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Chaotic Experiences and Low-Income Children's Social-Emotional Development

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Abstract

Development in early childhood is increasingly likely to take place in multiple contexts. Continuity and discontinuity in children's experiences across multiple contexts have important implications for their development. This study examines the extent to which children experience chaos in their homes and in their preschool settings is linked with their social-emotional development over the course of the preschool year. Data from a large, representative sample of low-income preschool children attending Head Start was used to test a series of multi-level models. Children whose experiences of their homes were highly chaotic, regardless of the how chaotic their experiences of their classroom were, decreased in their social-emotional skills over the preschool year. Chaotic experiences in the home environment thus appear to have more influence on children's development than do chaotic preschool experiences.

1. Introduction

Children's early development occurs in and is influenced by each of the environmental contexts children experience, from their homes and neighborhoods to their child care centers or preschools (Bronfenbrenner & Morris, 1998). Developmental processes that occur in each context are not independent from each other, such that experiences of one context can interact with their experiences of another to produce lasting developmental changes in the child (Bronfenbrenner & Morris, 1998). The capacity for children to learn from early experiences depends on the extent to which key contexts provide opportunities and supports for growth (Scarr & McCartney, 1983; Shonkoff & Phillips, 2000). According to ecological theory, environments that provide opportunities and supports for growth are those in which interactions between children and their environments, known as proximal processes, are typically both consistent and predictable (Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998). In contrast, when children's experiences of their environment are chaotic, characterized by high levels of frenetic activity, a lack of structure, unpredictability in everyday activities, and high levels of ambient stimulation, the extent to which proximal processes are either consistent or predictable is limited (Bronfenbrenner & Evans, 2000; Wachs & Evans, 2010).

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As women have entered or returned to the workforce after becoming mothers at increasing rates over the past several decades (U.S. Bureau of Labor Statistics, 2014), the amount of time children spend in various out-of-family contexts has also increased. There is an ever greater need to understand how children's experiences across multiple contexts combine to influence their development and how chaotic experiences in one or more contexts may interfere with development. Using a national sample of low-income children attending Head Start, the overall purpose of the present study is to examine how continuity or discontinuity in children's chaotic experiences of their home and early childhood education classroom settings influences their early social-emotional development over the preschool year.

2. Background

2.1. Chaotic experiences in developmental contexts

The term "environmental chaos" is a theoretical construct denoting a system of overly stimulating environmental characteristics that is adversely related to children's development and well-being (Wachs & Evans, 2010). Prior research has long shown that the relation between stimulation and development is non-linear—both excessive stimulation and too little stimulation are problematic for most children's development, with the developmentally optimal level of stimulation falling somewhere in the middle (Wohlwill, 1970; Wohlwill & Heft, 1987).

Definitions of chaotic experiences are numerous and varied; examples include, "environmental confusion" (Matheny, Wachs, Ludwig, & Phillips, 1995; p. 430), "frenetic activity, lack of structure, unpredictability in everyday activities and high levels of ambient stimulation" (Bronfenbrenner & Evans, 2000, p. 121), "chronic and persistent instability" (Lichter & Wethington, 2010, p. 15), "disruptions in multiple domains, including sensory overload, physical crowding, and routine family life" (Fiese & Winter, 2010, p. 49), "sudden, unexpected, and unintended disruptions" (Dunn, Schaefer-McDaniel, & Ramsey, 2010, p. 178), and "an environment characterized by high levels of noise, crowding, and instability as well as a lack of temporal and physical structuring (few regularities, routines, or rituals; nothing has it's time or place) " (Wachs & Evans, 2010, p. 5). Chaotic experiences pose risks for children's development because they are disruptive to multiple developmental processes, the most central of which, according to ecological theory, is the disruption of predictable and sustained proximal processes (Bronfenbrenner & Evans, 2000; Wachs & Evans, 2010).

Measurements of chaos are similarly numerous. In practice, researchers have selected variables on the basis of theoretical or conceptual importance and analyzed them individually or combined them as an index. The empirical basis for individual variables that may contribute to environmental chaos (e.g., crowding, noise, lack of routine, residential mobility) is large. In comparison, the empirical basis for chaos defined as an aggregate variable, which may be the most appropriate for representing chaos as a system or pattern, is relatively small (Ackerman & Brown, 2010), though two central constructs within chaos have been highlighted: disorder, characterized by high levels of noise, excessive crowding, clutter, and a general lack of structure; and turbulence, characterized by a lack of predictability and routines and by instability (Brooks-Gunn et al. 2010). While "chaos, "

variously defined and measured, has consistently predicted poorer functioning in children over and above the influence of socioeconomic status, exactly which are key aspects of chaos for children's development is left uncertain (Wachs & Evans, 2010). The field is thus left with an intriguing concept whose operationalization is either under-developed or overly broad.

Drawing from these numerous conceptual and operational definitions of chaos in the literature, for the purposes of this study we define children's chaotic experiences as being times in which *disruptive environmental characteristics interfere with a child's ability to engage in predictable, controllable, and consistent interactions in and exchanges with their environment.*

One note about chaos and socioeconomic status (SES). Chaos is not evenly distributed throughout the population—children from low-income families are more likely to have chaotic experiences compared to their higher-income peers (Bradley, Corwyn, McAdoo & Garcia-Coll., 2001; Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005). Children growing up in low-income or poor families are more likely to live in crowded, noisier, and poor-quality housing, to experience less structure, routine, or predictability in their daily lives, to be exposed to family disruption, to change residences, and to experience lower-quality child care than children growing up in non-poor families (Evans, 2004; Evans et al., 2005). That said, there is consistent evidence that chaos is distinct from SES from three lines of research: chaos has been linked to children's development in middle-class samples (Hygge, Evans & Bullinger, 2002); the significant association between chaos and development persists after aspects of SES, including income, parental education, and parental occupation, have been controlled (Dumas, Nissley, Nordstrom, Smith, Prinz, & Levine 2005; Evans 2006); and longitudinal studies have shown that changes in chaos are associated with changes in developmental outcomes even when no changes in SES have occurred (Corapci & Wachs, 2002; Wachs & Evans, 2010). Following from this research, we consider chaos to be a construct separate from family SES.

2.2. Risk across early childhood contexts

Decades of research have established that a single risk rarely reflects the reality of most children's lives; rather, it is the constellation of risks or advantages that best captures the contextual complexities in which children develop (Sameroff, Gutman, Peck, & Luthar, 2003). The best predictors of children's development are those that incorporate children's risks and advantages across multiple contexts (Bronfenbrenner, 1979; Sameroff, Clarke-Stewart, & Dunn, 2006; Sameroff et al., 2003).

Young children cannot seek out their own environments and thus must cope with the environments their parents choose for them, the two most prominent of which are the home and the setting in which they receive care outside the home, whether it be in a child care center, preschool, or family care setting. Only a handful of studies to date have considered how children's experiences in multiple settings interact to predict developmental outcomes, and none have examined how chaotic experiences of multiple settings may combine to influence children's development. In the NICHD Study of Early Child Care and Youth Development, children's experiences of cognitive stimulation accumulated across their

home, child care, and elementary school settings to predict their rate of learning, but the cumulative function only held true when one of the contexts in which children were exposed to high levels of cognitive stimulation was the home environment (Crosnoe, Levanthal, Wirth, Pierce, & Pianta, 2010).

Quality in children's home and child care environments similarly accumulated across contexts to predict children's social-emotional functioning in the NICHD Study of Early Child Care and Youth Development (Watamura et al., 2011). Children who were exposed to both low-quality home environments (assessed using observations of maternal sensitivity and the home environment) and low-quality child care environments (assessed using observations of the child care setting) had the highest levels of problem behaviors and the lowest levels of prosocial behaviors. Consistent with Crosnoe and colleagues (2010), high quality home environments promoted positive development regardless of whether the quality of the child care setting was high or low.

These findings suggest that children can have varying experiences across their home and early learning contexts, but that the primacy of the home environment may dictate how the experiences combine to influence development.

2.3. Chaotic experiences across early childhood contexts

The prior work suggests children's chaotic experiences across multiple environments may similarly cumulate or combine to predict children's development, but no study has examined how chaotic experiences, specifically, interact across settings to affect development. This is, in part, because the study of chaos has almost been entirely limited to the home environment. The most commonly used measure of chaos, the Confusion, Hubbub, and Order Scale (CHAOS; Matheny et al., 1995), only assesses the level of chaos in the home. The few studies examining the influence of chaotic early education and care settings on children's development (e.g. Evans 2006; Maxwell, 1996; Smith & Connolly, 1977; Tran & Winsler, 2011) have measured individual dimensions of chaos (e.g., overcrowded classrooms, caregiver turnover). Only a single study has previously attempted to develop a construct of classroom chaos. Using an adapted version of the CHAOS (Matheny et al., 1995), Wachs and colleagues (2004) assessed child care teachers' perceptions of the use of space, crowding, environmental traffic, and the degree of control and organization in the classroom. Children in child care settings rated to be chaotic showed fewer compliant behaviors than other children. In another study among first-grade students, lower levels of teacher-reported chaos using the Wachs-adapted version of the CHAOS predicted greater gains in reading from fall to spring, and higher levels of chaos predicted fewer gains in mathematics for boys, but not girls (Ponitz, Rimm-Kaufman, Brock, & Nathanson, 2009).

2.4. Present study

The present study examined children's experiences of chaos in both their home and early education settings. In doing so, the study adds to our understanding of how children develop across environments, and to our understanding of how to evaluate chaotic experiences in settings outside the home. We used the framework set forth by Watamura and colleagues

(2011) to understand how children's chaotic experiences across two settings might combine to predict children's development.

The aims of the present study were two-fold: (1) to identify the effects of children's chaotic experiences in two important early childhood contexts—their home and their preschool—on changes in children's social-emotional development; and (2) to determine whether the associations between chaotic experiences and changes in children's early social-emotional development are in part determined by which context the child experiences as chaotic, and whether chaotic experiences in one context can be buffered by stability in the other. These aims were addressed using data from a cohort study of a large representative sample of low-income children attending the federal Head Start program for children in low income families, known as the Family and Child Experiences Survey, 2006 cohort (FACES 2006) (West et al., 2010). Because low-income children are at an increased risk for being exposed to multiple disadvantages and at an increased risk for being exposed to chaotic experiences, a key strength of the current study is the ability to examine chaos within a low income sample, thereby largely disentangling chaos from SES. Given that Head Start is the largest early education program in the U.S. serving more than one million children (U.S. Department of Health and Human Services, 2014), understanding how the Head Start context interacts with the home context has important policy relevance for efforts at strengthening home-center connections.

We examined six indicators of chaos in the home and six indicators of chaos in children's preschool classrooms. For both the home and preschool classroom, the six indicators reflect the two central constructs—disorder and turbulence—highlighted in the research (Brooks-Gunn et al., 2010). In the home and preschool classroom, disorder is represented by commotion (the number of children and adults in the home; the child/teacher ratio and number of children in the classroom). The number of adults and number of children in the household were examined separately because the presence of additional children presents a unique source of competition for resources that is important for understanding the influence of chaotic home experiences on children's development (Evans, 2006; Maxwell, 1996; Smith & Connolly, 1977).

In the home, turbulence is represented by lack of bedtime and mealtime routines and by instability (frequent residential moves and not living with both bio/adoptive parents). In the classroom, turbulence is represented by lack of structure (observed using the ECERS) and instability (high number of child care arrangements, high number of absences, and experiencing a teacher change). Indices of risk were created from the indicators and then combined to identify patterns of high and low chaotic experiences in both settings.

Children's experiences of each setting could be similarly chaotic (continuity), or children's experiences in one setting could be more chaotic than the other (discontinuity). We hypothesized that highly chaotic experiences in both settings would be associated with the worst outcomes for children, while minimally chaotic experiences in both settings would be associated with the best outcomes. For children who begin preschool without chaotic home experiences, but have chaotic experiences in their preschool classroom, we expected children to suffer as a result of lost resources. In contrast, children who begin preschool with highly

chaotic home experiences, but who have classrooms that are low in chaos, may benefit from a compensatory process. We anticipated that children in either lost resources or compensatory setting combinations would fare worse than the children who had low chaos in both their home and preschool settings. Based on past findings about the primacy of the home environment (Crosnoe et al., 2010; NICHD ECCRN, 2001; Watamura et al., 2011), we expected children in the lost resources preschool condition to be slightly better off than children in the compensatory preschool condition.

3. Method

3.1. Data

Data come from the Head Start Family and Child Experiences Survey: 2006 Cohort (FACES 2006), which is the fourth in a series of national cohort studies designed to examine Head Start's effectiveness in increasing school readiness among children from low-income families. FACES 2006 was designed to follow children who entered their first year of Head Start at either age three or four through kindergarten. In the current study, data from two rounds of data collection, fall 2006 and spring 2007 of children's first Head Start year, were used.

3.2. Analytic Sample

The sample is limited to children who remained in the same Head Start classroom in both the fall and in the spring. Though it might be argued that switching classrooms in the middle of the school year constitutes a chaotic experience, one of the goals of the study is to examine children's chaotic experiences within their classroom environments. Excluding children who switched classrooms ensured that the sample only included children who were exposed to the same classroom environment, and thus the same chaotic experience, over the course of the school year. Approximately 133 children switched classrooms between the fall and spring. The full analysis sample includes 2,447 children, of whom 1,484 children were age 3 in the fall of 2006 and 963 children were age 4.

Overall, just over half of the children (51.1%) in the analysis sample were male. More than one third (37.5%) were Hispanic and another third (34.3%) were Black. Nearly three-quarters lived in households where the primary language was English. Because the data come from a study of Head Start, most of the children in the analysis sample are from disadvantaged families. More than half lived in poverty (56.1%) and used public assistance (54.3%). More than one-third (36.6%) of children had mothers who had less than a high school diploma.

3.3. Indicators of chaotic home experiences

Six dichotomous indicators of chaotic experiences in the home were derived from parent-reported data collected during children's initial Head Start year. The criteria used to evaluate when chaos was present for each indicator is presented in Table 1 and described below. In general, for each of the continuous variables, chaos was defined at one standard deviation above or below the mean, which is consistent with a large body of research using statistical cutoffs including standard deviations and upper quartiles to develop risk indices (e.g., Evans

& Kim, 2010; Hooper, Burchinal, Roberts, Zeisel, & Neebe, 1998; Sameroff, Gutman, & Peck, 2003).

3.3.1. Household commotion—No information on the size of the child's home was available in the data (crowding is a commonly used index of chaos). Instead, we used the number of individuals in the home as an index of household commotion. A complete roster of all household members (adults and children), including their age, gender, and relationship to the child, was collected in the fall of the Head Start year. One standard deviation above the mean number of adults living in a household was equal to 2.91 and one standard deviation above the mean number of children living in a household was equal to 3.82, and thus cut-offs of 3 adults and 4 children were reasonable cut-offs as indicators of potential commotion in the home.

3.3.2. Lack of routine—In the spring of the Head Start year, parents reported whether or not they had rules and routines for certain household activities including bedtimes and meals. Parents reported whether or not the child had a regular bedtime for at least 4 days in the past week and how many days in the past week the family had eaten dinner together. FOR FAMILY MEALS, ONE STANDARD DEVIATION BELOW THE MEAN DAYS PER WEEK FAMILIES HAD MEALS TOGETHER WAS EQUAL TO 3.54 DAYS. HOWEVER, THE FREQUENCY DISTRIBUTION SHOWED A CLEAR BREAK IN THE DISTRIBUTION AFTER 3 DAYS, AND THUS WE DECIDED TO USE 3 OR MORE AS AN INDICATOR OF THE PRESENCE OF REGULAR MEALTIMES AND 2 OR FEWER AS AN INDICATOR OF THE ABSENCE OF REGULAR MEALTIMES. THE VARIABLE REPRESENTING REGULARITY OF BEDTIMES WAS DICHOTOMOUS—PARENTS RESPONDED THAT CHILDREN EITHER DID OR DID NOT HAVE A REGULAR BEDTIME FOR AT LEAST 4 DAYS PER WEEK. If a parent indicated their child did not have a regular bedtime for 4 or more days each week, this was coded as an absence of a regular bedtime.

3.3.3. Household instability—Parents reported the number of times the family had moved in the prior year as well as the number and type of partners present in the household in both the fall and spring of the Head Start year. Two moves in the last two years was chosen as the cut off for moving because ONE STANDARD DEVIATION ABOVE THE MEAN WAS EQUAL TO 1.94 MOVES AND THE FREQUENCY DISTRIBUTION SHOWED A BREAK IN THE DISTRIBUTION BETWEEN 1 AND 2 MOVES. CHILDREN NOT LIVING WITH BOTH OF THEIR BIOLOGICAL OR ADOPTIVE PARENTS WAS USED AS A SECOND INDICATOR OF HOUSEHOLD INSTABILITY.

3.4. Indicators of chaotic classroom experiences

Six indicators of chaotic classroom experiences were collected through parent-report, teacher-report, and observation, the latter of which occurred in the spring of the Head Start year. Cut-offs for chaos are described below and presented in Table 1.

3.4.1. Classroom commotion—Two teacher-reported measures—the number of children in the classroom and the child-teacher ratio—were used as indicators of commotion

in classroom commotion. Classrooms with more than 20 children and classrooms with more than 11 children per teacher were considered to have high levels of classroom commotion. For the count of children, one standard deviation above the mean was equal to 19.92 children and there was a clear break in the frequency distribution between class sizes of 20 and 21 children. Similarly, one standard deviation above the mean child-teacher ratio was equal to 11.8 children per teacher and there was a marked break in the frequency distribution between ratios of 10 and 11 children per teacher.

3.4.2. Lack of classroom routine—Routine in the child's Head Start classroom was assessed through observer ratings of the classroom using the Program Structure subscale of the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms, Clifford, & Cryer, 2005). The Program Structure subscale consisted of 4 items: space for privacy, schedule, free play, and group time. Items within each subscale were rated by trained observers on a scale from 1 ("inadequate") to 7 ("excellent") and then averaged to create a subscale mean. THE VARIABLE REPRESENTING CLASSROOM SCORES ON THE PROGRAM STRUCTURE SUBSCALE WAS RECODED TO INDICATE CHAOS IF THE SCORE WAS EQUAL TO OR BELOW 2.75. ONE STANDARD DEVIATION BELOW THE MEAN WAS EQUAL TO 2.89 AND THERE WAS AN INDICATION OF A BREAK IN THE FREQUENCY DISTRIBUTION AT 2.75, THUS WE USED THAT VALUE AS THE CUTOFF FOR CHAOS ON THIS INDICATOR.

3.4.3. Instability in classroom experiences—Three indicators of instability in children's experiences of their classroom setting were examined: number of child care arrangements, number of absences from the classroom, and whether the child experienced a teacher change in the middle of school year. One standard deviation above the mean number of total child care arrangements was equal to 1.4, and thus we used ≥ 2 arrangements as the cut-off for this indicator. FOR CLASSROOM ABSENCES, IT WAS DIFFICULT TO DETERMINE A CLEAR BREAK IN THE FREQUENCY DISTRIBUTION, BUT ONE STANDARD DEVIATION ABOVE THE MEAN NUMBER OF ABSENCES WAS EQUAL TO 13.82. USING 14 ABSENCES AS A CUT-OFF, APPROXIMATELY 10 PERCENT OF THE SAMPLE MET THIS INDICATOR OF CHAOS WITH 14 OR MORE MISSED DAYS. THE INDICATOR FOR WHETHER THE CHILD EXPERIENCED A CHANGE OF TEACHER AT SOME POINT IN THE YEAR WAS A 0/1 VARIABLE FOR NO/YES. Because children who switched classrooms were excluded from the analytic sample, children who experienced a teacher change remained in the same classroom. This provided greater confidence that the teacher change was because the teacher left the classroom and not that the child left the classroom, which might occur for any number of reasons including behavior problems, which might co-vary with children's social-emotional growth.

3.5. Children's social-emotional development

Both parents and teachers reported on children's behavior problems and social skills in the fall and spring of the Head Start year. Teachers reported on children's behaviors via a self-administered questionnaire. Parents' reports were incorporated into the parent interview. Because both parents and teachers were also raters of some of the indicators of children's

chaotic experiences, we examined the parent- and teacher-rated child outcomes separately in order to confirm that any findings could not be explained by shared measurement error of the measures of chaos and of the outcomes.

3.5.1. Teacher-reported behavior problems and social skills—Head Start teachers rated the frequency of children's negative classroom behaviors using the FACES 2006 behavior problems scale, which measures negative child behaviors associated with learning problems and later grade retention (West et al., 2010). The 14 items were drawn from an abbreviated adaption of the Personal Maturity Scale (PMS; Alexander & Entwisle, 1988) and from the Behavior Problems Index (BPI; Peterson & Zill, 1986).

The PMS measures a child's interest or participation, cooperation or compliance, and attention span or restlessness, and had alpha reliabilities ranging from 0.74 to 0.85 in the FACES 2006 study (West et al., 2010). The BPI includes under-control (e.g., aggression, hyperactivity, and destructiveness) and over-control (e.g., social withdrawal, depression, and somatic problems), and had alpha reliabilities ranging from 0.88 to 0.89 (West et al., 2010).

Head Start teachers responded to questions about the frequency of aggressive behavior (such as "hits/fights with others"), hyperactive behavior ("is very restless"), and anxious or depressed and withdrawn behavior ("is unhappy") using a scale from 1 ("never") to 3 ("very often"). A summary score was derived with higher scores representing more frequent or severe negative behavior.

Head Start teachers also rated how often children engaged in cooperative classroom behaviors, such as following teacher directions, helping put things away, complimenting classmates, and following rules when playing games. The 12-item scale was drawn from the PMS and the Social Skills Rating System (SSRS) (Gresham & Elliot, 1990). The SSRS social skills subscale score had an alpha coefficient of 0.94 for preschool report forms in the FACES 2006 study (West et al., 2010). Teachers indicated the extent to which a given statement (e.g., "follows the teacher's directions") was characteristic of the child on a scale from 1 ("never') to 3 ("very often"). A summary score was created with high scores indicating a high frequency of cooperative behavior.

3.5.3. Parent-reported behavior problems and social skills—During the parent interview, parents responded to 21 items taken from the PMS, SSRS, and the BPI, indicating whether a particular statement (e.g., "makes friends easily") was characteristic of their child from 1 ("not true) to 3 ("very true or often true"). The items were categorized into one of two summary scores: social skills/positive approaches to learning and problem behaviors.

The BPI does not adequately assess pro-social or positive behaviors. Additional items were taken from the SSRS and the PMS. The SSRS social skills subscale has an alpha coefficients 0.90 for parent reports on the preschool form. The SSRS problem behavior subscale score has an alpha coefficient of 0.73 for parents on the preschool form in the FACES 2006 study.

3.6. Child, family, and teacher covariates

Child covariates included gender, race, ethnicity, age cohort (age 3 or age 4), disability status, and whether the child was born with low birth weight (i.e., weighed less than 5 pounds 8 ounces at birth). Family covariates included whether the household income-to-needs ratio was below the poverty threshold (based on 2005 thresholds), use of public assistance (welfare, food stamps, or WIC), whether the primary language spoken in the house was English, parent education (high school diploma or higher), whether each of the parents was working full-time, and the mother's number of depressive symptoms. Teacher covariates included whether the child's primary Head Start teacher had a bachelor's degree or higher, whether the teacher had a Child Development Associate (CDA) credential, the teacher's race and ethnicity, the number of years the child's teacher had been teaching in a Head Start classroom, and the number of depressive symptoms experienced by the child's teacher.

3.7. Cumulative indices of chaotic experiences

The six dichotomous indicators of chaotic experiences in the home were summed to create a cumulative index of household chaos. Similarly, the six indicators of chaotic experiences in the classroom were summed to create a cumulative index of classroom chaos. The frequencies of chaotic experiences across settings are presented in Table 2. Few children had all 6, 5, or even 4, of the indicators of chaos in either setting. Indeed, very few children had more than two chaotic experiences in either setting (5.1% in the home, and 1.4% in the classroom). Because they were both positively skewed, the indices of chaotic experiences in the home and in the classroom were each top-coded at two indicators, which means that children with 2, 3, 4, 5, or 6 indicators of home chaos were given a 2; the same was done for school chaos. Thus, the range of the final indices of both home and school chaos was 0 to 2. As a sensitivity check, analyses were also run with the indices top-coded at 3 chaotic experiences and similar results emerged, but only the results from analyses with the indices top-coded at 2 are presented in the interest of parsimony.

3.8 Chaos across contexts profiles

To capture how children's chaotic experiences of their home and classroom settings combine, children were classified into chaos profiles based on their scores on the household and classroom chaos indices. Scores of 0 on each of the chaos indices represented non-chaotic experiences, scores of 1 represented a moderately chaotic experience, and scores of 2 represented a highly chaotic experience. Scores were combined to create 9 potential combinations (see Figure 1). For clarity and interpretability, we focused our analyses on the most distinct categories, namely those in which children experienced high or low chaos in both contexts and the category of medium levels of chaos in both contexts. This is similar to the method employed by Watamura and colleagues (2011) in their examination of quality in home and child care contexts. Approximately half (n = 1,292) of the original sample of children fell into one of the five chaos profiles:—highly chaotic in both (Double Jeopardy: 4.6% of the subsample for these analyses), non-chaotic in both (Double Protection: 37.7%), or highly chaotic in one and non-chaotic in the other (Compensatory Care: 27.6%; Lost Resources: 3.9%), along with one additional group of children who had moderately chaotic

experiences in both settings (Moderate Chaos: 26.1%). The frequency distributions for each chaos profile are presented in Table 3. The remaining 1,155 children who fell into a combination involving a medium level of chaos in only one context are not included in the analyses below.

3.9 Missing data and analytic plan

Although there was a relatively high participation rate at each time point of data collection (unweighted participation rates ranged between 95.2% and 96.0% for child assessments, parent-reports and teacher reports in fall 2006 and between 92.2% and 97.8% in spring 2007), full-information maximum likelihood (FIML) estimation in Mplus 6.1 (Muthén & Muthén, 1998–2010) was used to account for missing data. FIML assumes that the missing data are either missing completely at random (MCAR) or missing at random (MAR). Missing data ranged between 4% and 23% across the predictor and outcome variables. FIML incorporates all available data in the analyses but does not estimate the missing data points; instead it fits the covariance structure model directly to the observed raw data for each participant (Enders, 2001).

To adjust for differential probabilities of selection and to reduce any bias that may have resulted from differential non-response, we used the longitudinal child-level sampling weight that selected the presence of parent, teacher, and child data at both fall 2006 and spring 2007 (West et al., 2010; p. 126). Because children are nested within classrooms, each model was run as a multilevel model using the CLUSTER function in Mplus 6.1. Each model included a control for age cohort and child, family, and teacher characteristics. All models predicted children's behavior problems (separately for teacher-reports and parent-reports) and social skills (separately for teacher-reports and parent-reports) in the spring of the Head Start year controlling for children's behavior problems and social skills in the fall. Thus, our dependent variables were changes in children's social-emotional abilities from fall to spring of their Head Start year.

4. Results

Descriptive statistics are presented in Table 4 and correlations among the key study variables presented in Table 5 show that chaotic experiences in the home were not highly correlated with chaotic experiences in the preschool classroom, indicating the variables are tapping two largely distinct experiences in children's lives). Of particular interest was whether the indices of classroom instability, namely number of child care arrangements and number of absences, would be highly correlated with the home chaos indicator of residential mobility, given that residential mobility could lead to child care mobility. However, the two indicators of classroom instability were not significantly correlated with residential instability. There is thus a minimal association between classroom instability and residential mobility, supporting our decision to keep them as indicators of classroom and home chaos, respectively.

4.1. Cumulative indices of chaotic experiences as predictors of development

Both the index of chaotic experiences in the home and the index of chaotic experiences in the classroom were entered into multi-level models for each of the four outcomes. As shown in Table 6, after controlling for child, family, and classroom characteristics as well as children's fall levels of social-emotional behavior, highly chaotic home experiences were associated with increases in children's problem behavior, $\beta = 0.07$, $p < .01$, or and decreases in social skills over time, $\beta = -0.07$, $p < .01$, as reported by their parents compared to children who experienced less chaotic home experiences. Highly chaotic classroom experiences were associated with increases in children's problem behavior over the preschool year as reported by both their parents, $\beta = 0.04$, $p < .01$, and their teachers, $\beta = 0.07$, $p < .05$.

4.2. Chaos profiles as predictors of development

To examine how children's chaotic experiences across in multiple settings might combine to influence their social-emotional growth, three sets of multi-level models were analyzed with children's chaos profiles as predictors. The Moderate Chaos group was the referent group in the first set of models (Table 7), the Double Protection group was the referent in the second set of models (Table 8), and the Compensatory Care group was the referent in the final set of models was the (Table 9).

Children in the Double Protection profile (non-chaotic experiences in both the home and the classroom) demonstrated the greatest gains in social-emotional development overall. As shown in Table 6, children who had non-chaotic experiences across both settings experienced greater improvement in parent-reported problem behaviors and greater gains in parent-reported social skills than did children with moderately chaotic experiences. As shown in Table 7, children who experienced two non-chaotic experiences were rated by their parents as having greater gains in parent-reported social-emotional skills than were children with highly chaotic experiences in both settings (Double Jeopardy) and children with highly chaotic home environments but non-chaotic classroom environments (Compensatory Care). That is, children who had non-chaotic experiences in both settings were seen by parents to fare better than children who had more chaotic home environments, regardless of the level of chaos in their classroom setting (i.e., Moderate Chaos, Double Jeopardy, and Compensatory Care).

That non-chaotic home experiences are beneficial for children's development over the preschool year regardless of how chaotic their classroom experiences are was supported in subsequent models as well. As shown in Table 7, there was no difference in social-emotional gains between children in the Double Protection profile and children in the Lost Resources profile, the latter of whom had similarly non-chaotic home environments, but had highly chaotic classrooms. Additionally, as shown in Table 8, children in both the Double Protection and Moderate Chaos profiles demonstrated greater improvement in problem behaviors than children in the Compensatory Care profile. Children in the Double Protection and Moderate Chaos profiles had less chaotic home experiences compared to children in the Compensatory Care profile. Even though children in the Compensatory Care profile had

classroom experiences that were not chaotic, the absence of chaotic experiences in the home proved to be a stronger influence on children's development.

5. Discussion

This study highlights the importance of studying cross-context influences on development and confirmed the importance of chaos in children's experiences of their home and preschool classroom settings as predictors of change in children's social-emotional development. Using data from a large sample of low-income children attending Head Start, this study highlights what conditions promote or interfere with the ability of low-income children to profit from a year of preschool education. Chaos in each setting independently predicted development, but when the levels of children's exposure to chaos in each setting were combined into profiles, children's home environments were the predominant influence on their social-emotional growth. That is, children who had non-chaotic home environments gained more over the preschool year than did children who had chaotic homes, regardless of whether chaos was present in their Head Start classrooms. Examining chaos in a sample of low-income children helped to isolate the influence of chaos from the influence of socio-economic status (SES) on children's social-emotional growth, but chaos was found to predict children's development while holding any remaining variation in SES constant.

5.1. Chaotic early childhood contexts and children's growth

The first aim of this study was to investigate the relations between children's chaotic experiences in their home and preschool classroom settings and their social-emotional growth over the preschool year. Highly chaotic home environments predicted higher problem behaviors and fewer social skills over the preschool year above and beyond controls for important covariates including child gender, family poverty, and both parent and teacher education and depression. These findings confirm and extend earlier work finding relations between household chaos and children's social-emotional development (Ackerman et al., 1999; Coldwell, Pike, & Dunn, 2006; Dumas et al., 2005).

Prior studies of chaos have almost entirely been dedicated to household chaos, even though chaotic experiences are not limited to only the home. This study was one of the first attempts to also measure chaos in preschool settings. Correlation analyses confirmed that our measure of chaotic classroom experiences developed in this study tapped into experiences distinct from chaotic homes. Additionally, the cumulative index of classroom chaos used in this study predicted greater behavior problems over the school year, but was not associated with children's social skills.

The second aim of this study was to investigate how children's experiences across contexts combine to influence the ability of low-income children to benefit from a year of preschool. The cumulative influence on development is most often studied in the context of risk, which supposes that the accumulation of risk factors influences development such that the greater the number of risk factors, the worse the developmental outcome (Sameroff, 2000; Sameroff et al., 2003). The cumulative hypothesis was supported both for children who had highly chaotic experiences of both settings (cumulative disadvantage) and for children who had non-chaotic experiences in either setting (cumulative advantage). Children who experienced

cumulative advantage across contexts were rated as having improved social-emotional skills over the preschool year, while children who experienced cumulative disadvantage were rated as decreasing in their social emotional skills over the preschool year. That children who experienced cumulative advantage across contexts made the greatest social-emotional gains over the preschool year supports prior work using data from the NICHD Study of Early Child Care and Youth Development (Crosnoe et al., 2010; Watamura et al., 2011).

Discontinuity in children's chaotic experiences across the home and classroom contexts combined in only one way to significantly predict children's development. Regardless of whether their preschool classrooms were chaotic or not, children who experienced highly chaotic home environments demonstrated decreases in their social-emotional skills over the preschool year. The positive context provided by some classrooms could not compensate for the relative strength of chaotic experiences in the home environment, but, importantly, the advantage of non-chaotic experiences in the home environment were not lost to chaotic classroom experiences. Thus, children gained the most over the preschool year when they had positive experiences in their home environment. Children who had highly chaotic home experiences were less likely to gain from the Head Start experience than were children with less chaotic home experiences.

Although each of the contexts of children's development influences their growth, the strength of those influences on development varies. The influence of the home context is not equal to the influence of other contexts (NICHD ECCRN, 1998; 2001; 2002). That chaotic experiences in the home was a more consistent predictor of children's development and mattered more for development than chaotic experiences in their classroom settings was not unexpected. That children's experiences of their home environment are stronger predictors of development than experiences of other settings likely reflects, at least in part, the amount of time children, especially young children, spend in their home environments. The ability for children's Head Start classrooms to overcome the three or four years of experiences in their home children bring with them may be limited. Even still, chaotic preschool classroom experiences did emerge as a negative influence on development in the present study and may have even been underestimated given how few children had highly chaotic classroom experiences.

5.2. Is it chaos or socio-economic status?

Understanding how children's experiences across contexts interrelate and combine to influence development is particularly critical for children growing up in low-income families as they are more likely to be exposed to a multitude of disadvantages than are their non-poor peers (Dearing, Berry, & Zaslow, 2006). Though children from families of all income levels experience chaotic environments, chaos is more prevalent among low-income families, which makes it difficult to disentangle the influence of chaos on development from the influence of being low-income (Evans, 2004; Evans et al. 2005). Despite evidence that the association between chaos and children's development remains significant after family SES is accounted for, some researchers have argued that there is limited evidence that chaos is a distinct construct from other aspects of family adversity (e.g., Ackerman & Brown, 2010; Dumas et al., 2005).

The present study provides additional evidence supporting chaos as a distinct construct. To isolate the influence of chaos from the influence of SES, this study focused exclusively on a sample of children who were all low-income, thereby reducing the variation in income across the sample that might have predicted children's development. Not only were the relations between chaotic experiences and children's development significant after numerous child, family, and teacher socio-demographic characteristics were controlled, but variability in the likelihood of experiencing chaos was present in this study in which all of the children were from low-income families. If chaos was just another indicator of low SES, then one would expect minimal variability in chaos within a sample of low-income children.

5.3. Implications for Practice

From a policy perspective, the comparatively small influence of experiences outside the home on children's development compared to the home environment speaks to several issues. Children's experiences in early education and care settings have been examined both for their potential benefits for children growing up in low-income or poor families and for their potential harm for children from a range of socioeconomic backgrounds (NICHD ECCRN, 2002). For those concerned the influence of the family is waning as children spend more time in out-of-home contexts, this study suggests that the home environment remains predominant.

The over-powering nature of the home influence may seem discouraging news for early education and intervention programs aimed at preparing at-risk children for school, but many high-quality programs including Head Start are already using the strong influence of the home to their advantage. These findings suggest that they should do even more to incorporate children's home and family experiences into their early education and care settings. Researchers have noted that because the home and family context are so important for children's acquisition of most competencies, interventions must begin early and they must enlist parents as children's first and most influential teachers (Duncan, Ludwig & Magnuson, 2007; Zigler, 2003, p. 10).

5.4. Limitations

Aspects of the methodology make this study a conservative estimate of the relationship between children's exposure to chaotic environments and their development. First, though the children in the study sample were all from low-income families, the study sample may not be representative of all low-income children because low-income parents who enroll their children into Head Start may represent a select group of low-income families. Parents who are aware of the benefits of Head Start for young children, aware of opportunities for enrollment at local Head Start programs, and motivated to enroll children in Head Start may be more likely to provide less chaotic home environments than are parents who do not enroll their children in Head Start. It is impossible to address such selection issues using an experiment, as families cannot be randomly assigned to experience certain risks, and thus we believe that by using a longitudinal design that controls for key covariates and predicts change in child outcomes is the best approach to studying chaos. Additionally, the classroom experiences of all children in the study were experiences of Head Start, a federally-regulated program, which likely restricted the variability in chaotic classroom experiences that could

be examined. Studying chaotic experiences in a larger sample of low-income children not all enrolled in Head Start may yield greater variability in how chaotic children's classroom experiences were, which may in turn enable stronger associations between chaotic experiences and development in both the home and classroom settings than were found in this study.

Second, the measurement of chaotic experiences in the present study may have led to an underestimation of the association between chaotic experiences and development. Similar to much of the prior research, children's chaotic experiences were examined as static, point-in-time indicators, even though chaos may be more appropriately examined as an accumulation of disruptive environmental characteristics over multiple time points (Vernon-Feagans, Garrett-Peters, Willoughby, & Mills-Koonce, 2012). Future studies should examine how chaotic experiences accumulate over time and should give attention to how persistent or intermittent children's chaotic experiences are during their development.

Third, the measurement of chaotic classroom experiences, albeit a contribution to the field, may overlap with children's chaotic home experiences. Correlation analyses suggested the aspects of chaotic classroom experiences and chaotic home experiences were tapping into distinct experiences in children's lives, but if children had chaotic experiences in their classrooms because they had chaotic home experiences, this study may be an overestimate of the influence of chaotic classroom experiences.

Fourth, this study focused on discontinuity in children's experiences of chaos across their home environments and Head Start classrooms. The level of chaos in an environment is only one of many potential factors that can make children's experiences in that environment positive or negative. Future work should assess other factors including overall quality when assessing how children's experiences of chaos combine across environments.

Finally, in the present study, children's chaotic experiences were examined as predictors of children's growth over a year of preschool. The specific period of time over which children's growth was examined was from the fall of their Head Start year to the spring of their Head Start year, which, at best, may have only been a period of nine months. Examining growth over a longer period of time would have likely allowed for greater growth to occur, but because change is examined over such a narrow time frame, this too may have led to an underestimation of the relationship between chaos and development.

6. Conclusions

This study contributes to our growing understanding of children's development within multiple contexts through a systematic examination of children's chaotic experiences across two critical contexts for their early development. The findings highlight how chaotic experiences in the home and in the preschool classroom combine to influence social-emotional gains over a year of preschool in a sample of children from low-income families. Children's experiences in their home environments emerged as predominant, indicating that children who had non-chaotic home experiences gained more from a year in preschool than did children who had chaotic home experiences. These findings provide additional support

that effective and high-quality early education and care settings must incorporate children's home and family experiences to best support children and their families.

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Research Highlights

- Home and classroom chaos predict change in children's social-emotional development
- The home environment is the predominant influence on social-emotional growth
- Children from non-chaotic homes gained most over the preschool year
- Early education settings must incorporate children's home and family experiences

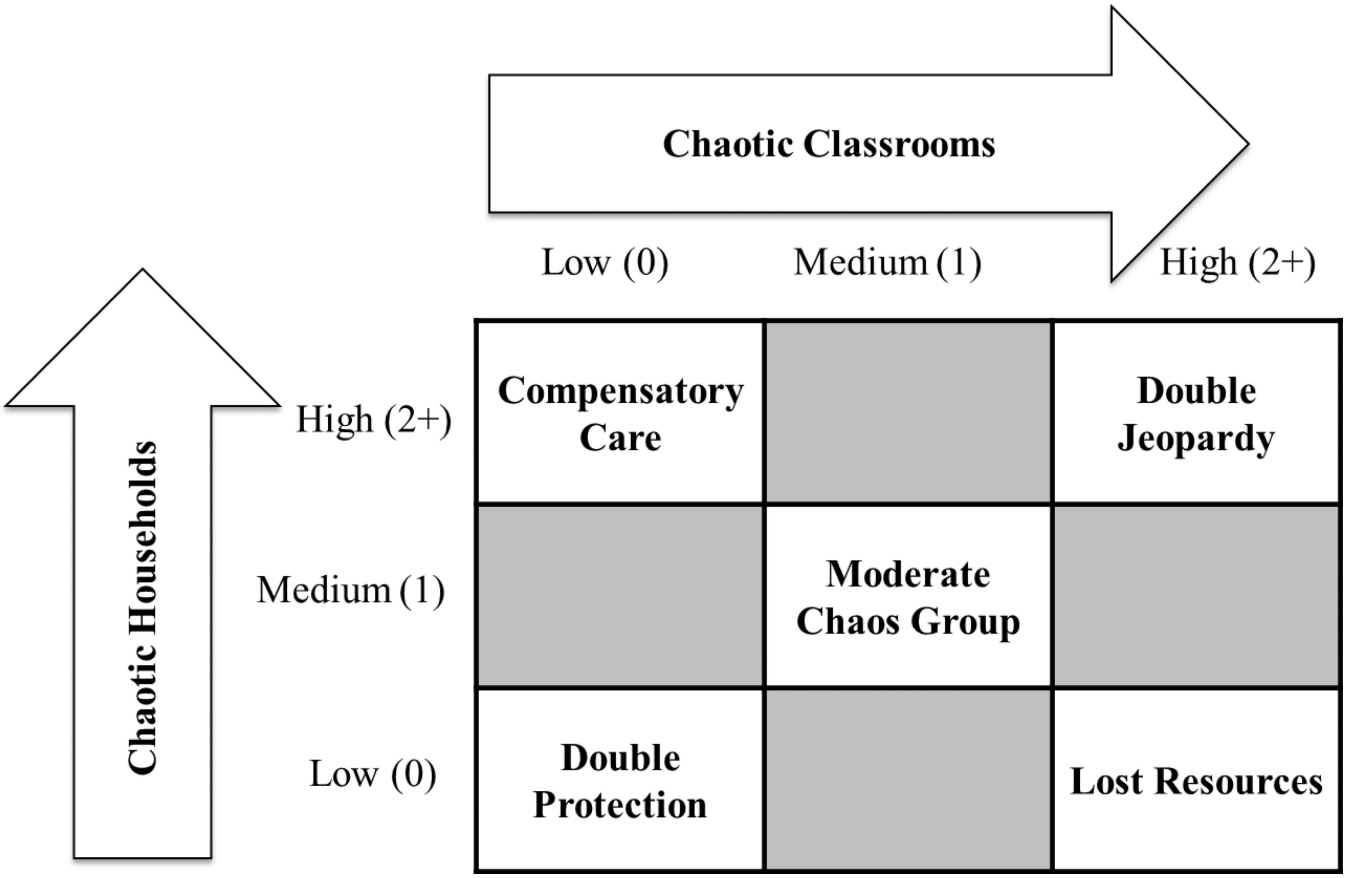

Figure 1.
Children's Chaotic Experiences across Setting

Table 1

Descriptive Statistics and Frequencies of Children's Exposure to Chaos

Household Characteristic	*M*	*SD*	Minimum	Maximum	Chaos Indicator	% Exposed to Chaos Indicator
Commotion						
Number of adults in home	1.97	0.9	1	7	> 3 adults	6.6%
Number of children in home	2.57	1.21	1	8	> 4 children	6.5%
Lack of routines						
Bedtime routines 4 weekdays	0.85	0.36	0	1	No regular bedtime	14.9%
Number of days/week family eats dinner together	5.32	1.82	0	7	< 3 days	7.9%
Instability						
Number of moves in last 24 months	0.73	1.18	0	10	≥ 2 moves	17.9%
Child lives with both mother & father	0.47	0.5	0	1	Not residing with both	52.6%
Classroom Characteristic	***M***	***SD***	**Minimum**	**Maximum**	**Chaos Indicator**	**% Exposed to Chaos Indicator**
Commotion						
Child:teacher ratio	9.23	2.62	1	21	≥ 11 children per adult	7.5%
Number of children	17.62	2.36	1	23	> 20 children	2.6%
Lack of routines						
ECERS Program Structure subscale	3.84	0.93	1	7	score ≤ 2.75	10.2%
Instability						
Number of child care arrangements	0.54	0.79	0	6	≥ 2 arrangements	10.5%
Number of absences	6.95	6.48	0	90	≥ 14 absences	12.3%
Whether child experienced a teacher change	0.1	0.3	0	1	Teacher change occurred	9.6%

Note. N = 2,447

Table 2

Distribution of Chaos Indicators across Cumulative Indices

Total Number of Chaos Indicators	**Cumulative Household Chaos Index**	**Cumulative Household Chaos Index Top-Coded at 2**
0	796 (32.5%)	796 (32.5%)
1	1018 (41.6%)	1018 (41.6%)
2	508 (20.8%)	633 (25.9%)
3	109 (4.5%)	
4	15 (0.6%)	
5+	1 (0.0%)	
Total Number of Chaos Indicators	Cumulative Classroom Chaos Index	Cumulative Classroom Chaos Index Top-Coded at 2
0	1438 (58.8%)	1438 (58.8%)
1	811 (33.1%)	811 (33.1%)
2	163 (6.7%)	198 (8.1%)
3	32 (1.3%)	
4	3 (0.1%)	
5+	0	

Note. Frequencies are for the full analysis sample (N = 2,447)

Table 3

Frequencies of Children in Each of the Chaos Across Contexts Profiles

Chaos across Contexts Profiles	Score on Top-Coded Cumulative Household Chaos Index	Score on Top-Coded Cumulative Classroom Chaos Index	Frequencies
Double Jeopardy	2+	2+	60 (4.6%)
Double Protection	0	0	487 (37.7%)
Compensatory Care	2+	0	357 (27.6%)
Lost Resources	0	2+	51 (3.9%)
Moderate Chaos group	1	1	337 (26.1%)

Note. The sample for this table is the 1,292 children who did not fall into the medium category of either home or school chaos (see Figure 1).

Table 4

Select Descriptive Characteristics of Full Analytic Sample (N = 2,447).

Child is a boy	51.1%
Child is in age 3 cohort	60.6%
Child is Black	34.3%
Child is Hispanic	37.5%
Child has a disability	5.6%
Child was born low birth weight	11.7%
Child lives in poverty	56.1%
Family uses multiple public assistance	54.3%
Family household language is English	71.4%
Mother has a high school diploma or higher	63.4%
Father has a high school diploma or higher	54.3%
Parent depressive symptoms	5.20 (6.10)
Father is working full-time	72.1%
Mother is working full-time	33.0%
Teacher has a Bachelor's degree or higher	40.1%
Teachers has a Child Development Associate credential	55.2%
Teacher is of Spanish, Hispanic, or Latino origin	22.0%
Teacher is Black, African American	36.0%
Number of years teaching Head Start	8.67 (6.32)
Teacher depressive symptoms	4.40 (5.02)

Table 5

Correlations among Home and Classroom Risk Indicators

		1	2	3	4	5	6	7	8	9	10	11	12
1	Number of adults living in household	--											
2	Number of children living in house	**.05****	--										
3	Regular bedtime at least 4 weekdays last week	**−.04***	.02	--									
4	Number of days/week family eats dinner together	−.04	**.05***	**.10****	--								
5	Number of moves in last 24 months	−.00	−.02	.01	−.00	--							
6	Child does not live with both biological mom and dad	**−.31****	**−.08****	.03	**−.07****	**.12****	--						
7	Child/teacher Ratio	.03	.02	.01	−.00	−.01	−.02	--					
8	Class size	−.03	−.01	−.03	−.03	.00	**.06****	**.30****	--				
9	ECERS program structure mean score	−.02	−.02	.01	.02	.01	.02	−.02	**−.08****	--			
10	Total number of child care arrangements	−.02	**−.08****	**−.05***	**−.16****	.02	**.18****	.03	−.02	**.04***	--		
11	Number of days child absent from Head Start program	.00	**−.08****	**−.04***	.01	.02	−.00	**−.04***	.02	.00	**−.06****	--	
12	Child experienced teacher change	**.04***	.01	.03	.02	.01	−.04	**−.09****	**−.08****	−.01	−.02	.02	--

Note: Reported correlations are for the original continuous variables, not the dichotomized versions used for the chaos indices.

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 6

Standardized Coefficients from Index Analyses Predicting Children's Social-Emotional Development.

	Child's Problem Behavior		Child's Social Skills	
	teacher report	parent report	teacher report	parent report
Cumulative Chaos Indices[a]				
Household Chaos	0.02	0.07**	−0.03	−0.07**
Classroom Chaos	0.07*	0.04**	−0.04	−0.03
Covariates				
Child is a boy	0.09**	0.06**	−0.09**	−0.08**
Child is in 3 year old cohort	0.04*	0.04*	−0.09**	−0.07
Child is Black	0.04	−0.03	−0.01	0.04
Child is Hispanic	0.00	0.01	0.02	−0.01
Child has a disability	0.04	0.05*	−0.04	−0.02
Child was born low birth weight	0.00	0.04*	−0.02	−0.04
Child lives in poverty	0.01	−0.02	−0.01	0.02
Family uses public assistance	0.01	0.02	−0.02	0.01
Family household language is English	0.05	0.15**	0.02	0.02
Mother has a high school diploma or higher	−0.01	−0.06**	0.01	0.01
Father has a high school diploma or higher	0.05	−0.05	−0.01	−0.01
Parent depressive symptoms	0.02	0.11**	−0.01	−0.04
Father is working full-time	−0.01	0.04	0.01	0.00
Mother is working full-time	0.03	−0.03	0.00	0.01
Teacher has a Bachelor's degree or higher	0.09	−0.16	−0.06	−0.19
Teachers has a Child Development Associate credential	0.16*	0.14	−0.03	−0.03
Teacher is of Spanish, Hispanic, or Latino origin	−0.22*	0.09	0.05	0.58
Teacher is Black	−0.09	0.70	−0.15	−0.57
Number of years teacher has taught Head Start	−0.15*	0.00	0.04	−0.19
Teacher depressive symptoms	−0.02	0.09	0.01	−0.20
Child outcome assessed in fall	0.70*	0.50**	0.62**	0.45**
R^2 - Within Level	0.52**	0.31**	0.40**	0.22**
R^2 - Between Level	0.11*	0.56	0.03	0.78

Note. N = 2,447;

** $p < .01$;

* $p < .05$;

[a] Top-coded at 2.

Table 7

Standardized Coefficients from Chaos Profile Analyses Predicting Children's Development with the Moderate Chaos Profile Omitted.

	Child's Problem Behavior		Child's Social Skills	
	teacher report	**parent report**	**teacher report**	**parent report**
Chaos Across Contexts Profiles				
Double Jeopardy	0.00	0.05	0.02	−0.01
Double Protection	−0.04	−0.09 **	0.03	0.08 *
Compensatory Care	−0.01	0.04	−0.02	−0.06
Lost Resources	0.02	0.01	−0.02	0.00
Covariates				
Child is a boy	0.09 **	0.08 **	−0.08 **	−0.11 **
Child is in 3 year old cohort	0.03	0.05 *	−0.08 **	−0.07 *
Child is Black	0.01	−0.03	0.02	0.03
Child is Hispanic	−0.04	0.01	0.03	−0.03
Child has a disability	−0.01	0.05	−0.02	−0.04
Child was born low birth weight	−0.02	0.06	−0.02	−0.04
Child lives in poverty	0.01	−0.03	−0.01	0.02
Family uses public assistance	0.02	−0.01	−0.01	0.01
Family household language is English	0.04	−0.17 **	−0.03	0.02
Mother has a high school diploma or higher	−0.05	−0.10 **	0.03	−0.02
Father has a high school diploma or higher	0.07 *	−0.05	−0.03	−0.02
Parent depressive symptoms	0.02	0.10 **	0.00	−0.08 *
Father is working full-time	−0.02	−0.04	0.07	0.00
Mother is working full-time	0.04	−0.01	−0.01	−0.02
Teacher has a Bachelor's degree or higher	0.05	0.24	−0.02	0.13
Teachers has a Child Development Associate credential	0.12	0.11	0.06	0.29
Teacher is of Spanish, Hispanic, or Latino origin	−0.15	0.32	0.03	0.10
Teacher is Black	−0.06	0.79	−0.17	−0.75
Number of years teacher has taught Head Start	−0.09	−0.12	0.04	−0.01
Teacher depressive symptoms	−0.05	0.20	0.01	−0.43
Child outcome assessed in fall	0.70 **	0.50 **	0.62 **	0.43 **
R^2 - Within Level	0.51 **	0.33 **	0.41 **	0.22 **
R^2 - Between Level	0.05	0.86	0.03	0.85

Note. N = 1,292;

** $p < .01$;

* $p < .05$.

Table 8

Standardized Coefficients from Chaos Profile Analyses Predicting Children's Development with the Double Protection Profile Omitted.

	Child's Problem Behaviors		Child's Social Skills	
	teacher report	**parent report**	**teacher report**	**parent report**
Chaos Across Contexts Profiles				
Double Jeopardy	0.02	0.08**	0.00	−0.05*
Compensatory Care	0.03	0.11**	−0.06	−0.14**
Lost Resources	0.04	0.03	−0.03	−0.04
Moderate Chaos	0.04	0.05	−0.03	−0.10**
Covariates				
Child is a boy	0.09**	0.07**	−0.08	−0.11**
Child is in 3 year old cohort	0.02	0.05*	−0.08	−0.06*
Child is Black	0.01	−0.03	0.02	0.04
Child is Hispanic	−0.04	0.00	0.03	−0.02
Child has a disability	−0.01	0.05	−0.02	−0.04
Child was born low birth weight	−0.02	0.06	−0.02	−0.04
Child lives in poverty	0.01	−0.03	−0.01	0.03
Family uses public assistance	0.02	−0.01	−0.01	0.02
Family household language is English	0.04	−0.18**	−0.03	0.02
Mother has a high school diploma or higher	−0.05	−0.10**	0.03	−0.02
Father has a high school diploma or higher	0.07*	−0.05	−0.03	−0.02
Parent depressive symptoms	0.02	0.10**	0.00	−0.07*
Father is working full-time	−0.02	−0.04	0.07	0.00
Mother is working full-time	0.04	−0.02	−0.01	−0.01
Teacher has a Bachelor's degree or higher	0.05	0.24	−0.02	0.12
Teachers has a Child Development Associate credential	0.12	0.08	0.06	0.25
Teacher is of Spanish, Hispanic, or Latino origin	−0.15	0.35	0.03	0.08
Teacher is Black	−0.06	0.81	−0.17	−0.75
Number of years teacher has taught Head Start	−0.09	−0.10	0.04	0.00
Teacher depressive symptoms	−0.05	0.22	0.01	−0.40
Child outcome assessed in fall	0.70**	0.50**	0.62**	0.43**
R^2 - Within Level	0.51**	0.33**	0.41**	0.25**
R^2 - Between Level	0.05	0.90	0.03	0.81

Note. N = 1,292

** $p < .01$;

* $p < .05$.

Table 9

Standardized Coefficients from Chaos Profile Analyses Predicting Children's Development with the Compensatory Care Profile Omitted.

	Child's Problem Behaviors		Child's Social Skills	
	teacher report	**parent report**	**teacher report**	**parent report**
Chaos Across Contexts Profiles				
Double Jeopardy	0.00	0.02	−0.03	0.01
Double Protection	−0.03	−0.15**	0.06	0.12**
Lost Resources	0.02	−0.02	−0.01	0.01
Moderate Chaos	0.01	−0.07*	0.02	0.02
Covariates				
Child is a boy	0.09**	0.08**	−0.08**	−0.11**
Child is in 3 year old cohort	0.03	0.05*	−0.08**	−0.06*
Child is Black	0.01	−0.03	0.02	0.03
Child is Hispanic	−0.04	0.01	0.03	−0.02
Child has a disability	−0.01	0.05	−0.02	−0.04
Child was born low birth weight	−0.02	0.06	−0.02	−0.04
Child lives in poverty	0.01	−0.03	−0.01	0.03
Family uses public assistance	0.02	−0.01	−0.01	0.01
Family household language is English	0.04	−0.17**	−0.03	0.02
Mother has a high school diploma or higher	−0.05	−0.09*	0.03	−0.02
Father has a high school diploma or higher	0.07*	−0.05	−0.03	−0.02
Parent depressive symptoms	0.02	0.10**	0.00	−0.08*
Father is working full-time	−0.02	−0.03	0.07	0.00
Mother is working full-time	0.04	−0.01	−0.01	−0.02
Teacher has a Bachelor's degree or higher	0.05	0.26	−0.02	0.13
Teachers has a Child Development Associate credential	0.12	0.10	0.06	0.26
Teacher is of Spanish, Hispanic, or Latino origin	−0.15	0.33	0.03	0.10
Teacher is Black	−0.06	0.77	−0.17	−0.76
Number of years teacher has taught Head Start	−0.09	−0.09	0.04	0.01
Teacher depressive symptoms	−0.05	0.20	0.01	−0.41
Child outcome assessed in fall	0.70**	0.49**	0.62**	0.43**
R^2 - Within Level	0.51**	0.34**	0.41**	0.23**
R^2 - Between Level	0.05	0.83	0.03	0.84

Note. N = 1,292;

** $p < .01$;

* $p < .05$.