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Children's Early Child Care and their Mothers' Later Involvement with Schools

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Abstract

Theory and policy highlight the role of child care in preparing children for the transition into school. Approaching this issue in a different way, this study investigated whether children's care experiences before this transition promoted their mothers' school involvement after it, with the hypothesized mechanism for this link being the cultivation of children's social and academic skills. Analyses of 1,352 children (1 month-6 years) and parents in the NICHD Study of Early Child Care and Youth Development revealed that mothers were more involved at their children's schools when children had prior histories of high quality non-parental care. This pattern, which was fairly stable across levels of maternal education and employment, was mediated by children's academic skills and home environments.

Child- and family-focused policies are increasingly targeting children's transitions into formal schooling, generating a great deal of research by developmentalists in the process (see Pianta, Cox, & Snow, 2007). On the pre-transition side, a primary focus has been on the potential for early child care, particularly pre-school, to promote school readiness, as exemplified by Head Start, Early Head Start, and Universal Pre-K (Love et al., 2005; Ludwig & Phillips, 2007; Zigler, Gilliam, & Jones, 2006). On the post-transition side, attention has been paid to, among other things, transactions between homes and schools, as reflected in the parental involvement provision of No Child Left Behind (Epstein, 2005; Pomerantz., Moorman, & Litwack, 2007). Moving forward, efforts to synthesize key empirical literatures and associated conceptual models on both sides of this school transition can advance theoretical understanding of this critical period in development and education with payoffs for policy intervention.

In line with these theoretical and applied goals, we integrate theories about child care effects (Jaeger & Weinraub, 1990) and family-school connections (Lareau, 2004) to investigate the degree to which the experiences of American children in non-parental care in the years prior to the transition into elementary school have implications for their parents' interactions with school personnel after this transition. Our hypothesis is that children's emerging social and academic skills—shaped, in part, by their child care histories and then eliciting, in part, more involvement from their parents—will be a mechanism of this phenomenon. If true, then quality child care would represent a double advantage in the long run, with children who are more school-ready having parents who also are more likely to engage in the kind of

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"visible" school-focused parenting that is rewarded by American elementary schools (Clarke-Stewart & Allhusen, 2005; Fuller, 2007). Such a double advantage, in turn, is likely to be connected to other striking trends among American families. Increasing levels of education and labor force participation among mothers (Waldfogel, 2006), we argue, should moderate observed child care and child effects on parents. This general conceptual model of early child care, child development, and parental involvement at school will be examined with longitudinal survey and observational data from the NICHD Study of Early Child Care and Youth Development (SECCYD).

Theory, Policy, and Two Sides of the Transition into Formal Schooling

In 1988, Alexander and Entwisle published an influential monograph for SRCD that laid out why the transition into elementary school is a critical period in children's educational careers and, more generally, in socioeconomic and racial disparities in educational attainment. In short, their argument was that *how* this transition unfolds can establish children's positions in the highly stratified and cumulative curricular pipeline that characterizes contemporary American education. Consequently, small initial differences in learning and achievement between children and between child groups often—although not invariably—widen into larger differences by the end of elementary school (see also Alexander, Enwtisle, & Olsen, 2007; Entwisle, Alexander, & Olsen, 2005). Importantly, they conceptualized the role of the transition into school in societal inequality as a developmental process as much as an educational one, emphasizing children's own developing traits, characteristics, and relationships as well as the evolving transactions between the major ecological systems (i.e., family, pre-school, school) of their young lives. Two large bodies of empirical and theoretical activity align with this view of the transition into elementary school as a critical period for children and society at large, one focusing on the years preceding the transition and one focusing on the years subsequent to this transition.

First, a growing consensus from community-based, multi-state, and national studies suggests that children are more prepared for the academic challenges they face at the start of school when they have more experience in high-quality non-parental child care settings (Clarke-Stewart & Allhusen, 2005). Specifically, children who are exposed in moderate amounts to non-parental child care (especially center-based) characterized by socioemotional security, intellectual stimulation, and structured learning typically outscore other children (e.g., those in parental care only, those in lower-quality non-parental care) on cognitive tests as they approach school entry (Lamb & Ahnert, 2006; Magnuson, Meyers, Ruhm, & Waldfogel, 2004a; NICHD Early Child Care Research Network [ECCRN], 2005a; Peisner-Feinberg et al., 2003).

Second, schools often differentially reward parents' strategies for shepherding children into and through elementary school (Lareau, 2004, 1989). Indeed, parents who maintain a more visible or active presence at school (e.g., making connections to teachers or others in or around school) can accrue opportunities for their children by gaining inside information about how schools work, conveying messages to school personnel about what they want for children, and demonstrating that they are prepared to advocate for their children (Bodovski & Farkas, 2008; Hoover-Dempsey & Sadler, 1997; Pomerantz et al. 2007; Raver, Gershoff, & Aber, 2007). Although these actions do not necessarily reflect greater valuing of education among the parents who perform them compared to others, they do appear to give their children a competitive edge in schools that are often organized around such White, middle class models of family-school relations (Lareau, 2004). Thus, school-based forms of involvement, including interactions with teachers and participation in school activities and networks, likely do more to stratify children in school than other forms of parental involvement in education, including home-based strategies.

Integrating Perspectives on Both Sides of the School Transition

Of course, children's care prior to school entry and the parenting they receive before and after school entry are not disconnected from each other. Indeed, Head Start targets the potential link between the two (Puma et al., 2010). This link may be especially strong among mothers, who tend to maintain primary responsibility for children's care and schooling despite significant changes in gender roles and work patterns in recent decades (Sayer, Bianchi, & Robinson, 2004).

For example, mothers whose children are in high quality non-maternal care seem to organize their homes in more cognitively stimulating ways and develop more knowledge about parenting practices linked to child well-being (Benasich, Brooks-Gunn, & Clewell, 1992; McCartney, Dearing, & Bub, 2007; NICHD EECRN, 1999). The correlation between home characteristics and child care quality could indicate that competent parents select quality child care, but it could also represent child care effects on parenting (Jaeger & Weinraub, 1990), which could extend to child care effects on parenting after children enter school. To the extent that many mothers view early child care (especially center care in the post-toddler years) as an organizational precursor to formal schooling (Fuller, 2007), the behaviors that they enact in school settings may reflect their accumulated experiences in child care settings.

If children's early care experiences are linked to their mothers' later school involvement, what are the underlying mechanisms? Most research on child care effects on *parents* is implicitly organized by the view that care providers, especially in centers, socialize parents. In short, they can informally and formally "train" parents to coordinate and interact with adults "in charge" of their children through counseling, discussions, and programs (Bowman, 1997). This model of parental behavior could carry over to dealings with teachers or other school actors. Similarly, caregivers can socialize parents into more active roles supporting learning at home as a means of supplementing what is going on in the care setting (and, then, later in school). This possibility has been implicated in previous reports of associations between child care quality and improvements in parents' organization of the home environment (McCartney et al., 2007).

Although important, such *adult-focused* mechanisms for child care effects on parents' school involvement may obscure a *child-focused* mechanism. Basically, the social and academic skills children develop in early care may influence parents' orientations towards participating in, guiding, and managing their experiences and activities (Clarke-Stewart & Allhusen, 2005).

This perspective was perhaps best articulated by Jaeger and Weinraub (1990). Although not concerned with education *per se*, they argued that high quality child care promotes positive development, which then facilitates mother-child attachment security with subsequent benefits for children. This attachment pattern could point to something similar for parents' school-based involvement. Although some parents get more involved at school in response to children's academic or behavioral problems, a more common trend is for more academically capable and enthusiastic children and youth to engage their parents in the schooling process, including connecting their parents to school personnel and drawing them into school activities (Cooper & Crosnoe, 2007; Eccles & Harold, 1993; Stevenson & Baker, 1987), Thus, high quality care may promote the school readiness of children, and parents may be more motivated to get involved in schools or to be recruited for involvement by schools when their children are more school-ready.

Such a child-focused perspective leads to the conceptual model of this study (see Figure 1). In this model, the link between mothers' use of high quality early child care and their later

school-based involvement—conceptualized as mother-teacher contact and mothers' engagement in the school community—is mediated by children's social and academic skills.

The Potential Significance of Socioeconomic Status

The socioeconomic positions of women have changed considerably in recent decades as they have increased their educational attainment and labor force participation (Bianchi, 2000; Buchman, Diprete, & McDaniel, 2008). In this study, maternal education and work are viewed as contexts in which high quality child care, children's social and academic skills, and mothers' school-based involvement connect. Our expectation is that these connections will be *stronger* among women with less education and who are outside the paid labor force even if such women are *less likely* to secure quality child care or to be involved in their children's schools overall. This expectation is based on an empirically supported argument by Cooper and Crosnoe (2007) that the role of motivated, engaged children in eliciting school-based involvement from their parents is weaker in families with many factors supporting their presence at school (e.g., middle class families). In other words, when the circumstances of parents' lives facilitate their active presence in children's schools, their school-based involvement is less dependent on their children's characteristics. When the circumstances of parents' lives are less facilitative, their school-based involvement will be more strongly linked to their children's experiences.

According to Lareau (2004), mothers at the higher end of the socioeconomic distribution are socialized into a general schema of parenting involving the purposeful orchestration of children's skills and opportunities through their management of and advocacy for children in formal organizations. As a result, women with more education tend to have access to higher-quality child care and have more face-to-face interaction with schools. Their children also tend to demonstrate more rapid development of cognitive and socioemotional skills in the years prior to school (Augustine, Cavanagh, & Crosnoe, 2009; Baker & Stevenson, 1986; Davis-Kean, 2005). Similarly, women who work outside the home have greater need for non-maternal child care and have wages that can theoretically buy higher-quality care (Gordon & Högnäs, 2006; Waldfogel, 2006). Moreover, despite assumptions that women in the paid labor force will have less time to commit to the school-based involvement behaviors that American schools tend to reward, paid work can connect women to social networks and norms that facilitate active engagement with formal organizations, including schools (Muller, 1995). Thus, women with more education and participation in paid labor may be primed for a more visible model of family-school relations, regardless of their past experiences with child care. As such, high quality care and children's associated social and academic skills will likely make less of a difference for the school-based involvement of these mothers than it will for mothers with other education/employment profiles.

In sum, the conceptual model (Figure 1) of this study leads to a pair of hypotheses: (a) use of high quality child care, especially center-based care, will predict two forms of maternal involvement in children's elementary schools (contact with teachers, participation in school community), especially for mothers with relatively low levels of education and/or labor market experience; (b) the increased social and academic skill development of children will help to explain any observed links between early child care and later maternal involvement.

Method

Data

The SECCYD has followed children from birth through high school (http://www.nichd.nih.gov/research/supported/seccyd/overview.cfm). Data collection began in 1991 when families were recruited from hospitals located in or near ten U.S. cities: Little

Rock, AR; Irvine, CA; Lawrence, KS; Boston, MA; Philadelphia, PA; Pittsburgh, PA; Charlottesville, VA; Morganton, NC; Seattle, WA; and Madison, WI. During selected hour sampling periods, 8,986 women were visited in the hospital after giving birth to determine eligibility for the study (mother at least 18 years old and conversant in English, infant a healthy singleton, family not planning to move in next year) and willingness to participate. A month after the target infants' births, 1,364 families were enrolled, resulting in a multi-state (but not representative) sample of children that was economically and geographically diverse. The collection of data from parents, children, and other adults (e.g., child-care providers, teachers) in home, laboratory playroom, child care, and school visits proceeded in several stages—1 month, 6 months, 15 months, 24 months, 36 months, 54 months, kindergarten, 1st grade, 3rd grade, 5th grade, 6th grade, 9th grade—and is ongoing.

The present study drew on data from the 1 month through kindergarten data collections of the SECCYD. Of the children who began the SECCYD at birth, 12 were excluded from this particular study because, by kindergarten, their mothers were no longer their primary caregivers, leaving an analytical sample of 1,352.

Focal Measures

Maternal involvement in kindergarten—The SECCYD collected data on multiple forms of maternal involvement in education, including measures to operationalize the two key conceptualizations of school-based involvement in our model; specifically, mothers' presence at school and within the school community (Hoover-Dempsey & Sandler, 1997; Pomerantz et al., 2007). In the kindergarten data collection, teachers assessed the extent to which they had six forms of contact with mothers (1 = *not often*, 2 = *sometimes*, 3 = *most of the time*), including mothers' school visits, written or telephone contacts, and mothers' involvement in classroom activities. Responses were summed (6–18, $\alpha = .66$) to measure mother-teacher contact. In the same data collection, mothers reported whether (1 = *yes*) they had engaged in seven activities at or around school or with other people linked to the school, including attending open house events at school and going to the homes of the parents of their children's classmates. Again, responses were summed (0 – 7; $\alpha = .69$) to measure maternal engagement in the school community. The two maternal involvement measures were correlated at a magnitude of .25.

Child care characteristics—At the 6, 15, 24, 36, and 54 month data collections, parents reported on who provided child care and where. Following SECCYD conventions (NICHD ECCRN, 2005a), we focused on primary arrangements. We created a binary measure of whether a child's primary arrangement at 54 months was center care (1) or another arrangement (0) and then a five-point continuous measure of spells in center care since birth, which was the sum of each reported incidence in center care across the five major data collections.

The quality of the primary care arrangement was measured at major data collections by the Observational Rating of the Caregiving Environment (ORCE) (NICHD EECRN, 2005b). Observations of children and caregivers were conducted by trained personnel for 44 minutes over two cycles. Ratings (1 = *not at all characteristic* to 4 = *highly characteristic*) of fostering exploration, sensitivity, intrusion, detachment, stimulation, and positive regard were averaged into a total quality composite (α ranging from .70–.86) with low levels of skewness. We focused on the 54 month total quality measure as well as a measure of spells in high quality care, which was created by summing the number of times children were in high quality care (care above the quality mean for that assessment period) across the five major data collections. For both measures, children in sole maternal care were coded as 0. When examined in conjunction with binary markers of sole maternal care at 54 months and

at all major data collections, the quality measures effectively served as interactions, gauging quality for children in non-maternal care.

To account for exposure to center care or high quality care, measures of hours in care at 54 months and from birth through 54 months were created with maternal reports of the amount of time per week that children spent in their primary non-maternal care arrangement at each major data collection. Again, children in a maternal care arrangement were coded as 0.

Maternal education and employment—Mothers' reports of the total number of years of education they had received and their highest level of degree attainment at the 1 month interview were sorted into a set of five dummy variables (*less than high school*, *high school graduate*, *some college*, *college graduate*, *graduate work or degree*). Mothers also regularly reported whether they were employed for pay and, if so, the number of hours they worked per week. A set of three dummy variables was created for maternal employment at 54 months. Following convention with this sample (NICHD EECRN, 2005a), mothers working less than 10 hours per week were coded unemployed, those working 10–30 hours per week were coded part-time workers, and those working 30+ hours per week were coded full-time workers. A measure of maternal employment history was the sum of the number of times mothers reported being employed across the five major data collections. To address omitted variable bias related to the potential for child care to affect mothers' socioeconomic circumstances (Bub & McCartney, 2005), a family income to needs ratio from the kindergarten data collection was analyzed alongside the maternal education and employment variables. Maternal reports of all sources of household income were divided by the federal poverty threshold for the family's household size to arrive at this ratio.

Children's preschool skills—In the conceptual model, children's social and academic skills were viewed as mediators of the link between children's early care experiences and mothers' later school-based involvement. Social skills were measured at 54 months by the Social Skills Rating System (Gresham & Elliot, 1991), which included 38 mother-reported items on the frequency of specific behaviors (e.g., sharing, initiating relationships). Responses, which ranged from 0 (*never*) to 2 (*very often*), were grouped into four subscales (cooperation, assertion, responsibility, self-control) and summed. The composite was created by summing the subscales and centering on a mean of 100 ($\alpha = .87$). For academic skills, we used 54 month scores on two subtests of the *Woodcock-Johnson Psycho-Educational Battery-Revised* (WJ-R; see Woodcock, McGrew, & Mather, 2001): Applied Problems (math) and Letter-Word Identification (reading). For each subtest, standardized scores were used, with means centered on a value of 100. The items used to create both subtests had high internal reliability ($\alpha = .84$ for both). Because scores for the Applied Problems and Letter-Word subtests were highly correlated, individual scores were averaged to create an overall index of children's achievement (see Hamre & Pianta, 2005).

Indicators of caregiver socialization of parents—Although our theoretical focus was on child skills as mediators of the link between children's early care experiences and mothers' later school-based involvement, we also recognized that the socialization role of early care providers described earlier posed a credible alternative explanation for this link. As a proxy for this role, therefore, mothers' relations with their children's care providers just before the children entered school were measured. During the 54 month home visit, mothers using non-relative child care for at least 8 hours per week responded to 10 questions (e.g., "I feel comfortable talking with my caregiver about my child") intended to gauge whether they had engaged and cooperative relationships with their children's primary caregivers. Responses, which ranged from 1 (*strongly disagree*) to 5 (*strongly agree*), were summed ($\alpha = .88$). Children in familial care were again coded as 0, and models that employed this variable included a binary marker of nonfamilial care. Given evidence that experience with

high quality child care predicts improvements in parents' organization of the home and the interpretation that this association might reflect caregivers' influences on parents (McCartney et al., 2007), an additional indicator of the caregiver socialization mechanism was created with the Home Observation of Measurement of the Environment (HOME; Bradley & Caldwell, 1979) at 54 months. The HOME included observations and maternal interviews to assess how parents interacted with children and structured the home environment. The total score was used ($\alpha = .82$).

Covariates—A large number of maternal, family, and child characteristics were also measured. The Appendix contains descriptions of these variables. How and why they were used will be discussed in subsequent sections.

Analysis Plan

The purpose of this study was to estimate associations between children's early care experiences and mothers' later school-based involvement and then gauge whether these associations were mediated by children's social and academic skills and/or moderated by mothers' educational and work statuses. Clearly, testing these hypotheses is complicated by selection effects; some factors could contribute to both child care and maternal school-based involvement in ways that create the false impression of links between them. Several strategies were used to pursue these goals. Borrowing from approaches more common in demography and educational research (Crosnoe, 2009; Frisco, Muller, & Frank, 2007), we coupled propensity score weighting in a regression framework with post-hoc robustness indices. This multi-pronged approach allowed for both observed and unobserved confounds to be addressed, relaxed assumptions about linearity and homogenous effects, and simplified the presentation of results. Because this approach might be less familiar to developmentalists than OLS regression, path modeling, or propensity score matching, we also ran several methodological checks. These checks will be described shortly, but the bottom line was that few differences were detected.

First, we created propensity scores based on covariates indexing the likelihood that mothers placed children in particular care arrangements. Logistic regressions were estimated to predict two binary outcomes: center care at 54 months, high quality care at 54 months. Ordinal logistic regressions were estimated to predict two ordinal outcomes: total number of spells in center care from birth through 54 months (0–5), total number of spells in high quality care from birth through 54 months (0–5). The predictors of these four "treatment groups" were selected based on two SECCYD studies identifying predictors of non-maternal care in infancy and at 24 and 36 months (NICHD EECRN, 1997; Technical Report 203 on study website). According to these studies, specific mother (e.g., education, age at birth, beliefs about benefits/costs of employment, separation anxiety), child (e.g., gender, attachment, health), and family/partner (e.g., family structure, income, partner education) characteristics must be taken into account when studying child care use. The Appendix describes these variables.

Second, the predicted probabilities from these four models then served as propensity scores (one for each "treatment group"), which, as we describe shortly, were transformed into model weights. Conventionally, propensity scores are used to match cases, with mean levels of some outcome compared across groups with different "treatment" statuses (e.g., in center care or not) but similar propensities to be in the treatment. Although familiar to diverse audiences and straightforward in interpretation, matching often results in a loss of large numbers of unmatchable cases, does not easily allow interactions between treatment variables and covariates (e.g., child care by maternal education), and essentially relies on a 0/1 weighting scheme which is not well suited for ordinal or "dose-response" data. Using

propensity scores as model weights, however, facilitates the estimation of covariates and interactions and allows for a refined continuous weight that captures dosage levels for the treatments of interest.

To convert propensity scores that are based on a binary treatment (e.g., the logistic regression models) *and* ordered dose-response data into model weights, we drew on the generalized propensity score weighting approach described by Imbens (2000). Similar to our purpose, this approach was used by Dearing and colleagues (2009) as a way of addressing selection into greater dosages of high quality child care. In this approach, model weights were calculated by taking the inverse of the predicted probabilities. The predicted probabilities estimated by ordinal logistic regression corresponded to the dosage of "treatment" that each child actually received. As part of this process, we also checked for and trimmed extreme weights so that no one weight exerted undue influence (Frank et al. 2008; Frisco, Muller, & Frank 2007).

Third, kindergarten maternal involvement scores were regressed on the child care and maternal education/employment factors in a short-term model (with 54-month child care factors) for each of the two outcomes and then a long-term model (with the birth-54 months summary factors) for each of the two outcomes. These four models were estimated without the propensity score weight, and then with the propensity score weights. The two binary-response weights were applied to the short-term models, and the two ordered dose-response weights were applied to the long-term model. After testing models with weights for both child care type and quality, we ultimately retained only the two care quality weights because center care was not a significant predictor of maternal school-based involvement. Additionally, interactions between child care type and quality were estimated (one interaction term per model across four models). Interactions between child care factors (i.e., quality and type) and other maternal factors (i.e., education and employment) were also estimated (a total of 20 interactions across four models, five per model).

Fourth, even with a large number of covariates, coefficients could be affected by omitted or unobserved variables. To address this problem, we calculated the Impact Threshold for Confounding Variables (ITCV), which quantified how much an unobserved confound would have to be correlated with both predictor and outcome to reduce the focal coefficients in our regression to nonsignificance (Frank et al., 2008). In other words, it gauged whether unobserved variables not in the model would likely nullify our estimates. The ITCV was calculated for all significant child care coefficients. The ITCV equation is: $r_{xy} - r^{\#}_{xy}/1 - r^{\#}_{xy}$, where $r^{\#}_{xy} = t/\mathrm{SQRT}[(n - q - 1) + t^2]$, t is the critical t-value, n is the sample size, and q is the number of model parameters. When covariates are included in the model, the equation becomes: $\mathrm{ITCV}_{\text{no covariates}}$ x [SQRT $(1 - R^2_{xg})$ $(1 - R^2_{yg})$], where g is the set of covariates, R^2_{xg} is the R^2 value from a regression predicting the focal independent variable by the covariates, and R^2_{yg} is the R^2 value from a regression predicting the outcome by the covariates.

Fifth, the mediational roles of child skills at 54 months in observed associations between early child care and later maternal school-based involvement were assessed (MacKinnon, Fairchild, & Fritz, 2007). Specifically, we examined the degree to which the child care variables predicted the mediators and the mediators predicted the outcomes, explored changes in the child care coefficients after adding the mediators to the models, and then tested the significance of indirect effects using the Sobel test. The Sobel test is based on the equation: z-value = $ab/\mathrm{SQRT}(b^2 s_a^2 + a^2 s_b^2)$, where a is the coefficient for the association between the predictor and the mediator, b is the coefficient for the association between the mediator and the outcome from a model also containing the predictor, s_a is the standard error

of *a*, and s_b is the standard error of *b* (Sobel, 1982). The *z* value then signifies whether the indirect effect (i.e., the amount of mediation) is statistically significant.

Treatment of missing data—Missing data techniques were employed to retain the full analytical sample of 1,352, including the more than 300 cases who dropped out by kindergarten. All models were estimated in Stata with the ICE program, a sequential regression multivariate imputation program, producing five fully imputed datasets for the entire analytical sample (Royston, 2005). The variables used in the imputation included the focal independent variables, outcomes, covariates, mediators, and predictors of the propensity scores. The micombine function was used to combine the five sets of model coefficients into one set of results. Results from the fully imputed sample were compared to an imputed sample restricted to children remaining in the study at kindergarten. Results revealed few significant differences.

Results

To give a sense of the key characteristics of the analytical sample for this study (see Table 1), 57% of children were in center care at 54 months (89% in any non-maternal care), and the average quality of child care, center or otherwise, was rated by observers as 2.72 on a scale from 1 to 4. Beginning at birth, the average child in the sample spent 1.40 spells (out of 5) in center care and 2.10 spells in high quality care. Over one-third of the mothers of these children had college degrees, and the vast majority were employed (24% part-time, 50% full-time) when their children were 54 months old. Moreover, the average mother had experienced 4.28 spells of employment since their child's birth.

Pre-School Child Care and Later Maternal School-Based Involvement

To test the conceptual model, we first assessed the focal association between early child care and later maternal school-based involvement. Although this association does not necessarily need to be significant for mediation to occur (see MacKinnon et al. 2007), assessing the overall relation between early child care and later maternal school-based involvement is relevant to policy initiatives targeting the nexus of families and schools. To this end, we estimated regression models with the maternal involvement variables in kindergarten as the outcomes, child care type and quality at 54 months as focal predictors, and maternal education/employment as focal covariates, with a few additional covariates (e.g., child care quantity at 54 months, family income to needs at kindergarten) also included. The results of these short-term models revealed few significant associations between child care at 54 months and the outcomes, and so they will be summarized here and not presented in the tables.

The first set of short-term models had teacher-reported mother-teacher contact at kindergarten as the outcome. This model was estimated without a weight and then weighted by the propensity scores cataloging characteristics that predicted whether children were in high-quality care or not (recall that this propensity score was selected as the sole weight for the short-term models after comparison of different weighting techniques). Regardless of whether the model was weighted or unweighted, the focal child care coefficients were non-significant. Moreover, the two child care factors did not significantly interact with each other. To determine whether the focal association between early child care and later maternal school-based involvement might have existed in certain segments of the population defined by maternal education and employment, a final model was estimated with all possible interactions between the child care and maternal education/employment factors. Mothers with more than a high school degree tended to have more contact with teachers when their children were in kindergarten than other mothers, but maternal employment did

not significantly differentiate mothers on mother-teacher contact. As for the interactions, maternal education/employment did not moderate any association between child care factors and mother-teacher contact.

Thus, the degree to which teachers viewed mothers as involved at school did not differ as a function of what kind of child care settings the children were in just before elementary school, regardless of maternal education and employment. The results were basically the same when mother-reported maternal engagement in the school community in kindergarten replaced teacher-reported mother-teacher contact at kindergarten as the outcome.

Child Care History and Later Maternal School-Based Involvement

The analyses described so far had a narrow time frame, considering that child care and maternal education/employment were measured at 54 months and maternal school-based involvement was assessed a year or so later. To expand the time frame, we considered child care and maternal employment histories from children's births through their 54th month of life. The results of these long-term models revealed different patterns than the short-term models just discussed. Tables 2 and 3 present the results of these long-term models.

Beginning with mother-teacher contact (Table 2), each additional spell of high quality care (defined by a quality rating above the mean for that assessment period) that children experienced from birth through 54 months was associated with a .22 increase (8% of a standard deviation) in mother-teacher contact when children were in kindergarten (see Model 1). This association occurred net of controls for maternal education and employment at 54 months, family income to needs at kindergarten, and child care quantity (averaged across five data collections). No such pattern was found for spells in center care from birth through 54 months. Model 2 was weighted by a propensity score cataloging the maternal, child, and family characteristics differentiating children in different sequences of child care quality from birth through 54 months. Weighting the model in this way reduced (by about 23%) the coefficient for spells in high quality care, although it remained statistically significant ($p < .05$). As seen in Models 3 and 4 in Table 2, spells in center care and spells in high quality care from birth through 54 months did not interact with each other or with maternal education or employment.

To assess the robustness of this finding, the ITCV was calculated for the child care quality coefficient in Model 2 of Table 2. The value, .26, indicated that some unobserved confound (e.g., a heritable genetic trait, a district policy) would have to be correlated with spells in high quality care at .51 or higher *and* be correlated with mother-teacher contact at .51 or higher if its measurement and inclusion in Model 2 were to reduce the child care coefficient in that model to non-significance. This threshold was too high for any of the many SECCYD variables we tested. This ITCV value, therefore, supports a moderate degree of confidence in causal inferences.

Results were similar when mother-reported engagement in the school community at kindergarten was the outcome (Table 3). Spells in high quality care had a small but significant association (11% of a standard deviation) with maternal engagement that was somewhat reduced by propensity score weighting but remained significant. The ITCV for this coefficient was .24, indicating that some unobserved confound would have to be correlated with both spells in high quality care and mother-reported maternal engagement in the school community at .49 or greater to undermine any causal inference based on the high quality child care coefficient in Model 2.

Model 4 in Table 3 included the interactions between the two child care factors and the maternal education/employment factors. Spells in high quality child care from birth through

54 months marginally interacted with maternal education to predict maternal engagement in the school community when children were in kindergarten. Spells in high quality care appeared to be more strongly associated with maternal engagement as reported by mothers without high school degrees (the reference category) than by those with some college experience or college degrees. These two interaction terms, however, just missed conventional levels of statistical significance. Thus, a history of having children in high quality child care from birth through the preschool years appeared to be generally important to mothers' perceptions of their engagement in their kindergarten-aged children's school communities, with some slight indication that this pattern could possibly be more pronounced among less educated mothers.

Mediators of Links between Child Care and Maternal School-Based Involvement

The focal link in our conceptual model—between early child care and later maternal involvement at school—was established for one aspect of care: number of spells that children spent in high quality care from birth through 54 months. To explore the hypothesized child-focused mechanism of this child care "effect", measures of children's social skills and academic skills at 54 months were incorporated into our model. Recall also that we wanted to test this child-focused mechanism alongside indicators of the adult-focused mechanism concerning caregiver socialization of parents. Thus, measures of mothers' relationships with children's caregivers at 54 months and of the home environment at 54 months were also analyzed.

When mother-teacher contact was the outcome, two of the four possible mediators did not meet the initial requirements of mediation, namely that they were not significantly predicted by spells in high quality care between birth and 54 months and/or they did not significantly predict mother-teacher contact in kindergarten. These factors—children's social skills and mother-caregiver relationships at 54 months—were dropped from subsequent analyses. The two remaining factors eventually met all of the requirements of mediation.

Both children's academic skills and quality of the home environment at 54 months were significantly predicted by spells in high quality child care (results not shown), and, in turn, they significantly predicted mother-teacher contact. As a result, we added these two measures to the propensity score weighted model together (Model 5 in Table 2). The coefficients for both were statistically significant, but the standardized value for home environment more than tripled the standardized value for children's academic skills. The inclusion of these two variables attenuated the coefficient for spells in high quality care by 41% (compare Model 5 to Model 2).

Calculations of the Sobel (1982) test indicated that both of these indirect effects were statistically significant ($p < .001$). Children's academic skills accounted for about 21% of the indirect effect, with a Sobel z score of 7.94. Quality of the home environment accounted for about 42% of the indirect effect, with a Sobel z score of 10.77. Thus, children's academic skills appeared to partially mediate the associations between children's time in high quality child care from birth through 54 months and their mothers' later contact with elementary school teachers (as reported by teachers), but an indicator of the adult-focused mechanism—quality of the home environment in the preschool years—appeared to be a more important mediator than this indicator of the child-focused mechanism.

This meditational pattern, however, was less pronounced in models of maternal engagement in the school community (see Model 5 in Table 3). Children's social skills at 54 months met some initial requirements of mediation, but they did not significantly predict the outcome once the 54 month home environment measure was also included in the model. The home environment measure significantly predicted the outcome, but its inclusion only slightly

attenuated the previously observed coefficient for spells in high quality care (compare Model 5 to Model 2). The Sobel test indicated that this indirect effect was significant (z = 8.91, $p < .001$). Thus, these analyses revealed no evidence of the child-focused mechanism underlying links between spells in high quality care and mothers' later participation in school communities but some evidence of the adult-focused mechanism.

Sensitivity Analyses

The analyses described above involved numerous decisions about measurement, variable inclusion, and modeling strategy. As a means of gauging the degree to which the results presented in Tables 2–3 would be robust to alternate approaches, we conducted a large number of sensitivity tests, which revealed a high degree of consistency in the focal results.

First, because propensity score weighting is relatively uncommon in developmental research, we repeated the analyses with a more conventional approach—treating the maternal, child, and family characteristics cataloged in the propensity scores as covariates in the regression models. Any variables that at least marginally ($p < .10$) predicted either mother-teacher contact or maternal engagement in the school community were retained as independent variables (alongside the child care maternal education/employment, and income factors) in the final models for each outcome. This reduced set of covariates included age at birth, child race, an attitudinal measure of mothers' beliefs about the benefits of maternal employment, child birth order, mean family income, family structure instability, and study site. The results from these unweighted models with covariates were slightly stronger than the results of the models weighted by propensity scores, suggesting that propensity score weighting may have provided a more conservative strategy for making conclusions about causal inference in this case. Yet, differences between the two strategies were by no means great. Indeed, the difference in coefficients for the spells in high quality care variable between the two strategies was only .02 for mother-teacher contact and .01 for maternal engagement in the school community.

Second, summing different items into single scales of maternal school-based involvement could have obscured some links between early child care and mothers' activities at school. Consequently, we estimated models with each item level variable that went into creating the maternal school-based involvement scales as outcomes. In other words, we estimated six models for mother-teacher contact in kindergarten and eight models for maternal engagement in the school community in kindergarten. For mother-teacher contact, spells in high quality care was most strongly associated with mothers visiting the school at least once (b = .21, $p < .05$). For maternal engagement in the school community, spells in high quality care was most strongly associated with mothers attending a parents meeting (b = .17, $p < .01$).

Third, associations between spells of high quality care from birth through 54 months and mothers' school-based involvement could have varied according to *sequences* of child care use since birth. To test this possibility, we created a number of categorical measures. Once children entered center care, they did not usually exit for another type of care, and so center care patterns were coded as *never*, *sequential*, *erratic*, or *only at 54 months*. Children in these categories did not differ in levels of maternal school-based involvement when they were in kindergarten.

Children's experiences in high quality care were much more varied, resulting in seven sequences (*sequential from 54 months backward, mostly high quality care since birth but not perfectly sequential, only once in high quality care, once in high quality care at 54 months, high quality care concentrated during infancy, erratic with two spells of high quality care, erratic with three spells of high quality care*, and *never*). Adding these

categorical measures to the model revealed that *number* of spells of high quality care was more important to maternal school-based involvement in kindergarten than their *timing* or *sequence*. Experiences of sequential care, mostly high quality care, and, interestingly, erratic care for three-plus spells were significantly associated with greater mother-teacher contact compared to no experiences in high quality care. Lastly, experiences of sequential care or mostly high quality care were significantly associated with greater maternal engagement in the school community compared to never experiencing high quality care, high quality care at 54 months, or erratic care for two spells.

Discussion

The aims of this study were to assess whether children's experiences in early child care facilitated their social and academic development in ways that then led their mothers to be more visibly involved at the elementary schools. The results indicated that mothers had greater contact with elementary school teachers when their children had spent more time in high quality non-parental care from birth through the preschool years, in part because their children had higher levels of academic skills at school entry. Mothers also demonstrated higher rates of engagement in the elementary school community when their children had such early child care histories, but not necessarily because of their children's social and academic skills. This basic pattern of results brings up several issues for discussion relevant to theory and policy.

First, the "effects" of children's early care on their mothers' later connections to their schools were cumulative in nature. Child care quality prior to the start of school (the pre-school year) did not matter as much as the history of quality care throughout the child's life. Just as consistent cognitive stimulation over time is more important to school readiness than a high dose of stimulation just before school entry (Pianta & Walsh, 1996), mothers were more visibly involved at school if their children had spent more years in high quality non-parental care. These findings are consistent with the recent Head Start impact report that persistent effects of Head Start on parenting were stronger for children who entered Head Start earlier (Puma et al., 2010).

Second, the quality of early care that children experienced was more important than the type or setting of their care. This finding echoes past research from the SECCYD (NICHD EECRN, 1999) on parenting outcomes of early child care and is in line with the finding that children's academic skills partially mediate observed child care effects on mother-teacher contact. In past research, child care quality—the measurement of which emphasizes socioemotional sensitivity and support—has been a consistently strong child care predictor of cognitive outcomes (NICHD EECRN, 2005b). These findings imply that investments in and regulation of infant and toddler care in home settings, beyond the formalized programs targeted by most pre-school initiatives, are important for fostering the family-school compacts promoted by No Child Left Behind. This very preliminary conclusion echoes Fuller's (2007) calls for child care/pre-school policies to be broadened beyond school-based programs and formal centers.

Third, although the quality of children's early care predicted both types of maternal school-based involvement considered, only its link to mother-teacher contact was mediated by children's skill development (academic skills only). This pattern could reflect the different dimensions of maternal school-based involvement being tapped. Children's academic skills could do more to elicit mothers' direct management of their educational careers through the discussion of academic matters with teachers than to connect them more socially to other actors (e.g., other parents) in the school. Yet, the findings could also reflect the use of different reporters. Indeed, the tendency for children's skills to elicit more involvement from

parents may be less important than the tendency for teachers to view children with more developed skills (and, by proxy, their parents) more positively and, perhaps, as a result, to elicit or encourage more involvement from the parents of these children (Lareau, 1989; Pianta & Walsh, 1996). Of course, academic problems and struggles could also lead to more mother-teacher contact as they come together to help children. Given the net positive association between children's academic skills and mother-teacher contact, this very different kind of child effect would not have been the norm. Still, it is possible and, as such, could be suppressing some of the overall link between early child care and later maternal involvement.

Fourth, the alternative to the hypothesized child-focused mechanism of the link between early child care and later maternal school-based involvement focused on adults; specifically, the potential for caregivers (and care organizations) to socialize parents into the role of active managers of their children's education. One indicator of this adult-focused mechanism—mother-caregiver relations—did not add to our analyses. Perhaps the single item we measured at only one time point was inadequate, with a more detailed cumulative measure of caregiver relations needed to better test this mechanism. Another indicator of this adult-focused mechanism—organization of the home environment—was the strongest mediator of all those considered. This finding suggests a possible spillover effect between the care and home environments, in which high quality care supports the organization of a higher-quality home learning environment (McCartney et al., 2007). It also suggests that this spillover effect can generalize beyond organization of the home to others aspects of parental support for education, including actions parents take that require more contact and interaction with schools. This possibility is, indeed, part of the working strategy for many early childhood services targeting disadvantaged groups, including and especially low-income Latino/a families. By focusing instructional and support services on building stimulating environments at home (including teaching parents to be home teachers), such programs are attempting to make much broader changes in parents' approaches to navigating their children into and through schools. Examples include National Council of La Raza's Lee y Seras program and the Home Instruction for Parents of Preschool Youngsters (HIPPY) program (Baker, Piortkowski, & Brooks Gunn, 1999; Goldenberg & Light, 2009).

Fifth, the link between children's early care histories and mothers' later involvement in school was fairly similar across levels of maternal education and employment. Although some evidence indicated that the link to maternal engagement in the school community might be stronger among women with lower levels of education, this evidence was very weak (two marginally significant interactions out of a total of 20 tested). Our general hypothesis was that factors eliciting or blocking school-based involvement—for example, prior experiences with early child care—would be more important for mothers without a general socioeconomic-based schema of full-scale school involvement (e.g., derived through educational attainment). Of course, a plausible alternative hypothesis could have been made, namely that the role of early child care in eliciting maternal involvement in school would be stronger among more, not less, socioeconomically advantaged women. To the extent that school-based involvement is time-consuming and irregular, it might require the combination of multiple promotive forces in order for it to happen. Thus, experiences in early child care (and children's skill development) could matter only if mothers are already primed for an active involvement role. The unexpected dearth of evidence for a strong moderational role of maternal education and employment, therefore, could have reflected such potentially offsetting effects. This possibility needs to be explored.

Of course, these conclusions are preliminary and need to be tested more rigorously before they can advance theory and inform policy. For example, a logical next step is to connect what we have done here to child outcomes in the long-term. Recent research with the

SECCYD has cast doubt on whether maternal school involvement promotes child test scores (El Nokali, Bachman, & Vortruba-Drzal, 2010), but left open are the questions of whether it promotes progress in other domains of achievement (e.g., classroom performance) and whether the child behavioral outcomes that were linked to maternal involvement in that study could eventually facilitate children's tested achievement in the long run. Another issue is that this study focused on women only—rather than both mothers and fathers—and did not dig more deeply into race/ethnic differences. This decision was driven by the nature of the SECCYD sample and data collection but, even still, is a limitation to be corrected.. More could also be done to explore demographic differences (e.g., by child gender) in the focal processes of this study. Finally, despite our use of propensity score weighting and robustness indices and our cross-checks with other modeling strategies, additional steps could be taken to address the selection problems common to this line of research; for example, by searching for possible instrumental variables to use in conjunction with the SECCYD (Gennetian, Magnuson, & Morris, 2008).

Addressing these limitations and extending analyses in these ways are important goals in the conceptualization of early child care, child development, and family-school relations as linked societal issues. In line with ecological and systems perspectives (Pianta & Walsh, 1996), our results highlight the value of understanding transactions among families and other settings of early childhood within larger systems of stratification. Moreover, they recognize the potentially critical role of children's major transitions points and, perhaps more importantly, what role the child plays in driving (not just being affected by) all of this.

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Appendix

Descriptions of Variables for Propensity Score

Variables	Data Collection	Description
Maternal Characteristics		
Age at birth	1 month	*M* = 28.15, *SD* = 5.62
Maternal education	1 month	Dummy coded into five categories: less than high school degree (10%), high school degree (21%), some college (33%), college degree (21%), graduate training (15%)
Additional schooling since birth	1 month 54 months	Count measure of number of times mothers report being in school since birth at each major assessment (*M* = .50, *SD* = 1.01)
Race/ethnicity	1 month	Dummy coded white (*M* = .83, *SD* = .37), black (*M* = .13, *SD* = .33), other (*M* = .05, *SD* = .21)
Hours per week working 54 months	54 months	Mother reported average hours per week working at 54 months (*M* = 24.97, *SD* = 19.57)
Non-standard work hours 54 months	54 months	1= Mothers working evening or weekend work schedules (32%), 0 = regular schedule, no employment (68%)
Number of spells of employment	1 month 54 months	At each major assessment period mothers reported employment. Mothers working less than 10 hours/week were coded as not working = 0, 10 hours or greater = 1. These scores were then added together (*M* = 3.14, *SD* = 1.96).
Employment status x maternal education	54 months	Interaction between dummy codes of employment at 54 months and maternal education dummy codes
Employment status x 54 month income	54 months	Interaction between dummy codes of employment at 54 months and 54 month income
Beliefs about benefit of employment	1 month	Composite measure based on the "Attitudes Toward Maternal Employment Questionnaire" administered to mothers at 1 month (*M* = 19.19, *SD* = 3.18)
Beliefs about cost of employment	1 month	Composite measure based on the "Attitudes Toward Maternal Employment" questionnaire administered to mothers at 1 month (*M* = 18.32, *SD* = 5.24)

Variables	Data Collection	Description
Separation anxiety	1 month	Composite measure based on "Feelings about Parenting" questionnaire given to mothers at 1 month (*M* = 70.15, *SD* = 13.22)
Beliefs about raising kids	1 month	Scale estimating how progressive or strict, conservative mothers' attitudes are toward child rearing/discipline (*M* = 75.56, *SD* = 16.86)
Extraversion	6 months	Subscale based on items from the "Self Scale," a personality measure taken from the NEO Personality Inventory (*M* = 42.47, *SD* = 5.85)
Agreeableness	6 months	Subscale based on items from the "Self Scale," a personality measure taken from the NEO Personality Inventory (*M* = 46.24, *SD* = 5.30)
Maternal depression	1 month through 54 months	Average score based on responses to the My Feeling Questionnaire administered at each major assessment (*M* = 9.61, *SD* = 6.58).
Maternal sensitivity	1 month through 54 months	Composite based on mother-child observations at major assessments. Values for 6 through 24 months and 36 to 54 months were averaged (because scales varies), then summed (*M* = 26.26, *SD* = 3.47).
Father/Partner Characteristics		
Father/partner education	1 month	Dummy coded into five categories: less than high school degree (10%), high school degree (21%), some college (32%), college degree (20%), graduate training (17%)
Partner reporting education present in home at 54 months	54 months	0 = partner education measure is for 54 month partner, 1 = partner education data not for 54 month partner (26%).
Partner in home	1 month through 54 months	Mother reported at each major assessment whether partner was present in home (present = 1, no partner = 0). These binary markers were summed to create a total measure (*M* = 4.94, *SD* = 1.91).
Employed partner in home	1 month through 54 months	Mother reported at each major assessment whether partner present in home was employed. Employed partner = 1, no partner present or partner not working = 0. These binary markers were summed to create a total measure (*M* = 4.21, *SD* = 2.14).
Child Characteristics		
Gender	1 month	1= female (49%), 0 = male (51%)
Birth order	1 month	Dummy coded as firth birth (44%), second (35%), third or higher (21%)
Attachment with mother	15 month	At 15 months, child attachment was assessed by the "Strange Situation" Attachment coding. The four point scale was coded into 0 = secure (63%), 1 = not secure (37%)
Child temperament	1 month 6 months	At 1 and 6 months, mothers responded to questions about their children's temperament. These scores were averaged (*M* = 2.64, *SD* = .47)
Child health	1 month	At one month mothers reported the general health of their child (poor, fair, good, excellent). The poor and fair categories were collapsed into one group (25%) and dummy coded
Family Statuses and Characteristics		
Family structure at birth	1 month	Dummy coded as married (76%), single (9%), cohabiting (14%)
Number transitions since birth	1 month through 54 months	Count of number of family structure transitions based on mother reports of family structure every three months since birth (*M* = .42, *SD* = .41)

Variables	Data Collection	Description
Adult relative in household	1 month 54 months	Adult relative in house at birth = 1, no adult relative at birth = 0 (14%); adult relative in house at 54 months = 1, no adult relative 54 months = 0 (10%).
Father in home at birth	1 month	Bivariate measure of whether the child's father was present in the home at birth. 1= present (85%), 0 = not present (15%)
# Children in household at 54 months	54 months	Mother reported number of children under 18 years old in household (M = 2.38, SD = 1.10)
Average income-to-needs	1 month through 54 months	Calculated for each family at each major assessment by dividing maternal reports of all sources of household income by the federal poverty threshold for that family size and then averaged (M = 3.41, SD = 2.66)
Number of spells in poverty	1 month through 54 months	Count of number of times mothers reported an income-to-needs ratio less than 1 (M = 1.03, SD = 1.82)
Family location (study site)	1 month	Dummy coded for ten different study sites

Figure 1.
Conceptual Model of Study

Table 1

Descriptive Statistics for Main Study Variables (n = 1,352)

	M	*SD*
Maternal School-Based Involvement		
Mother-teacher contact at kindergarten	15.42	2.50
Maternal engagement in school community at kindergarten	4.33	1.85
Child Care Characteristics		
Center care at 54 months	.57	.50
Quality of care at 54 months	2.72	1.11
Spells in center care, birth through 54 months	1.40	1.40
Spells in high quality care, birth through 54 months	2.10	1.36
Hours in care at 54 months	24.30	15.98
Average hours in care, birth through 54 months	21.96	14.79
Non-maternal care at 54 months	.89	.32
Maternal Education, Employment, and Income		
Less than high school education	.10	.30
High school degree	.21	.41
Some college training	.33	.47
College degree	.21	.41
Graduate training or degree	.15	.35
No employment at 54 months	.26	.44
Part-time employment at 54 months	.24	.43
Full-time employment at 54 months	.50	.50
Spells of employment birth at 54 months	4.28	1.92
Family income to needs ratio at kindergarten	3.29	2.70
Mediators		
Social skills at 54 months	98.49	13.56
Academic skills at 54 months	100.26	13.56
Parent relationship with caregiver	4.28	.52
HOME. at 54 months	45.59	5.48

Table 2

Results for Mother-Teacher Contact Predicted by Child Care History (n = 1, 352)

	***B* Coefficients (β Coefficients)**				
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Child Care Characteristics					
Spells in high quality care	.22*** (.11)	.17* (.08)	.17* (.08)	.28 (.30)	.10 (.08)
Spells in center care	.03 (.02)	.04 (.14)	.04 (.14)	.02 (.08)	.01 (.09)
Maternal Education and Employment					
High school	1.12** (.18)	.78+ (.41)	.78+ (.41)	.81 (.55)	.51 (.41)
Some college	1.76*** (.33)	1.26** (.45)	1.27** (.45)	1.57*** (.52)	.77+ (.42)
College degree	2.46*** (.40)	1.72*** (.62)	1.71*** (.60)	2.17*** (.64)	.98+ (.54)
Graduate training or degree	2.21*** (.31)	1.28* (.57)	1.28* (.55)	1.23+ (.73)	.46 (.50)
Spells of employment	.03 (.03)	−.00 (.06)	−.00 (.06)	−.02 (.10)	.00 (.15)
Interactions					
Quality of care x center care			−.02 (.15)		
Quality x high school				−.05 (.31)	
Quality x some college				−.18 (.30)	
Quality x college				−.24 (.27)	
Quality x graduate training				−.05 (.30)	
Quality x employment				.01 (.02)	
Mediators					
Academic skills					.02** (.01)
H.O.M.E. Score					.10*** (.04)
Intercept	13.69	14.49	14.52	14.35	8.75

Note: Model 1 was unweighted. Models 2 through 5 were weighted by the propensity of being in high quality care three or more times between birth and 54 months. All models also controlled for a continuous measure of average child care hours/week across the five data collections, mothers' depression at 54 months, and family income-to-needs at kindergarten.

+ $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.

***$p < .001$.

Table 3

Results for Maternal Engagement in School Community Predicted by Child Care History (n = 1, 352)

	***B* Coefficients (*β*Coefficients)**				
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Child Care Characteristics					
Spells in high quality care	.20* (.14)	.10* (.15)	.11* (.06)	.62* (.30)	.08 (.06)
Spells in center care	−.02 (.02)	−.05 (.05)	−.02 (.06)	−.05 (.05)	−.04 (.06)
Maternal Education and Employment					
High school (no high school)	.36* (.08)	.22 (.25)	.23 (.25)	.71+ (.41)	.12 (.25)
Some college	.97*** (.25)	.67*** (.26)	.68*** (.26)	1.47*** (.47)	.49+ (.26)
College degree	1.70*** (.37)	1.09*** (.30)	1.10*** (.30)	2.05*** (.48)	.82** (.29)
Graduate training or degree	1.77*** (.33)	1.07*** (.32)	1.08*** (.32)	1.59*** (.47)	.77* (.31)
Spells of employment	.09* (.09)	.06 (.04)	.06 (.04)	.09 (.06)	.06 (.04)
Interactions					
Quality of care x center care			−.03 (.06)		
Quality x high school				−.35 (.36)	
Quality x some college				−.50+ (.29)	
Quality x college				−.55+ (.29)	
Quality x graduate training				−.39 (.28)	
Quality x employment				−.01 (.02)	
Mediators					
Academic skills					.01 (.01)
H.O.M.E. Score					.04* (.02)
Intercept	3.03	3.43	3.44	2.61	1.34

Note: Model 1 was unweighted. Models 2 through 5 were weighted by the propensity of being in high quality care three or more times between birth and 54 months. All models also controlled for a continuous measure of average child care hours/week across the five data collections, mothers' depression at 54 months, and family income-to-needs at kindergarten.

+ $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < .001$.