

Promoting Parents' Social Capital to Increase Children's Attendance in Head Start:

Evidence from an Experimental Intervention

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Abstract

Improving children's attendance is a high priority for Head Start and other early childhood education programs serving low-income children. We conducted a randomized control trial in a major northern city to evaluate the impact of a low-cost intervention designed to promote parents' social capital as a potential influence on children's attendance in Head Start centers. The intervention assigned children to treatment group classrooms based on (1) neighborhood of residence (geography condition) or (2) the geography condition plus the opportunity for parents to form partnerships in support of their children's attendance, or to control group classrooms according to Head Start guidelines only. We did not find impacts on average attendance throughout the year. However, the intervention did lead to increased attendance during the winter when average center attendance was lowest. There were no impacts on fall or spring attendance. Follow-up exploratory analyses of focus groups with parents and staff suggested that parents' level of connection and trust, self-generated partnership strategies, and commitment to their children's education may be factors by which parents' social capital expands and children's attendance improves.

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In the United States, early childhood education has become one of the central policy levers to expand opportunities for low-income families (Barnett, 2001; Heckman, 2006; Lee, Brooks-Gunn, Schnur, & Liaw, 1990; Magnuson & Waldfogel, 2005; Yoshikawa et al., 2013). Yet program impacts can only be fully realized when children are present to reap the positive benefits of early learning experiences. Regular, daily attendance gives students exposure to the academic, social, and developmental programming needed to achieve gains, and relatively small increases in children's attendance can lead to advances in child development (Ramey, Ramey, & Stokes, 2009; Ready, 2010; Reynolds et al., 2014).

For this reason, Head Start, the nation's largest federally funded early childhood education program for low-income children, has made children's attendance a high priority, using minimum monthly center attendance rates of 85% as a guiding standard (United States Department of Health and Human Services, 2015a). However, the Administration for Children and Families (through its Office of Head Start) does not prescribe specific strategies for working with families and improving daily attendance (United States Department of Health and Human Services, 2015b). Head Start centers across the nation have employed a variety of techniques to engage families in increasing their children's regular program participation, such as monitoring attendance data and calling or visiting families. Yet there is no systematic evidence on whether or why various strategies are effective.

This study examines an innovative approach to increase children's program attendance in Head Start by promoting social capital among parents as a possible factor in families' engagement with centers — the Children's Attendance and Social Capital Project (CASCP).

Social capital refers to the social relations among individuals that afford an exchange of social, emotional, or instrumental resources, and relational trust can be a critical element to social capital formation (Bourdieu, 1986; Coleman, 1988; Lin, Cook, & Burt, 2001; Lin, Fu, & Hsung, 2001; Small, 2009). Early childhood education programs are likely to provide an ideal platform for encouraging social capital by offering a safe community dedicated to children's success where parents improve organizational connectedness and form trusting relationships (Chase-Lansdale & Brooks-Gunn, 2014; Small, 2009; Sommer et al., 2012).

Parents' relations with other parents (or staff) in a neighborhood, early childhood education center, or classroom may influence parents' center involvement. In one study of Head Start parent involvement, parents who knew their neighbors and reported positive interactions with them were more likely to participate in their child's center than parents who did not experience such neighborhood social cohesion (Waanders, Mendez, & Downer, 2007). Moreover, higher parent involvement is generally linked to lower rates of student absence (Fan & Chen, 2001; Jeynes, 2003). The present study builds upon these findings to experimentally test whether enhanced social connectedness among Head Start parents can improve children's attendance rates.

The Children's Attendance and Social Capital Project was designed to cultivate increased social capital among parents by designating children to classrooms with varying strategies for strengthening connections among families. We implemented the intervention in one Head Start building that contained three separate centers (one per floor) in a large, urban, northern city during the 2013-14 school year. Families applied to enroll their child at this location, and children were randomly assigned to centers and to each type of classroom. We conducted the

experiment in order to evaluate the effectiveness of a low-cost parent social capital intervention on both parents' social networks and children's school attendance among a Head Start sample of families.

The Importance of Early Childhood Education Dosage, Absenteeism and Attendance

Dosage. A long history of research on program implementation in early childhood education shows that effectiveness depends on high exposure or dosage (Karoly, Kilburn, & Cannon, 2005). Dosage includes the extent of services offered, the rate of take up, and the level of participation. Center-based early childhood education services vary by the length of the school day and school year, as well as by the number of years that early childhood education is offered. Yet these structural features are distinct from absenteeism, and they are not typically correlated with individual and family risk factors for low school attendance.

Absenteeism. Strategies to reduce student absenteeism typically focus on influencing interactions and communication among students, parents, and teachers (or other school staff). Current innovations include case management services, home visitation, and the use of smart phones to increase home-school communication (Cook, Dodge, Gifford, & Schulting, 2015; Guryan et al., 2015; Rogers & Feller, n.d). These strategies are designed to address major risk factors associated with absenteeism, including educational disengagement at the individual student level as well as family factors (e.g., single parent status, mother's work status, and family income; Gottfried, 2014). One strategy that has not been tested is whether parent peers with children enrolled in the same program together can help manage and minimize these risks by offering instrumental and motivational support through parent-to-parent partnerships.

Attendance and child outcomes. Most studies of attendance in early childhood education have focused on links with child outcomes rather than on ways to measure and improve attendance. The extant evidence on the effects of daily attendance (or absenteeism) on child development is generally correlational with small sample sizes, and suggests positive (or negative) but modest associations (e.g., Gottfried, 2009 & 2011; Hubbs-Tait et al., 2002; Logan, Piasta, Justice, Schatschneider, & Petrill, 2011). Few studies have used a nationally representative sample to examine attendance or absenteeism; several exceptions employ the Early Childhood Longitudinal Study-Kindergarten (ECLS-K; Gottfried, 2014; Ready, 2010). Notably, Ready's design focused on the number of child absences over the school year, controlling for the number of days offered (the most accurate measure of average attendance), and found that children from low socioeconomic status (SES) families with good preschool attendance (10 or fewer absences per year) gained modestly more literacy skills than did low SES children with poor attendance. Gottfried examined the impact of chronic absenteeism (missing more than 14 days per year) and found negative impacts on educational and social engagement and school achievement in math and reading.

The only quasi-experimental study of attendance in early childhood education is the Infant Health and Development Program (IHDP), a randomized control trial of low-birth weight infants who received a combination of home visiting and center-based early learning services. The study demonstrated that children in their second and third year of life who participated in center-based care at high rates (attending 400 days or more over two years) had steeper cognitive gains by age 8 years than children who participated at low rates (Hill et al., 2003). Empirical studies of current strategies to reduce absenteeism are underway but not yet published (Cook et

al., 2015; Guryan et al., 2015; Rogers & Feller, n.d). In sum, evidence suggests that consistent attendance is related to better child academic outcomes (although also often found to be negatively associated with behavioral problems; Ehrlich, Gwynne, Stitzel Pareja, & Allensworth, 2013; Gottfried, 2010; Hill, Brooks-Gunn, & Waldfogel, 2003), warranting the need for further innovation to reduce school absenteeism, especially among young children whose low attendance in early childhood education and kindergarten is likely to be linked with continued absenteeism in later years (Barth, 1984; Ehrlich et al., 2013).

Challenges to Children's Attendance in Head Start Programs

While federal Head Start guidelines recommend average monthly center attendance of 85%, national attendance rates average approximately 75% (71% at the 25th percentile and 87% at the 75th percentile; United States Department of Health and Human Services, 2002; United States Department of Health and Human Services, 2015a). When attendance rates fall below these standards, the Office of Head Start in the Administration for Children and Families (ACF) requires that centers analyze the causes of absenteeism and support families (e.g., mandating home visits or direct contact with parents for children with four or more unexcused absences in a row). Attendance also typically varies across the school year (e.g., higher in the fall and spring and lower in the winter and at program end; Dubay & Holla, 2015).

Economic hardship is widely known to present many challenges to Head Start families, including poorly-resourced and unsafe neighborhoods, low social cohesion, nonstandard and unpredictable work hours, limited public transportation, and poor health (e.g., Adler & Stewart, 2010; Henly & Lambert, 2014; Sampson, Raudenbush, & Earls, 1997; Singer & Ryff, 1999). These circumstances may interfere with parents' ability to realize the high expectations they

have for their children's school participation and success. The scarcity of time and economic resources may also limit parents' bandwidth for solving the logistical, scheduling, and transportation problems that can arise when getting children to and from Head Start each day (Gennetian & Shafir, 2015; Mullainathan & Shafir, 2013). Other individual factors that are likely to influence attendance may include maternal depression, child or family illness, and lack of information or understanding of the importance of regular daily attendance to pre-school (Claessens, 2015). External factors may include bad weather, especially in northern cities during winter months, and poor public transportation.

Head Start teachers and administrators are clearly aware of the importance of these factors in child attendance, and how little influence centers can have on most of these domains. Parents' own behaviors are key to their children's attendance, so centers work extensively to develop partnerships with families in numerous ways, including goal-oriented relationships and shared problem solving (United States Department of Health and Human Services, 2015a). Regarding attendance, Head Start centers have developed practices that may build upon family partnerships and increase children's participation. These include (1) monitoring attendance data and expanding communication among staff and parents about attendance benchmarks; and (2) assigning participation goals at the individual, classroom, and center levels and celebrating when these goals are reached (Kearney & Graczyk, 2014).

Of particular importance to the design of the CASCP is the fact that the Head Start program leadership in the present study did not see positive results of the above attendance strategies at the program level over time. Also influencing the design was the fact that the Head Start centers were located in high-poverty neighborhoods, which are often experienced as

socially isolating communities with limited trust among residents (Sampson et al., 1997). Could a focus on promoting social capital be a new avenue for connecting families to their Head Start centers, and thus lead to increased child attendance?

A New Approach to Boosting Child Attendance in Head Start: Parent Engagement and Social Capital Theory

Since its inception, Head Start has emphasized the importance of family engagement to improve child outcomes. Current federal guidelines suggest that centers foster family connections among peers and community through formal and informal networks (Head Start Parent, Family, and Community Engagement Framework; United States Department of Health and Human Services, 2011). Social capital theory suggests that one's environment affects the size and composition of one's social networks (Bourdieu, 1986; Coleman, 1988; Lin, Cook, & Burt, 2001; Lin, Fu, & Hsung, 2001; Small, 2009). Organizations like Head Start centers can and do offer opportunities and inducements to build trust and connection among parents (Small, 2009). Parents who experience repeated daily interactions, such as dropping off and picking up children at the same time, are more likely to build social connection than parents without these organizational opportunities (Feld, 1981; Small, 2009). Moreover, participation in shared school activities such as field trips, fundraisers, and holiday festivities can further induce parents to interact and form networks of trust (Small, 2009).

Other community-based interventions have fostered partnerships among low-income adults who face many of the same barriers experienced by parents with children enrolled in Head Start. The Family Independence Initiative (FII), designed to cultivate social capital among low-income families in the same neighborhood, has shown that groups of adult peers who gathered

monthly to achieve self-defined aims (e.g., employment) connected in meaningful and genuine ways that were qualitatively different from supports that social service agency staff traditionally provide. The Boston-based FII followed 71 families (interviewed by research staff at one or two annual waves). Social capital gains made by these families were associated with increases in income, home ownership, and credit improvement. Benefits to their children also included first-hand information and advice on how to navigate the public education system and enroll children in high-quality, low-cost, after-school enrichment activities (Yoshikawa et al., in press). The current study promotes specific strategies to improve parent social capital within Head Start centers and tests whether they may be leveraged to boost children's attendance.

The Present Study

The Head Start agency under study (with enough capacity to house three centers and 18 classrooms within one building) is situated in a large urban northern city and draws families from four identifiable neighborhood communities. Families apply to enroll their child at the agency building, which happened to include a center per floor, and children were then randomly assigned to centers and to each type of classroom. The centers all serve families from the four neighborhoods and thus similar populations (95% African American). They differ only in their start times (staggered for traffic flow reasons) and that first floor classrooms are handicap accessible.

There are many processes by which neighborhood residence may influence social cohesion and connection. Families who share transportation means or routes, and whose children are assigned the same teacher, classmates, and location within one building, may be more likely to discuss matters of importance with each other than parents lacking the organizational and

geographical affiliation that affords these opportunities (Small, 2009). Creating occasions for increased interaction among families who live, travel, and attend school together motivated the geography treatment of the Child Attendance and Social Capital Project (CASCP). Classroom assignment based on geography represents a low-cost, low-intensity option to promote social capital among parents.

The CASCP's parent attendance-partner program facilitates the voluntary pairing of parents with children enrolled in the same classroom and who also live in close proximity. These partnerships were designed to encourage parents to support each other and induce shared problem solving (e.g., calling if their child is sick or asking for assistance in picking up a child) which in turn would build trust and social capital over time (Small, 2009).

A by-product of the geography placements or the geography plus attendance-partner program could be changes in the nature of social ties among parents at the center. The strength of connection among low-income families in poorly resourced, possibly unsafe neighborhoods is likely to vary, and one measure of the variance is the willingness to offer versus the willingness to ask for support (see Small, 2009; Stack, 1974), which involve differing trust levels. Such social supports among parents could include the exchange of child care services, information about a doctor or other resources, or a small loan.

Notably, the intervention was implemented in addition to extensive efforts on the part of the Head Start agency to promote children's attendance. These included: a system-wide culture of discussing attendance and enumerating its benefits; chart- and photo-based recognitions of classroom attendance; calls to every family within one hour of a child not coming to the center; and the development of individual plans with families who showed a persistent pattern of low

attendance. Despite all of these programmatic initiatives over the past several years, virtually no increases in children's attendance had occurred across the agency. In the year prior to the CASCP intervention, the monthly average center attendance rate (September through June) was 77% with a range of 70% to 84% across months, and two years prior to the intervention it was 76% with a range of 66% to 83%, both years following the common seasonal pattern of highest attendance in the fall (September) and lowest attendance at year end (June) and in the winter (December-January; Dubay & Holla, 2015; Ehrlich, Gwynne, Pareja, & Allensworth, 2014).

The present study asks two central questions:

- (1) Does placing children in early childhood education classrooms according to the two treatment conditions promote the development of parent social capital and child attendance compared to the control condition?
- (2) What mechanisms might explain impacts (if any) on parents' social networks?

Our main hypothesis was that when parents mobilize their own social capital through the support of a Head Start intervention, children's attendance increases. The innovation was to structure the program so that parents form networks of their own accord and with other parents of their own choosing with the common purpose of increasing center child attendance.

Methods

The present mixed-methods study involved quantitative and qualitative data collection and analysis. Quantitatively, we tested the impact of offering two intervention treatments on parents' social capital and children's school attendance as compared to the control group (Research Question 1). Qualitatively, we inductively and deductively analyzed staff and parent focus group data to explore why impacts of the intervention may or may not have occurred (Research Question 2).

Procedures

During the 2013-2014 school year, students were randomly assigned to classrooms based on three conditions: (1) a Control group (grouped by age or disability status); (2) a Geography group (children placed in classrooms with other children from their neighborhood of residence); and (3) a Geography + Attendance Partner group (children assigned based on geography but with an additional option for parents to voluntarily pair for the purposes of improving children's attendance). All assignments were subject to Head Start regulations. In particular, Head Start mandates that classrooms should not have more three-year-old children than four-year-old children. As a result, randomization was stratified by age to ensure balance across age groups within each classroom. To conduct the geography groupings, children were categorized into one of four neighborhoods surrounding the school and into groups of eight children. There were some differences in the composition of the four neighborhoods based on families' baseline characteristics. Neighborhood 1 had lower parent loneliness, higher levels of hope, more fathers, and parents with higher levels of education compared to Neighborhood 2, 3, and 4. Neighborhood 2 had higher rates of employment and children were more likely to enter the program late compared to Neighborhoods 1, 3, and 4. There were no differences between Neighborhood 3 (compared to 1, 2, and 4) or Neighborhood 4 (compared to 1, 2, and 3).

For the randomization by geography (Geography Only and Geography + Partner group), neighborhoods were paired within classroom. For example, treatment classroom A may have children from Neighborhood 1 and 2 and treatment classroom B may have children from Neighborhood 1 and 3. The pairing of the neighborhoods within each treatment classroom was random and children in the control group were assigned to classrooms with children from all four

neighborhoods. As a result, all neighborhoods were represented in the treatment and control classrooms. As demonstrated in Table 1, our matching strategy led to equivalence across nearly all observable demographics at baseline.

For the Geography + Partner group, attendance partners for parents were assigned in mid-October among parents who volunteered to participate in the additional programmatic service. Randomization occurred at the classroom level, but the classrooms were clustered within three centers in one agency. The centers were located in the same physical building (by floor), yet each had a different principal, staff, and drop-off time for children (with the school day starting thirty minutes apart for logistic and traffic flow reasons).

Qualitative interviews with parents and staff explored potential reasons for increases in parent social connection with exposure to the intervention, and how these changes might be related to improvements in children's attendance. Parents in the three treatment groups and staff involved with implementation of the CASCP participated in a total of eight 60-90 minute, semi-structured focus groups at the end of the academic school year. Members of the research team with expertise in qualitative methods led all focus groups in private spaces at the center. Staff randomly selected parent participants by treatment group, and 33 parents participated out of approximately 40 parents recruited. Parents were grouped by treatment (i.e., Geography + Partner, Geography Only, combined treatment (for participant convenience), and control), and parent meetings excluded agency staff. Eight of the nine staff members participated in focus groups and were assigned by functional responsibilities (i.e., center directors, teachers and family advocates, and family service coordinator) with no other staff present.

Participants and Verification of Random Assignment

All children who enrolled in the Head Start centers at any point during the 2013-2014 school year were included in the randomization ($n = 392$), which occurred before we put in place sample restrictions. We restricted the sample based on several criteria. First, we excluded families who enrolled after October 15, 2013 ($n = 58$) as they did not have the opportunity to participate in attendance-partner program orientation sessions. Second, when multiple siblings within a family were assigned to different treatment groups (e.g., one sibling was assigned to the control group and another sibling was in a Geography + Partner group), we excluded siblings from the lower-level treatment assignment (e.g., dropped children in control group; $n = 18$). Third, we excluded families in which the parent did not complete either a fall or spring survey ($n = 9$). These procedures resulted in an analytic sample of 307 children and parents in 18 classrooms across the three centers, with 101 families in the control group, 103 families in the Geography Only group, and 103 families in the Geography + Partner group. There were six classrooms per center and the average number of children per classroom was 17.1 ($SD = 1.8$; range 14-20). *T*-test comparisons indicated that the analytic sample ($n = 307$) was similar to the three groups of participants who were included in the randomization but who were not eligible for the current study ($n = 85$; see Appendix Table 1). The only exception was that non-eligible parents were more likely to have a high school degree or GED (71.43% versus 54.44%) and were more likely to be foster parents (8.20% versus 1.09%) compared to eligible parents included in the analytic sample. All other parent and child demographic characteristics and baseline parent social capital and psychological wellbeing measures were similar between the analytic sample and the combined non-eligible groups.

All families in the sample met Head Start eligibility requirements. Table 1 presents the descriptive statistics for the baseline characteristics of parents and children in our sample ($n = 307$). Almost all parents were natural/step/or adoptive parents (98.91%) and were approximately 30 years old on average ($SD = 6.95$). The average household size was 3.64 ($SD = 1.50$) and 75.10% of parents were single-parents. The majority of parents had a high school degree (54.44%) or less (22.18%), with some parents having an Associate's degree (19.76%) and very few with a Bachelor's degree or higher (3.63%). Over half of parents (58.47%) were not employed at baseline, with the remaining parents working full-time (26.61%) or part-time (14.92%). Children (and their parents) were primarily African American (95.42%), with 2.95% identifying as Hispanic. Children were between three and four years old at the start of the school year (per Head Start regulations).

An equivalence check on the three groups (control group, Geography Only, and Geography + Partner) indicated only three significant differences in parent demographic characteristics (see Table 1). The treatment groups had a larger average household size compared to the control group (3.95 for Geography Only and 3.70 for Geography + Partner versus 3.36 for Control). In addition the Geography Only group had a smaller proportion of unemployed parents (47.44%) compared to the control group (60.76%), and the Geography + Partner group had a great proportion of children eligible for Head Start due to foster child status (3.59%) compared to the control group (0.00%). All other baseline measures of parent demographics, psychological wellbeing, and social capital, or on child-level characteristics were similar, including children's attendance rates in September (90.09% in control group; 92.84% in Geography Only group; and 91.10% in Geography + Partner group).

Implementation of the Child Attendance and Social Capital Project (CASCP)

A major component of the CASCP intervention for both treatment groups (Geography Only and Geography + Partner) was to group children based on their home residence so that peers lived closer to one another, thus making it easier for parents to rely on one another to help their children get to school. Overall, the treatment randomization based on geographic home location successfully reduced the distance among peers in the same classroom. The average distance among peers in control group classrooms was 2.60 miles ($SD = 2.59$). The average distance among peers in the Geography Only group was 1.95 miles ($SD = 2.17$) and the average distance in the Geography + Partner group was 1.43 miles ($SD = 1.78$), which were both significantly lower (based on t -tests) compared to the control group classrooms.

For the Geography + Partner group, center personnel also offered parents the opportunity to participate in a parent partnership. All participants in the combined treatment group were invited to attend a kick-off meeting in which they learned the broad goals of the program and socialized with other parents in their child's classroom in order to begin to form partnerships. In most cases, parents selected partners voluntarily. In a few instances, Family Support staff assigned parent pairs (e.g., when both parents missed the orientation meeting). Of the 101 parents in the Geography + Partner group, 54 formed partnerships. Among the parents who were randomized to the Geography + Partner group, none of the baseline demographic characteristics, social capital, psychological functioning, or children's fall attendance predicted whether a parent participated in the partner group (based on OLS regression; all $p > 0.10$).

Once the partnership was established, parents were encouraged to get to know their partner and form mutually supportive relationships. Parents were also instructed to communicate

with their partner if their child was going to be absent from school on a given day. Parents were invited to attend monthly center meetings and report to the other parent (if they were not in attendance) about the meeting content. Monthly center meetings, or Family Network meetings, were designed to (a) build connections among parents; (b) enhance parents' understanding of how they can improve interactions with their children and support children's learning, including regular, consistent center attendance; and (c) served as part of the Head Start family governance process (in which parents on the policy committee report on agency business and solicit feedback from other parents who are not directly involved with the committee). These meetings offered parents a structure through which to increase social connection with other parents and with center staff.

Parents completed a 15-20 minute survey in the fall and spring of the school year. Trained researchers administered the survey in person during pick-up and drop-off times at the centers. We linked these surveys to agency administrative data on families' baseline demographics (e.g., income, parents' relationship to child) and children's monthly attendance over the school year.

Measures

Parents' social capital. Parents' social capital was assessed based on three self-report items/measures: (1) number of people in parents' social networks; (2) number of people parents were willing to ask for help in his/her child's classroom; and (3) number of people parents were willing to offer help in his/her child's classroom. For the social network measure, parents were asked to report on the number of people with whom they discussed important matters over the previous six months (up to five people), based on the General Social Survey's core discussion

network name generator (Marsden, 1987). For willingness to ask for help, parents were given a list of all children in the classroom and were then asked to indicate (yes/no) whether or not they would feel comfortable asking the child's parent or guardian: (1) to watch their child for an hour; (2) for information about a doctor; (3) for \$200 as a loan (see Reichman, Teitler, Garfinkel, & McLanahan, 2001). The number of times a parent indicated "yes" for any of the three categories across all children in the classroom were summed within each category. We then averaged the three categories to create a mean score, with higher scores indicating that parents were more willing to ask for help. The same set of questions was asked for willingness to offer help (i.e., to watch another parents' child for an hour, for information about a doctor, and for a \$200 loan). The number of times a parent indicated "yes" within each category was summed and then averaged across the three categories, with higher scores indicating that parents were more willing to offer help (adapted from the Boston Non-Profit Organizations Study survey; e.g., Tran, Graif, Jones, Small, & Winship, 2013; Cronbach's alphas from the present study for Willingness to Ask: 0.68 and Willingness to Offer: 0.68). No quantitative data were collected regarding interactions among participant partners.

Children's attendance. Federal Head Start guidelines require centers to track daily attendance for each child. We capitalize on these data and examine children's monthly attendance from September 1, 2013 through May 30, 2014. Attendance was calculated based on the number of days a child attended per month divided by the number of days offered at a given center. We examined attendance separately for each month and also grouped months together for baseline attendance (September), fall (October-November), winter (December-February), spring

(March-May), and across the full year (October-May). We did not include June in our groupings given that Head Start was only in session for part of June.

Covariates. To increase the precision of our estimates, we included a set of baseline parent and child demographic characteristics and measures of parent psychological wellbeing as covariates. Demographic characteristics were based on administrative data from the Head Start centers and included: parent age (in years), whether the family was a two-parent or single-parent household, household size, parent education (whether the parent had a high school degree or more), whether the parent was employed (full- or part-time), if the parent qualified for Head Start income requirements, parent relationship to child (=1 if father, foster parent, or other; =0 if step/adopted/natural mother), and child race (=1 if any other race other than African American). We also calculated the number of days the child enrolled after the start date of the school year (August 28, 2013) and used this as a control in all models.

Assessments of parents' psychological wellbeing included self-efficacy, loneliness, and psychological distress. Self-efficacy was measured using the State Hope Scale (Snyder et al., 1996) that assessed parents' agency and hope about achieving their goals. Parents' were asked to identify how much they agreed (1 = *strongly disagree*, 4 = *strongly agree*) with six items concerning how they may be currently feeling about their lives (e.g., "At this time I am meeting the goals I set for myself;" "There are lots of ways around any problems I am facing now;" and "Right now I see myself as being pretty successful"). All six individual items were averaged to create a total score ranging from 1 to 4; higher values represented higher levels of hope (referred to as "goal efficacy" by Yoshikawa, Weisner, & Lowe, 2006). Past psychometric work indicated a Cronbach's alpha of 0.82 for this scale (Gassman-Pines & Yoshikawa, 2006). Loneliness was

measured using the three-item Loneliness Scale (Hughes, Waite, Hawkey, & Cacioppo, 2004) in which parents were asked to rate how often (1 = *hardly ever*, 3 = *often*) “Do you feel that you lack companionship?;” “Do you feel left out?;” and “Do you feel isolated from others?” All three individual items were averaged to create a total score ranging from 1 to 3; higher values represented higher levels of loneliness ($\alpha = 0.72$; Hughes et al., 2004). Psychological distress was measured using the Kessler Scale (Kessler et al., 2002). The six items asked parents to indicate how often they experienced different symptoms (i.e., nervous, hopeless, restless, depressed, everything is an effort, and worthless) in the past 30 days (0 = *none of the time*, 4 = *all of the time*), with higher scores indicating higher levels of psychological distress (Kessler et al., 2002; $\alpha = 0.89$).

Focus groups. The qualitative study was designed to understand the effectiveness of the intervention and possible mechanisms of impacts on parents' social capital and children's center attendance. Topics across the three parent focus groups included: (1) knowledge of and geographic proximity to other parents in the focus group; (2) how parents meet and get to know other center parents; (3) types of help parents offer to and ask of other parents; and (4) barriers to and supports for children's regular school attendance. Staff focus group topics included topics 2-4 as well as the following: (1) reasons for varying levels of children's center attendance and suggestions for improvement; (2) strengths and challenges of each treatment (e.g., Geography Only and Geography + Partner); and (3) suggestions for improvements to the intervention design. Parents in the combined treatment focus group (Geography + Partner Program) were also asked: (1) how they formed partnerships and their reasons for doing so; (2) what activities and supports their partnerships entailed; and (3) the ways in which these partnerships were (or were

not) beneficial to them. All focus groups were digitally recorded, professionally transcribed, and coded (or grouped) by the above domains and newly emerging themes, moving between inductive and deductive analyses (a modified version of grounded theory; see Fine, 2004).

Analytic Plan: Quantitative

We leverage the randomized design of the CASCP to examine the causal impacts of each treatment condition on changes in parents' social capital and children's monthly attendance. We modeled treatment impacts using an intent-to-treat (ITT) approach, which provides an estimate of the effect of being randomly assigned to receive a particular intervention treatment, regardless of parents' level of "take up" of that treatment. For example, parents who were originally assigned to the Geography + Partner group but did not actually participate in the attendance partner component were still included in their original treatment assignment group (Geography + Partner). In the case of the Geography Only group and the geography grouping component of the Geography + Partner, there was no "opt out" option and all children participated in treatment who were randomly assigned to the treatment. Thus our model can answer the question of whether the geography grouping led to increases in parent social capital or children's attendance. For the parent partner component of intervention, parents could choose not to form partnerships but were still exposed to messaging about the importance of children's daily Head Start attendance. Our analytic approach for the Geography + Partner group thus reflects the combined causal effects of geography grouping and offering the opportunity for parents to form partners within the Head Start setting, i.e., an intent-to-treat analysis. The intent-to-treat model is policy-relevant because it represents what might happen in a real policy context in which individuals or groups cannot be forced to participate in a program, for example. It is important to note that this

parameter reflects a combination of the treatment effects for participants and the null effects for nonparticipants.

To estimate the effect of the treatment on children's attendance, we conducted mixed level models with children nested in classrooms with center fixed effects using the following equations (Raudenbush & Bryk, 2002):

Level 1: Child

$$Y_{ijk} = \pi_{0jk} + \pi_{njk}X_{ijk} + \varepsilon_{ijk}$$

Level 2: Classroom

$$\pi_{0jk} = \beta_{00k} + \beta_{01k} Treat_{jk} + \beta_{mj}Z_{jk} + \lambda_k + \zeta_{jk}$$

For Level 1, Y is children's attendance in each month (or season) for individual child i in classroom j in center k . On the right-hand side of the equation, π_{0jk} represents the mean outcome for classroom j in center k ; π_{njk} is the coefficient associated with baseline covariate n for individual i in classroom j in center k ; and X_{ijk} represents the value of baseline covariate n for individual i in classroom j in center k with a random error (ε_{ijk}) that varies across individuals with mean of 0 and variance σ_{ε}^2 . Covariates included: parent age, education, and employment; single parent status; income eligibility; household size; parent relationship to child; parents' self-efficacy, loneliness, and psychological distress; child race, children's baseline attendance in September; and number of days child entered school after the first day of school.

For Level 2, the mean outcome for classroom j in center k (π_{0jk}) was predicted as a function of the mean control group outcome value for center k (β_{00k} ; a parameter that is fixed for each center), the mean intervention effect for center k (β_{01k}), where $Treat_{jk} = 1$ if classroom j from center k was randomized to the intervention component of interest and 0 otherwise, baseline covariate m for classroom j in center k (all individual covariates averaged to the classroom level),

and baseline classroom covariates (Z_{jk}). We also included center fixed effects (λ_k) and a random error that varies across classrooms (ξ_{jk}) with a mean of 0 and variances $\tau_{\pi T}$ and $\tau_{\pi C}$ for treatment and control group classrooms within each center k , respectively (we tested models without center-fixed effects as well as a robustness check). There was only one child per household in our study so we did not need to account for children nested within household/family.

For parent social capital outcomes, the model was the same as the equation specified above, where Y is parent social capital at the end of the school year for individual parent i in child classroom j in center k . The only difference is that the outcomes were at the parent level (number of parents in social network, willingness to ask for help, and willingness to offer help). The model included the same set of covariates, but we also included a pre-test score for the social capital measure as a covariate in Level 1.

For both sets of outcomes (parent and child), treatment assignment was modeled three different ways. First, we compared the effect of the Geography Only group to the control group (and excluded participants who were assigned to the Geography + Partner group). Second, we compared the effect of the Geography + Partner group to the control group (and excluded participants who were assigned to the Geography group). Third, we combined the Geography Only group and the Geography + Partner group into one treatment assignment (all treatment group participants=1) and compared to the control group (=0).

Later enterers and early exiters. One analytic challenge was the fact that children entered and exited the Head Start centers on a rolling basis. For late entries, we restricted our sample to only include children who entered before October 15, 2013 (when the attendance partner treatment began). We also included a control for the number of days late the student

entered ($M = 5$ days, $SD = 9$ days; range 0-43). For early leavers, 41 children left the center before the end of the school year, with 17 children leaving between December to February and 24 children leaving between March and May. We did not follow children once they left the center and thus did not have child attendance data for children who exited. Our sample for the child attendance outcomes varied based on the season, with 307 children for fall attendance outcomes (October-November), 290 children for winter attendance outcomes (December-February), and 266 for spring (March-May). We also tested the robustness of our findings by limiting our sample to 266 for fall, winter, spring, and overall attendance outcomes. For our parent outcomes, we estimated our impact analysis across the same three sample sizes based on children's exit date ($n = 307$ for all children; $n = 290$ for only children who were still enrolled at the end of March; and $n = 266$ for children who were enrolled at the end of the school year).

T-test comparisons children who exited early ($n = 41$) were somewhat more at-risk compared to children who were enrolled over the full school year ($n = 266$; see Appendix Table 2). Children who exited early ($n = 41$; i.e., exited in the winter or spring) had: lower attendance in September (86.60% for early exiters versus 96.99% for non-exiters), parents with lower levels of education (41.67% had less than a high school degree versus 18.87%), a higher proportion of homelessness (12.12% versus 1.94%), parents who were less willing to ask for help at baseline (2.07 versus 4.57), and parents who were more lonely (1.53 versus 1.39) and distressed (2.38 versus 2.10) at baseline (and some differences on race, with more African American children in the stayers versus the exiters). All other characteristics (e.g., parents' number of people in network, single parent status, parent employment, and family size) were similar (based on *t*-tests).

There were several differences between children who were late enterers (enrolled after October 15) and children who were on-time enterers (enrolled before October 15). Children who entered school late were more likely to be African American (95% of late enterers versus 100% of on-time enterers), had parents with higher levels of education (74% had a high school degree versus 55%), had parents that were more likely to be a father, foster parent, or other, and had parents with higher levels of psychological distress and who were more willing to ask for and offer help to other parents. All other characteristics were similar.

Missing data. Missing data did occur for the baseline covariates and parent outcome variables. In order to avoid further reduction of the sample and maintain adequate power to detect effects, missing values were imputed using multiple imputation through chained equations (ICE; Allison, 2002; Graham, 2009; Rubin, 1987; StataCorp, 2013). We created 50 complete datasets that included all variables in the dataset; the datasets were identical on observed values but differed on imputed values. Appendix table 3 presents the unimputed data for the analytic sample.

In an effort to have the same sample for the parent social capital outcomes and children's attendance (and due to all of the other sample restrictions based on child enter and exit data), we chose to impute parent social capital outcomes. Imputation is recommended to enhance the statistical power of estimated parameters (Collins, Schafer, & Kam, 2001; Enders, 2010; McCartney, Burchinal, & Bub, 2006; Widaman, 2006). We also acknowledge the counterargument for not imputing outcomes (Carlin, Li, Greenwood, & Coffey, 2003) and thus test the robustness of our findings for the parent outcomes when we limited to parents who had completed post-test surveys ($n = 245$). All children who were enrolled in the center had

children's attendance data so we did not impute children's attendance outcomes (although when baseline attendance was missing in September, we did impute it as a covariate).

Analytic Plan: Qualitative

Analysis of focus group data included a five-step process for each of seven 60-90 minute focus groups: (1) listened to audio recordings and took notes by interview questions and newly emerging topics, as well as mood and interpersonal dynamics among focus group members; (2) read and reviewed verbatim transcripts and created summaries according to pre-determined and emerging topics and notes from step one; (3) developed and applied a coding scheme; (4) wrote memos (including data grouped by parents and staff separately, as well as across all focus groups, using coded interview data); and (5) identified themes related to mechanisms for increased parent social capital and improved children's monthly center attendance through an iterative process of memos and discussions among research team members. Each of the two researchers with expertise in qualitative analysis checked the work of the other, and the research team discussed and reviewed codes and themes together.

Codes for parent and staff focus groups included: experiences of treatment (Geography and Geography + Partner); connections between parents; connections between parents and center staff; trust barriers; experiences of parents offering help to other parents; experiences of parents receiving help from other parents; social connections beyond the intervention and center; values about children's education, including parents' role and children's attendance; and behaviors and attitudes of other parents toward children's education, including parents' role and children's attendance. Staff focus groups included codes for effectiveness of intervention on parent social capital; effectiveness of intervention on children's attendance; limitations of intervention; and

suggestions for future design and implementation. Final themes to explore the experimental results, comparing treatment parents to non-treatment parents, included: connection, comfort, and trust among parents; parent-initiated strategies to problem solve and support each other; and expressions of parents' commitment to their children's education.

Results

For our impact analysis, presented in Table 2 for parent social capital outcomes and Table 3 for attendance outcomes, we examined the effect of assignment to (1) geography-based classrooms (Geography Only) and/or (2) geography classrooms plus parent attendance partners (Geography + Partner) on outcomes compared to the business-as-usual approach in Head Start (control group). These analyses reflect the effect of attending a classroom based on geography grouping and the offering of parent-partner opportunities, accounting for clustering within classrooms (2-level Hierarchical Linear Model (HLM)) and adjusting for controls and center fixed effects. Focus group data were used to examine why changes in parent social capital outcomes may have occurred, and how they may be related to changes in children's attendance as a result of the intervention.

Impact of Parent-Focused Intervention in Head Start on Parents' Social Capital Outcomes

Baseline data, collected at the beginning of the school year, suggested that parents in our sample had an average of three people in their social network ($SD = 1.45$). In addition, parents were willing to ask for help from four parents in the classroom ($SD = 8.01$) and were willing to offer help to eight parents ($SD = 12.69$), suggesting that parents were much more willing to offer help than to ask for it at the start of the intervention. Correlations across time from fall (baseline) to spring (outcome) for each individual measure of social capital were moderate to large. There is

a moderate correlation between individual measures of social capital from the start to the end of the school year: number of people in the social network ($R = .36$), willingness to ask ($R = .46$), and willingness to offer ($R = .42$). In the full sample, on average, the number of people in parents' reported social network significantly decreases over the course of the school year but there is not a significant change on average in the willingness to ask and offer for help in the full sample.

Impact on size of social network. Table 2 presents the impact of the intervention on the number of people in parents' social network as well as their willingness to ask and willingness to offer help to parents in their children's classrooms. Column 1 for each outcome includes all children who were enrolled in the center regardless of whether they left over the course of the school year ($n = 307$), Column 2 only includes children who were still in the center at the end of March ($n = 290$), and Column 3 only includes children who were enrolled in the center over the entire academic year (through June; $n = 266$).

Results indicated that parents who were assigned to the Geography + Partner group had a greater gain in their social networks than the control group (effect size range = 0.25-0.30). This effect translates to approximately a one-person increase their reported social networks. The findings were consistent even when we included children who left before the school year ended (Columns 1 and 2). There was no effect on parents' social capital group when we compared the Geography Only group to the control group. In addition, there was no effect of the intervention when we combined the Geography + Attendance Partner group and the Geography Only group compared to the control group.

Impact on willingness to offer/ask for help. Parents were asked to indicate how many parents or guardians in their children's classroom they would feel comfortable offering or asking for help. Parents in the Geography Only group increased their willingness to ask for help by

more than the control group (effect size range = 0.23-0.24), which translates to an increase of approximately two parents/guardians in their child's classroom to whom they were willing to offer help. Parents in the Geography + Partner group had over one-third of a standard deviation increase in their willingness to ask for help compared to the control group (effect size range = 0.34-0.36), which is equivalent to roughly a three person increase. The findings were similar when we restricted the sample to parents with children who were enrolled for the full school year (Columns 1-3). In addition, when the Geography + Partner and the Geography Only treatment groups were combined, the treatment group demonstrated an increase in its willingness to ask for help compared to the control group (effect size range = 0.27-0.28). There was no effect of the intervention (for any of the treatment groups) on willingness to offer help. When we removed the center fixed effects, the effect sizes were nearly identical to our main model, and all significance levels were the same. For example, the effect of the Geography + Partner group on social networks ranged from 0.25-0.30 in models without center fixed effects versus 0.25-0.30 in models with fixed effects.

Sensitivity and follow-up tests. For the main model, we examined whether the treatment effects varied between the three centers in our sample (i.e., did a certain center produce larger gains compared to another). We found that the impact of the intervention on social capital outcomes was similar across the three centers. For example, the impact of the intervention on willingness to ask in Center A was similar compared to Center B ($\beta = 0.096$, $SE = 0.149$; $p > 0.10$) or Center 3 ($\beta = -0.053$, $SE = 0.149$; $p > .10$). In addition, we do not find any differences difference in social capital outcomes between the Geography only and Geography + Partner group (e.g., effect of willingness to ask for help; $\beta = 0.155$, $SE = 0.167$; $p > 0.10$).

We also tested the robustness of our findings when we did not impute parent social capital outcomes ($n = 245$; Appendix Table 3). Overall, the effect sizes were similar in magnitude and the pattern of significant findings was identical to the main model (that imputes social capital outcome) presented in Table 2. All three treatment combinations (Geography Only, Geography + Partner, and the combined Geography Only & Geography + Partner) continued to have a positive effect on parents' willingness to ask for help compared to the control group. In addition, the Geography + Partner group led to an increase in the number of people in parents' social networks.

Impact of Parent-Focused Intervention in Head Start on Children's Attendance

Children's overall monthly attendance over the course of the school year followed an interesting pattern (see Appendix Figure 1). At the start of the school year (September), the average monthly attendance was 91.35%, meaning that on average children in the sample attended school 91% of the days offered in that month. Over the course of the fall and into the winter, the attendance rate steadily dropped. By November, the average attendance rate dipped below the 85% threshold mandated by Head Start and by January, the attendance rate was 71.98%. Attendance then began to climb up again, where by April, children's attendance was 80.37% and in May it was 82.67%, dropping again slightly at the end of the school year (79.99%).

Table 3 presents the effect of the intervention on children's attendance in the fall, winter, and spring and across the full school year controlling for their attendance in September (baseline). Column 1 allows the sample to vary based on whether the children were enrolled at a given time point. Column 2 restricts the sample to only children who were enrolled throughout

the full academic year. Figure 1 demonstrates the overall pattern of attendance findings of the Geography Only group, Geography + Partner group, and control group. Results indicated that children who were in geography-based classrooms (Geography Only) had a 4.1% greater increase in their attendance compared to the control group in the fall and a 6.1% increase in their attendance in the winter. There was no effect of the Geography Only group on spring attendance or attendance over the full year. The positive effect on fall attendance did not hold when we restricted the sample to only children who were enrolled throughout the school year.

The Geography + Partner treatment group also led to increases in children's attendance in the winter (5.3%). There was no effect of the Geography + Partner assignment on fall, spring, or overall attendance. When we combined the Geography and Geography + Partner groups, children in the treatment group had a 4.8 to 5.1% increase in their winter attendance (which was consistent across both models). This equates to about two extra days of attendance in the winter. There was no effect on fall or spring attendance or on attendance averaged over the full year.

As demonstrated in Figure 1, children in all three treatment groups had declining attendance in the fall and winter (based on raw monthly attendance scores). Yet, the intervention led to a less steep decline in attendance than what would have happened in the absence of the intervention (as demonstrated by the control group). For example, in January, the control group's attendance rate was 70%, whereas children's attendance in the Geography + Partner treatment group was around 74%, and 77% in the Geography Only group. Before and after the intervention, the center's attendance pattern followed the same seasonal variation: high in the fall and low in the winter and at school end. The intervention did not impact this overall pattern except in the winter where declining attendance was mitigated by the intervention.

Sensitivity and follow-up tests. Treatment effects on attendance outcomes were similar across the three centers. When we removed the center fixed effects, effect sizes were nearly identical to our main model, and all significance levels were the same (results available upon request). When comparing the effects between the two treatment groups, there was no significant difference between the Geography only versus the Geography + Partner group groups on winter ($\beta = -0.017, SE = 0.027$), spring ($\beta = -0.006, SE = 0.026$), or overall attendance ($\beta = -0.014, SE = 0.020$). The Geography + Partner group had less of a positive impact on attendance compared to the Geography only group ($\beta = -0.039, SE = 0.021$). We also tested whether there was a treatment effect on early exiters, where early exiting is treated as the outcome (0=non-exiter; 1=early exiter). We did not find that the treatment groups led to a lower (or higher) likelihood of leaving the Head Start program before the school year was over (including Geography Only vs. Control; Geography + Partner vs. Control, and Geography Only & Geography + Partner versus control).

Focus Groups and Possible Explanatory Mechanisms

Focus groups of parents and staff were used to explore factors that may help to explain our experimental study results. Although Head Start centers can provide opportunities for social connection, focus group discussions indicated that a number of parents in the present study's Head Start centers evidenced low levels of trust vis-à-vis sharing responsibility for children. Parents in both treatment and control focus groups overwhelmingly agreed that their children were their "prized possession," and that distrusting other parents with their children was the norm until proven otherwise:

I am protective of my children. People are crazy. I'm a person who believes it takes a village to raise a child, and I'm very picky on who's in that village. (...) If I don't already know you, and I mean really, really know you, my child's not going over to your house. Parents emphasized the critical importance of knowing each other well in order to develop trust. Without opportunities to facilitate connection, it was difficult for parents to shift from the status quo of low trust. Parents in the control focus group explained, "We're comfortable where we are ... [with low levels of connection because] the trust is not there." Staff independently observed the same phenomenon: "There is a very low level of trust in this community.... Trust is a very, very difficult thing in our, in this community."

Regarding the quantitative impact findings that parents in the Geography + Partner treatment increased their number of social connections and their willingness to ask for help as compared to control group parents, focus group findings suggested that this may have occurred because the partner program: (1) offered parents the opportunity to increase connection, comfort, and trust; (2) helped to induce parent-initiated problem solving strategies; and (3) reinforced parents' commitment to supporting their children's education.

Increased connection, comfort, and trust. Parents in the Geography + Partner focus group discussed how the partner program improved relations among parents:

P10: [My partner and I] didn't need each other [for transportation] but if we did, I think, she would be there because I speak to her every morning we come in, and we have a little conversation in the morning before we go in the class. You know, if we see each other.

F: You do talk every day?

P10: If I see her. If we bump into each other in the morning. I think if I was to need her she would be there, so I think I've got a good partner.

In this instance, parents' formal pairing seemed to promote conversation and connections which could be related to an increased willingness to ask for support. The opportunity to form parent partnerships also may be related to self-esteem benefits for parents, according to staff:

A few parents were very invested on my floor and they enjoyed being able to be of service to other parents. So I think that that gave them a self-esteem boost to be helpful to other parents. One parent in particular was kind of helpful to more than one like their partner, then picked up a couple other partners. That gave them the feeling of helping out, and they liked it.

Improved self-esteem may increase openness to ask for help or support. Even when initial partnerships failed, parents used the program as an occasion to partner with another parent with whom they felt connection. As one parent said, "I was partnered with somebody like I haven't seen her or heard from her since, but I see L all the time. So I was like you want to switch?"

Regular daily exposure combined with an opportunity to formalize otherwise informal relationships may explain why parents assigned to the partner program reported a greater number of social connections than parents who were not. The increased social cohesion among this group of parents may also have contributed to a growth in trust:

I can't spend my life just having no trust in nobody at all because sometimes it's not what you know in this world, it's who you know, and if you can't never open yourself up, then to meet new people, then these are different doors in the universe that you're just never

going to have access to because in your mind, at least for me, in my own mind, I be shutting myself out, you know what I mean?

This parent proceeded to invite others in the group to join his Little League, and a number of parents exchanged phone numbers, discussed how to get involved with Little League, and stayed after the meeting to continue their conversation.

Some parents even contemplated asking their partners for help transporting their child to and from school, a support that parents across groups agreed demanded a high level of trust:

I'm pretty sure everybody's over-protective of their kid. But when you partner up, like me partnering up with him, it's very rare that I'm gonna have to call him, because I know, like you, I'm gonna do what I have to do to get my child to school. If it was my last resort and I'm like L, want to go to school? Then I'm like look, 'Can you pick her up? She wants to go to school. I have no way, I have to get on the bus, I don't have a ride.' Then, you know, I will call him. But I know me. I'm like you. I will do whatever I have to do to get my child to school. So, I don't have to call him. But, if I had to call him, I know he'll come get my daughter, and I know my daughter feels comfortable with him.

Trust seemed to increase with time and exposure, according to center staff:

I mean, I think that geography is convenient, but I also just think it goes back to comfortability. I feel like if a parent is comfortable enough, they will make a way, you know, they'll sacrifice, because I've had people who aren't necessarily neck and neck of living with each other, but if a parent that drives is willing to go pick that child up, you know. It's all about if you're comfortable or not.

Parents with greater comfort seemed more likely to ask another parent for help, and this may have occurred when circumstances were most trying, such as cold and snowy conditions, a possible explanation for children's improved monthly center attendance in winter months.

Promotion of parent-initiated attendance strategies. Parents who formed partnerships did so with some apprehension, yet in time they developed their own ways of supporting one another that were different from the original program focus on transportation, according to staff:

The biggest pushback I got in the beginning was "I don't want my child being brought to school with a complete stranger. I don't know this person." But as we continued to have the meetings and parents came to get to know each other, it got better. Even in the beginning, the people that I paired up ended up switching partners, because they had gotten to know another parent that wasn't their partner in the beginning or whatever. So, it was rough in the beginning, but then it ended up being better towards the end, and I had the same thing. I had people who had partners just for wake-up calls or a walking buddy or something like that, but it was rough in the beginning, but I think as parents got to know one another, they became more comfortable with it.

Parent-initiated strategies (e.g., walking buddies and wake-up calls) interestingly involved parents increasing their engagement with each other (and their children) over approaches that involved one parent supporting another independently (e.g., taking their child to school). Parent-partners seemed to prioritize opportunities for more interaction and connection, including being present at drop-off and pick-up times or spending time volunteering in the classroom, which also are likely to go hand and hand with children's regular school attendance. Universally, parents at this center seemed eager for connection with other parents, as evidenced by their interactions

across the three types of focus groups, and the partner program itself seemed to give parents a vehicle for strengthening otherwise weak ties.

Reinforcing parents' commitment to their children's education. Parents in the Geography + Partner focus group seemed better able to articulate the educational benefits of bringing their children to school every day compared to parents in the control and Geography Only focus groups:

The reason for my child to come here every day is to learn. My grandfather told me before he passed that your brain is a sponge. So if you're teaching a child 'goo goo ga ga,' that's all they're going to know. If you start teaching your child some stuff, like some stuff they should know, then before they get that you teach them a little more and keep get them a little more, a little more and they going to learn it. Think about it. The kids over in Asia go to school every day. They smart as hell. I'm not saying they got, they don't have an advantage over us. We got the same brain as they do but they use their brain. It's a muscle. You working that muscle, it's getting stronger. If you work your child's brain muscle, your child will get smarter.

Parents who were given the opportunity to form partnerships with other parents with an explicit goal of improving children's attendance may have further internalized the center's message on the importance of regular daily attendance (as compared to control parents) and responded accordingly, even if their partnerships were not active.

Discussion

The CASCP intervention offers a low-cost, low-intensity tool to improve children's attendance by fostering social capital among parents. Our impact analysis shows that parents

who were offered the opportunity to form partnerships with other parents and whose children were assigned to classrooms where children lived near one another had a greater gain in their social networks and willingness to ask other parents for help compared to parents whose children were assigned to classrooms based on a Head Start business-as-usual approach. We did not find impacts of either treatment on average children's attendance throughout the year. However, our results suggest that the program was effective in improving children's attendance during winter months among a low-income population. Exploratory analysis from focus groups suggests that parents' level of connection and trust, self-generated partnership strategies, and commitment to their children's education may be key mechanisms by which the intervention helped promote parent social capital and children's attendance.

The Impact of the Intervention on Parents' Social Capital and Children's Attendance

For the geography-based classroom assignment, the randomized design allows us to answer the question of, "What is the effect of grouping classrooms based on geography on parent and child outcomes?" because children in both treatment groups received the conditions of the Geography Only group. Interpreting the findings when we add the parent-partner intervention component (to the geography grouping) is a bit more challenging. The effect of the Geography + Partner treatment does not represent the causal effect of having a partner because even though random assignment was correlated with having a partner, a number of parents chose not to form partners even though they were given the opportunity to do so. In addition, parents who were in the control group could have created partners or relationships with other parents on their own accord (about which we did not have data). Thus, this study answers the question, "What is the

effect of grouping classrooms based on geography and making parent partners available?"

(Bloom, Hill, & Riccio, 2005).

The pattern of findings shows that offering the parent-partner intervention component did lead to parents' increasing their report of the number of people in their social networks. We do not know if the parents listed their partners in their social networks, but these findings do support the idea that when early childhood education programs provide the opportunity for parents to meet other parents, this can help foster parents' social connectedness through building trust and connection. We did not find this effect among the Geography Only group in which parents were not offered opportunities to form relationships with other parents.

We also found an interesting pattern regarding the effect of the intervention on willingness to ask for versus willingness to offer help to other parents in their child's classroom. Parents began the intervention much less likely to *ask for* than to *offer* help. On average, parents said that they would be willing to ask four parents in their child's classroom to help compared to eight parents to whom they would be willing to offer help. Placement in both the Geography Only and the Geography + Partner group led to increases in willingness to ask (e.g., the effect size of 0.23-0.36 on willingness to ask represents an increase of about 2-3 people) but not willingness to offer help. In other words, the intervention more closely aligned the willingness to offer help (on average 8 parents) with the willingness to ask for help (on average 5-6 parents). Our findings indicate that the CASCP was particularly effective in improving the aspects of social capital with which parents seem to struggle the most (i.e., asking others for help). This intervention impact may be especially important for Head Start centers, like the ones under study, in which trust levels are notably low.

As a whole, the intervention did not have impacts on average attendance throughout the year. However, the intervention did lead to a 4-5% increase in attendance during a time when average attendance typically dips below 80%, a modest yet meaningful increase for Head Start and other early childhood education programs which are required to track and report monthly and yearly average children's attendance. At the policy and program levels, Head Start has increased its emphasis on regular, daily children's attendance through strategies that support parents. The Child Attendance and Social Capital Project offers an approach to further engage parents to improve children's school attendance while placing limited additional resource demands on centers. As suggested by the focus groups, a commitment to partnership may have given parents an immediate and compelling reason to prioritize their children's learning and attendance over other competing demands (e.g., getting to work on time), and to demonstrate that commitment to another parent. This experience may be similar to pledges (e.g., weight loss buddies; Ashraf, 2013; Bryan, Karlan, & Nelson, 2010; Mayer, Kalil, Oreopoulos, & Gallegos, 2015), providing a context and structure for individuals to motivate and support goal setting and jointly addressing barriers to achieving them. Moreover, regular, daily attendance in Head Start gives children the dosage of early learning services associated with significant developmental gains and improvement in children's school readiness. Programs which already offer full-day services (like the present study) may find that increasing monthly center attendance can be one of the most effective strategies to improve children's outcomes.

The impacts of the intervention on both parent social capital and children's attendance are especially surprising given the challenges faced during program implementation of a pilot program. These included: the condensed time frame for implementation (possibly limiting staff

recruitment and parent take-up) and simultaneous changes in program policies (causing increased disruption of family routines and classroom composition, possibly offsetting improved social connection derived from intervention), some that are unavoidable and some that can be improved.

Study Limitations

As a pilot study in a large urban center, impacts cannot be generalized to all Head Start agencies, especially those in rural environments. Our results also may not apply to other locales in which children's school attendance does not typically dip in the winter (e.g., warmer climates) or centers with full enrollment or waitlists. Additionally, our study sample does not fully represent all children enrolled in the agency over the course of the year in that non-eligible parents had slightly higher levels of education and were more likely to be foster parents. However, we are encouraged that all other parent and child demographic characteristics, and baseline parent social capital and psychological wellbeing measures, were similar. Studying attendance can be challenging, and promoting attendance among early exit families who likely represent the most vulnerable Head Start families suggests the need for improvements in Head Start policy.

Average differences at baseline in distances among residences of children in the two treatments compared to the control group were not very large. Perhaps the geography intervention would have yielded greater benefits if it had made more of a difference to classroom neighborhood-distance composition. Moreover, our random assignment design cannot disentangle the effects of the different program components offered in the Geography + Partner group because we did not have a Partner-only treatment group. A comparison of the Geography

+ Partner treatment group to the Geography-only treatment group would only isolate the independent effect of having parent-partners for families placed in geography-based classrooms, constraining the generalizability of any findings. Future studies may consider testing the effects of a parent attendance-partner-only group, as well as teasing out whether parents felt compelled to say that they established or valued partnerships because this response was the socially desirable response. It is also possible that there were spillover effects of the parent partner program among parents in treatment and non-treatment classrooms. The study would also benefit from an increased understanding of how assigning children to classrooms based on neighborhood of residence may be related to improved parent social capital.

It would be ideal if we could examine whether changes in parents' social capital helped to explain our attendance findings where we found that the intervention led to a 4-5% increase in attendance during the winter months. However, our study design is not well-suited to answer this question. First, we do not have sufficient quantitative or qualitative data about assigned parent-partners in our study. Data on partner interactions and intensity could help further explain the impact of the parent-partner treatment, combined with geography treatment, on improvements in children's attendance. Focus group data helped provide initial insights. Second, our parent social capital measures were also administered at the end of the school year whereas our attendance measures occurred over the course of the school year, such that the mediator occurred after the attendance outcome. Moreover, our attendance results were only evident in models that restricted the sample to children who were enrolled throughout the school year and not in models that included all children enrolled at the start of the school year.

We used data from focus groups to explore possible explanations for intervention impacts, but future studies are needed with designs that can better unpack the mechanisms by which the intervention may affect parent and child outcomes. Relational trust among parents and staff in a Head Start center can be a critical element of social capital formation in this environment, and our focus group data supported this idea. Coleman (1988) and others described trustworthiness of the social environment as one of the key elements of social capital, especially when individuals develop some level of interdependence. Analyzing social capital from a racial and ethnic perspective, as well as whether increased social capital may relate to a sense of community or organizational belonging, represent important areas for further study. Despite these limitations, our findings are likely to increase interest in innovative approaches to improving children's school attendance, including strategies to enhance social connections among parents.

Conclusion

The program's low-cost, low-intensity model can have important programmatic implications, particularly given that Head Start programs are guided to maintain average attendance levels of 85% but often fall short of the mark. Parent and staff focus groups suggest that reducing trust barriers and building connection among parents, structuring parent-to-parent pledges, and promoting the agency of parents may lead to improved social capital and increased children's regular school attendance. In the future, researchers should design an intervention to test these emerging hypotheses. Although broad policy changes should not be based on one study at one site, our experiment does provide a positive indication that it may be possible to improve children's attendance by focusing on parent social capital.

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Table 1.

Equivalence check comparing baseline characteristics of the control group to the treatment groups (Geography and Geography + Partner)

	All (n = 307)	Control (n=101)	Geography Only (n=103)	Geography + Partner (n=103)
	M(%)/(SD)	M(%)/(SD)	M(%)/(SD)	M(%)/(SD)
Parent demographics and baseline psychological wellbeing				
Age (in years)	29.80 (6.95)	29.42 (6.57)	30.36 (7.55)	29.65 (6.76)
Male (pct)	2.86	3.85	1.28	3.37
Single-parent (pct)	75.10	78.75	69.23	76.92
Household size	3.64 (1.50)	3.26 (1.36)	3.95*** (1.58)	3.70** (1.48)
<i>Education</i>				
Less than high school (pct)	22.18	25.32	24.36	17.58
High school or GED (pct)	54.44	54.43	47.44	60.44
Associate, vocational school, or some college (pct)	19.76	16.46	25.64	17.58
Bachelor's or above (pct)	3.63	3.80	2.56	4.40
<i>Head Start Eligibility</i>				
Foster child (pct)	1.26	0.00	0.00	3.59*
Homeless (pct)	3.35	3.90	2.63	3.59
Public assistance (pct)	41.42	41.56	38.16	44.19
Income (pct)	53.97	54.55	59.21	48.84
<i>Employment</i>				
Not employed (pct)	58.47	60.76	47.44*	65.93
Part-time (pct)	14.92	12.66	21.79	10.99

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Full-time (pct)	26.61	26.58	30.77	23.08
<i>Relationship to child</i>				
Mother (natural/step/adopted) (pct)	96.74	94.12	96.97	98.51
Father (natural/step/adopted) (pct)	2.17	3.92	1.52	1.49
Foster parent/ other (pct)	1.09	1.96	1.52	0.00
<i>Psychological wellbeing</i>				
Self-efficacy	3.00	3.04	3.08	2.89
	(0.55)	(0.60)	(0.49)	(0.55)
Loneliness	1.42	1.41	1.41	1.43
	(0.47)	(0.49)	(0.40)	(0.50)
Psychological distress	2.15	2.16	2.22	2.07
	(0.72)	(0.67)	(0.73)	(0.78)
Parents' social capital				
<i>Fall (baseline)</i>				
Number of people in network	3.45	3.38	3.44	3.54
	(1.45)	(1.53)	(1.35)	(1.46)
Willingness to ask for help	4.11	4.32	4.38	3.65
	(8.01)	(8.31)	(7.25)	(8.46)
Willingness to offer help	7.61	7.66	8.06	7.13
	(12.69)	(12.50)	(12.2)	(13.45)
<i>Spring (outcome)</i>				
Number of people in network	3.14	2.96	3.07	3.39
	(1.48)	(1.52)	(1.50)	(1.42)
Willingness to ask for help	4.91	3.45	5.24	5.94
	(7.56)	(5.55)	(6.87)	(9.49)
Willingness to offer help	8.25	7.27	9.33	8.07
	(11.24)	(10.18)	(11.77)	(11.67)
Child characteristics				
Hispanic (pct)	2.95	2.97	3.96	1.94

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Race

Black/African American (pct)	95.42	93.07	96.08	97.09
White(pct)	0.33	0.00	0.98	0.00
Other	4.25	6.93	2.94	2.91

Attendance Rate

September (pct)	91.35	90.09	92.84	91.10
Fall (pct)	84.22	83.13	86.00	83.53
Winter (pct)	75.95	72.71	78.63	76.49
Spring (pct)	85.16	86.00	85.28	84.20
Full year (pct)	83.59	82.61	84.47	83.67

Number of days enrolled from start of school year	5.05 (9.13)	4.73 (8.72)	5.83 (9.78)	4.59 (7.80)
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Note: T-tests

were conducted comparing the control group to the Geography Only group and the control group to the Geography + Partner group. We did not test significant differences for outcome variables (social capital and attendance). Outcome findings are presented in Table 2 and 3.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.

The effect of social capital intervention in early childhood education program on parents' social capital outcomes

	Number of people in social network			Willingness to ask			Willingness to offer		
	(1) β/(SE)	(2) β/(SE)	(3) β/(SE)	(1) β/(SE)	(2) β/(SE)	(3) β/(SE)	(1) β/(SE)	(2) β/(SE)	(3) β/(SE)
A. Geography Only v. Control ^a	0.007 (0.156)	-0.002 (0.155)	-0.009 (0.154)	0.230* (0.132)	0.241* (0.130)	0.239* (0.134)	0.185 (0.156)	0.214 (0.156)	0.188 (0.154)
B. Geography + Partner v. Control ^b	0.299** (0.150)	0.282* (0.149)	0.248* (0.149)	0.347** (0.153)	0.359** (0.149)	0.357** (0.149)	0.063 (0.156)	0.102 (0.151)	0.106 (0.148)
C. Both Geography Only & Geography + Partner Treatment Groups v. Control ^c	0.143 (0.133)	0.125 (0.131)	0.108 (0.132)	0.273** (0.125)	0.280** (0.121)	0.278** (0.125)	0.114 (0.137)	0.140 (0.133)	0.130 (0.132)
Sample size	<i>n</i> =307	<i>n</i> =290	<i>n</i> =266	<i>n</i> =307	<i>n</i> =290	<i>n</i> =266	<i>n</i> =307	<i>n</i> =290	<i>n</i> =266

Note: Column 1: Include all children who were enrolled at the start of the school year regardless of whether they exited before the end of the year; Column 2: Drop children that exited by March; Column 3: Only include children who were enrolled throughout the entire school year (end of May). Covariates include: parent age, education, and employment, single parent status, income eligibility, household size, parent relationship to child, parents' self-efficacy, loneliness, and psychological distress, child race, children's baseline attendance in September, and number of days child entered school after the first day of school. We also included the parents' baseline social capital score (e.g., for willingness to ask in the spring, we control for willingness to ask in the fall).

^a The sample size for the analysis that only compared the Geography Only treatment group to the control group included 204 parents in Column 1, 193 parents in Column 2 and 178 parents in Column 3.

^b The sample size for the analysis that only compared the Geography + Partner treatment group to the control group included 204 parents in Column 1, 193 parents in Column 2 and 175 parents in Column 3.

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^c This set of models treats the Geography Only and Geography + Partner group as one treatment group and compares the effect on social capital to the control group

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.

The effect of a social capital intervention in Head Start on children's attendance in the fall, winter, spring, and across the full year

	n	(1) β/(SE)	n	(2) β/(SE)
A. Geography Only v. Control				
Fall	204	0.041* (0.022)	178	0.024 (0.020)
Winter	193	0.061* (0.032)	178	0.047* (0.028)
Spring	178	-0.002 (0.023)	178	-0.002 (0.023)
Full year	178	0.021 (0.020)	178	0.021 (0.020)
B. Geography + Partner v. Control				
Fall	204	0.004 (0.024)	175	0.000 (0.022)
Winter	193	0.044 (0.028)	175	0.053** (0.023)
Spring	175	-0.007 (0.023)	175	-0.007 (0.023)
Full year	175	0.013 (0.019)	175	0.013 (0.019)
C. Both Geography Only & Geography + Partner Treatment Groups v. Control				
Fall	307	0.020 (0.020)	266	0.010 (0.018)
Winter	290	0.051** (0.024)	266	0.048** (0.021)
Spring	266	-0.005 (0.020)	266	-0.005 (0.020)
Full year	266	0.015 (0.017)	266	0.015 (0.017)

Note: Column 1: Include all children who were enrolled at the end of the season; Column 2:

Only include children who were enrolled throughout the entire school year (end of May). Covariates include: parent age, education, and employment, single parent status, income eligibility, household size, parent relationship to child, parents' self-efficacy, loneliness, and psychological distress, child race, children's baseline attendance in September, and number of days child entered school after the first day of school. Full year attendance includes average monthly attendance from October to May.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

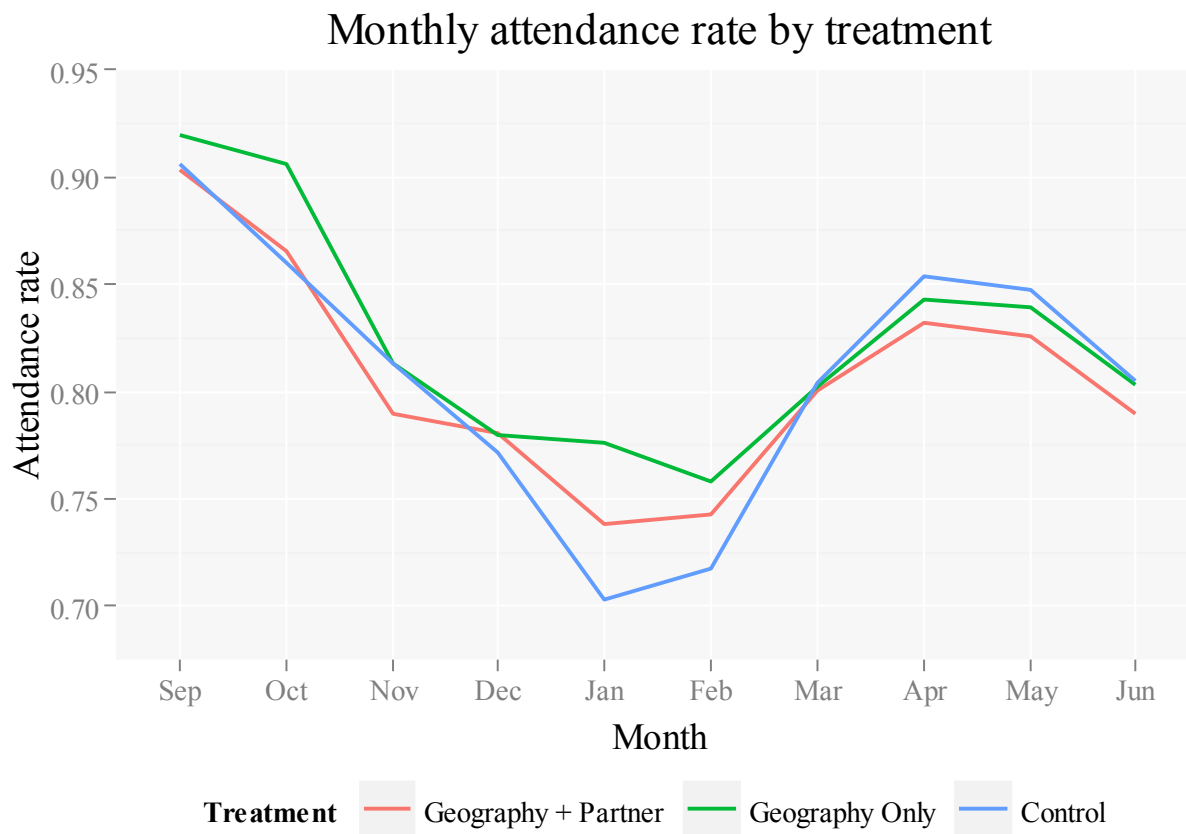


Figure 1. Children's attendance from September through June based on treatment assignment

Appendix Table 1.

Comparison of characteristics between the non-eligible sample (n=85) versus the analytic sample (n=307)

	Analytic Sample			Non-Eligible Sample		
	n	M(%)	SD	n	M(%)	SD
Parent demographics and baseline psychological wellbeing						
Age (in years)	247	29.80	(6.95)	63	28.83	(7.56)
Male (pct)	245	2.86		61	0.00	
Single-parent (pct)	249	75.10		63	79.37	
Household size	249	3.64	(1.50)	63	3.95	(1.72)
<i>Education</i>	248			63		
Less than high school (pct)		22.18			7.94**	
High school or GED (pct)		54.44			71.43**	
Associate, vocational school, or some college (pct)		19.76			19.05	
Bachelor's or above (pct)		3.63			1.59	
<i>Head Start Eligibility</i>	239			56		
Foster child (pct)		1.26			3.57	
Homeless (pct)		3.35			3.57	
Public assistance (pct)		41.42			44.64	
Income (pct)		53.97			48.21	
<i>Employment</i>	248			63		
Not employed (pct)		58.47			66.67	
Part-time (pct)		14.92			14.29	
Full-time (pct)		26.61			19.05	
<i>Relationship to child</i>	184			61		
Mother (natural/step/adopted) (pct)		96.74			91.80	
Father (natural/step/adopted) (pct)		2.17			0.00	
Foster parent/other (pct)		1.09			8.20***	
<i>Psychological wellbeing</i>						
Self-efficacy	223	3.00	(0.55)	15	2.93	(0.65)
Loneliness	224	1.42	(0.47)	15	1.49	(0.56)
Psychological distress	223	2.15	(0.72)	15	2.26	(1.09)
Parents' social capital						

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<i>Baseline</i>						
Number of people in network	224	3.45	(1.45)	15	3.27	(1.49)
Willingness to ask for help	224	4.11	(8.01)	15	7.53	(9.28)
Willingness to offer help	224	7.61	(12.69)	15	11.60	(16.14)
<i>Outcome</i>						
Number of people in network	245	3.14	(1.48)	77	2.99	(1.47)
Willingness to ask for help	245	4.91	(7.56)	77	6.22	(10.70)
Willingness to offer help	245	8.25	(11.24)	77	9.87	(13.63)
Child characteristics						
Hispanic (pct)	305	2.95		85	2.35	
<i>Race</i>						
	306			85		
Black/African American (pct)		95.42			98.82	
White (pct)		0.33			0.00	
Other		4.25			1.18	
<i>Attendance Rate</i>						
September (pct)	285	91.35		28	90.76	
Fall (pct)	305	84.22		31	84.15	
Winter (pct)	290	75.95		40	74.50	
Spring (pct)	266	85.16		60	88.22	
Entire year (pct)	248	83.59		26	81.44	
Number of days enrolled from start of school year	307	5.05	(9.13)	85	137.02***	(126.43)

Note: T-test comparisons were conducted between the participants who were not eligible for the current study but included in the randomization versus the analytic sample (n=307)

* p<0.10, ** p<0.05, *** p<0.01

Appendix Table 2.

Comparison between exiters (n=41) and non-exiters (n=266)

	Exiters (n=41)			Non-Exiters (n=266)		
	n	M(%)	SD	n	M(%)	SD
Parent demographics and baseline psychological wellbeing						
Age (in years)	35	31.16	(9.44)	212	29.57	(6.44)
Male (pct)	35	2.86		210	3.86	
Single-parent (pct)	36	80.56		213	74.18	
Household size	36	3.89	(1.53)	213	3.60	(1.49)
<i>Education</i>	36			212		
Less than high school (pct)		41.67***			18.87	
High school or GED (pct)		47.22			55.66	
Associate, vocational school, or some college (pct)		11.11			21.23	
Bachelor's or above (pct)		0.00			4.25	
<i>Head Start Eligibility</i>	33			206		
Foster child (pct)		3.03			0.97	
Homeless (pct)		12.12***			1.94	
Public assistance (pct)		42.42			42.26	
Income (pct)		42.42			55.83	
<i>Employment</i>	36			212		
Not employed (pct)		61.11			58.02	
Part-time (pct)		19.44			14.15	
Full-time (pct)		19.44			27.83	
<i>Relationship to child</i>	26			158		
Mother (natural/step/adopted) (pct)		92.31			97.74	
Father (natural/step/adopted) (pct)		3.85			1.90	
Foster parent/ other (pct)		3.85			0.63	
<i>Psychological wellbeing</i>						
Self-efficacy	41	2.97	(0.52)	182	3.01	(0.56)
Loneliness	41	1.53*	(0.50)	183	1.39	(0.46)
Psychological distress	41	2.38**	(0.70)	182	2.10	(0.72)
Parents' social capital (baseline)						
Number of people in network	41	3.15	(1.51)	183	3.52	(1.43)
Willingness to ask for help	41	2.07*	(4.34)	183	4.57	(8.56)
Willingness to offer help	41	4.98	(10.83)	183	8.20	(13.03)

Child characteristics

Hispanic (pct)	39	5.13	266	2.63
<i>Race</i>			266	
Black/African American (pct)	40	85.00***		97.00
White(pct)		0.00		0.38
Other		15.00***		2.63
September attendance rate	37	86.60**	248	96.99
Number of days enrolled from start of school year	41	7.07 (10.34)	266	4.74 (8.91)

Note: Our sample for the child attendance outcomes varies based on the season, with 307 children for fall attendance outcomes (Oct-Nov), 290 children for winter attendance outcomes (Dec-Feb), and 266 for spring attendance outcomes (March-May). T-test comparisons were conducted between the non-exiters (n=266) and children who had exited by the winter or spring (n=41).

* p<0.10, ** p<0.05, *** p<0.01

Appendix Table 3.

The effect of social capital intervention in early childhood education program on parents' social capital outcomes, non-imputed sample

	Number of people in social network	Willingness to ask	Willingness to offer
	β /(SE)	β /(SE)	β /(SE)
A. Geography Only v. Control ^a	-0.014 (0.155)	0.231* (0.133)	0.218 (0.158)
B. Geography + Partner v. Control ^b	0.274* (0.148)	0.344** (0.153)	0.135 (0.148)
C. Both Geography Only & Geography + Partner Treatment Groups v. Control ^c	0.117 (0.132)	0.264** (0.128)	0.159 (0.134)
Sample size	<i>n</i> =245	<i>n</i> =245	<i>n</i> =245

Note: Covariates include: parent age, education, and employment, single parent status, income eligibility, household size, parent relationship to child, parents' self-efficacy, loneliness, and psychological distress, child race, children's baseline attendance in September, and number of days child entered school after the first day of school. We also included the parents' baseline social capital score (e.g., for willingness to ask in the spring, we control for willingness to ask in the fall).

^a The sample size for the analysis that only compared the Geography Only treatment group to the control group included 162 parents

^b The sample size for the analysis that only compared the Geography + Partner treatment group to the control group included 161 parents

^c This set of models treats the Geography Only and Geography + Partner group as one treatment group and compares the effect on social capital to the control group

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$