

### Abstract

Early Childhood Longitudinal-Birth Cohort data were used to examine the extent to which preschool and kindergarten teachers aligned in their beliefs regarding the importance of school competencies at kindergarten entry, whether misalignment in beliefs predicted academic and sociobehavioral adjustment in kindergarten, and if relations were moderated by children's socioeconomic status. Preschool and kindergarten teachers rated the importance of 12 skills categorized into domains of academic, self-regulatory, and interpersonal competence. In the fall of kindergarten, children were directly assessed on reading and math skills, and kindergarten teachers rated children's approaches to learning, disruptive behavior, and social behavior. Findings revealed (a) misalignment was greatest for teachers' beliefs about the importance of academic competence (b) greater misalignment in beliefs pertaining to all three domains of competence predicted poorer ratings of approaches to learning, social skills, and lower math achievement, and (c) children from socioeconomically disadvantaged backgrounds were more susceptible to the negative influence of misalignment, across adjustment outcomes, compared to their more-advantaged peers. Results are discussed in relation to efforts aimed at promoting alignment within children's early educational contexts.

*Keywords:* teacher beliefs, alignment, kindergarten adjustment

Preschool and Kindergarten Teachers' Beliefs about Early School Competencies:  
Misalignment Matters for Kindergarten Adjustment

Interest in the alignment and coordination of educational objectives, curricula, assessment, and teacher qualifications across preschool and the early grades of the K-12 system is growing among educators, researchers, and policy makers (Bogard & Takanishi, 2005; Kagan & Kauerz, 2007; U.S. Department of Education, 2013). This momentum is driven in part by mounting research linking alignment features in the early years of children's schooling to enhanced academic and sociobehavioral adjustment during the elementary years and beyond (Bogard & Takanishi, 2005; Kraft-Sayre & Pianta, 2000; LoCasale-Crouch et al., 2012; Reynolds, Magnuson, & Ou, 2010). Alignment between preschool and kindergarten contexts may be particularly important given research linking a poor transition experience to later adjustment problems (Lloyd, Steinberg, & Wilhelm-Chapin, 1999).

Despite a heightening focus on alignment, many alignment features remain unexamined. Teacher beliefs are one example. In the context of early education, preschool and kindergarten teachers hold beliefs about what children need to know and be able to do in order to be best-prepared to enter formal schooling, typically kindergarten in the United States (Harradine & Clifford, 1996; Knudsen-Lindauer & Harris, 1989; Kowalski, Pretti-Frontczak, & Johnson, 2001; Lin, Lawrence, & Gorrell, 2003; West, 1993). Such beliefs are important to consider because they help shape teachers' expectations for and interactions with children, instructional practice, classroom climate, and children's performance (Charlesworth, Hart, Burts, & Hernandez, 1991; Fang, 1996; Staub & Stern, 2002; Stipek & Byler, 1997; Vartuli, 1999; West, 1993). Extant work points to a *misalignment* in preschool and kindergarten teachers' belief orientations regarding the importance of academic, self-regulatory, and interpersonal competencies at kindergarten entry

(Hains, Fowler, Schwartz, Kottwitz, & Rosenkoetter, 1989; Piotrkowski, Botsko, & Matthews, 2000), implicating teacher beliefs as an alignment feature worthy of examination.

The present study examined whether children's exposure to preschool and kindergarten teachers with differing beliefs about early school competencies predicted their academic and sociobehavioral adjustment to kindergarten, and whether children were differentially affected by belief misalignment. This line of inquiry is important given ongoing efforts to identify malleable characteristics of the classroom context that can be targeted via intervention and leveraged to enhance educational quality, maximize children's success in early school, and ultimately improve efforts to replicate and expand high-quality early education programming (Reynolds et al., 2010).

### **Teacher Beliefs about the Importance of Early School Competencies**

Researchers have examined preschool and kindergarten teachers' beliefs about the importance of early school competencies—including academic, self-regulatory, and interpersonal capacities—for beginning kindergarteners (hereafter abbreviated to teacher beliefs) independently (Bassok, Latham, & Rorem, 2014; Knudsen-Lindauer & Harris, 1989; Kowalski et al., 2001; Lin et al., 2003; West, 1993) and in comparison to one another (Hains et al., 1989; Piotrkowski et al., 2000). From these studies, a clear pattern of misalignment in preschool and kindergarten teachers' beliefs has emerged. Although both groups of teachers tend to rate academic skills (e.g., knows the letters of the alphabet, counts to 20 or more) lower than either interpersonal (e.g., sensitive to others, takes turns and shares) or self-regulatory competencies (e.g., follows directions, sits still and pays attention), preschool teachers tend to emphasize interpersonal over self-regulatory abilities when compared to their kindergarten counterparts (Hains et al., 1989; Piotrkowski et al., 2000). Further, preschool teachers rate more types of

competencies as important, while kindergarten teachers are more discriminating (Hains et al., 1989; Piotrkowski et al., 2000). This means that even though preschool and kindergarten teachers share some agreement on the overall prioritization of early school competencies, there likely remain discrepancies in the extent to which the two groups endorse a particular domain of competence.

Teachers' beliefs are shaped, at least in part, by their experiences during preservice training and as a practicing teacher in the classroom (Kagan, 1992). Currently in the United States, educational requirements for preschool teachers (who provide educational programming and care to children primarily three to five years of age, who sometimes attend for multiple years) vary from state to state, ranging from a high school diploma to bachelor's degree. In contrast, all 50 states require public school kindergarten teachers to have a bachelor's degree and state license. In the U.S. children typically enter kindergarten, considered the start of formal schooling, at age 5 or 6 and attend for one year before moving on to first grade. Moreover, there is considerable variability in the extent to which training programs focus specifically on child development and early childhood education and provide prospective teachers with hands-on opportunities in the classroom (Bureau of Labor Statistics, 2014a, 2014b). Given the discrepancies in educational requirements for preschool and kindergarten teachers, it is not entirely surprising that belief patterns can be tied to educational training in either an early childhood or elementary program (File & Gullo, 2002). Thus, a finding that misalignment in teachers' beliefs hinders children's adjustment to kindergarten could have implications for teacher training and professional development.

Educational policy might also play a role in shaping teacher beliefs. For example, results from a recent study point to an increase on the emphasis of academic competence among

kindergarten teachers in the decade following No Child Left Behind (Bassok et al., 2014), a U.S. federal standards-based K-12 education reform effort emphasizing achievement in core subject areas including reading and math. Although kindergarten teachers continued to rate academic skills as less essential than self-regulatory and interpersonal competence, there was a dramatic increase in the importance kindergarten teachers placed on academic skills. Accompanying this change was a parallel shift in teachers' instructional focus on literacy. In this way, No Child Left Behind may have contributed to a deeper division among preschool and kindergarten teachers because, in general, preschool teachers were under less scrutiny compared to educators in the K-12 system. This finding by Bassok and colleagues (2014) also points to the need to reexamine preschool and kindergarten teachers' beliefs about early school competencies given that the other studies examining similar beliefs were conducted prior to the enactment of this influential reform.

### **Does Misalignment Matter?**

Although research highlights a divide in preschool and kindergarten teachers' beliefs about early school competencies (Hains et al., 1989; Piotrkowski et al., 2000), nothing is known about whether exposure to such misalignment affects how children adjust academically and sociobehaviorally to the kindergarten classroom. On the one hand, exposure to misalignment in preschool and kindergarten teachers' beliefs may simply exemplify one of the many ways in which children experience discontinuities within early schooling, and may have little bearing on their performance in kindergarten. After all, U.S. children almost inevitably change school, teacher, and/or peer group between preschool and kindergarten. From this perspective, a shift in teacher beliefs may be a relatively inconsequential contextual difference amid all the changes occurring during this transitional period. On the other hand, a growing body of empirical

evidence points to educational alignment—educational components (e.g., standards, curricula, assessment, teacher qualifications) that are similar, complementary, coordinated, or sequenced from grade to grade—as a factor promoting children’s adaptive functioning (Bogard & Takinishi, 2005; Reynolds et al., 2010), suggesting other alignment features, such as teachers’ beliefs, could influence kindergarten adjustment.

Examples of effective alignment features vary greatly. Particularly comprehensive alignment efforts are reflected in experimental “model” early education programs including the Carolina Abecedarian Project and the Chicago Child-Parent Center and Expansion Program, in which low-income children were provided with sequenced curricula, family services, summer programming, and other complementary components across the early years of schooling (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Reynolds & Temple, 1998). Children attending these programs for multiple years experienced greater benefit in terms of academic achievement, compared to peers receiving less comprehensive or fewer years of programming (Campbell & Ramey, 1995; Campbell et al., 2002; Reynolds & Temple, 2008). Alignment features outside of purposefully designed interventions also show promise. For example, in a nationally representative sample of children’s normative educational experiences, alignment features including staying in the same school, having a certified teacher, and experiencing large amounts of instruction in reading and language arts from preschool to third grade, when experienced as a package, were associated with better developmental outcomes and fewer incidents of grade retention and special education placement (Reynolds et al., 2010).

Preschool to kindergarten transition practices occur over a shorter duration of time and are typically less extensive than programs targeting the preschool-to-third grade early education continuum (Pianta, Cox, Taylor, & Early, 1999), but share the common goal of promoting

continuity and minimizing disruption to children's learning and development (Love, Logue, Trudeau, & Thayer, 1992). Research on teachers' use of transition practices in relation to school adjustment lends additional evidence that alignment in early educational contexts matters (LoCasale-Crouch, Mashburn, Downer, & Pianta, 2008; Schulting, Malone, & Dodge, 2005). For example, children whose teachers met and shared information regarding student and curricular issues had higher ratings of social skills and lower ratings of problem behavior in kindergarten (LoCasale-Crouch et al., 2008). Although the precise mechanism at work is unclear, it is likely that kindergarten teachers who received information about individual children from preschool teachers were better able to provide consistency in instruction and care that would not be possible in the absence of such information sharing (Timperley, McNaughton, Howie, & Robinson, 2003).

Research capturing children's perspectives on the transition to kindergarten indicate they are very aware of and concerned with changes in structures and expectations for behavior (Corsaro & Molinari, 2000; Docket & Perry, 2002; Einarsdottir, 2011). In some instances, children may be so disoriented by the changes in their new kindergarten classroom environments they may have trouble demonstrating the competencies they developed in preschool (Timperley et al., 2003). Children's keen awareness of the myriad of differences between preschool and kindergarten suggests that they may also be attuned to differences in teachers' beliefs. Taken together, these bodies of work underscore the value of examining additional alignment features in early schooling, and provide evidence that misalignment in teachers' beliefs may negatively impact children's kindergarten functioning.

### **Socioeconomically Disadvantaged Children and Educational Alignment**

At-risk children such as those from low socioeconomic backgrounds (e.g., low family income, low parental education) have more exposure to environmental risk factors (Bradley & Corwyn, 2002; Lee & Burkam, 2002), and therefore stand to gain the most from contextual affordances, such as developmentally supportive classroom environments (Hamre & Pianta, 2005; Hubbs-Tait et al., 2002) including those in which elements of alignment are present. For example, Reynolds and colleagues (2010) examined a large nationally representative sample of children and a subsample of socioeconomically disadvantaged children, and their exposure to alignment features including staying in the same school, having only certified teachers, and experiencing high quantities of reading instruction from preschool to third grade. Children in the full sample exposed to multiple alignment features had higher scores on assessments of reading, math, and approaches to learning, and lower rates of retention, compared to children experiencing no alignment features, yet effect sizes for children in the disadvantaged subsample were even greater. In other studies, children's socioeconomic risk characteristics moderated relations between teachers' use of transition practices and children's kindergarten adjustment. Specifically, associations between teachers' use of practices to enhance linkages between children's preschool and kindergarten experience and children's social and academic competence were greater for socioeconomically disadvantaged children compared to their more advantaged peers (LoCasale-Crouch et al., 2008; Schulting et al., 2005). Combined, these findings indicate that belief misalignment could be especially detrimental for children entering school at a socioeconomic disadvantage, warranting examination of children's SES as a potential moderator of relations between belief misalignment and academic and sociobehavioral adjustment.

### **The Present Study**

To our knowledge, researchers have yet to collectively examine teacher beliefs, alignment, and children's school adjustment. The present study was designed to help fill this gap. Specifically, a large, nationally representative sample of children, the Early Childhood Longitudinal Study-Birth cohort (ECLS-B), was used to address three research questions: First, what domains of early school competence (i.e., academic, self-regulatory, and interpersonal) do preschool and kindergarten teachers rate as most important for children entering kindergarten and to what extent do these beliefs align? Second, does misalignment in teachers' beliefs about the importance of early school competencies predict children's early kindergarten adjustment as measured by academic achievement and sociobehavioral skills assessed in the fall of children's kindergarten year? Third, does the association between belief misalignment and kindergarten adjustment differ as a function of children's socioeconomic background? It was hypothesized that misalignment would be greatest in preschool and kindergarten teachers' beliefs about academic competence, associated with poorer academic and sociobehavioral adjustment, and especially detrimental for children from socioeconomically disadvantaged backgrounds.

## **Method**

### **Participants**

The ECLS-B tracked a nationally representative sample of children born in 2001, and consists of data collected from children, parents, teachers, and school administrators. Data were first collected when children were approximately nine months old, with follow-up assessments conducted at two years, preschool, and kindergarten. About 75% of the sample began kindergarten in 2006 and the other 25% did so in 2007.

The ECLS-B used a complex, multistage probability design, drawn from information from the National Center for Health Statistics, to obtain a nationally representative sample of

children born in 2001. The sampling frame included nearly all children born in the United States in that year, excluding those born to mothers under 15 years of age and those who died or were adopted before the nine month assessment. Study administrators constructed primary sampling units (PSUs) which were either individual counties or sets of contiguous counties. Ninety-six PSUs were selected after stratification by census region, median income, size, and the percentage of residents who were minorities, helping ensure the selected PSUs were representative of the country as a whole.

The initial ECLS-B sample consisted of approximately 10,700 cases of which about 6,900 were followed all the way to kindergarten. The present sample was restricted to students who attended formal care in the year prior to entering kindergarten, defined as childcare centers, pre-kindergarten programs, and Head Start programs. By necessity, the sample was also restricted to students with responses from both preschool and kindergarten teachers on our independent variables of interest. The resulting analytic sample included approximately 2,650 students, and their paired preschool and kindergarten teachers. We make the assumption that children in our analytic sample have one teacher in their preschool year and a different teacher in their kindergarten year, as the ECLS-B data do not contain teacher identifiers that determine whether, in rare cases, a child was taught by the same teacher in both years under examination. It should be stressed that due to the design of the ECLS-B, each preschool and kindergarten teacher is associated with a single student, meaning there is no nesting of students within classrooms. Table 1 presents descriptive statistics for the student and teacher samples, weighted to be nationally representative.

## **Measures**

**Teacher beliefs.** Preschool and kindergarten teachers were asked to rate the importance of various skills (e.g., taking turns, counting to 20) for kindergarten readiness. Teachers rated these skills on a scale from 1 (*not important*) to 5 (*essential*). Consistent with the approach presented by Lin and colleagues (2003), we conducted a factor analysis of these thirteen skills and found that 12 skills contributed to three separate competency factors, which are referred to in the study as academic competence, self-regulatory competence, and interpersonal competence. Table 2 lists the specific skills included in each competence domain along with their respective Cronbach alpha levels, which indicate adequate internal consistency among included items.

We used teachers' ratings on the items within these three skill domains to construct two distinct measures of teachers' beliefs. First, we computed a simple average of teachers' ratings for each competence domain. For example, a preschool teacher's rating of the importance of academics was defined as the average of her rating for the four items categorized as academic skills (i.e., letter recognition, number recognition, familiarity with colors and shapes, ability to use a pencil/paintbrush). Hereafter these measures are referred to as teachers' *absolute* beliefs.

A limitation of this metric is that it fails to capture the relative importance teachers place on different competence domains. For instance, it may be important to distinguish between two teachers who both rate academic skills as equally important, but rate academic importance differently relative to self-regulatory and interpersonal competencies. To capture this, each teacher's grand mean rating across all skills was subtracted from her mean rating for each of the academic, self-regulatory, and interpersonal domains. This index takes on positive and negative values, indicating that a teacher thinks a particular skill domain is more or less important than their grand mean rating across all domains. Hereafter, these measures are referred to as teachers' *relative* beliefs.

***Misalignment of teacher beliefs.*** For each child, misalignment was defined as the absolute value of the difference between the belief ratings of their preschool and kindergarten teachers. Misalignment measures were constructed using indices of both teachers' absolute and relative beliefs, which were created using the methods described above in the *Teacher beliefs* section.

**Adjustment to kindergarten.**

***Academic outcomes.*** Direct assessments of children's reading and math skills were developed specifically for use within the ECLS-B and were administered in children's kindergarten year from September through March, with over 80% of interviews taking place before January. Students were administered reading and math assessments, designed to be a broad measure of knowledge and skills in these areas. The reading assessment included questions about letter knowledge, print conventions, word recognition, vocabulary, and demonstrating understanding of text. The math assessment included questions about number sense, measurement, geometry, data analysis, statistics, and algebra. Testing on these assessments was administered in two stages. Students first took a routing test assessing their general ability level, upon which they were administered an easy, medium, or hard test in the second stage to capture a more accurate measure of academic ability. This assessment design ensured sufficiently accurate evaluations of academic ability while avoiding unnecessarily lengthy assessments. Researchers used item response theory to estimate children's responses on items not administered based on their patterns of correct and incorrect responses. The resulting metrics were scale scores representing probability estimates of the number of questions a student would have gotten right if administered the full set of items. These scale scores are unique for each

subject area, meaning a higher score in one subject is not necessarily better than a lower score in another subject.

***Sociobehavioral outcomes.*** Kindergarten teachers rated students on a number of sociobehavioral outcomes. The majority of these items were drawn from the Preschool and Kindergarten Behavior Scales-Second Edition (PKBS-2; Merrell, 2003). The full PKBS-2 was too long to administer as part of the ECLS-B, so items were chosen for their high item-to-total (subtest) correlations. Additional items were adapted from the Social Skills Rating System (Gresham & Elliot, 1990). The newly created surveys were piloted with early care providers to ensure the items were well understood and that they could be administered in the time allotted.

To measure sociobehavioral outcomes, teachers were asked to rate the frequency with which the target child exhibited each behavior on a scale from 1 (*never*) to 5 (*very often*). A factor analysis of 16 potential items informed our combination of 13 skills into the following three categories: approaches to learning, disruptive behavior, and social behavior. Approaches to learning describes classroom behavior conducive to learning such as paying attention and working independently. Disruptive behavior is that which may be distracting to classmates including acting impulsively and annoying other students. Social behavior is a measure of how well the student interacts with others and includes items like comforting others and having good problem solving skills. Table 3 shows the full list of items included in each group and their respective Cronbach's alpha levels, indicating adequate internal consistency.

***Covariates.*** The ECLS-B includes a rich set of potential covariates. All models controlled for variables that may relate to teachers' beliefs about requisite kindergarten-entry competencies and children's early kindergarten adjustment. These included baseline measures of reading and math skills assessed in preschool as well as student demographic characteristics such

as age, race, and SES (a composite indicator accounting for parent/caregiver level of education, occupation, and household income). Also included was information about preschool teachers such as gender, race, years of teaching experience, and level of education, and preschool classroom characteristics, such as class size and percentage of children with special needs (defined as children with a diagnosed disability, chronic illness or medical problem, or emotional problems). Measures of preschool reading and math exposure, based on teacher reports of the number of in-class reading and math activities implemented per week, were also included in the analytic models. These activities included items such as “writing letters,” “reading stories,” “counting out loud,” and “working with geometric manipulatives.” Including measures of reading and math exposure helped ensure that any associations identified between misalignment and student outcomes were independent from the amount of reading and math instruction children experienced in their preschool classrooms. Finally, models controlled for preschool teachers’ beliefs regarding the importance of academics, self-regulation, and interpersonal behavior. As such, findings can be interpreted as the extent to which misalignment predicts kindergarten adjustment independent of the degree to which preschool teachers endorsed each competence domain.

Also included were covariates related to the kindergarten classroom. Kindergarten teacher gender, race, education, and years of experience were included, along with the percent of students in the child’s class that were White, Black, Hispanic, Asian, limited English proficient (LEP), and had identified special needs (diagnosed physical or psychological disability).

Finally, for preschool and kindergarten data collections, teacher surveys were administered from September through March (more than 80% were collected by the end of December). There was variability in the timing of the direct assessments of children’s

kindergarten adjustment. To account for any influence the timing of administration may have on results, analytic models controlled for the month of teacher and child assessments. Table 1 presents means and standard deviations for model covariates.

### **Missing data**

As discussed above, some of the students in the initial sample were not followed all the way through the kindergarten wave. In particular, teacher or classroom data were missing for 16% of our sample at the preschool wave and about 29% of our sample at the kindergarten wave, indicative of high response rates for a study of this size and scope. We weighted our analysis using a weight developed as part of the ECLS-B to account for this non-response, making our results nationally representative. Specifically, we used the weight WK45T0, which accounts for non-response among teacher surveys in the preschool and kindergarten waves.

Additionally, there was some missing data among completed teacher surveys. This happened if teachers responded to some items on the survey, but not others. In general this was fairly uncommon as only about one quarter of surveys had any missing data at all, and most items were completed by over 95% of teachers that were surveyed. A few items were missing for as many as 12% of respondents. To account for this second type of missing data, we used a chained imputation model. Our imputation strategy was similar to that outlined in Claessens, Engel, and Curran (2014). The Imputation model included independent variables, but not outcome variables. Data were assumed to be missing at random. Specifically, this means we assumed the pattern of missing data could be explained by variables for which we had full information, and thus, was accounted for by the imputation model. Although this is an untestable assumption, our data contained full information about student race and socioeconomic status, and so patterns of missingness driven by those variables did not threaten the validity of model

estimates. Analyses were conducted using the MI command in Stata, which is based on multivariate normal regression. Following guidelines presented in McCartney, Bub, and Burchinal (2006), five imputed data sets were used. Importantly, reported results were generated from analysis of the imputed datasets, but the results are nearly identical when using listwise deletion.

### **Analytic Plan**

To address the first question regarding what competencies preschool and kindergarten teachers believe to be most important at kindergarten entry and the extent to which their beliefs align, teachers' absolute and relative ratings for each competence domain as well as the means of the misalignment variables were examined. The misalignment variables indicated the extent to which preschool and kindergarten teachers—on average—differed on their beliefs regarding the importance of a particular competence domain.

Next, a regression model (Equation 1) was estimated to test associations between misalignment in teacher beliefs and kindergarten fall adjustment while controlling for preschool teachers' beliefs and the extensive set of student, teacher, and classroom characteristics:

$$1) \quad Y_i = \beta_0 + \beta_1 \text{Preschool belief}_i + \beta_2 \text{Pre-score}_i + \beta_3 \text{Diff}_i + \beta_4 X_i + \varepsilon_i$$

Here,  $Y_i$  is a student outcome in fall of kindergarten;  $\text{Preschool belief}_i$  is the preschool teacher's rating about the importance of academic, self-regulatory, or interpersonal competence; and  $\text{Pre-score}_i$  is a measure of the outcome variable in preschool (applicable only for achievement models).  $\text{Diff}_i$  is the misalignment between a target child's preschool and kindergarten teacher, and  $\beta_3$  is our coefficient of interest, interpreted as the association between misalignment and children's kindergarten outcomes.  $X_i$  is a vector that includes our full set of child, teacher, and classroom covariates. By including reading and math scores assessed at preschool, results of

achievement models can be interpreted as the influence of misalignment in teacher beliefs on *gains* in achievement. This model was estimated twice for each kindergarten outcome, once using the misalignment variable created from teachers' absolute beliefs and once using the misalignment variable created from teachers' relative beliefs.

Third, differential relations between misalignment and kindergarten adjustment were examined for children from varying SES backgrounds. In this model, the misalignment variable was interacted with a categorical variable indicating children's SES. This moderation model was estimated by Equation 2:

$$2) \quad Y_i = \beta_0 + \beta_1 \text{Preschool belief}_i + \beta_2 \text{Pre-score}_i + \beta_3 \text{Diff}_i + \beta_4 \text{Diff}_i * \text{SES}_i + \beta_5 X_i + \epsilon_i$$

Here, the interaction coefficient  $\beta_4$  captures whether children's SES moderates relations between misalignment and outcomes. The SES variable ranged from 0 to 4, with 0 being the lowest SES quintile and 4 being the highest quintile. Therefore, a positive  $\beta_4$  parameter estimate would indicate that misalignment was more strongly associated with worse outcomes among children from lower SES backgrounds. Further, the main effect of misalignment ( $\beta_3$ ) can be interpreted as the effect of misalignment for students in the lowest income quintile. As with our other models this model was estimated twice for each adjustment outcome, once using misalignment of absolute beliefs and once using the misalignment of relative beliefs.

## Results

### Teacher Beliefs and Belief Misalignment

Table 4 shows teachers' absolute and relative ratings for each competence domain along with the average misalignment between preschool and kindergarten teachers. On average, both preschool and kindergarten teachers reported that all three competence domains were important for children entering kindergarten. However, both groups of teachers rated academics as the least

important of the three domains. In particular, on average, kindergarten teachers rated academics as only *somewhat important*, a rank that was lower than their rankings for the other two readiness domains. On average, preschool teachers rated the absolute importance of each competence domain higher than did kindergarten teachers. Similar patterns emerged for the ratings of relative importance: both sets of teachers rated academics as least important and interpersonal skills as the most important. Of note, kindergarten teachers had more disparate relative ratings on average, indicating greater differentiation in their endorsement of the three domains of competence compared to preschool teachers.

Table 4 also shows the average misalignment in beliefs between a child's preschool and kindergarten teacher for each of the three competence domains. On average, there was greater misalignment regarding the importance of academics than about self-regulation or interpersonal competence. This pattern held true when looking at both the absolute and relative beliefs.

### **Misalignment and Children's Early Kindergarten Adjustment**

Table 5 presents the results from our analyses exploring relations between the misalignment of absolute and relative teacher beliefs and kindergarten adjustment outcomes. Each column represents a separate kindergarten outcome. All outcome variables were standardized to have a mean of zero and standard deviation of one to facilitate interpretation. Therefore, as a measure of effect size, point estimates can be interpreted in standard deviation units; specifically, as the change in the outcome in standard deviation units for every one unit of change in the predictor.

Overall, these results indicate that greater misalignment in teachers' absolute and relative beliefs was associated with poorer performance in early kindergarten. Specifically, greater misalignment in beliefs about all three types of competencies was significantly related to worse

student outcomes including poorer ratings of approaches to learning and social behavior, and lower math scores. Estimates for these outcomes ranged from -.09 (math) to -.30 (social behavior) indicating that a one unit increase in absolute or relative alignment was associated with a one-tenth to one-third of a standard deviation decrease in children's adjustment scores. Further, although many of the coefficients are not statistically significant, virtually every coefficient was in the direction indicative of a negative influence of misalignment on kindergarten adjustment.

### **Interactions between Misalignment and Child SES**

Tables 6 and 7 present results that explored whether misalignment mattered differently for children of varying socioeconomic backgrounds. In this analysis, the SES variable was coded from 0 to 4, so the main effect of the misalignment variable can be interpreted as the effect of misalignment for the lowest-SES children. The results from this analysis were striking. Looking at Table 6, which considers the absolute beliefs of teachers, one can see that among the lowest-income students, misalignment was significantly related to worse student outcomes in almost all cases. Additionally, every non-significant coefficient was in the direction indicating that misalignment was associated with worse kindergarten outcomes for these students. Importantly, this relation held true across beliefs about all three domains of early school competence (academic, self-regulatory, and interpersonal). Estimates ranging from -.12 (reading) to -.27 (social behavior) indicated that, for the most socioeconomically disadvantaged children, a one-unit increase in absolute misalignment was associated with nearly up to a one-third standard deviation decrease in adjustment scores. As shown in table 7, a very similar pattern of results emerged when looking at the misalignment of relative beliefs, with effect sizes ranging from -.25 (approaches to learning and math) to -.54 (social behavior).

Notably, the interaction between SES and misalignment is significant in almost all cases, and in the direction opposite of the main effect. This indicates that SES moderated the relation between misalignment and kindergarten adjustment, and specifically that the negative relation between misalignment and adjustment was stronger among lower-SES children. Again, these results are highly consistent across misalignment indicators and adjustment outcomes.

### **Discussion**

The present study is the first in recent years to examine both preschool and kindergarten teachers' beliefs about the importance of children's school academic, self-regulatory, and interpersonal competencies at kindergarten entry. To our knowledge, it is also the first to examine whether misalignment in teachers' beliefs relates to children's academic and sociobehavioral adjustment to kindergarten and whether this association is more or less pronounced among low-income children. We focus the discussion on three key results: First, misalignment between preschool and kindergarten teachers was most prevalent in beliefs about the importance of academic skills. Second, misalignment in beliefs regarding the importance of academic, self-regulatory, and interpersonal competencies was predictive of how children adjusted early in the kindergarten year, specifically in the areas of approaches to learning, social behavior, and mathematics achievement. Third, economically disadvantaged children were disproportionately affected by misalignment of teacher beliefs across domains of adjustment.

#### **Teacher Beliefs and Misalignment**

Findings indicated that preschool and kindergarten teachers agreed on the order of prioritization of domains of early school competencies: both groups rated interpersonal and self-regulatory skills as more important than academic skills. This pattern was true whether examining teachers' average ratings of the importance of each skill domain (i.e., absolute

ratings) or their ratings of the importance of skill domains relative to one another (i.e., relative ratings), and is consistent with work using smaller and less representative samples (Hains et al., 1989; Piotrkowski et al., 2000). Despite this overall agreement, there was considerable misalignment in the emphasis teachers placed on each domain—particularly apparent for academic skills. On the whole, preschool teachers in this sample rated academic skills as more important than did kindergarten teachers. This finding was somewhat surprising given recent work demonstrating an overall increase in kindergarten teachers' beliefs about the importance of academic in recent years (Bassok et al., 2014), but is similar to findings presented by Piotrkowski and colleagues (2000).

One explanation for this incongruity is that kindergarten teachers perceive it as their responsibility to impart academic-related knowledge to children (Hains et al., 1989) and therefore do not deem such skills as essential for children upon entering kindergarten. Kindergarten teachers report a lack of academic skills as a prevalent deficit among incoming students (Rimm-Kaufman, Pianta, & Cox, 2000). It is possible, then, that their lower ratings of academic skills reflect their acceptance of the need to offer instruction around basic academic concepts and skills. The difference in beliefs regarding academic skills may also reflect a general lack of communication between preschool and kindergarten teachers about curricula and expectations. This explanation also seems plausible given research indicating low levels of information sharing and joint training and professional development opportunities among preschool and kindergarten teachers (LoCasale-Crouch et al., 2008; Love et al., 1992). Importantly, these explanations are not mutually exclusive and may both play a role in explaining differences in teachers' beliefs.

### **Misalignment and Children's Early Kindergarten Adjustment**

Misalignment in teachers' beliefs was associated with negative outcomes for children, even after accounting for preschool (i.e., baseline) measures of reading and math ability, preschool teachers' beliefs, and a host of child, teacher, and classroom characteristics. The strongest associations were apparent *across* domains such that misalignment in teachers' beliefs regarding a particular area of competence affected children's kindergarten adjustment in another area of development. For example, misalignment in teachers' beliefs regarding the importance of academic skills predicted lower social skills. Our analyses controlled for exposure to reading and math activities in the preschool classroom meaning that this relation was not strictly a function of preschool teachers' provision of academic lessons. Still, it is unlikely that these controls accounted for all of the ways in which differences in teachers' beliefs about academic competencies manifest in the classroom. For example, preschool and kindergarten teachers that place different value on academic competence at school entry likely develop a host of structures and activities that reflect these beliefs (such as the use of activity settings that deemphasize or promote social interaction; Charlesworth et al., 1991; Vartuli, 1999), meaning that children exposed to misaligned beliefs may be experiencing misalignment in classroom structures as well.

Other cross-domain associations were seen in relation to misalignment of beliefs on the importance of self-regulatory competence. Absolute and relative misalignment in beliefs regarding self-regulatory competence was associated with lower mathematics scores, social skills, and approaches to learning. Self-regulatory capacities enable children to interact with peers in socially competent ways and engage with classroom lessons and activities that promote learning (Eisenberg et al., 1993; McClelland, Cameron, Connor, et al., 2007; McClelland, Cameron, Wanless, & Murray, 2007; Riggs, Jahromi, Razza, Dillworth-Bart, & Mueller, 2006). As such, exposure to classroom contexts that differentially emphasize the development of self-

regulatory abilities could result in lower overall levels of academic and social competence if children do not have consistent opportunities to hone self-regulatory skills or receive positive reinforcement for demonstrating regulatory competence. Of note, this association was present for math but not reading, which may be explained by the relatively larger proportion of time devoted to reading over math in kindergarten classrooms (Bassok et al., 2014). That is, the greater amount of time allotted to reading instruction may help compensate for deficiencies resulting from misalignment in teachers' beliefs regarding the importance of self-regulatory competence.

### **Children's Differential Susceptibility to Misalignment**

Children from low-SES families were disproportionately negatively affected by exposure to misalignment in teachers' beliefs. This result was strikingly consistent across all types of misalignment and all outcomes examined. The pattern of heightened susceptibility implicates early educational environments that promote consistent messages about academic, self-regulatory, and interpersonal competence as especially important for economically disadvantaged children. Children from low-SES backgrounds are exposed to more environmental risk factors including a dearth of cognitive stimulation in the home (Bradley & Corwyn, 2002; Evans, 2004). The lack of home resources to promote foundational early learning-related competencies may make classroom consistency especially important for these children's cognitive and sociobehavioral adjustment. This finding is especially important given ongoing efforts to close the achievement gap between lower-and higher-SES children present in early schooling (Lee & Burkam, 2002) and mounting evidence of the interdependency of early competencies and the self-productive nature by which early skills shape later attainments (Heckman, 2006). Taken together, these results provide preliminary evidence that alignment in

teacher beliefs could be an avenue through which to enhance school adjustment for children otherwise at-risk for school failure and maladaptive behavior.

### **Implications for Policy and Practice**

The finding that belief misalignment was negatively related to children's kindergarten adjustment has implications for both teacher training and professional development, and alignment efforts in early education, including the use of transition practices. Despite the fact that preschool and kindergarten teachers work with children during very similar, and sometimes overlapping, developmental periods, training requirements and experiences for the two groups can vary dramatically, with requirements for preschool teachers generally less standardized and less stringent compared to kindergarten teachers. Even when preschool teachers are required to obtain a bachelor's degree, they often do not receive the same degree that kindergarten teachers do: preschool teachers are more likely to certify in early childhood education (good for preschool through third grade), whereas kindergarten teachers often certify in elementary education (making them eligible for kindergarten through 8<sup>th</sup> grade), meaning they may receive less training specific to early education. These inconsistencies have led some stakeholders to advocate for increased consistency in educational requirements and program content for preschool and kindergarten teachers (Bogard & Takinishi, 2005). Aligned qualification requirements could provide preschool and kindergarten teachers with a shared foundation that would help align their beliefs about early school competencies. In the absence of standardized training requirements, joint professional development opportunities for inservice preschool and kindergarten teachers within a school, district, or region could provide another mechanism to help align beliefs (Love et al., 1992).

Second, these findings highlight misalignment in preschool and kindergarten teachers' beliefs as an area that may be targeted through schools' alignment efforts, including the use of transition practices that ease the instability inherent in the transition to kindergarten. Particularly promising are those transition practices that center on individual children's strengths and needs. Children whose preschool teachers reported that they shared information on specific children or curricula with kindergarten teachers were perceived by their kindergarten teacher to have higher levels of social competence and lower levels of negative behavior problems (LoCasale-Crouch et al., 2008). This type of information sharing could help mitigate the negative effects of misaligned beliefs in the short term by helping teachers to be guided more by their knowledge of children's needs and less by their general belief orientations. Over time, such sharing could help promote belief alignment by increasing preschool and kindergarten teachers' awareness of each other's instructional objectives and strategies.

### **Limitations**

Several limitations warrant mention. First, it is important to keep in mind that kindergarten teachers reported on both their beliefs about the importance of early school competencies (used to create the misalignment independent variables) as well as three of the five adjustment outcomes, which could result in shared method variance. However, this is unlikely given misalignment variables also included preschool teachers' ratings, and significant results emerged for directly assessed math achievement. Second, these models did not account for changes that may have occurred in the child's home life during the transition from preschool to kindergarten. Events such as divorce, a death in the family, or a move to a new home may negatively affect gains in adjustment outcomes. Conversely, positive events could accelerate gains. To the extent that the experience of such a life event is correlated with children's exposure

to misalignment in teachers' beliefs, parameter estimates may be affected. In the same vein, the structure of the data limit our knowledge about certain potentially influential factors, such as whether any children ended up in the same preschool or kindergarten classroom, and whether preschool and kindergarten teachers knew one another or implemented transition practices with one another. Finally, these analyses do not support causal assertions about relations between misalignment in teachers' beliefs and children's early kindergarten performance. There may be variables not included in the analyses that explain both misalignment in teachers' beliefs and child outcomes; however, our inclusion of a comprehensive set of covariates helps minimize the potential for bias due to omitted variables.

### **Directions for Future Research**

This study establishes consistency in teachers' beliefs about the importance of early school competencies as a potentially influential contextual feature of children's classroom experience. Future work should attempt to explicate the process pathways underlying the influence of misaligned teacher beliefs on children's adjustment to kindergarten. Considerations should include both teacher- and child-based mechanisms. For example, teaching practices and behaviors that manifest as a function of teachers' beliefs should be examined, as well as children's responses to exposure to misalignment in teachers' beliefs such as engagement and motivation. Student-teacher relationships also warrant consideration; it could be that children have a harder time developing close relationships with kindergarten teachers who do not reflect the same beliefs and values as their preschool teacher. Such relationships marked by lower levels of closeness or more conflict would, in turn, be expected to relate to poorer kindergarten adjustment (Hamre & Pianta, 2006). Additional directions that will extend the present inquiry include the examination of (a) antecedents of teachers' beliefs about early school competencies,

(b) whether misalignment in teachers' beliefs has longer-term implications for children's school adjustment, (c) whether children are more or less susceptible to misalignment in teachers' beliefs as they progress through school, and (d) whether consistency in teacher training or use of school transition practices can aid in aligning teachers' beliefs.

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Table 1  
*Descriptive Statistics for Sample and Model Covariates*

Variable	Mean	<i>SD</i>
Student characteristics		
Age in September 2005 (months)	54.42	3.47
Month of assessment in kindergarten (September=1)	3.30	1.37
Demographic makeup (%)		
Male	52	
Female	48	
White	56	
Black	14	
Hispanic	23	
Not White/Black/Hispanic	7	
SES quintile 1	17	
SES quintile 2	18	
SES quintile 3	19	
SES quintile 4	23	
SES quintile 5	23	
Preschool class characteristics		
Number of students in class	14.25	5.37
Years of teaching experience	13.47	8.70
Teachers with bachelors degree (%)	58	
Teachers with graduate degree (%)	15	
Students w/special needs (%)	12	
Students in Head Start (%)	25	
Kindergarten class characteristics		
Years of teaching experience	13.95	9.99
Teachers with bachelors degree (%)	99	
Teachers with graduate degree (%)	43	
Average classroom demographics (%)		
White students	58	
Black students	16	
Hispanic students	20	
Asian students	4	
Male students	52	
LEP students	12	
Students with special needs	7	

*Note.* *SD* = standard deviation; LEP = limited English proficiency; The descriptive statistics presented here were calculated after imputation, but are virtually identical to those calculated beforehand. Means and standard deviations for preschool teachers' beliefs are presented in Table 4.

Table 2

*Items and Cronbach's Alpha Levels of Teacher Belief Variables*

	Alpha levels	
	Preschool	Kindergarten
Academic competence	0.82	0.84
Can count to 20 or more		
Knows most of the letters of the alphabet		
Identifies primary colors and shapes		
Can use a pencil/paintbrush		
Self-regulatory competence	0.73	0.78
Finishes tasks		
Is not disruptive of the class		
Sits still and pays attention		
Can follow directions		
Interpersonal competence	0.67	0.71
Takes turns and shares		
Is sensitive to other children's feelings		
Can communicate needs/wants verbally		
Has good problem-solving skills		

Table 3

*Items and Cronbach's Alpha Levels of Kindergarten Adjustment Outcome Variables*

	Alpha levels	
	Preschool	Kindergarten
Approaches to learning	0.81	0.89
Shows eagerness to learn		
Pays attention well		
Keeps working until finished		
Works/plays independently		
Disruptive behavior	0.90	0.93
Acts impulsively		
Disrupts others		
Is overly active		
Has difficulty concentrating		
Is restless/fidgety		
Annoys other children		
Social behavior	0.84	0.89
Stands up for others' rights		
Comforts others		
Tries to understand others		

Table 4

*Preschool and Kindergarten Teacher Beliefs and Misalignment Regarding the Importance of Early School Competence at Kindergarten Entry*

	Absolute Beliefs		Relative Beliefs	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Academic competence				
Importance of academics (PK teacher rating)	3.77	0.67	-0.18	0.37
Importance of academics (K teacher rating)	3.39	0.81	-0.32	0.42
Absolute difference in beliefs	0.88	0.65	0.44	0.34
Self-regulatory competence				
Importance of SRB (PK teacher rating)	4.03	0.50	0.08	0.26
Importance of SRB (K teacher rating)	3.89	0.58	0.18	0.30
Absolute difference in beliefs	0.60	0.47	0.32	0.24
Interpersonal competence				
Importance of IPB (PK teacher rating)	4.04	0.49	0.10	0.31
Importance of IPB (K teacher rating)	3.85	0.55	0.14	0.31
Absolute difference in beliefs	0.56	0.47	0.34	0.27

*Note.* PK = preschool; K = kindergarten; All ratings are on a 5-point scale where 1 = *not important* and 5 = *essential*

Table 5

*Preschool and Kindergarten Teachers' Belief Misalignment and Early Kindergarten Adjustment*

Competence domain	Belief variable (predictor)	Kindergarten adjustment outcomes				
		Approaches to learning	Disruptive behavior	Social behavior	Reading	Math
Academic	Misalignment (abs)	-0.07+	0.03	-0.12**	-0.03	-0.05+
		(0.04)	(0.03)	(0.04)	(0.03)	(0.03)
	Misalignment (rel)	-0.08	0.02	-0.14+	-0.06	-0.07
		(0.07)	(0.06)	(0.08)	(0.06)	(0.05)
Self-regulatory	Misalignment (abs)	-0.02	0.01	-0.05	-0.02	-0.09*
		(0.05)	(0.05)	(0.05)	(0.04)	(0.04)
	Misalignment (rel)	-0.21*	0.08	-0.30**	-0.07	0.00
		(0.10)	(0.09)	(0.10)	(0.07)	(0.07)
Interpersonal	Misalignment (abs)	-0.02	-0.03	-0.10*	-0.02	-0.03
		(0.05)	(0.04)	(0.05)	(0.04)	(0.04)
	Misalignment (rel)	-0.05	-0.02	0.06	0.01	-0.04
		(0.07)	(0.08)	(0.09)	(0.06)	(0.06)

*Note.* abs = absolute; rel = relative; standard errors reported in parentheses.

\*\* $p < .01$ , \* $p < .05$ , + $p < .10$

Table 6

*Interactions Between Teachers' Belief Misalignment (Absolute) and Child SES*

Competence domain	Belief variable (predictor)	Kindergarten adjustment outcomes				
		Approaches to learning	Disruptive behavior	Social behavior	Reading	Math
Academic	Misalignment	-0.19**	0.12*	-0.27***	-0.12*	-0.17***
		(0.06)	(0.05)	(0.06)	(0.05)	(0.04)
	Misalignment*SES	0.05**	-0.04*	0.06***	0.04**	0.05***
		(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Self-regulatory	Misalignment	-0.14*	0.09	-0.16*	-0.18**	-0.23***
		(0.07)	(0.07)	(0.08)	(0.06)	(0.05)
	Misalignment*SES	0.06*	-0.04+	0.05*	0.08***	0.06***
		(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Interpersonal	Misalignment	-0.14+	0.04	-0.27***	-0.15*	-0.22***
		(0.08)	(0.07)	(0.08)	(0.06)	(0.05)
	Misalignment*SES	0.06*	-0.03	0.08**	0.06**	0.08***
		(0.02)	(0.02)	(0.03)	(0.02)	(0.02)

*Note.* SES = socioeconomic status; standard errors reported in parentheses.

\*\*\*  $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , + $p < .1$

Table 7

*Interactions Between Teachers' Belief Misalignment (Relative) and Child SES*

Competence domain	Belief variable (predictor)	Kindergarten outcomes				
		Approaches to learning	Disruptive behavior	Social behavior	Reading	Math
Academic	Misalignment	-0.26*	0.15	-0.35**	-0.13	-0.17+
		(0.10)	(0.10)	(0.11)	(0.10)	(0.09)
	Misalignment*SES	0.08*	-0.06+	0.09*	0.03	0.04+
		(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
Self-regulatory	Misalignment	-0.44**	0.23+	-0.54***	-0.19+	-0.19+
		(0.15)	(0.13)	(0.16)	(0.10)	(0.11)
	Misalignment*SES	0.10*	-0.07	0.11*	0.06	0.09*
		(0.05)	(0.04)	(0.05)	(0.04)	(0.03)
Interpersonal	Misalignment	-0.25*	0.08	-0.17	-0.18	-0.25*
		(0.11)	(0.12)	(0.14)	(0.12)	(0.10)
	Misalignment*SES	0.09*	-0.05	0.11*	0.08*	0.09**
		(0.04)	(0.04)	(0.05)	(0.04)	(0.03)

*Note.* SES = socioeconomic status; standard errors reported in parentheses.

\*\*\*  $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , + $p < .1$