

# Policy Brief



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## High-Quality Preschool Enhances Social-Emotional Development

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While previous studies have concluded that state-funded pre-K programs enhance children's cognitive development, less is known about the effects of early childhood education on children's social and emotional development. Reasons for this research gap include a less well-defined relationship between social-emotional development and subsequent academic success, greater political interest in cognitive outcomes, and difficulties in measuring social-emotional development.

We assessed the effects of Tulsa, Oklahoma's early childhood education programs on social-emotional outcomes and found encouraging results for the school-based pre-K program.

These drawbacks do not make exploration of the social-emotional effects of state-funded pre-K programs any less important. Some studies of child care centers and pre-K programs have concluded that children who spend more time in non-parental child care during the early childhood years display higher levels of aggressive behavior and declining levels of inhibited behavior. Other studies have concluded that school-based pre-K programs do not have these negative effects, and a national study of Head Start found some modest reductions in hyperactive behavior among three-year-olds. Clearly, more research is needed to resolve these inconsistencies.

Our study focused on four-year-olds enrolled in either the Tulsa Public Schools (TPS) pre-K program or the Community Action Project (CAP) of Tulsa County Head Start program. Both of these high-quality programs provide relatively high emotional support while emphasizing academic instruction and have been shown to have substantial positive impacts on cognitive development. They differ, however, in that the TPS pre-K program devotes somewhat more classroom time to pre-literacy and pre-math skills. Also, the CAP Head Start

program includes social-emotional development as one of its explicit goals.

### KEY QUESTIONS

To explore the short-term social-emotional impacts of early childhood education programs, the our study addressed three questions:

- (1) What are the effects of school-based and Head Start-based preschool programs on social-emotional behavior at kindergarten entry?
- (2) What are the effects of these two programs on poor children in particular?
- (3) Do program impacts depend on the classroom context in which social-emotional behavior manifests itself?

Data were collected on kindergarten students in the Tulsa public school system in the 2006-2007 school year. To determine whether the TPS pre-K and CAP Head Start programs have a significant impact on children's social-emotional development, children who participated in these programs (the treatment groups) were compared to children who did not participate in either program but who may have participated in another child care or early childhood education program (the control group). The sample was limited to children of appropriate kindergarten age. An analytic technique called propensity score matching was used to select our final sample of treatment and control children so that they did not differ on a large set of observed characteristics, such as race, free lunch status, and mother's education. This helps to ensure that our findings are due to preschool enrollment (vs. no enrollment) rather than to other differences between the treatment and control groups.

### KEY FINDINGS

#### *Social-Emotional Effects on Behavioral Problems and Attentiveness*

As shown in Figure 1, the TPS pre-K program had positive effects on children's social-emotional development. Children who participated in the TPS pre-K program were less timid than control group children

who attended neither the TPS pre-K program nor Head Start. Treatment group children and control group children did not differ in disobedience, aggressiveness, attention-seeking, or apathy. Children who participated in the TPS pre-K program also were more attentive (see Figure 2). However, the effects are quite modest. For children who attended Head Start, program participation was associated with only a marginally significant reduction in timidity.

#### *Effects within Classroom Settings*

The same data were analyzed somewhat differently by focusing on the classroom settings in which the children manifest their behaviors. Figure 3 provides the results of this analysis. TPS pre-K alumni demonstrated a marginally significant reduction in teacher interaction problems compared to children who did not participate in TPS pre-K or Head Start. Participation in Head Start was not associated with any statistically significant effects.

#### *Social-Emotional Effects on Poor Children*

Because the TPS pre-K and Head Start programs serve rather different children, such that the Head Start children tend to be more disadvantaged, restricting the sample to poor children allowed us to see if the same findings persist for that subset of the population. Arguably, it also allowed for a fairer comparison of the two programs.

Restricting the sample to free lunch-eligible children, TPS pre-K alumni continued to demonstrate improvement in attention as well as a marginally significant reduction in timidity. However, Head Start alumni were not significantly different from control group children.

For free lunch-eligible children who participated in either TPS pre-K or Head Start, program participation was not associated with any statistically significant effects with respect to behavior in different classroom settings.

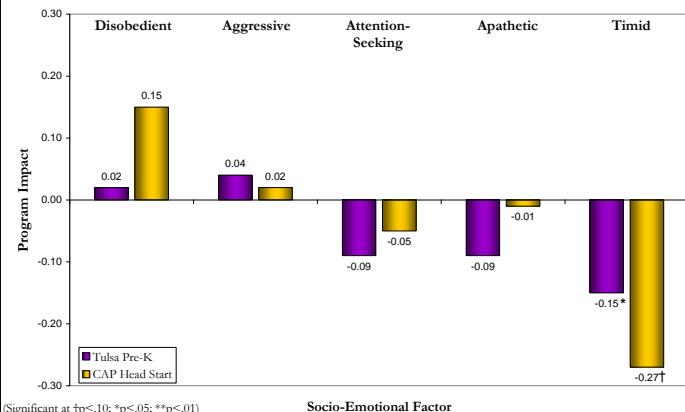
## DISCUSSION

High quality preschool programs can improve social-emotional behaviors as well as result in cognitive gains.

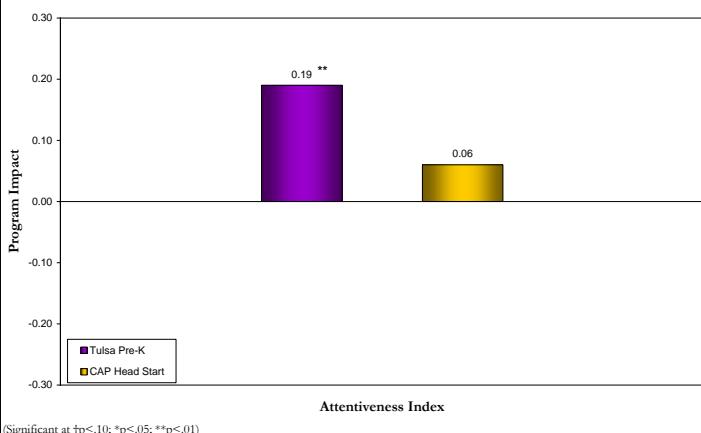
Over the years, some researchers have argued that educationally-focused programs for young children may adversely affect their social-emotional development, at least in the short run. Our findings from Tulsa suggest that such trade-offs are far from inevitable. Indeed, participation in a school-based pre-K program has produced modest improvements in children's social development on four fronts—higher levels of

attentiveness and lower levels of timidity, attention-seeking, and apathy. Children's learning task problems also were judged by these teachers as less problematic than was the case for peers who did not attend Tulsa pre-K. In contrast, participation in Head Start has generally produced limited social-emotional effects.

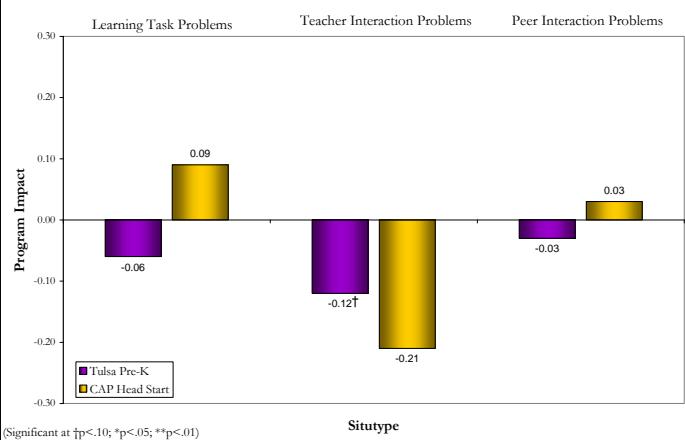
*Figure 1. Impacts of Tulsa Pre-K and CAP Head Start on Behavioral Problems*



*Figure 2. Impacts of Tulsa Pre-K and CAP Head Start on Attentiveness*



*Figure 3. Impacts of Tulsa Pre-K and CAP Head Start on Classroom Settings*



We have examined two high-quality preschool programs in Tulsa – one run by the Tulsa Public Schools, the other by Head Start. Why does the former have noticeable positive impacts on social-emotional development, while the other does not? One key difference between the two sets of kindergarten children is that the pre-K alumni have already been in school, with its rituals and expectations, while the Head Start alumni have not. A second, more specific difference is that 65 percent of the pre-K alumni are at the same school in kindergarten as in pre-K. In contrast, only 18 percent of the Head Start children remained at the same campus (two Head Start programs are adjacent to a public school). Greater familiarity could produce lower anxiety about “entering school.” Third, and perhaps most importantly, the pre-K alumni have experienced bigger cognitive gains than the Head Start alumni (see Gormley, Phillips, & Gayer, *Science*, June 27, 2008). These stronger cognitive gains may translate into higher self-confidence, greater comfort, lower timidity, lower apathy, and higher attentiveness. In short, spillover effects from the cognitive to the social-emotional domains may work to the advantage of the program that produces stronger cognitive gains.

If we are correct about spillover effects, then programs need not choose between cognitive development on the one hand and social-emotional development on the other. A successful cognitive development strategy may yield social-emotional benefits as well. Nevertheless, it is important to stress that both the Tulsa Public Schools pre-K program and the CAP Head Start program have teachers who provide relatively high levels of “emotional support” in the classroom (see Phillips, Gormley, & Lowenstein, *Early Childhood Research Quarterly*, 2009). A program that offers “drill and kill” exercises with limited emotional support might experience different results.

## METHODS

We used a technique called propensity score matching to control for selection bias before running ordinary least squares (OLS) regressions with teacher fixed effects.

A total of 186 TPS kindergarten teachers provided ratings of the social-emotional development of the children in their classrooms in October 2006. We received completed forms for 77 percent of the kindergarten students. As a result, the total sample consists of 3,166 kindergarteners: 1,337 in TPS classrooms, 366 in Head Start classrooms, and 1,463 in neither. Our final working sample declined slightly when we eliminated children who were too old or too young for their cohort and, more

substantially, when we utilized propensity score matching, as discussed below.

### *ASPI Instrument and Attentiveness Index*

To analyze the effects of the TPS pre-K and Head Start programs on social-emotional development, we used the Adjustment Scales for Preschool Intervention (ASPI). The ASPI instrument was developed by researchers at the University of Pennsylvania and consists of 144 statements describing behaviors that children may display. The assessor checks any descriptor that applies to the child being assessed. The instrument has several advantages over other instruments: 1) It includes a number of descriptors that apply to well-behaved children (it does not ask exclusively about problem behaviors); 2) It does not require the assessor to recall how often the child has behaved a certain way (the assessor simply notes whether a given description fits the child’s behavior during the past month); and 3) ASPI was developed in close consultation with Head Start teachers in an effort to ensure that it would be user-friendly.

As a supplement to the ASPI form, teachers also assessed each child’s attentiveness by completing a four-item Likert scale questionnaire. The four items were extracted from an 18-item-instrument known as the Instrumental Competence Scale for Young Children. The questions were added due to research associating attentiveness at age four or five with later academic outcomes.

### *Factor Analysis*

A statistical technique called factor analysis was used to sort the 144 ASPI test items into meaningful categories. We first identified factors that capture children’s social-emotional dispositions (phenotypes). The following five factors were generated: Disobedient (misbehaves and fails to follow rules), Aggressive (provokes other children, throws objects, fights), Attention-Seeking (attempts to gain teacher’s attention and impulsive), Apathetic (lacks energy and displays low classroom engagement), and Timid (shy towards teacher and displays low levels of participation).

Based on groupings of the 144 ASPI items, we also identified factors that capture classroom contexts in which social-emotional dispositions are manifested (situotypes). The following three factors were generated: Learning Task Problems, Teacher Interaction Problems, and Peer Interaction Problems.

Although our factors capture negative behaviors, it is important to note that most children received proportionately more ratings for positive behavior than for problematic behavior. For example, most children were

generally obedient rather than disobedient. Thus, to the extent that program participation is associated with lower factor scores, it is most appropriate to interpret this in terms of preventing negative behavior.

#### *Propensity Score Matching*

We use propensity score matching to assess the impact of both the TPS pre-K program and the CAP Head Start program on social-emotional development for both the total sample of children and the subset of free lunch-eligible children. The motivation for propensity score matching is to identify a control group that resembles the treatment group as much as possible with respect to observable characteristics in order to minimize selection bias. Children in the treatment and control groups are matched in order to compare control observations who “look” like members of the treatment group, but who did not actually choose the treatment. To control for the possibility that teachers differed in how they applied the social-emotional assessment and the possibility that TPS and Head Start alumni are not randomly sorted into kindergarten classrooms, we estimated treatment effects for the matched sample using OLS regressions with teacher fixed effects.

#### AUTHORS' NOTE AND ACKNOWLEDGEMENTS

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The full text of this report is available through the Center for Research on Children in the U.S. (CROCUS) at Georgetown University. The web site is: <http://www.crocus.georgetown.edu>.