded at school.

Lareau's primary contribution was to connect Bourdieu's cultural capital theory to his concept of habitus—the internalization of what is possible and what is not that occurs during childhood (Dumais, 2002). Through their parenting style, parents socialize their children in ways that provide them with a set of cultural skills, social ties, and dispositions, which result in different social class-based benefits as children engage with others in key social institutions; in particular school. According to Lareau (2011), middle and upper-middle parents whose parenting can be described as concerted cultivation organize their parenting around four key dimensions which shape their child's habitus: perceptions of their responsibilities as parents, language patterns, relationships with social institutions, and their children's participation in structured EAs. The last of these four dimensions is an increasingly important arena in which children develop the habitus that internalizes their sense of what is natural and comfortable, and the social rewards to which they believe they are entitled.

1.2. EAs and academic achievement

Though research indicates that EA participation varies by children's social background (Snellman, Silva, & Putnam, 2015; Dumais, 2006), an increasingly large number of children in the United States regardless of social background participate in some form of organized EA. Earlier studies using time diaries have found that, compared to 1981, children spent more time in EAs in 1997, coupled with a drop of 15 percentage points in the amount of free, unstructured play time (40% to 25%) (Hofferth & Sandberg, 2001). This trend has even accelerated in recent years; about 73% of parents in 2015 reported that their children participated in some form of EA, with only 15% characterizing their children's schedule as "too hectic" (Pew Research Center, 2015).

The reasons for why such large numbers of U.S. children participate so extensively in EAs—especially those that are competitive in nature—vary (Sternheimer, 2010). Despite this multitude of reasons, most research supports parents' contention that EAs serve as important ecological contexts (Mahoney, Larson, & Eccles, 2005), with most of this research focusing on the personal and interpersonal benefits to adolescents (Fredricks & Eccles, 2008; Shulruf, Tumen, & Tolley, 2008). For example, Forneris, Camiré, and Williamson (2015) found that Canadian high school students who participated in a combination of both sport and nonsport EAs, as well as sport-only EAs, had higher levels of developmental assets and school engagement compared to students not involved in EAs. Similarly, McNeal (1995) concluded that participation in certain EAs is associated with a decrease in the likelihood of dropping out. In general, adolescents' EA participation has been positively associated with educational outcomes ranging from better grades, higher test scores, and increases in engagement in school, and educational aspirations (Feldman & Matjasko, 2005; Fredricks & Eccles, 2008; Marsh & Kleitman, 2002; Zaff, Moore, Papillo, & Williams, 2003).

Research that has examined the relation between EA participation and educational outcomes in students that are closer in age to those elementary school students that Lareau studied has also generally found a favorable association (e.g., Denault & Déry, 2015; Dumais, 2006; Schuepbach, 2015). However, despite the instinctive appeal of this association, there is still sparse empirical evidence that explicates the mediating mechanisms through which participation in EAs leads to favorable educational outcomes (Broh, 2002; Eccles, Barber, Stone, & Hunt, 2003), especially among younger children (Covay & Carbonaro, 2010).

The relatively thin empirical evidence that specifies *how* EA participation translates into educational advantages is clouded, in part, by the various ways in which researchers have operationalized EA participation (Morris, 2015). These measures typically focus on either the 1) type of EA (e.g., Covay & Carbonaro, 2010); 2) breadth of EA participation (e.g., Otto, 1975); or, 3) intensity of EA participation (e.g., Marsh & Kleitman, 2002). Notably, there are very few examples outside of Morris (2015) that combine two or more of these modes of participation into a single variable that provides a more complete measure of what is conventionally considered EA participation. Regardless of these varied measures and thin empirical evidence, EA participation is presumed to be associated with favorable educational outcomes for both children and adolescents. But the outstanding question is: What links EA participation with more favorable educational outcomes?

1.3. EAs and non-cognitive skills

One hypothesized mechanism is through children's growth in non-cognitive skills—defined as individual qualities other than cognitive ability that collectively facilitate goal-directed behaviors, sound judgment, and pro-social relationships. (Duckworth & Yeager, 2015). Extant research has linked EA participation with