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Latent Profile Analysis of Teacher Perceptions of Parent Contact and Comfort

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The purpose of the study was to explore patterns of parent involvement as perceived by teachers and identify correlates of these patterns. Parent involvement indicators and correlates were selected from a review of existing research. Participants included 34 teachers and 577 children in kindergarten through third grade. The vast majority of the sample was African American (78%), followed by Caucasian (19%) and other ethnic backgrounds (2%). Two subscales from the Parent Involvement-Teacher scale, contact and comfort, were entered as indicators in a latent profile analysis to determine the number and types of parent involvement classes. Contact included the frequency of interactions between parents and teachers; comfort included the quality of their relationship with the parent and how well their goals were aligned. Subsequent latent class regressions were conducted to identify student, school, and family characteristics associated with class membership. Three classes provided the optimal solution. This included two classes of parents with low contact with teachers but different comfort levels; one with low contact and low comfort (11%), and one with low contact but high comfort (71%). The remaining class, representing 18% of parents, was rated high on both contact and comfort. Low income status, family problems, and social, emotional, academic, and self-regulation problems distinguished the low comfort class from the other two classes. It is imperative to help teachers feel more comfortable working with families who may be experiencing substantial stressors and who also have children who need support across school and home settings.

Keywords: parent involvement, teacher–parent relationships, student outcomes, LPA

Parent involvement in education is associated with numerous benefits for parents and children. Parents who are involved in school have increased confidence in their abilities to parent, help their children learn at home, and engage in communication with teachers (Epstein et al., 2002; Gardner, Hutchings, Bywater, & Whitaker, 2010; Jackson & Davis, 2000). Children with more involved parents have more positive long-term outcomes, such as decreased use of drugs and alcohol, lower rates of suspension, and reduced risk for dropout (Dearing, Kreider, Simpkins, & Weiss, 2006; Esler, Godber, & Christenson, 2002; Fan & Chen, 2001; Hill & Craft, 2003; International Reading Association, 2002; National Middle School Association, 2003; O'Donnell, Schwab-Stone, & Muyeed, 2002). Parent involvement is also an important predictor of early reading success, school readiness, social emotional adjustment, and promotion from kindergarten (Aikens & Barbarin, 2008; Dearing et al., 2006; Mantzicopoulos, 2003).

Most past research in this area has investigated relationships between specific types of parent involvement (e.g., contact with teachers) and student outcomes. Although parent involve-

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ment is commonly understood to be a multidimensional construct, less research has examined how various dimensions and types of involvement are interrelated and how they might contribute to student outcomes. In particular, teacher perceptions of the frequency of teacher–parent contact and teacher-reported comfort with the parent (e.g., the quality of their relationship, perceptions of parent attitudes about education, alignment of goals) may provide useful information on types or patterns of parent–teacher relationships related to important child outcomes. Identifying factors (e.g., child, family, school characteristics) related to these patterns could guide efforts to improve parent involvement in the schooling process. Accordingly, the purpose of this study was to explore profiles of teacher perceptions of levels of contact with students' parents and their comfort in their relationship with these parents. To provide a context for this study, literature on parent involvement, contributing factors for involvement, and the importance for children at risk will be presented.

Parent Involvement: Teacher Perceptions of Contact and Comfort

The pioneering work in the field of parental involvement by Hoover-Dempsey and Sandler (1995, 1997; Hoover et al., 2005) underscored multiple variables that contribute to parents' decisions to become involved in their children's schooling. For example, involvement is associated with parents' motivational beliefs, including that it is part of their role as a parent to be involved in their children's education. Parental sense of efficacy or confidence in their ability to help children succeed in school is another important factor that contributes to involvement decisions, as well as parent perceptions of whether they have knowledge, skills, time, and energy for involvement. Finally, general opportunities and invitations for involvement, presented by both the child and the school, also contribute to involvement decisions (Hoover-Dempsey & Sandler, 1995; Hoover-Dempsey et al., 2005). In addition to the types of factors outlined above, parent perceptions of their own frequency of participation, the quality of their relationships with teachers, education-related practices at home, and their endorsement of education and the school are all also distinct and meaningful types of involvement (Kohl, Lengua, & McMahon, 2000). Other researchers have also emphasized that parent involvement in education is multidimensional and many factors contribute unique aspects to the construct (Fantuzzo, Tighe, & Childs, 2000; Kohl et al., 2000).

Teacher perceptions of parent involvement provide additive explanatory power to the construct (Kohl et al., 2000). Teacher perceptions are especially critical given that teacher beliefs about parents, regardless of their accuracy, may contribute to the quality of relationships between teachers, parents, and their children (Henderson & Berla, 1997; McDermott & Rothenberg, 2000; McCoach et al., 2010). For instance, it is likely that teachers interact differently with parents whom they perceive as committed and interested in their child's education compared with parents whom they perceive as less involved in learning (Henderson & Berla, 1997; McDermott & Rothenberg, 2000).

In past research, teacher perceptions of parent contact and comfort were identified as two key dimensions of parent involvement (Miller-Johnson & Maumary-Gremaud, 2000). Specifically, in the Fast Track sample, Miller-Johnson and Maumary-Gremmand (2000) found that contact and comfort emerged as distinct factors of teacher ratings of parent involvement. Contact included teacher ratings of the frequency of interactions between parents and teachers, whereas comfort included teacher perceptions of the quality of their relationship with the parent as well as how well their goals were aligned. Other research has documented the importance of contact and comfort dimensions according to parent ratings. Parents reported they desire contact with teachers, but teachers did not regularly contact them and often waited for a number of student issues to occur before making first contact (Harniss, Epstein, Bursuck, Nelson, & Jayanthi, 2001; Hawes, 2008; Jackson & Davis, 2000; Tett, 2001; Thompson, 2008). Also, parents indicated that the feedback provided within the context of most communications with teachers was negative (Harniss et al., 2001; Hawes, 2008). Research has also found that parents reported a desire for communication and involvement with teachers and schools but felt excluded from involvement because they felt teacher perceptions of them were negative (McDermott & Rothenberg,

2000). This is an important area of research for families from culturally diverse backgrounds because there may be even more risk for barriers to involvement (Epstein & Becker, 1982; Greenfield, 1994; Stormont, Reinke, Herman, & Lembke, 2012; Trumbull et al., 2001).

Levels of contact or comfort may separately relate to child outcomes, but their co-occurrence may provide even more important information about involvement patterns. For instance, it is conceivable that some parents may be characterized as having low contact with schools but still be perceived as having a comfortable relationship; likewise, some parents may have frequent contact with teachers but be perceived as intrusive and unhelpful. In one recent study, teacher perceptions of the two dimensions of contact and comfort were highlighted as potential contributing factors to children's success (McCoach et al., 2010). Specifically, high- and low-performing low-income schools were distinguished not by parent-reported frequency of contact with teachers but rather by the quality of those interactions. Parents in these schools reported similar levels of contact, but teachers at high-achieving schools rated parent involvement more favorably and encouraged higher levels of involvement than did teachers in low-achieving schools. In addition, parents in the high-achieving schools were more satisfied with their schools than were parents in the low-achieving schools. Overall research in the area of parent involvement supports the premise that it is important to consider multiple dimensions of involvement, including teacher perceptions of amount of contact with parents and their overall comfort with parents. Contact and comfort levels are also likely related to broader school contextual factors, as well as family and child characteristics, which are discussed next.

Influences on Contact and Comfort

There are many potential family, school, and child characteristics that may contribute to the contact and comfort dimensions of involvement. Involvement patterns are likely to be lower if families have low socioeconomic status (SES), ethnic minority status, lower educational levels, and single-parent status (Fantuzzo et al., 2000). Additional barriers to higher levels of contact and comfort with schools include availability because of work demands, lack of child care or transportation, and family member resistance (McKay, Atkins, Hawkins, Brown, & Lynn, 2003; Nock & Kazdin, 2001).

School level characteristics also contribute to contact and comfort levels. Specifically, schools with high numbers of children from low-income backgrounds are at increased risk for less contact with families (Aikens & Barbarin, 2008; Dearing et al., 2006). Furthermore, many aspects of the school environment, including biases and negative perceptions of school staff, may also make schools unwelcoming to parents and will likely influence both contact and comfort levels (Stormshak, Dishion, Light, & Yasui, 2005). School professionals are most likely to be effective in efforts to solicit parent involvement if parents perceive the school as welcoming, accessible, and open and participation is acceptable and doable (McCoach et al., 2010; Walker, Ice, Hoover-Dempsey, & Sandler, 2011).

Unfortunately, children who are at risk because of poverty are also more likely to encounter the family stressors and school characteristics described above, which may serve as barriers to higher levels of contact and comfort (Aikens & Barbarin, 2008). Children who are at risk are also more likely than their higher-income peers to need early intervention for emotional, behavior, and academic problems (Iruka, Winn, Kingsley, & Orthodoxou, 2011; Stormont, 2002). Without intervention early achievement problems, disruptive behavior, attention problems, social-emotional difficulties, and internalizing problems are fairly stable, and predictive of longer-term negative outcomes (Lewinsohn, Rohde, Seeley, Klein, & Gotlib, 2003; Pfeiffer & Reddy, 1998; Walker, 1998).

Fortunately, research has documented that positive teacher–parent relationships can serve as a protective factor for children at risk for failure because of these characteristics. Researchers have noted this is a particularly important area for culturally diverse populations (Reinke, Herman, Petras, & Ialongo, 2008; Walker et al., 2011). For example, research has shown when parents of African American children reported higher quality relationships with teachers, teachers rated children as more socially competent and less aggressive (Iruka et al., 2011). Other research, which was previously discussed, also documented that a positive perception of parents on the part of

teachers was a key characteristic of high-achieving low-income schools (McCoach et al., 2010).

Summary

In sum, it is clear that parent involvement is associated with more positive outcomes for children. To support greater parent involvement, it is important to understand more about teachers' perceptions given such perceptions likely contribute to the quality of their relationships with parents. This is an especially important area of research for children at risk for failure. Children at increased risk for failure need support across home and school settings. Teacher perceptions of families may be negative if they believe families are responsible for their children's academic or behavior problems and/or if they feel families do not share the same educational goals. To further understand the involvement patterns of parents according to teacher perceptions, more research is needed. Given the importance of parent involvement, understanding barriers is especially critical. Teacher perceptions, if they are negative, can be a barrier that is important to address to support greater involvement and more positive child, family, and school outcomes.

Purpose

In the present study, parent involvement patterns were investigated using latent profile analysis (LPA) to empirically derive classes of involvement types. Of particular interest was the identification of relationship patterns and predictors that can be targeted for prevention and intervention. We relied on two teacher-rated indicators of parent involvement: contact and comfort. Variables of interest chosen from the extant literature demonstrating influences on or being associated with parent involvement were selected, including SES, family problems, and children's social, emotional, behavioral, and academic characteristics. Using a sample of predominately African American families, this study also addressed a need in the research for more investigations of involvement patterns, barriers, and predictors for children from diverse backgrounds.

Rather than examining specific involvement dimensions as unitary variables as in prior research, we wanted to consider how variables cluster to form individual profiles. Accordingly, a sophisticated clustering method, LPA, was employed to empirically derive classes of involvement types. This approach reflects an individual-level approach, which possesses an advantage over variable-level analyses like regression and factor analysis (Walrath et al., 2004). This approach provides a way of grouping persons into categories based on shared characteristics that distinguish members of one group from another group.

LPA also allows researchers to identify discrete *latent* variables that best group individuals. Latent variables are based on group members' scores from multiple discrete observed variables. Rather than relying on cutoffs on rating scales, the use of LPA in this study represents a multivariate approach that assumes an underlying latent variable that determines group membership for an individual. Another distinct reason for the use of LPA in this study is that LPA allows for the inclusion of covariates and outcomes in models to determine how well specified groups predict or are associated with specific outcomes (Walrath et al., 2004). The practical benefits of using such an approach include the ability to obtain a more detailed characterization of involvement types and to identify variables correlated with specific types.

Accordingly, the purpose of the study was twofold. First, we wanted to identify the number and types of parent involvement profiles. We hypothesized that three profiles would emerge. Given that some parents minimize school contact because they feel unwelcome (McDermott & Rothenberg, 2000), we expected one class to be characterized as low contact and low comfort. Other research indicating that parents of students with difficulties in school may have increased levels of contact but around challenging topics (Harniss et al., 2001; Hawes, 2008) led us to expect a second class distinguished by high contact but low comfort. Given that high parent participation is generally viewed favorably by educators (Epstein et al., 2002), we also expected to find a third class with high levels of contact and comfort. Second, we wanted to identify correlates of parent involvement profiles. We hypothesized that student race and receiving free or reduced lunch would predict membership in less optimal parental involvement profiles (lower con-

tact/low comfort and high contact/low comfort). In addition, we hypothesized that families with higher levels of perceived family problems, and students with higher disruptive behavior, lower social competence, lower levels of emotional regulation, and lower academic achievement would be associated with membership in less optimal parent involvement profiles.

Method

Participants

Participants in this study were 34 teachers and 577 students in grades kindergarten to third. Teacher participants were predominantly women (97%) and had on average 13 years of teaching experience ($SD = 6.47$). Thirty-eight percent of teachers' highest degree was a bachelor degree, 47% had earned a master's degree, and 15% had postmaster's certification. Teachers in the study were White (76% of participants) or African American (24%). Fifteen percent of teachers were in the age range of 20–30 years, 47% were between 31 and 40 years, 29% were 41–50 years, and 9% were between 51 and 60 years of age. The study included 9 kindergarten, 11 first grade, 11 second grade, and 8 third grade classrooms. Student demographic information was obtained from the school district. The students' ages ranged from 5 years to 10 years ($M = 7.137$, $SD = 1.17$). Approximately 50% of the students were boys ($n = 288$) and 50% were girls ($n = 289$). The majority of the participants were African American ($n = 448$), and a smaller number were Caucasian ($n = 112$) or other ethnicities ($n = 14$). Among the 577 students, 37.8% of the students qualified for free or reduced lunch (used as a proxy for SES). The participants were from three elementary schools in an urban Midwestern school district. Only teachers and students whose parents signed a consent form participated in this study. Student assent was also obtained. The participants included in this study are part of a larger randomized group efficacy trial of a teacher training program. Data collected prior to the intervention were used for the purposes of this study.

Procedures

Thirty-four teachers provided consent to participate, which includes 100% of teachers solicited. For all students whose parents provided consent (83%), teachers completed a packet of measures in a standard order. The teachers rated student classroom behaviors, social competence, academic performance, and parent involvement. This information was collected at the end of October. School had been in session for approximately 2 months at this time. Academic achievement, specifically reading and math, was assessed using the Woodcock-Johnson III NU Test of Achievement (WJ III ACH), a standardized measure of reading and math achievement. Student assent was obtained by trained assessment examiners. All students with parental consent provided their assent to participate. Undergraduate and graduate students from a university were trained in administrating the WJ III ACH and passed a competency exam before working with the student participants. Following the completion of the WJ III ACH, the examiner provided the student with a small reward for participating and returned them to their classroom (e.g., fun pencil, eraser, pencil sharpener). This assessment was administrated throughout the month of October.

Measures

Parent contact and comfort. The *Parent Involvement Measure-Teacher* (Conduct Problems Prevention Research Group, 1991) is a 21-item measure that assesses facets of parent involvement. This measure was completed by the classroom teacher for each student. Two subscales, Parent–Teacher Contact and Parent Comfort, were included in the LPA to explore specific subtypes and the best class solution. The item responses range from 0 (*not at all or never*) to 4 (*very interested, very often, very comfortable, a whole lot, more than once a week*). Sample items from the Contact subscale include, "How often has this child's parent called you," and "How often has this child's parent attended a parent-teacher conference in the past year." Sample items from the Comfort scale include, "How well do you feel you can talk to and be heard by this parent," and "How much do you feel this parent has the same goals for his or her child that the school does?" Factor

analysis on this measure documented strong support for the comfort and contact factors (Miller-Johnson & Maumary-Gremaud, 2000). Research has also found good discriminant validity for this measure between high and low risk samples (Malone, 2000). Previous research has also found adequate internal consistency for Parent–Teacher Contact ($\alpha = .68$) and high internal consistency for Parent Comfort and Endorsement of School ($\alpha = .93$; Conduct Problems Prevention Research Group, 1995; Kohl et al., 2000). For the current study, the internal consistency, computed with Cronbach's alphas, for each subscale was .73 (Parent–Teacher Contact) and .90 (Parent Comfort), respectively.

Student demographics. Free and reduced lunch status (FRL) and student race were obtained from the school district for all participating students. Students were coded as 1 if they received FRL and 0 if not. Students were coded as 1 if they were African American, and 0 if not because of small cell size for students in the other race category.

Student disruptive behavior, concentration, internalizing problems, and family problems. The *Teacher Observation of Classroom Adaptation-Checklist* (TOCA-C; Koth, Bradshaw, & Leaf, 2009) is a 54-item measure of student behavior. It was completed by the classroom teachers for each student in October of the academic year. The four subscales of the TOCA-C included in the present study were Disruptive Behaviors, Concentration, Internalizing Problems, and Family Problems. The item responses ranged from 1 (*never*) to 6 (*almost always*). Previous research of the TOCA-C has found internal consistency estimates ranging from .86 to .96. For the current study, the internal consistency (computed using Cronbach's alpha) for each subscale ranged from .82 to .96. Moreover, a recent factor analytic study confirmed the factor structure of the TOCA-C in our sample and found it to have strong psychometric properties in terms of goodness of fit and measurement invariance (Wang et al., 2013).

Student prosocial behavior, emotional regulation, and academic competence. The *Social Competence Scale-Teacher version* (T-COMP; CPPRG,1995) is a 17-item measure that assesses the teacher's perception of a student's prosocial behavior, emotional self-regulation, and academic competence. All three subscales were used in the present study. The item responses range from 0 (*almost never*) to 4 (*almost always*). Previous research documented strong psychometric properties for the T-COMP (CPPRG, 1995; Gouley, Brotman, & Huang, 2008). Internal consistency for the T-COMP ratings was .96 for the Prosocial-Communication Skills, .96 for Emotional Regulation Skills, and .98 for the Total SCS (CPPRG, 1995). The T-COMP also had good discriminant validity between community and high-risk samples. In addition, good concurrent validity has been found between the T-COMP and four dimensions of the Social Skills Rating Scale (SSRS; Gresham & Elliot, 1990), emotion regulation which was measured by the emotion regulation checklist (ERC; Shields & Cicchetti, 1995), and peer relations as measured by the Penn interactive peer play scale (PIPPS; Fantuzzo et al., 1995).

Academic achievement. The W*oodcock-Johnson III Normative Update Tests of Achievement* (WJ III ACH; Woodcock, McGrew, & Mather, 2007) is an assessment of student academic achievement. The present study included two subscales, Broad Reading and Broad Math. The WJ III ACH has strong psychometric properties (Woodcock, McGrew & Mather, 2001; Woodcock et al., 2007; Bradley-Johnson, Morgan, & Nutkins, 2004). Specifically, the test–retest reliability for the subtests included in the present study range from .80 to .95 (Bradley-Johnson et al., 2004). Research has also documented support for the construct validity of the Achievement subtests used in the current study (Bradley-Johnson et al., 2004).

Analysis

LPA was used to examine patterns of two indicators of teacher perceived parent involvement, contact and comfort (Nylund et al., 2005). The basis of LPA is that within each class the behaviors are locally independent. For this study, this means that parent involvement can be explained by an underlying classification of families into subclasses with similar patterns of behavior. Overall, the goal of LPA is to identify the smallest number of classes that accurately describes the association between the parent involvement indicators. The results for the characteristics for identified latent profiles was ex-

pressed in mean levels of parent contact and comfort and the prevalence or proportion of parents in each class.

All analyses were conducted using MPlus 6.0 (Muthén & Muthén, 1998–2010). In LPA, a combination of statistical considerations and substantive theory are used to decide on the best fitting model. To determine the relative fit of the models, we compared models with differing numbers of classes using the Akaike information criterion (AIC; Akaike, 1987), the Bayesian information criterion (BIC; Schwartz, 1978), and the sample-size adjusted Bayesian information criterion (aBIC; Sclove, 1987). In these analyses, more weight was given to the Bayesian Information Criterion (BIC; Schwartz, 1978) because simulation studies suggest that the BIC provides the most reliable indicators of true model fit (Nylund et al., 2005). Typically, the smaller the information criteria, the better the model fit to the data. Furthermore, we used a likelihood difference test, the Vuong–Lo–Mendall–Rubin (VLMR; Lo, Mendall, & Rubin, 2001; Vuong, 1989), which assesses the fit between two nested models that differ by one class and provides a *p* value that indicates which model fits best. In addition, we evaluated the classification precision as indicated by estimated posterior class probabilities, summarized by the entropy measure (Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993). Entropy values close to 1.0 indicate higher classification precision (Muthén, 2004). Lastly, a bootstrapped parametric likelihood ratio test (BLRT) procedure was used to confirm the best fitting model once other model fit indicators, class prevalence and interpretability were examined (see McLachlan, 1987; Nylund, Asparouhov, & Muthen, 2007).

Once the best solution was identified, profiles were examined to determine whether they could be distinguished from one another using student characteristics and academic achievement. This step is important, because it provides evidence that the profiles represent meaningful subsamples of the population as opposed to data patterns. To accomplish this, first, latent class regression analysis (Guo, Wall & Amemiya, 2006) was utilized to determine the association between categorical demographic variables and profile membership. Next, the Mplus Auxiliary function (Muthén & Muthén, 2010) was used for all continuous external variables while controlling for student race and FRL. This method derives profile membership based on the observed risk factor scores and uses the posterior probabilities to compute means for each external variable (disruptive behavior, concentration problems, prosocial behavior, emotional regulation problems, academic competence, family problems, and reading and math achievement). Differences between these mean scores were then tested for statistical significance. In all analyses, standard errors were corrected to reflect the fact that children were clustered within classrooms (Reboussin, Song, Shrestha, Lohman, & Wolfson, 2006).

To accommodate for missing data, Mplus software uses full information maximum likelihood with the assumption that the data are missing at random (Little, 1995), a common approach employed within this analysis method (Schafer & Graham, 2002). Overall, 94.3% of the participants had all data for all variables used for the profile analysis; 96.7% had data for disruptive behavior problems, concentration problems, internalizing problems, and family problems; 99.3% had data for prosocial behavior, emotional regulation problems, and academic competence; and 99.3% had data for reading achievement and math achievement data. The minimum covariance coverage recommended for reliable model convergence is 0.10 (Muthén & Muthén, 2004). In this study, coverage ranged from 0.984–0.997, all well exceeding the recommended coverage.

Results

In this section, the results will be presented including the LPA to determine potential indicators and the best class solution followed by subsequent analyses based on the results of the LPA. The analyses including demographic, family, social, emotional, behavioral, and academic characteristics used an adjusted significance level given the number of tests run. More specifically, to control for Type I error the significance value used was $p < .01$ (McCoach et al., 2010). For all statistically significant findings Cohen's *d* were calculated to determine the magnitude of effects. According to Cohen (1988), an effect size of .20 is considered small, .50 is considered medium, and .80 is considered large.

LPA of Parent Involvement

Teacher report of parent contact and comfort were utilized to determine the optimal number of profiles of parent involvement. Descriptive statistics for outcome variables are provided in Table 1. LPA fit indices for class solutions are summarized in Table 2. The three class solution emerged as the optimal fit for the data as evidenced by lowest BIC value for this solution.

Figure 1 summarized the prevalence and characteristics of the three classes identified. Class 1 was characterized as the High contact/High comfort class (18%; $n = 103$) given that this group had higher than average level of comfort and contact. Class 2 was characterized as Low contact/High comfort class and included 71% of the sample ($n = 410$). This class had high comfort but lower than average contact. Finally, Class 3 was characterized as Low contact/Low comfort (11%; $n = 64$). This class was characterized by lower scores on both indicators.

Demographic Characteristics

The association between students receiving FRL, which was used as a proxy for SES, race, and teacher perceptions of parent involvement profiles were evaluated using latent logistic regression analyses. When both FRL and race were included in the model, findings indicated that students in the Low contact/Low comfort class were 2.85 (odds ratio [OR], confidence interval [CI]: 1.42–6.17) times more likely to receive FRL than students in the Low contact/High comfort class. Student race was not significantly associated with the parent involvement profiles.

Table 1
Descriptive Statistics for Study Variables

Study variable	*M*	*SD*
Parent contact	1.18	.53
Parent comfort/endorsement	2.58	.77
Disruptive behaviors	1.71	.73
Concentration	2.58	1.17
Internalizing problems	1.57	.66
Prosocial behavior	3.39	1.18
Emotional regulation	3.70	1.04
Academic competence	3.38	1.21
Family problems	2.06	1.00
WJ III Broad Reading	98.15	12.76
WJ III Broad Math	94.30	14.60

Note. WJ III = Woodcock-Johnson III.

Student Family, Social, Emotional, and Behavioral Characteristics

Statistically significant differences were observed among the classes in terms of teacher-reported family problems and child prosocial, emotional, and behavioral problems (see Table 3). The Low contact/Low comfort class had the highest mean score for family problems ($M = 2.94$) and was significantly different from the High contact/High comfort ($M = 2.10$; $\chi^2 = 22.75$, $p < .001$) and the Low contact/High comfort ($M = 1.86$; $\chi^2 = 49.70$, $p < .001$) classes. The magnitude of effects for these comparisons approached or exceeded Cohen's criteria for large effects.

The Low contact/High comfort class ($M = 1.57$) had a lower disruptive behavior mean score than the High contact/High comfort ($M = 1.97$; $\chi^2 = 14.72$, $p < .001$) and Low contact/Low comfort ($M = 2.01$; $\chi^2 = 12.76$, $p < .001$) classes. For concentration problems, the Low contact/Low comfort class ($M = 3.32$) was rated as higher than both the High contact/High comfort ($M = 2.65$; $\chi^2 = 10.65$, $p < .001$) and the Low contact/High comfort ($M = 2.40$; $\chi^2 = 30.00$, $p < .001$) classes. The magnitude of effects for these comparisons were in the approaching medium to approaching large range (.46–.77).

In addition, teachers reported higher emotional regulation scores for students in the Low contact/High comfort class ($M = 3.87$), than students in either the High contact/High comfort ($M = 3.42$; $\chi^2 = 27.47$, $p = .002$) or Low contact/Low comfort ($M = 3.30$; $\chi^2 = 12.11$, $p = .001$) classes. The magnitude of the effect for the difference between the high comfort groups was small and the difference between the Low Contact/Low Comfort and the Low Contact/High Comfort class was medium. Students in the Low contact/High comfort class ($M = 3.56$) had higher prosocial behaviors than those in the Low contact/Low comfort class ($M = 2.80$; $\chi^2 = 17.58$, $p < .001$) and those in the High contact/High comfort class ($M = 3.25$; $\chi^2 = 3.72$, $p = .05$). Students within the High contact/High comfort class ($M = 3.25$) were also rated as having higher prosocial behaviors compared to the Low contact/Low com-

Table 2
Model Fit Indices for 1–4 Class Solutions of Parent Involvement

	AIC	BIC	Adjusted BIC	VLMR LRT	Entropy
1 Class solution	2,225.82	2,243.26	2,230.56	—	—
2 Class solution	2,093.69	2,124.19	2,101.97	0.00	0.79
3 Class solution	**2,080.28**	**2,123.86**	**2,092.11**	**0.00**	**0.67**
4 Class solution	2,074.98	2,131.63	2,090.36	0.01	0.72

Note. LC = Latent class; AIC = Akaike information criterion; BIC = Baysian information criterion; aBIC = adjusted Baysian information criterion. Bold indicates best fit: The three-class solution had the lowest BIC and the VLMR LRT and the Bootstrap LRT indicated the 3-class solution provided a better fit than the 4-class solution. All entropy ratings indicate acceptable fit. Entropy values close to 1.0 indicate higher classification precision.

fort class ($M = 2.80$; $\chi^2 = 4.62$, $p = .032$). The magnitude of the effects were small for the comparisons between the High Comfort/High Contact group and the other two groups; the magnitude of the difference between the low contact groups was medium.

Student Academic Achievement

Students whose teachers reported low levels of comfort and contact with parents, had lower WJ III scores. Specifically, students in the Low contact/Low comfort class scored lower on the reading ($M = 92.88$) and math ($M = 88.54$) subtests compared to the students in the High contact/High comfort ($M = 98.61$; $\chi^2 = 6.69$, $p = .010$; $M = 94.11$; $\chi^2 = 5.14$, $p = .023$, respectively) and the Low contact/High comfort ($M = 99.26$; $\chi^2 = 11.01$, $p = .001$; $M = 95.77$; $\chi^2 = 11.19$, $p = .001$, respectively) classes. The magnitude of effects for the WJ III comparisons were in the small to approaching medium range.

Finally, for the T-COMP, teachers reported that students within the Low contact/Low comfort class ($M = 2.48$) had statistically significantly lower academic competence than students in both the High contact/High comfort class ($M = 3.50$; $\chi^2 = 25.86$, $p < .001$) and Low contact/High comfort class ($M = 3.55$; $\chi^2 = 37.46$, $p < .001$). The magnitude of effects for teachers' ratings of academic competence were large and approaching large.

Discussion

The purpose of this study was to determine the number of parent involvement classes and associated outcomes within a sample of diverse students. As hypothesized, three classes best described teacher perceptions of parental contact and comfort. One class of parents, 18% of the sample, was characterized by high contact and high comfort by teachers. Contrary to expectations, a high contact/ low comfort class was not identified. Given that our assessments occurred early in the school year, it is possible that such a class would emerge later in the school year as student problems arise and par-

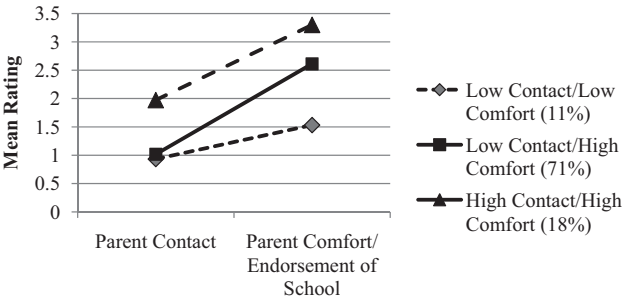

Figure 1. Profiles of parent involvement.

Table 3
*Means, SE, and Equality Tests Across Profiles of Parent Involvement (*n = *574)*

	Class 1: High contact and comfort (n = 105)	Class 2: Low contact/high comfort (n = 408)	Class 3: Low contact and comfort (n = 61)	Overall test of significance	Significant class comparisons	Cohen d
Disruptive behaviors	1.97 (0.09)	1.57 (0.04)	2.01 (0.11)	34.71***	Class 1 vs. 2***	.46
					Class 2 vs. 3***	.53
Concentration	2.65 (0.14)	2.40 (0.06)	3.32 (0.15)	38.52***	Class 1 vs. 3**	.51
					Class 2 vs. 3***	.77
Internalizing problems	1.56 (0.08)	1.52 (0.04)	1.78 (0.10)	6.99*	—	
Prosocial behavior	3.25 (0.14)	3.56 (0.06)	2.80 (0.16)	28.86***	Class 1 vs. 2*	.23
					Class 1 vs. 3*	.34
					Class 2 vs. 3***	.62
Emotional regulation	3.42 (0.13)	3.87 (0.05)	3.30 (0.15)	27.47***	Class 1 vs. 2**	.38
					Class 2 vs. 3***	.52
Academics Competence	3.50 (0.13)	3.55 (0.06)	2.48 (0.16)	40.58***	Class 1 vs. 3***	.79
					Class 2 vs. 3***	.87
Family problems	2.10 (0.11)	1.86 (0.05)	2.94 (0.14)	65.02***	Class 1 vs. 3***	.76
					Class 2 vs. 3***	1.03
WJ-III Broad Reading	98.61 (1.37)	99.26 (0.67)	92.88 (1.72)	12.35**	Class 1 vs. 3**	.42
					Class 2 vs. 3***	.47
WJ-III Broad Math	94.11 (1.60)	95.77 (0.78)	88.54 (1.89)	14.25***	Class 1 vs. 3*	.36
					Class 2 vs. 3***	.47

Note. WJ III = Woodcock-Johnson III. χ^2 p values: * $p < .05$. ** $p < .01$. *** $p < .001$. To control for Type 1 error, class comparisons were only examined when the overall test of significance was $p < .01$.

ents and teachers have different opinions regarding how to address different issues. Instead, the vast majority of parents (82%) fell into one of two classes characterized by low contact. The majority of these low contact parents fell into a class characterized by acceptable levels of teacher-rated comfort (71% of total sample). That is, even when teachers did not have a lot of contact with parents, they still perceived their relationship with the majority of these parents favorably (e.g., as comfortable and having mutual goals). On the other hand, a subset of low contact parents (11% of the sample) was rated by teachers as low on comfort. A key question arises from these findings: Given that amount of contact did not appear to be driving teacher ratings of comfort for these latter two classes of parents (i.e., each class had the same amount of contact), what other factors contributed to teacher perceptions of comfort with these parents?

To understand the differences in parental contact and comfort among the three groups, a series of demographic characteristics and student academic and behavior patterns were examined. We hypothesized that student race and receipt of FRL would predict membership in less optimal parental involvement profiles (lower contact/low comfort), and that families with higher levels of perceived family problems, and students with higher disruptive behavior, lower social competence, lower levels of emotional regulation, and lower academic achievement would be associated with membership in less optimal parent involvement profiles. Student race did not predict profile membership. Whereas students in the low contact/low comfort group were significantly more likely to receive FRL than students in the low contact/high comfort group their scores were not significantly different than the high contact/high comfort group. This finding may highlight the protective nature of student behavior and academic characteristics in teacher perceptions of parent comfort. For instance, student in the low contact/high comfort group had lower mean levels of disruptive behavior, concentration problems, family problems, and higher levels of prosocial behavior, emotional regulation, and academic performance than the other two parent involvement profiles. This may suggest one mechanism by which teachers view low contact parents

favorably is if their children are doing well doing well socially and academically.

Students in the low contact/low comfort group were more likely to be rated by their teacher as having higher levels of disruptive behaviors, concentration problems and family problems and lower levels of prosocial behaviors, self-regulation, and academic skills. Standardized assessments also revealed students whose parents were in the low contact/low comfort class had lower math and reading skills than students in either of the other two groups. The differences between the low contact/low comfort group and the low contact/high comfort group were higher than other group comparisons and all were in the approaching medium to large range. An effect size of 1.03, the largest effect, was found for the mean difference for these two groups on the family problems variable. Interestingly, the high contact/high comfort group had lower emotional regulation, and prosocial behaviors, and higher disruptive behaviors than the low contact/high comfort group as well. However, the mean levels on all variables were still higher than the low contact/low comfort group. The high contact/high comfort group of parents may represent parents who are proactive by interacting with teachers at the early signs of behavioral problems. Teachers would likely perceive such a proactive response with higher levels of comfort.

Collectively, the findings suggest that teachers are more likely to report lack of comfort with parents from low income backgrounds and whose children were experiencing behavior and/or emotional problems, academic skill deficits, and limited social and self-regulation skills. Parents of students with lower levels of these problems and of higher economic means were more likely to be rated by teachers as high comfort, even when they had the same low levels of contact with teachers. The low comfort and low contact group also had the highest teacher ratings for family problems. It is also notable that these patterns emerged early in the school year (data were collected in October) indicating that teacher perceptions may begin to form rapidly at the start of each school year. Interestingly, teachers began to form comfort perceptions of 71% of the parents even without contact with them. The fact that teachers felt comfortable with the level of contact, even though it was low, is an area for future research. Perhaps these involvement patterns were due to the fact that it was early in the year and, since children were doing well, teachers felt comfortable with low contact. Future research should examine whether these early perceptions remain stable across the school year or if different patterns emerge over time.

Implications

Because the data in the study were cross-sectional and no variables were manipulated, causal interpretations are inappropriate. However, the potential implications are clear. The parents of students with the greatest needs for academic and behavior support, the ones for whom research suggests that active parent involvement is most critical, may be the least likely to have a comfortable relationship with their teachers. Even though teacher perceptions were the focus in this study, to the extent these parents perceive this discomfort being experienced and reported by teachers, it is highly unlikely that they will choose to increase their participation in school services and supports for their child (McCoach et al., 2010; Walker et al., 2011). In turn, the predictable negative outcomes experienced by children with early academic and behavior problems are highly unlikely to be altered without significant parent involvement and participation (Lewinsohn et al., 2003; Pfeiffer & Reddy, 1998; Walker, 1998).

Thus, a fundamental barrier to overcome if parents of students with academic and behavior problems are to increase their participation in school is to reduce teacher perceptions of discomfort with these parents. What is the source of the discomfort? As the data were cross-sectional we can only speculate and future research is needed to continue to extend work in this area. One tenable hypothesis is that teachers are less comfortable with parents of high need students because they interpret students' misbehavior and/or skill deficits as a reflection on the parent. Given that the teachers perceive these parents as having low contact with schools, they may develop a negative perception of the parent as uninvolved for not taking an active role in solving the problem. In contrast, parents of students may be perceived neutrally or positively with regard to comfort, even if teachers have limited contact with them. A more detailed analysis of involvement patterns would also

elicit parent perceptions and more specific analyses of types of interactions including direct observations over time.

These tentative hypotheses, however, are consistent with literature about teacher perceptions. For example, McCoach et al. (2010) specifically targeted teacher perceptions in high and low achieving low SES schools and referred to them as malleable characteristics. To overcome these perceptions, school psychologists could support teachers in challenging these perceptions and assumptions. In one sense the data imply that teachers need to work extra hard at examining their biases and perceptions about parents and their children that they form implicitly, especially for parents of students with the greatest needs. Teachers need to know the only way they are likely to increase the participation of these parents is to begin with the belief that all parents want what is best for their child (McCoach et al., 2010; Walker et al., 2011). Additionally, in line with cognitive–behavioral methods (Beck, 1995), they can be taught strategies for developing more adaptive beliefs about such parents; for instance, a positive adaptive belief would be "behavior and academic problems are not the fault of a parent and will be more likely to improve if parents are involved." School psychologists can work to support schools in providing professional development around these topics.

It is critical to support teachers in improving their perceptions of parents. Teachers' positive perceptions of parents have been a distinguishing factor in high and low achieving schools for children from low incomes schools similar to the schools included in this research. Improved involvement patterns can directly contribute to children's achievement and social emotional success. It may be that improved comfort with involvement patterns is associated with teacher perceptions of children. While we did not specifically measure parent-teacher relationship patterns, teacher perceptions of their comfort and contact with parents are necessary considerations in developing positive relationships. Research has found when parents have higher quality relationships with teachers, teachers rate their children more positively (Iruka et al., 2011).

It is important to note that high contact between parent and teacher was only associated with high comfort by teachers. That is, we did not find evidence to support a class characterized by high contact and low comfort. In theory we can imagine a parent whose repeated school contacts are bothersome for school personnel, which may reduce perceptions of comfort. However, the results of this study suggest these types of parents are infrequent enough to not be a distinct class. Instead, the results suggest that high levels of contact between parent and teacher are associated with nearly universally positive perceptions of comfort. These findings are entirely consistent with the literature on the importance of positive parent involvement.

Limitations

Limitations of this study include the use of only teacher perceptions of parent involvement patterns, and children and family characteristics, without corroboration from parents. Even though an independent research assistant administered an academic achievement measure to the children, the bulk of the measures were teacher ratings. We also included a small number of teachers. However, the use of teacher perceptions was also seen as a strength given its established relationship with child outcomes as was the use of a sophisticated statistical method to explore profiles demonstrative of involvement patterns as opposed to examining single dimensions of involvement. Data were collected in one school district, which may not be representative of other areas.

Another limitation is that teacher ratings of involvement were collected early in the year and may not reflect patterns across the school year. Teachers had approximately two months to get to know children and their families and hold at least one formal parent teacher conference prior to data collection. Further, teachers received questionnaire packets with items focusing on student behavior and competence occurring before items on parent involvement. It is unknown how the lack of counterbalancing items may have influenced teacher ratings of parenting involvement. Of course, further research is needed to confirm whether these patterns persist over the school year and whether they are related to youth outcomes. A final limitation is the generalizability of findings may be limited given the majority of the sample, 78%, were African American and from one school district.

Summary

When families are more involved there are positive outcomes for families, teachers and schools. Schools with high levels of parental involvement have better reputations in the community, higher teacher morale, higher parental ratings of teacher performance, and increased support from families (Henderson & Mapp, 2002; Heymann & Earle, 2000). These interrelated benefits are likely the result of involvement patterns that occur when parents are in contact with schools at levels they are comfortable with and the contacts are associated with increased comfort and endorsement of school. Overall parental involvement in school and in supporting children's learning at home have received extensive attention in the literature. Less research has been conducted on patterns and teacher perceptions that can serve as a barrier to greater parent involvement. This study documented that teachers may feel less comfortable with parents of children who need the most support.

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