



CHICAGO JOURNALS

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Source: *The Elementary School Journal*, Vol. 114, No. 2 (December 2013), pp. 277-300
Published by: [The University of Chicago Press](#)
Stable URL: <http://www.jstor.org/stable/10.1086/673200>
Accessed: 09/04/2014 10:57

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PARENT INVOLVEMENT, EMOTIONAL SUPPORT, AND BEHAVIOR PROBLEMS

An Ecological Approach

ABSTRACT

We examined relations between parent involvement and kindergarten students' behavior problems in classrooms with varying levels of teacher emotional support. Multi-informant data were collected on $n = 255$ low-income Black and Hispanic students, and $n = 60$ kindergarten classrooms in the baseline year of an intervention trial. Hierarchical linear models revealed a moderated negative effect between parents' home-school communication and teacher emotional support on student behavior problems in kindergarten, as well as negative associations between school-based involvement and behavior problems. For children in classrooms with less teacher emotional support, greater communication between home and school was related to higher levels of behavior problems. Among children in classrooms with more teacher emotional support, this negative relationship was attenuated. Results illuminate the need to consider parent involvement within the context of classroom practices.

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POLICYMAKERS and practitioners agree that parent involvement in elementary education, defined broadly as parents' activities and behaviors related to children's schooling, enhances the academic, socioemotional, and behavioral outcomes of low-income students who are at risk for poor achievement (Sheldon & Epstein, 2005). With the passing of the No Child Left Behind Act, the federal government has mandated that elementary and secondary

schools promote parental involvement in education (NCLB, 2002). Although encouraging parent involvement is politically neutral and rhetorically popular, much of the research informing policy formation is occurring in the absence of clarity around the dimensions of parent involvement that predict child outcomes, and the role of classrooms in that predictive relation, especially among schools serving high-need families (Duch, 2005; Sheldon & Epstein, 2005).

Ecological perspectives maintain that the interaction between home and school is critical for supporting positive child outcomes (Bronfenbrenner & Morris, 1998; Nzinga-Johnson, Baker, & Aupperlee, 2009). The ecological framework posits that there is an independent influence of each setting on the child, and an *interactive* influence of the home and school settings that operates in a unique way to further affect the child's development (El Nokali, Bachman, & Votruba-Drzal, 2010). However, parent involvement is rarely examined in the context of teacher practices with students in their classrooms. This is a notable oversight, given that it is likely that teachers play a significant role in determining the frequency and quality of parent involvement in elementary education (e.g., Hoover-Dempsey & Sandler, 1997; Hoover-Dempsey, Walker, & Sandler, 2005). Similarly, although a body of research on classroom climate finds that emotionally supportive teacher practices are associated with a range of positive socioemotional outcomes for children (Carson & Templin, 2007; Hamre & Pianta, 2001; Jennings & Greenberg, 2009), little research has examined the interactive influence of teachers' emotional support and parent involvement on children's in-school behavior problems. In the current study, we aim to address these limitations in the extant literature by examining the interactive effect of distinct dimensions of parent involvement and teachers' classroom emotional support in explaining urban students' behaviors in kindergarten.

Parent Involvement and Behavior Problems

Past research on parent involvement has identified a generally positive association between parents' engagement in their children's education and students' outcomes (Fan & Chen, 2001; Hill & Tyson, 2009). Similarly, school intervention studies show that efforts to improve student outcomes can be more effective when the family is involved (Brown, Benkovitz, Muttillio, & Urban, 2011). Previous work, however, has largely focused on academic achievement outcomes rather than student behaviors (Fantuzzo, McWayne, & Perry, 2004; Gonzalez-DeHass, Willems, & Holbein, 2005). Yet, a recent longitudinal examination of parent involvement across a nationally representative sample of first, third, and fifth graders found that while involvement did not predict increases in academic achievement, it did predict declines in problem behaviors (El Nokali et al., 2010).

A key limitation of this literature has been the operationalization of parent involvement as a count of contacts between parents and school personnel within a given time frame (Epstein, 2001; Hill & Tyson, 2009). More recent scholarship has begun to identify conceptually and empirically distinct dimensions of parent involvement in elementary school, including home-based learning activities (e.g., helping with homework, maintaining study routines), school-based involvement (e.g., volunteering at school events, fundraising), and home-school communication (e.g., attending parent-teacher conferences, writing notes to teacher) (Manz, Fantuzzo, & Power, 2004; McWayne, Hampton, Fantuzzo, Cohen, & Sekino, 2004;

Webster-Stratton, Reid, & Stoolmiller, 2008). Studies that examine distinct dimensions of parent involvement frequently demonstrate positive relations with children's behaviors (e.g., El Nokali et al., 2010; Kohl, Lengua, McMahon, & the CPPRG, 2000). For example, using time-lagged growth models, Domina (2005) found that parent involvement activities like homework help and school volunteering predicted lower levels of future behavior problems for elementary school children, relative to parents who did not engage in these activities. In addition, McWayne and colleagues (2004) identified multiple dimensions of involvement (school based, home based, and home school) related to young children's positive socioemotional outcomes in a cross-sectional study of urban, ethnic minority children.

As reviewed by McNeal (2012), one dimension of parent involvement—direct interactions between teachers and parents—has been related to poor behavioral outcomes. Such evidence has given rise to the reactivity hypothesis (e.g., Catsambis, 1998; Epstein, 1988), or the theory that frequency of parent involvement increases when students act out in school. For example, controlling for initial behavior problems, Izzo, Weissberg, Kasprow, and Fendrich (1999) found that direct communication between teachers and parents in first grade predicted increases in student behavior problems in third grade. The authors noted that parents may have waited until serious problems occurred at school before becoming involved.

Other studies suggest variation in the effects of parent involvement by racial-ethnic background and socioeconomic (SES) status (Crosnoe et al., 2010; McNeal, 2012). For example, McNeal (1999) argued that the cultural capital possessed by affluent European-American families may magnify the positive effects of parents' involvement on changes in academic and behavioral outcomes from eighth through twelfth grade. Moreover, Lareau (1989) contends that the parents of high-SES underachieving children are the most involved in their children's schooling. Given this mixed research, additional work is needed to understand relations between different types of parent involvement and children's behaviors as they operate within samples of urban students and schools (El Nokali et al., 2010; Fan & Chen, 2001; McWayne et al., 2004).

Although parent involvement has been studied at various stages (e.g., Crosnoe, 2009; Hill & Tyson, 2009; Kuperminc, Darnell, & Alvarez-Jimenez, 2008), it is critical to examine the construct at the start of formal schooling because early experiences may influence future involvement activities (Izzo et al., 1999). A great deal of emphasis in kindergarten is placed on helping children regulate their behavior in order to benefit from academic instruction and succeed in social interactions (Blair, 2002; Ponitz, McClelland, Matthews, & Morrison, 2009). Despite the importance of parent involvement at the beginning of formal schooling, few studies have examined parents' engagement on student behaviors in kindergarten.

This lack of research is notable, given that children's classroom behavior in kindergarten is closely related to their overall adjustment to school (Ladd & Burgess, 2001) and is an important determinant of academic progress. School-related problem behaviors in kindergarten such as inattentiveness or oppositional behavior are negatively associated with school readiness (Fantuzzo et al., 2007). In addition, ecological theories suggest that children's behavior in kindergarten classrooms may have immediate consequences for the classroom environment and teachers' instructional efforts, thus influencing classroom peers in the process (Bronfenbrenner & Morris, 1998; El Nokali et al., 2010). Disruptive behavior problems (e.g., not paying attention,

hitting other children, teasing other children, yelling, crying, complaining) in early childhood are of special concern to practitioners and researchers due to their association with later delinquency and school failure (Caspi, Moffitt, Newman, & Silva, 1996).

Parent Involvement and Classroom Emotional Support in Urban Schools

A separate set of studies has found links between effective classroom practices—specifically, teachers' level of emotional support to students—and students' positive in-school behaviors and socioemotional adjustment (Carson & Templin, 2007; Hamre & Pianta, 2001; Pianta, Belsky, Vandergrift, Houts, & Morrison, 2008). In one widely used classroom observational measure (Classroom Assessment Scoring System: CLASS; Pianta, La Paro, & Hamre, 2008), classroom emotional support is operationalized as an aggregate factor that involves teachers' responsiveness to student needs, regard for student perspectives, absence of negativity, and presence of safety and enjoyment (Hamre et al., 2013; Hamre, Pianta, Mashburn, & Downer, 2007). The CLASS measure is consistent with scholarship on the emotional, organizational, and instructional components of schooling (e.g., Eccles & Roeser, 1999) and rooted in theory and research on classroom processes (e.g., Brophy, 1999; Pressley et al., 2003). Building on this framework, Hamre and colleagues (2007, 2013) argue for a multi-level, latent structure in which teacher practices are organized into a wide range and large number of teacher behaviors, which are then broken down into emotional, organizational, and instructional components.

In the CLASS framework, the emotional support component includes overall climate (presence of positive climate and lack of negative climate), teacher sensitivity, and regard for student perspectives. Teachers who are emotionally supportive demonstrate positive emotion that is shared by students, are aware of and responsive to student needs, and consider children's views in teaching and learning opportunities (Jennings & Greenberg, 2009). Such emotional support may be particularly beneficial for children at risk for in-school behavior problems (Hamre & Pianta, 2005). For example, in a cross-sectional study, Pianta, La Paro, Payne, Cox, and Bradley (2002) found that children in more emotionally supportive kindergarten classrooms exhibited fewer externalizing behavior problems and were more on task and academically engaged than students in less supportive classrooms.

Given ecological theories and empirical work demonstrating that families and schools together are the critical influences in the lives of young children (Nzinga-Johnson, Baker, & Aupperlee, 2009; Thelen & Smith, 2006), it is surprising that research has yet to examine the interactive effect of parent involvement and teacher emotional support on children's behaviors. Teachers who are emotionally supportive in the classroom can be expected to interact with and engage with parents in qualitatively different ways than teachers who are less emotionally supportive. For example, emotionally supportive teachers may be collaborative and respectful, creating a space where parents feel comfortable voicing their concerns. Such teacher-directed actions may help parents better understand their children's school challenges and monitor their problematic behaviors (Lasky, 2000). In contrast, less emotionally supportive teachers may be more directive and dominant in their inter-

actions with parents (Walker & MacLure, 2005), possibly leading to less positive and productive communication about the child's problems and progress.

Examining the interactive effect of classroom emotional support and parent involvement on children's behaviors may be particularly important in low-income urban communities where parents typically experience less than optimal collaboration with schools. In an interview study of urban parents and teachers, McDermott and Rothenberg (2000) noted that teachers reported frustration with a lack of parental involvement in literacy and math activities. In turn, parents expressed distrust toward schools because of perceived faculty bias against Black and Hispanic families. Given these findings, it may be particularly important to examine teacher emotional support when considering the role of parent involvement on children's behaviors in urban schools. For example, it is possible that parent involvement—particularly home-school communication—may be positively related to children's problematic behaviors if such involvement is in reaction to problematic behaviors at school (McNeal, 2012). However, in cases in which teachers are more emotionally supportive, such an association may be less likely. Thus, examining dimensions of parent involvement in the context of emotionally supportive teacher practices may yield nuanced information about how the effects of parent involvement on student behaviors are differentiated by classrooms and teachers.

Research Questions

The aim of the current study is to extend past research by characterizing the prevalence of parent involvement behaviors in an urban sample, and examining relations between three dimensions of parent involvement, observed classroom emotional support, and student behavior problems at the beginning of kindergarten. In this study, we will answer the following research questions: (1) What is the frequency with which a sample of low-income Black and Hispanic parents engages in three distinct types of parent involvement in education: home-based learning, home-school communication, and school-based involvement? (2) After controlling for a number of family and student characteristics, do these three dimensions of parent involvement relate to teacher reports of student behavior problems? and (3) Does teachers' observed classroom emotional support moderate relations between three dimensions of parent involvement and student outcomes, controlling for student, family, and classroom characteristics? In answering these questions, we aim to provide a more nuanced understanding of the interactive roles of parent involvement and classroom emotional climate on urban kindergarten students' behaviors.

When answering these questions, it is important to control for factors that have the potential to confound relations between parental involvement and child behaviors. As such, our analyses include variables for classroom (classroom organization, instructional support), child (child math and reading skills, age, gender), and family (parent work status, education, marital status) characteristics associated with school behavior problems (Amato & Cheadle, 2008; Cote, Borge, Geoffroy, Rutter, & Tremblay, 2008; Pomerantz, Moorman, & Litwack, 2007; Webster-Stratton et al., 2008). Including these predictors as control variables in analyses can help ensure that the hypothesized direct and moderated relations between dimensions of parent involvement, classroom emotional support, and behavior problems are not spurious.

Method

Participants and Setting

The participants are derived from baseline data from the efficacy trial of INSIGHTS into Children's Temperament (see O'Connor et al. [2011] for information about the intervention). This analysis includes $n = 255$ children (48% girls) recruited in late September to early November during kindergarten. Children are nested in $n = 60$ kindergarten classrooms and $n = 22$ schools. Three consecutive cohorts were recruited from 2008 to 2010. The majority of students enrolled in the study were Black, non-Hispanic (72.03%), and a smaller percentage of students were Hispanic (18.85%). Nearly all students (85.44%) were eligible for free or reduced-price lunch. Most parents completing research measures were biological mothers (80.72%), with a nominal group of fathers (8.51%), grandmothers (3.44%), and foster or adoptive mothers (2.1%).

Sixty teachers participated (97% female). Most teachers identified as Black, non-Hispanic (55.4%), with smaller percentages identifying as Hispanic (12.3%) and White (26.3%). According to public school records, the overall percentage of children eligible for free or reduced-price lunch in the participating school districts ranged from 82% to 96%. The districts serve approximately 60,000 kindergarten children each year (New York City Department of Education, 2011).

Procedures

Participant recruitment. Schools serving predominantly low-income students (>50% eligibility for free or reduced-price lunch) in three urban school districts were targeted for participation (McClowry, O'Connor, Cappella, & McCormick, 2011). The principal investigator and project staff contacted principals over the summer months and informed them of the INSIGHTS intervention, the purpose of the study, and data-collection procedures. Twenty-three principals agreed to participate over three waves; one school dropped out of the study during baseline data collection due to a change in school leadership. In September, the study was explained to the kindergarten teachers. Ninety-six percent of kindergarten teachers (~2 to 4 teachers per school) in the 22 schools provided informed consent. All children enrolled in kindergarten at baseline in the participating schools were invited to take part in the study. However, given resource limitations, recruitment at each school stopped once the target number of students was recruited and those students were assessed to be representative of the school as a whole. Chi-square tests indicated that there were no significant differences between the children enrolled in the study and children in the school as a whole in terms of percentage female, Black, Hispanic, and eligible for free or reduced-price school lunch. As such, team members enrolled 4–10 students per classroom, or approximately 27% of the children attending kindergarten at the targeted schools.

A racially and ethnically diverse team of field staff recruited parents from the participating teachers' classrooms during September and October. Parents were informed of study goals and procedures in individual meetings at the school when parents were present (e.g., conference days, before or after school). Written materials were sent home with students, and interested parents contacted researchers for more information. Children enrolled in the study were demographically similar to the

larger population of children at each school in terms of racial and ethnic background and eligibility for free or reduced-price lunch.

Data collection. Parents completed measures at their child's school via audio-enhanced, computer-assisted self-interviewing software (Audio-CASI). This technology facilitates data collection for respondents with low literacy levels, limits socially desirable responses, and standardizes data-collection procedures (Cooley et al., 1996; Couper, Singer, & Tourangeau, 2003). Parents took approximately 30 minutes to complete measures and received \$20 for their time. Teachers completed paper questionnaires for each consented student. The reports took teachers 1 to 2 hours to complete (approximately 15 minutes per student). The teachers received \$50 gift cards upon completion to purchase classroom supplies.

Child assessments. Data collectors conducted individual child assessments with all children participating in the study. An outside consultant trained data collectors to administer the Applied Problems subtest of the Woodcock-Johnson III Tests of Achievement, Form B (WJ-III) (Woodcock, McGrew, & Mather, 2001) over a one-day training session in the fall of each year of the study (2008–2010). A graduate research assistant conducted a field reliability test with all data collectors before they were permitted to assess children and collect data.

Measures

Demographic characteristics. Parents reported on parental demographic characteristics, including parent racial-ethnic background, education (in years), marital status, full- and part-time work status, employment, and age (in years). Parents also provided information on child characteristics, including child age (in years), racial-ethnic background, and gender. Analyses presented in the current study will include child gender, child age, parent education, parental work status (full- and part-time work status), parent age, and parent marital status as covariates to control for hypothesized associations between these variables and child behavior problems (Amato & Cheadle, 2008; Cote et al., 2008; Dubow, Boxer, & Huesmann, 2009; Green, Walker, Hoover-Dempsey, & Sandler, 2007; Pomerantz et al., 2007).

Parent involvement. Parent involvement in children's education was assessed with the Family Involvement Questionnaire for Elementary School (FIQ-E), an adaptation of a questionnaire originally developed for early childhood (FIQ-EC) (Manz et al., 2004). Consisting of 44 parent-reported items, the FIQ-E was developed for lower-income urban families and validated with a large sample of Black families. The measure asks parents to report on the frequency with which they engage in a range of behaviors related to their child's schooling on a 4-point frequency scale in which 1 = never, 2 = rarely, 3 = sometimes, and 4 = all the time. All items are worded positively, but do not ask about whether the school or parent initiated a given behavior.

The Home-School Communication subscale of the FIQ-E includes items pertaining to contact between family members and school personnel, including attendance at conferences, phone contact, and note writing (current study $\alpha = 0.91$). Sample items include "I talk to the teacher about how my child gets along with his/her classmates in school" and "I talk with my child's teacher on the telephone." The Home-Based Involvement subscale includes family activities outside of school that encourage learning, such as maintaining routines, securing places for study in the

home, visiting educational settings in the community, and talking to children about personal school experiences (current study $\alpha = 0.88$). Sample items include “I read with my child” and “I share stories with my child about when I was in school.” The School-Based Involvement subscale comprises conventional activities in the school setting, for example, volunteering, attending workshops, and participation in fund-raising (current study $\alpha = 0.81$). Sample items include “I attend parent workshops or training offered by my child’s school” and “I pick my child up from school in the afternoon.”

Student behavior problems. Behavior problems were measured with the 36-item Sutter-Eyberg Student Behavior Inventory (SESBI), the teacher version of the Eyberg Child Behavior Inventory (Eyberg & Pincus, 1999). On a frequency scale ranging from 1 to 7 (1 = never, 3 = seldom, 5 = sometimes, 7 = always), teachers reported on the frequency with which each consented child engaged in a range of disruptive behaviors, such as “acts defiant when told to do something,” “has temper tantrums,” “verbally fights with other students,” and “is overactive and restless.” Teachers also reported on whether each of the disruptive behaviors posed a problem for them when teaching. Because we were interested in examining an overall score of disruptive in-school behavior problems, we used the full 36-item scale as an outcome measure. Cronbach’s alpha in the current study was 0.97.

Classroom climate. Trained data collectors conducted classroom observations to assess three dimensions of classroom climate using the observational tool, the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre, 2008). Classrooms were observed by a single coder who was trained following standard procedures (Pianta, La Paro, & Hamre, 2008): (a) two-day training with a certified trainer, (b) scoring within one point of “gold-standard” codes (scored by CLASS developers) on 80% of CLASS dimensions across four videos, and (c) completion of a live observation with a master coder. For all observers, initial codings yielded overall interrater reliabilities of .90. Interrater reliability for the classroom practices subscales was .92 for Emotional Support (.85–.96 for each dimension), .87 for Classroom Organization (.82–.93 for each dimension), and .91 for Instructional Support (.88–.92 for each dimension). As recommended in the CLASS manual (Pianta, La Paro, & Hamre, 2008), researchers observed for 15 minutes and recorded scores in the final 10 minutes. This procedure was repeated four times across the morning for 100 minutes of observations and coding.

The CLASS examines 10 dimensions associated with expected classroom characteristics (Pianta, La Paro, & Hamre, 2008) and related to young children’s academic and social development (Burchinal et al., 2008; Howes et al., 2008). Using a diverse range of study samples, Hamre and colleagues (2007) reviewed the factor structure of the CLASS across 4,035 classrooms in the preschool and elementary school grades. Results of these analyses provided evidence that the CLASS three-factor latent structure provided a better fit to observational data than alternative one- and two-domain models of classroom interactions. Moreover, results of the three-domain structure were generalizable from preschool through fifth grade.

The current study focuses on emotional support, which comprises the following dimensions of teacher practice: Positive Climate, Negative Climate (reverse coded), Teacher Sensitivity, and Regard for Student Perspectives (see Table 1 for additional information on the dimensions of emotional support). While a factor analysis of the CLASS finds support for a three-factor structure, it is important to note that the

Table 1. Description of Dimensions of Classroom Emotional Support

Dimension	Description
Positive climate	Reflects the overall emotional tone of the classroom and the connection between teachers and students.
Negative climate	Reflects the overall level of expressed negativity in the classroom between teachers and students (e.g., anger, aggression, irritability). This dimension is reverse coded so that a high score indicates a low level of negative climate.
Teacher sensitivity	Encompasses teachers' responsiveness to students' needs, and awareness of students' level of academic and emotional functioning.
Regard for student perspectives	The degree to which the teacher's interactions with students and classroom activities place an emphasis on students' interests, motivations, and points of view, rather than being solely teacher-driven.

Source.—Copyright 2008 by Pianta, La Paro, and Hamre.

emotional support factor may be moderately to highly correlated with the remaining factors: classroom organization and instructional support (Hamre et al., 2007). In order to isolate the effect of emotional support, analyses include classroom organization and instructional support as covariates.

Child academic achievement. Reading and math achievement were assessed using the Letter-Word ID and Applied Problems subtests of the Woodcock-Johnson III Tests of Achievement, Form B (WJ-III) (Woodcock et al., 2001). The Letter-Word ID subtest assesses letter naming and word decoding skills by asking children to identify a series of letters and words. The Applied Problems subtest assessed children's simple counting skills and the ability to analyze and solve mathematical word problems. The WJ-III typically correlates with measures of cognitive ability ($r = .66$ to $.73$ with the Wechsler Preschool and Primary Scale of Intelligence—Revised; Wechsler, 1989) and has good internal consistency (alphas range from 0.8 to 0.9 in the literature). Research suggests that academic achievement and behavior problems in elementary school are interrelated (Duncan et al., 2007; Webster-Stratton et al., 2008). Because the behavior problems measure included in the current study—reported by teachers—may be confounded with students' academic abilities, we include student reading and math achievement as covariates in analyses.

Results

In this section, we first outline analyses performed to handle missing data. Then we present the results of the confirmatory factor analyses we conducted on the FIQ-E. To address our first research question, we present descriptive analyses about the variables of interest. And, finally, we detail the results of the models run to answer our second and third research questions.

Missing-Data Analyses

There were no missing data for the classroom-level variables. For the child-level variables, there was 0%–10% missing data across study variables. In order to achieve maximum power given the sample size ($n = 255$), individual students who were

missing data points were compared to students who were not missing data points on a series of baseline characteristics: school, teacher, cohort, parent education, parent work status, parent marital status, parent age, child age, child gender, and child mathematical ability. Little's MAR test (Little & Rubin, 1987) was used to determine that data were missing at random.

With less than 10% missingness among study variables, we determined that we could achieve 97% efficiency by imputing 10 separate data sets (Rubin, 1987; Yuan, 2010, 2011). As such, a multiple data imputation method was employed, and 10 separate data sets were imputed by chained equations, using SAS PROC MI in SAS version 9.2. All conditional analyses were subsequently imported into HLM 7 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011) and run 10 separate times. Final parameter estimates were generated by calculating the mean of these 10 estimates.

Confirmatory Factor Analysis

We conducted a confirmatory factor analysis using full information maximum likelihood estimation (FIML) in MPLUS version 5.21 to assess the construct validity of the FIQ-E (Muthén & Muthén, 2009). Interfactor correlations between the three latent constructs were specified. This three-factor model fit well statistically ($\chi^2(168, n = 255) = 682.42$) and descriptively (CFI = .97, RMSEA = .04). Thus, the current study replicates the three-factor structure proposed by Manz and colleagues (2004).

Descriptive Analyses

Means, standard deviations, and bivariate correlations for the variables included in study analyses are included in Table 2. Findings indicate that the average student demonstrated a low level of behavior problems. However, the standard deviation is notable, given that the items on the SESBI ask about particularly problematic and disruptive behaviors. In addition, on average, teachers reported that 5.75 ($SD = 8.78$) of these behaviors posed problems for them when teaching, suggesting that these disruptive behaviors had notable implications for kindergarten classrooms.

Parents reported engaging in home-based learning activities at a point between "sometimes" and "all of the time" ($M = 3.31$; $SD = .42$). Parents reported less frequent home-school communication (between "rarely" and "sometimes": $M = 2.58$; $SD = .76$) and school-based involvement ($M = 2.26$; $SD = .62$). Subsequent paired samples *t*-tests suggested significant differences between home-based learning and school-based involvement ($t(254) = -27.84, p < .01$), home-based learning and home-school communication ($t(254) = -17.41, p < .01$), and school-based involvement and home-school communication ($t(254) = 7.30, p < .01$). In terms of classroom teacher practices, emotional support scores were moderately high, while instructional support scores were low.

As anticipated, zero-order correlations between home-based learning and school-based involvement, home-based learning and home-school communication, and school-based involvement and home-school communication were positive and of moderate strength. However, only one dimension of parent involvement—home-school communication—showed evidence of a moderate and positive relation with student behavior problems. In addition, there was a strong, positive correlation be-

Table 2. Means, Standard Deviations, and Bivariate Correlations between Variables of Interest

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Home-school communication	2.58	.76													
2. Home-based learning	3.31	.42	.49**												
3. School-based involvement	2.26	.62	.42**	.38**											
4. Child behavior problems	2.25	1.13	.28**	.06	-.03										
5. Emotional support	4.77	.94	-.03	-.09	.02	-.24**									
6. Classroom organization	4.22	1.06	-.04	-.08	.02	-.16*	.71**								
7. Instructional support	2.79	1.01	.04	-.01	.04	.06	.57**	.68**							
8. Child age (in years)	5.32	.62	-.04	.02	-.05	-.06	.21**	.20*	.25**						
9. Child math achievement	14.65	4.96	-.19**	-.04	-.07	-.17**	.11*	.07	.09	.21**					
10. Child reading achievement	17.31	6.98	-.20**	-.11	-.13*	-.18**	.09	.07	-.05	.09	.50**				
11. Child female	.49	—	-.09	-.06	-.01	-.19**	-.01	.01	-.06	-.16*	.02	.04			
12. Single-parent family	.53	—	.14*	.03	-.05	.13*	-.04	.06	.06	.03	-.08	-.09	-.08		
13. Parent education	12.95	2.55	.08	-.15*	-.01	.11*	.17**	.12*	.22**	-.06	.18**	.08	-.03	-.15	
14. Parent works full/part-time	.52	—	-.01	-.06	-.12	.04	.06	.12*	.09	-.05	.05	-.07	-.07	.01	.26**

Note.—*n* = 255 students, *n* = 60 classrooms, *n* = 22 schools.

* *p* < .05.

** *p* < .01.

tween classroom emotional support and classroom organization, and a moderately strong positive correlation between emotional support and instructional support.

Hierarchical Linear Models

Due to the nested nature of the data (i.e., children in classrooms in schools), we did not anticipate the observations would meet the OLS regression assumption of independence (Cohen, Cohen, West, & Aiken, 2004; Raudenbush & Bryk, 2002). To simultaneously examine predictors at the individual and classroom levels, analyses for the current study were conducted within a multilevel modeling framework using hierarchical linear modeling (HLM 7; Raudenbush et al., 2011). In order to accurately estimate the contextual effect of classroom predictors on student behaviors, all continuous predictors at the classroom and student levels were centered around their grand mean (i.e., between-person centering; Raudenbush, 2009). Gender, single-parent status, and parent work status (full- or part-time)—the three binary predictors—were not centered.

Preliminary analyses consisting of three-level unconditional models were run for children's behavior problems in order to determine whether there was significant between-classroom and between-school variation in these predictors. Then, to address the substantive questions proposed in this study, four models were tested. For ease of presentation, the models, which build on one another, are referred to as Models 1–4. Results are presented in Table 3.

First, an unconditional baseline model (Model 1) with no predictors was run for behavior problems to determine the proportion of variance attributed to individual, classroom, and school level factors. Based on these estimates, intraclass (ICC) correlations were computed. The unconditional means model revealed significant variability in between-classroom (intraclass correlation: 0.25) and between-school differences (intraclass correlation: 0.07) in student behavior problems. As such, a random effect was included at both level 2 and level 3 in all models to allow the intercept to vary for these two levels of nesting (Raudenbush, 2009). Based on the unconditional models, a pseudo R^2 was calculated for all subsequent analyses to examine the increase in variance in behavior problems explained in each successive step (see Singer & Willett, 2003). In addition, Akaike Information Criterion (AIC) values were calculated for nested models to allow for comparison of fit improvement (see Table 3).

Second, a conditional model (Model 2; see Equation 1, App. A) was run in which the three dimensions of parent involvement—(1) home-school communication, (2) school-based involvement, and (3) home-based learning—were simultaneously added to the unconditional model. By entering the three dimensions of involvement as a block in the model, we were able to unpack the unique relations between each dimension of involvement and student behavior problems (see Equation 1; App. A). In addition, level 1 covariates were entered into the model to control for student-level confounders. Child gender (boys: 0; girls: 1), child age (in years), child math achievement (0–64), child reading achievement (0–76), parent age (in years), parent education (in years), single-parent status (married: 0; single: 1), and parent work status (parent does not work full- or part-time: 0; parent works full- or part-time: 1) were added as level 1 predictors to account for between-child variation in behavior problems. No adjustments were made for race/ethnicity or eligibility for free or reduced-

Table 3. Hierarchical Linear Models of Parent Involvement and Classroom Emotional Support Predicting Student Behavior Problems

Fixed Effects	Model 1		Model 2		Model 3		Model 4	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Behavior problems intercept	2.25**	.10	2.36**	.16	2.38**	.16	2.37**	.15
Individual level (level 1):								
Child age			-.06	.11	-.06	.11	-.06	.11
Child female			-.37**	.13	-.35**	.13	-.37**	.13
Child math achievement			-.02	.02	-.02	.02	-.02	.02
Child reading achievement			-.02	.01	-.01	.01	-.02	.02
Single-parent family			.25 ⁺	.13	.20	.13	.20	.13
Parent works full/part-time			-.13	.13	-.09	.14	-.09	.13
Parent education			-.04	.03	.04	.03	.05	.03
Home-school communication			.41**	.11	.42**	.11	.40**	.11
School-based involvement			-.28*	.12	-.27*	.12	-.26*	.12
Home-based learning			-.14	.18	-.17	.18	-.15	.18
Classroom level (level 2):								
Classroom emotional support					-.36*	.16	-.35*	.16
Classroom organization					-.03	.16	-.04	.16
Classroom instructional support					.24 ⁺	.12	.23 ⁺	.12
Classroom emotional support × home-school communication							-.26*	.09
Classroom emotional support × school-based involvement							.07	.13
Classroom emotional support × home-based learning							-.03	.22
Random effects:								
Classroom-level variance	.19*	.09	.18	.09	.09	.07	.09	.07
School-level variance	.06	.07	.05	.07	.03	.05	.03	.05
Residual variance	1.02**	.10	.81**	.08	.80**	.08	.80**	.08
Fit statistics:								
AIC		726.84		698.70		687.97		685.00
Pseudo R ²				.07		.09		.10

Note.—*n* = 255 students, *n* = 60 classrooms, *n* = 22 schools. Model 1 *df* = 251; Model 2 *df* = 241; Model 3 *df* = 43; Model 4 *df* = 34.

⁺ *p* < .10.

* *p* < .05.

** *p* < .01.

price lunch given the composition of the sample (i.e., the large majority of students were Black and eligible for free/reduced-price lunch).

Results from Model 2 revealed that parental engagement in home-based learning activities was not significantly related to student behavior problems. However, parent reports of home-school communication were positively and significantly associated with teacher reports of student behavior problems. As such, this analysis suggests that home-school communication is associated with higher rates of student behavior problems, net of the remaining dimensions of involvement and child and parent characteristics. In contrast, school-based involvement practices were significantly and negatively associated with student behavior problems. This finding indicates that higher rates of parents' school-based involvement practices are associated with lower levels of teacher-reported behavior problems, controlling for the remaining two dimensions of involvement as well as child and parent characteristics.

Next, the three domains of classroom teacher practices—(1) classroom emotional support, (2) classroom organization, and (3) instructional support—were simulta-

neously added to the level 2 model to account for between-classroom variation in student behavior problems (Model 3). Although we are particularly focused on understanding the main and interactive effects of classroom emotional support, we did find that emotional support was correlated with the remaining domains of teacher practices. By simultaneously including classroom organization and instructional support to the models, we were able to unpack the unique relation between classroom emotional support and student behavior problems. Other classroom-level variables—class size, teacher racial-ethnic background, and teachers' years teaching—were tested in this step and subsequently dropped because they did not significantly predict the outcome.

The results of Model 3 indicated that classroom emotional support was negatively related to student behavior problems, net of dimensions of parent involvement, family and student characteristics, teacher practices, and random classroom and school-level effects. Because this study focuses on the effect of emotional support, we do not discuss the findings related to instructional support and classroom organization in detail. In this model, however, we do find that instructional support is a significant predictor of behavior problems, whereas classroom organization does not significantly predict behavior problems.

Finally, a fourth model (Model 4) was run in which cross-level interactions between classroom emotional support and the three dimensions of parent involvement were examined (see Equation 2; App. A). Significant cross-level interactions would indicate that the association between dimensions of parent involvement and student behavior problems varies as a function of classroom emotional support, or given the correlational data, the relations between emotional support and behavior problems vary as a function of parent involvement. The results of Model 4 (see panel 4, Table 3) revealed that the interaction between home-school communication and classroom emotional support was a significant predictor of student behavior problems, net of fixed and random effects. Given the theory for the current study, the interaction term is interpreted such that in classrooms with high levels of emotional support, the relation between home-school communication and student behavior problems is attenuated, as opposed to classrooms with low levels of emotional support, where the relation between home-school communication and student behavior problems remains positive (see Fig. 1).

Follow-up calculations of simple slopes and regions of significance were conducted according to standard procedures (Aiken & West, 1991; McCartney, Burchinal, & Bub, 2006) using the interaction utility described by Preacher, Curran, and Bauer (2006). These analyses yielded slopes representing the relations between the level 1 independent variable (home-school communication) and dependent variable (behavior problems) at low (1 *SD* below the mean), average, and high (1 *SD* above the mean) levels of the level 2 moderator (emotional support). In addition, regions of significance were computed to identify values of the moderator at which a significant association between the predictor and dependent variable exists (Preacher et al., 2006). Results are conditional on control dichotomous variables being equal to zero and mean-centered levels of the continuous control variables. The positive relation between home-school communication and behavior problems was nonsignificant for students who experienced high levels of classroom emotional support ($b = 0.16$, $p = ns$). The positive association between home-school communication and behavior problems was significant for students in classrooms that exhibited emotional support scores less than 0.66 standard deviations above the mean.

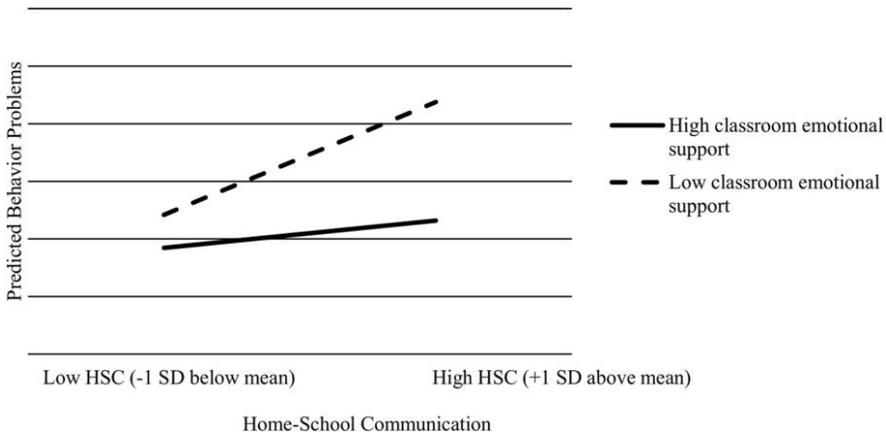


Figure 1. Home-school communication and student behavior problems as moderated by classroom emotional support. Low classroom emotional support = 1 *SD* below the mean; high classroom emotional support = 1 *SD* above the mean; low home-school communication = 1 *SD* below the mean; high home-school communication = 1 *SD* above the mean; estimated effect includes all covariates (child gender, child age, child math achievement, child reading achievement, parent education, parent works full- or part-time, single-parent family, organization, classroom instructional support) and the remaining dimensions of parent involvement (school-based involvement and home-based learning).

The interaction terms between classroom emotional support and school-based involvement and classroom emotional support and home-based learning did not significantly predict student behavior problems over and above the remaining independent variables included in the model. Results also revealed nonsignificant cross-level interactions between three dimensions of parent involvement and classroom organization and instructional support. To maintain parsimony of this final model, these interactions were excluded from the analysis.

Discussion

Within an ecological framework, this study examined rates of parent involvement in low-income urban schools, associations between three dimensions of parent involvement and student behavior problems, and interactive effects of emotionally supportive teacher practices and parent involvement on student behavior problems. Low-income urban parents reported engaging in home-based learning activities quite often. Participation in home-school communication and school-based involvement, however, was less frequent. Although similar to the findings identified by Manz and colleagues (2004), this pattern is more pronounced, and differences in frequency of behaviors were statistically significant. Multilevel analyses, controlling for several child and family covariates, initially revealed a positive relation between home-school communication and behavior problems and a negative relation between school-based involvement and behavior problems. No association was found between home-based learning and behavior problems. When considering effects of parent involvement in varying classrooms, teacher emotional support moderated the relation between home-school communication and student behavior problems but not the associations between the remaining parent involvement dimensions and

student behavior problems. Specifically, significant relations between home-school communication and behavior problems were attenuated in classrooms with higher levels of observed teacher emotional support.

It is notable that although much research finds benefits of family involvement for children's school adjustment (e.g., Adams & Christenson, 2000; Drake, 2000; James, Jurich, & Estes, 2001; Rimm-Kauffman, 1999), we initially found a positive relation between home-school communication and behavior problems. This result may reflect an important aspect of the high-need study sample. In higher stress and lower resource communities, family outreach may not occur until teachers identify a student problem (Gutman & McLoyd, 2000; Izzo et al., 1999). This phenomenon may be important to consider, given recent research by McNeal (2012) demonstrating that "reactive" parent involvement in adolescence predicts lower levels of future involvement.

Findings examining interactive effects, however, suggest that there may be a qualitative difference in how teachers engage with urban parents, depending on their observed level of classroom emotional support. For example, emotionally supportive teachers may be more likely to show sensitivity to parents' needs and identify the strengths that their child has displayed as a student (Nzinga-Johnson et al., 2009). The quantitative findings from the current study support the contention that teachers' emotionally supportive qualities are important for understanding how parent involvement activities influence individual children. This moderation finding provides insight into the mixed body of research regarding the relation between parent-teacher communication and child behaviors (e.g., McNeal, 2012). For example, although some research contends that home-school communication may be a reaction to behavior problems that arise at school (Catsambis, 1998; Epstein, 1988), the current findings suggest the need to consider ecological factors—classroom teacher practices—when examining complex interactions between teachers and parents.

A second possible explanation for this interactive effect is that parent involvement activities may benefit high-need students most when children simultaneously experience the influence of an emotionally supportive classroom. Much of the previous research identifying risk and protective processes associated with parent involvement has focused on individual factors, such as parental work status (Lucas-Thompson, Goldberg, & Prause, 2010) and socioeconomic status (Cooper, 2010). However, the current study suggests that the protective or additive influence of the classroom context may be important to consider as well.

The study also revealed that school-based involvement practices, characterized by behaviors like volunteering at school and engaging with fundraising, are associated with lower levels of student behavior problems. Social cognitive theory may facilitate understanding of the link between school-based involvement and behavioral problems (Bandura, 1977). When young children observe their parents modeling respect for school officials, and investing their time in the school, children may internalize the message that school is a natural extension of family, a place where they are expected to behave appropriately (Bandura, 1988; Grolnick & Slowiaczek, 1994). Alternatively, parents who are involved in school-based activities are likely to have positive relationships with teachers. Teachers, in turn, may be less likely to perceive problematic behaviors among the children of highly involved parents (McDermott & Rothenberg, 2000).

However, there is limited extant research examining relations between school-based involvement and behavior problems during early elementary school. Because early disruptive behavior problems are largely predictive of future socioemotional disorders (Bulotsky-Shearer, Dominguez, Bell, Rouse, & Fantuzzo, 2010), it may be important to consider the positive influence of parents' school-based involvement practices as children begin kindergarten. More research, however, is needed to ascertain the direction of this finding and the mechanisms underlying the association between school-based involvement and in-school behaviors.

We found no relation between home-based learning practices, such as maintaining stable routines and helping with homework, and teacher-reported student behaviors in kindergarten. This may be surprising given research showing that children who are engaged in home learning with parents demonstrate greater levels of behavioral regulation (Domina, 2005; McNeal, 1999). However, such studies have not examined children's in-school behaviors as an outcome and have instead relied on parental reports of child behaviors. Thus, it may be that home-based learning practices have more influence on academic than behavioral outcomes in the classroom (Galindo & Sheldon, 2012). In addition, the activities included in home-based learning do not explicitly require that parents engage with teachers and school personnel. Effects may thus influence at-home behaviors, but may not spill over to the classroom. It should be noted, however, that frequency reports of home-based involvement were quite high, with little variation among reporters. As such, these analyses may be limited by the measurement of this parent involvement dimension. Another important consideration is that findings from the current study are robust to a number of child-, family-, and classroom-level control characteristics.

Study Limitations

This study has four key limitations. First, the data used in the study are cross-sectional and offer a descriptive snapshot of these relations at one time point. Although this study offers possible explanations for the associations observed, due to the correlational nature of the analyses, we are unable to infer causality from the tested models. Moreover, the cross-sectional data do not allow for directional inferences. Although the sample sizes at level 1 and level 2 are consistent with those suggested by Snijders (2005), the study may be underpowered for the number of predictors included in the models (Babyak, 2004). Additionally, it is possible that there are unobserved variables confounding the results. An important direction for future research is to use repeated measures to examine growth trajectories and better identify the directionality of the associations examined in these analyses.

Second, the current study used frequency scales to operationalize dimensions of parent involvement. Although quantity is critical in conceptualizing the role of parent involvement, scales focused on the quality of parent involvement are important to consider. In addition, parents were not asked to provide information on whether they initiated involvement activities. Future surveys should include questions that ask parents to report on their reactivity to issues that arise at school. In order to address measurement issues and further examine how teaching practices relate to parents' home-school communication, future research may use observational methods to assess parent-teacher interactions (e.g., parent-teacher conferences). This en-

ables examination of associations between teachers' classroom emotional support and the quality of their communication with parents.

Third, the outcome measure is a teacher report of behaviors, and findings may reflect reporter bias. Teachers may differ in their tolerance of problematic behaviors and may be more likely to report a student's behaviors as positive if that student's parent is involved at school. Although we triangulate the data sources by including a parent report of involvement and an observed measure of teacher practice in the analyses, future studies would benefit from an observed measure of behavior problems. Such an approach would be able to consider internalizing and externalizing behavior problems separately, as there may be differences in associations between types of parent involvement and dimensions of classroom behaviors.

Finally, most child participants are Black (with a small proportion of Hispanic) kindergarten students in urban public elementary schools. This relative homogeneity precludes between-group comparisons and generalizations to other ages and socioeconomic groups. The nonrandom sampling used in the current study may limit the generalizability of findings as the study participants may not be representative of their schools. Future studies that apply an ecological framework of parent involvement may consider the importance of diverse and representative samples of parents, students, and schools.

Implications and Directions for Future Research

A number of interventions designed to enhance student outcomes by increasing parent involvement have been ineffective (Marcon, 1999). The current study points toward the classroom context—specifically, teacher emotional support—as a potential barrier to program efficacy. There is a clear need to continue to assess parent involvement as a multidimensional process that operates in conjunction with teacher practices in early elementary school. Research examining the mechanisms underlying observed associations would provide information applicable to intervention development.

These findings mirror other recent studies (e.g., Brown, Jones, LaRusso, & Aber, 2010; Raver et al., 2008) suggesting the need for teacher training in emotionally supportive practices. Although current education reform movements are largely focused on improving classroom instruction, this study demonstrates possible benefits of enhanced teacher emotional support that extend beyond the classroom. For example, reflective teachers who develop more emotionally supportive teacher practices may be better able to influence children's positive behaviors in the classroom—both directly, and through more positive interactions with students' parents. In addition, it may be helpful for school leaders to identify whether the strategies emotionally supportive teachers use when engaging with students' parents differ qualitatively from teachers who are observed to be less emotionally supportive. Such reflection may help teachers communicate with parents, a part of their job for which they may receive little support.

Future research should use this ecological paradigm to examine parent involvement not only to replicate the current findings, but also to examine mechanisms linking parent involvement and emotionally supportive classrooms using models that allow for causal inference. This research may be used to develop and inform interventions targeting classroom emotional support—in addition to

other important factors—that effectively serve the needs of schools, parents, and students.

Appendix A

Equations

Equation 1

In equation 1, included here in the mixed-model format, i represents students, j represents classrooms, and k represents schools. β_0 is the individual-level intercept for behavior problems; β_{1ijk} , β_{2ijk} , β_{3ijk} , β_{4ijk} , β_{5ijk} , β_{6ijk} , β_{7ijk} , β_{8ijk} , β_{9ijk} , and β_{10ijk} are level 1 slopes for relations between child individual characteristics, parent involvement dimensions, and behavior problems; u_{ojk} is the group level residual, or the unique effect of classroom j on mean behavior problems holding all predictors constant; v_k is the variance term that represents the group-level residual, or the unique effect of classroom k on mean behavior problems, holding all predictors constant; and r_{ijk} is the individual-level residual. This model assumes that r_{ijk} is normally distributed around a mean of 0, and that the variance components are homogenous and independent of one another:

$$Y_{ijk} = \beta_0 + \beta_1 (\text{female})_{ijk} + \beta_2 (\text{child age})_{ijk} + \beta_3 (\text{child math achievement})_{ijk} + \beta_4 (\text{single parent})_{ijk} + \beta_5 (\text{child reading achievement})_{ijk} + \beta_6 (\text{parent education})_{ijk} + \beta_7 (\text{parent works full- or part-time})_{ijk} + \beta_7 (\text{home-school communication})_{ijk} + \beta_8 (\text{school-based involvement})_{ijk} + \beta_9 (\text{home-based learning})_{ijk} + u_{jk} + v_k + r_{ijk}.$$

Equation 2

Equation 2 builds on equation 1 and includes main effects, β_{10jk} , β_{12jk} , β_{13jk} , β_{14jk} , for classroom emotional support, classroom organization, instructional support, and class size, as well as three cross-level interactions, β_{15ijk} , β_{16ijk} , β_{17ijk} , between the three dimensions of parent involvement and classroom emotional support. A random slope, β_{18ij} , was included for classroom emotional support as well.

$$Y_{ijk} = \beta_0 + \beta_1 (\text{female})_{ijk} + \beta_2 (\text{child age})_{ijk} + \beta_3 (\text{child math achievement})_{ijk} + \beta_4 (\text{single parent})_{ijk} + \beta_5 (\text{child reading achievement})_{ijk} + \beta_6 (\text{parent education})_{ijk} + \beta_7 (\text{parent works full- or part-time})_{ijk} + \beta_8 (\text{home-school communication})_{ijk} + \beta_9 (\text{school-based involvement})_{ijk} + \beta_{10} (\text{home-based learning})_{ijk} + \beta_{11} (\text{classroom emotional support})_{jk} + \beta_{12} (\text{classroom organization})_{jk} + \beta_{13} (\text{instructional support})_{jk} + \beta_{14} (\text{classroom emotional support})_{jk} \times (\text{home-school communication})_{ijk} + \beta_{15} (\text{classroom emotional support})_{jk} \times (\text{home-based learning})_{ijk} + \beta_{16} (\text{classroom emotional support})_{jk} \times (\text{school-based involvement})_{ijk} + u_{jk} + v_k + r_{ijk}.$$

Note

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through grants R305B080019 and R305A080512 to New York University. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

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