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Peer assessments of normative and individual teacher–student support predict social acceptance and engagement among low-achieving children

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Abstract

This study used hierarchical linear modeling to predict first grade students' peer acceptance, classroom engagement, and sense of school belonging from measures of normative classroom teacher–student support and individual teacher–student support. Participants were 509 (54.4% male) ethnically diverse, first grade children attending one of three Texas School districts (1 urban, 2 small city) who scored below their school district median on a measure of literacy administered at the beginning of first grade. Peer nominations from 5147 classmates were used to assess both normative and individual levels of teacher support. Normative classroom teacher–student support predicted children's peer acceptance and classroom engagement, above the effects of child gender, ethnic minority status, and individual teacher–student support. Results are discussed in terms of implications for teacher preparation and professional development.

Keywords

Teacher–student relations; Teacher warmth; Peer acceptance; Engagement; School belonging; Elementary students

Extensive research documents the influence of the quality of teacher–student relationships on children's current and future school adjustment and achievement (Furrer & Skinner, 2003; Howes, Hamilton, & Matheson, 1994; Hughes, Cavell, & Jackson, 1999; Meehan, Hughes, & Cavell, 2003; Pianta, Steinberg, & Rollins, 1995). Primary grade students whose relationships with teachers are characterized by conflict are more likely to be retained in grade, to experience peer rejection, and to participate less in the classroom (Ladd, Birch, & Buhs, 1999; Pianta et al., 1995; Silver, Measelle, Armstrong, & Essex, 2005). The association between teacher–student relationship quality and children's subsequent adjustment holds when previous levels of adjustment are statistically controlled (Hughes et al., 1999; Ladd et al., 1999; Meehan et al., 2003). Furthermore, an effect for teacher–student relationship quality assessed in kindergarten on achievement is found up to eight years later, controlling for relevant baseline child characteristics (Hamre & Pianta, 2001).

Conceptually, the level of teacher–student support for an individual student can be distinguished from the typical, or normative, level of support provided by the teacher to students in the classroom. Each child in a classroom has a unique relationship with the teacher; yet every child in the classroom experiences the same classroom climate. A

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teacher's typical level of warmth, or support, may be considered an aspect of the classroom climate.

Although considerable research has investigated normative levels of classroom teacher emotional support in preschool and kindergarten classrooms, much less research has been conducted on classroom-level teacher support in first grade and beyond, where the curriculum is more structured and standardized. At the preschool and kindergarten levels, teacher emotional support has been a component of constructs such as developmentally appropriate practices, teacher responsiveness, and teacher sensitivity (National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network, 2000, 2001, 2002, 2003a; Stipek et al., 1998). For example, Peisner-Feinberg and Burchinal (1997) reported that observed teacher sensitivity and responsiveness were associated with preschool children's cognitive and social–emotional functioning, although the magnitudes of the associations were low (mean $r = .12$). In a multi-site study of 223 public school kindergarten classroom, Pianta, Paro, Payne, Cox, and Bradley (2002) reported that global ratings of child-centered climate (defined at the high end by low classroom over-control, high positive emotional climate, low negative emotional climate, and high ratings on classroom management and supporting child responsibility) were associated with global ratings of child competence, observed on-task behavior, and teacher ratings of social competence and academic achievement.

The NICHD Early Child Care Research Network (2003b) assessed the associations between observed emotional quality of first grade classrooms and children's academic and socio-emotional competencies, after controlling for the quality of previous childcare and home environments as well as children's kindergarten competencies. Classroom emotional quality did not uniquely predict teacher report of child social or emotional competencies or mother report of child externalizing behaviors or social skills; however, first grade observed emotional quality did predict maternal reports of child internalizing behaviors and observed classroom self-reliance and engagement.

Both individual teacher–student support and normative classroom teacher support may be more predictive of differences in child competencies among children who are at risk for a poor transition to school due to home environment or to individual difference variables. In studies with aggressive children, a supportive teacher–student relationship was more predictive of deflections from continued aggression among ethnic minority children (Meehan et al., 2003) and children with more rejecting parenting histories (Hughes et al., 1999). In a sample of kindergarten children, Silver et al. (2005) reported that a supportive teacher–student relationship was more predictive of decreases in externalizing behaviors among children who entered formal schooling with high initial levels of externalizing behaviors.

We expect that children who exhibit poor self-regulation or who are fearful benefit more from an emotionally supportive classroom and teacher–student relational support than do children who exhibit greater regulatory control and less fearfulness. Primary grade children who exhibit poor self-regulatory skills, defined in terms of difficulty in directing and sustaining attention, impulsivity, and difficulty regulating emotions, experience difficulty adjusting to school (Maszk, Eisenberg, & Guthrie, 1999; Murphy & Eisenberg, 1997; Nelson, Martin, Hodge, Havill, & Kamphaus, 1999; Rothbart & Jones, 1998) and experience greater interpersonal stressors with peers and teachers (Ladd et al., 1999; Little & Kobak, 2003). Temperamentally fearful children, who are over-controlled and inhibited, also adjust more poorly to school, tending to experience peer rejection and isolation and low levels of classroom participation (Rubin & Mills, 1988). A supportive classroom climate and teacher–student relationship may increase under-controlled and fearful children's sense of felt

security (Bowlby, 1980), thereby bolstering their ability to cope with classroom stressors. Little and Kobak (2003) found that the quality of the teacher–student relationship influenced elementary students' abilities to cope with negative interpersonal events in the classroom. Furthermore, this effect was greater for children in classrooms for emotional disturbed children than for children in regular classrooms. Rimm-Kaufman et al. (2002) reported that children classified at 15 months as socially bold whose interactions with kindergarten teachers were characterized as sensitive were more self reliant, had fewer negative behaviors, and were more on task, relative to socially bold children with less sensitive teachers. This effect was not found for children classified as socially wary.

The purpose of this study is to examine the joint and unique contributions of normative teacher support (an aspect of classroom context) and individual teacher–student support on first and second grade children's peer acceptance, sense of school belonging, and academic engagement. These outcomes were selected based on their influence on children's school trajectories. Extensive research documents that peer acceptance uniquely predicts children's early school trajectories, controlling for children's behavioral and socio-emotional competencies (see Bierman, 2004; also Dodge et al., 2003; Nelson & Dishion, 2004). A sense of positive relatedness to peers and teachers at school promotes school engagement, defined as effort, persistence, and participation (Anderman, 1999; Connell & Wellborn, 1991; Furrer & Skinner, 2003; Lynch & Cicchetti, 1992; Skinner, Zimmer-Gembeck, & Connell, 1998). In turn, school engagement is a primary pathway by which motivational processes contribute to learning and development (Furrer & Skinner, 2003; Skinner & Belmont, 1993).

Two specific hypotheses guide our research. First, we expect both normative classroom teacher–student support and individual teacher–student support will uniquely predict students' social acceptance, academic engagement, and sense of school belonging. We expect that children who receive more individual support from their teachers and children in classrooms in which teachers extend emotional support to more children will enjoy higher levels of peer acceptance, participate more in the classroom, and report a stronger sense of school belonging. Second, we expect both normative classroom teacher–student support and individual teacher–student support will be more predictive of student outcomes for students who are temperamentally under-controlled or fearful.

We test these hypotheses within a sample of first and second grade children who entered first grade with below average literacy skills. Children who enter school with low academic readiness skills are more likely to experience low levels of relatedness to both teachers and peers. In turn, low level of relatedness may contribute to lower levels of academic engagement and subsequent school under-achievement. Normative classroom teacher–student support may buffer low-achieving students from peer rejection and low academic motivation and engagement.

We employ peer nominations of teacher–student support to assess both normative classroom teacher–student support and individual teacher–student support. To our knowledge, no published study has employed peer nominations to assess normative teacher–student support. Specifically, we ask peers to nominate as few or as many classmates as they like who fit a behavioral descriptor of teacher–student support: “These children get along well with their teachers. They like to talk to their teachers, and their teachers enjoy spending time with them.” Previous research supports the validity of this procedure for assessing individual teacher support (see Methods, below). The median number of nominations of teacher–student support given by students in a classroom is considered a measure of normative, or classroom-level, teacher–student support. Researchers have recently employed this

procedure to assess normative levels of various classroom social behaviors, with good results (Chang, 2004; Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999).

Peer assessments of children's social behaviors and likeability gathered through nominations and ratings are a well-established and valued means of assessing children's social behaviors and peer status (Hughes, 1990; Realmuto, August, Sieler, & Pessoa-Brandao, 1997). Peer nominations of social behaviors are moderately correlated with teacher ratings yet make unique contributions to the prediction of children's outcomes (Kendall, 1982; Nelson & Dishion, 2004). An advantage of peer assessments is that scores reflect the perspectives of multiple members of a peer group versus a single rater. Classmates offer a potentially useful alternative source of information regarding teacher behaviors, because teacher reports may be suspect due to social desirability (Maehr, 1991; Rutter, 2000). Also, classmates may pick up on subtle and low frequency behaviors that could be missed in relatively brief observations and that reflect day-to-day social realities of the classroom that may be sensitive to the effects of observation. Peers assessments provide a source of information about classroom climate and individual student teacher relationships that differs from that of student or teacher reports of student motivation or engagement. Thus, source effects do not inflate associations between measures of teacher support and measures of motivation and engagement.

Methods

Participants

Participants were 509 (54.4% male) children attending one of three Texas School districts (1 urban, 2 small city). Participants were drawn from a larger (N = 783) sample of children participating in a longitudinal study examining the impact of grade retention on academic achievement. The larger sample was recruited across two sequential cohorts in first-grade during Fall, 2001 and Fall, 2002. The data for the present study were collected in Spring, 2002, when the majority of the first cohort was in Grade 2 (N = 256) and the second cohort was in Grade 1 (N = 253). Children were eligible to participate in the longitudinal study if they scored below the median score for their district on a state approved district-administered measure of literacy. Of 1,374 children who were eligible to participate in the study, written parental consent was obtained for 783 (57%). Children with and without consent to participate did not differ on age, gender, ethnicity, economically disadvantaged status, or literacy test scores. More children with consent were classified as limited English Proficiency (23.4%) than children without consent (14.5%).

The 509 (45.6% female) participants in the current study were children for whom we had sociometric data for teacher–student support. Children with and without sociometric data did not differ on assessed achievement [i.e., Woodcock Johnson III (Woodcock, McGre, & Mather, 2001) or Bateria Woodcock-Munoz (Woodcock & Munoz, 1996)], intelligence [i.e., Universal Nonverbal Intelligence Test (UNIT), Bracken & McCallum, 1998], or on any demographic variables, with one exception. Children with sociometric data were less likely to be economically disadvantaged (56.7%) than were children without complete data (69.9%). Participants were Native American (N = 1), Asian/Pacific Islander (N = 18), African American (N = 117), Hispanic (N = 194), Caucasian (N = 171), or other (N = 8), based on official school records. At entrance to first grade, children's mean age was 6.57 (SD = .39) years. Children's intelligence as measured with the UNIT was 92.9 (SD = 14.05). Based on family income, 56.7% of participants were eligible for free or reduced lunch. For 37%, the highest educational level in the household was high school or below.

The 509 participants were nested within 179 classrooms (135 at Grade 2 and 44 at Grade 1). The number of students within each classroom ranged from 1 to 12 with a mean of 2.84 (SD

= 1.93). Given the relatively large number of classrooms and the assumption of homoscedasticity (which held for our sample), it is appropriate to include all classrooms in the analyses (Raudenbush & Liu, 2001). Teachers were predominantly female (97.3%) and White (87.8%).

Measures

Overview—During the late Fall and Winter of first grade, research staff individually administered the Woodcock Johnson III Broad Reading tests or the comparable Spanish test, the Bateria Woodcock-Munoz Broad Reading test. During the Spring semester, teachers were mailed a questionnaire that included items asking teachers to rate participating students in terms of engagement in the classroom, ego control, and fearfulness. Teachers received $25.00 for completing and returning each student questionnaire. Sociometric interviews were also completed during the Spring semester.

Individual teacher support—A modified version of the Class Play (Masten, Morison, & Pelligrini, 1985) was used to obtain children's evaluations of the provision of teacher support to children. Research assistants individually interviewed children at school. Children were asked to nominate as few or as many classmates as they wished who could best play each of several parts in a class play. Of interest to this study is the item “These children get along well with their teachers. They like to talk to their teachers, and their teachers enjoy spending time with them. What kids in your class are like this?” Each classmate received a teacher–student support score based on the number of nominations received. Sociometric scores were standardized within classrooms. Elementary children's peer nomination scores derived from procedures similar to those used in this study have been found to be stable over periods from six weeks to four years and to be associated with concurrent and future behavior and adjustment (for review, see Hughes, 1990). According to Terry (1999), reliable and valid sociometric data can be collected using an unlimited nomination approach when as few as 40% of children in a classroom participate. Therefore, sociometric scores were computed only for those 509 children located in classrooms where more than 40% of classmates participated in the sociometric assessment. The mean rate of classmate participation in sociometric administrations was .65 (range .40 to .95). The median number of children in a classroom providing ratings was 12 (range = 6 to 20). Although only children with written parent consent provided ratings and nominations, all children in the class were rated and eligible for nomination.

Normative teacher support—A measure of classroom teacher support was derived from the teacher–student support item. Specifically, normative teacher support was defined as the median number of nominations for the teacher–student support item received by students in the classroom, divided by the total number of students in the classroom. Median scores rather than means were used to minimize the influence of outliers and to provide a better representation of classroom norms (Stormshak et al., 1999).

Peer acceptance—A student's peer liking score was computed as the mean of two standard scores: mean roster rating of liking and social preference scores, described below. These two scores were strongly associated (r = .74). All students with permission to participate in the sociometric interviews were asked to rate how much they liked each child in the classroom on a 5-point scale (1 = Don't like at all and 5 = Like very much). A child's mean liking score was the average rating received by classmates. Following Coie, Dodge, and Coppotelli (1982), social preference scores were computed as the standardized “liked most” nomination score minus the standardized “liked least” scores. To avoid asking children to nominate disliked children, a rating of “1” on the roster rating of liking was considered equivalent to a “liked least” nomination score (Asher & Dodge, 1986) for

purposes of calculating derived social preference scores. All sociometric scores were standardized within classrooms. Both peer liking mean ratings and peer social preference scores have been found to have good test–retest reliabilities and stability across the elementary school years (Hughes, 1990).

Learning engagement—This teacher-report, 10-item scale is comprised of 8 items from the Conscientious scale of the Big Five Inventory (BFI; John & Srivastava, 1999) and 2 items taken from the Social Competence Scale (Conduct Problems Prevention Research Group, 2004) that were consistent with our definition of classroom engagement (effort, attention, persistence, and cooperative participation in learning). Although the BFI is conceptualized as a measure of personality traits, the selected items from the Conscientious scale are similar to items used by other researchers to assess classroom engagement (Ladd et al., 1999). We conceptualize our measure of engagement as reflecting a dynamic interaction between dispositions the child brings to the classroom and experiences in the classroom. Example items are “Is a reliable worker”, “Perseveres until the task if finished”, “Tends to be lazy” (reverse scored), and “Is easily distracted.” The two items from the Social Competence Scale were “Sets and works toward goals” and “Turns in homework.” The internal consistency of these 10 items for our sample was .95.

School belonging—An experimenter-developed measure was used to evaluate children's perception of school belonging. In individual interviews, children were asked to indicate how they feel in response to five statements about school by pointing to one of 5 faces whose expressions ranged from very sad (1) to very happy (5). Example items include “how much does your teacher enjoy spending time with you?”, “how much do you like to go to school?”, “how do you feel when you are at school”. This scale had an internal consistency of .61 for our sample, and scores correlated .30 (p <.01) with scores on the Cognitive Competence Scale of the Pictorial Scale of Perceived Competence (Harter & Pike, 1981).

Reading achievement—*The WJ-III Achievement* Battery (Woodcock et al., 2001) is an individually administered measure of academic achievement for individuals ages 2 to adulthood. We used the Broad Reading W Scores (Letter-Word Identification, Reading Fluency, Passage Comprehension subtests). W scores are based on the Rasch measurement model, yielding an equal interval scale. Extensive research documents the reliability and construct validity of the WJ-III (Woodcock & Johnson, 1989; Woodcock et al., 2001).

The Batería Woodcock-Muñoz: Pruebas de aprovechamiento - Revisada (Woodcock & Munoz, 1996) is the parallel Spanish version of the *Woodcock-Johnson Tests of Achievement-Revised* (Woodcock & Johnson, 1989), the precursor of the WJ-III. If children or their parents spoke any Spanish, children were administered the Woodcock-Munoz Language Test (Woodcock & Munoz-Sandoval, 1993) to determine the child's language proficiency. Based on the results of this test, 79 children were administered the Bateria-R. The W score for the Broad Reading Scale were used in this study.

Ego control—A 17-item modified subscale of the California Child Q-set (CCQ) (Block & Block, 1980) was utilized to examine ego control, which refers to an individual's threshold for a behavioral and/or cognitive expression of an impulse. Teachers rated children on a 1 (strongly disagree) to 5 (strongly agree) scale on 24 items most consistently identified in previous research as measuring ego control and ego resiliency (Block & Block, 1980; Eisenberg, Spinard, & Fabes, 2004; Huey & Weisz, 1997; Rothbart, 1989). Results of exploratory factor analysis on the first cohort of children (N = 344) found that these 17 items assess four dimensions of ego control (antisocial, prosocial, ego resiliency, and emotional reactivity). Confirmatory factor analysis conducted on two different samples suggested that a general factor of ego-control plus specific components related to prosocial, antisocial, ego

resiliency and emotionally reactivity provided a good fit to the data (details available from the first author). The 17-item scale yielded an internal consistency reliability coefficient of . 93 across the two cohorts. Example ego control scale items include “considerate and thoughtful of other children”, “emotionally inappropriate behaviors”, “becomes rigidly repetitive or immobilized under stress”, and “persistent in activities, does not give up easily”.

Fearful—Three items on the teacher version of the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) were used to measure the fearful factor. The items are: “Many worries or often seems worried”, “Nervous or clingy in new situations, easily loses confidence”, and “Many fears, easily scared”. Each item is rated on a 0–2 scale (i.e., not true, somewhat true, certainly true). The three-item scale yielded an internal consistency reliability coefficient of .76 on the sample for the present study (N = 437).

Results

Overview of data analytic approach

Due to the clustering structure of the sample, we tested our hypotheses using hierarchical linear modeling (HLM). Level 1 variables include individual teacher support, demographic variables (i.e., gender, majority versus minority status) and student temperament (i.e., ego control and fearful). Normative classroom teacher support is a level 2 variable. The three student outcomes are learning engagement, peer liking, and school belonging. The moderating influence of the two temperament variables (ego control and fearful) on the association between normative classroom teacher–student support and individual teacher–student support was tested in separate HLM analyses.

The bivariate correlations and descriptive data for all variables used in the hierarchical linear modeling analyses are reported in Table 1. For gender, girls were recoded as 0 and boys as 1. The ethnicity variable was recoded into a dichotomous variable to represent the majority–minority status (Caucasian = 1, All others = 0). Separate hierarchical linear models were fit for each of the three students' outcome variables. Table 2 reports the regression coefficients for all predictors in the models.

Variation in normative classroom teacher support

We expected that classrooms would vary considerably in normative levels of teacher support. The median percentage of students nominated as receiving individual teacher support ranged from 0% to 45% with a mean of 11.5% and standard deviation of .09.

Normative classroom teacher support and individual teacher support as predictors of student outcomes

We expected that normative classroom teacher support and individual teacher support would predict student outcomes, controlling for student demographic variables. First, we fit three separate two-level hierarchical linear models using HLM (Version 6, Raudenbush, Bryk, & Congdon, 2001) to test whether normative teacher support predicted each of the three student individual outcomes (learning engagement, peer preference, and school belonging). Individual teacher support, gender, and majority versus minority status were entered as level-1 predictors. This regression equation examines if individual teacher support predicts student outcomes, controlling for participants' gender and majority status. Normative teacher support was entered as the context variable at level 2. The cross-level interaction between normative teacher support and individual teacher support was modeled to explore if the relationships between normative teacher support and student outcomes were moderated by individual teacher support. The intercepts and slopes of individual teacher support were

allowed to vary randomly across the classrooms. Results are reported separately by student outcome.

Learning engagement

After controlling for gender and majority–minority status, individual teacher support (t = 5.127, p <.001) appeared to be a significant predictor for students' learning engagement. Students enjoying greater individual teacher support were reported by their teachers to be more engaged in learning. In addition, normative teacher support (t = 4.935, p <.001) made a unique contribution, above individual teacher support and the covariates, to the prediction of students' learning engagement. Students in classrooms characterized by higher teacher support were more engaged in learning. Gender (t =−2.517, p <.05) also appeared to be a significant predictor, with girls rated as more engaged in learning than boys. Majority versus minority status did not predict students' engagement in learning. The cross-level interaction between individual teacher support and normative teacher support was not statistically significant, which implies that normative teacher support did not moderate the relationship between students' individual teacher support and their learning engagement.

As for the random effect estimates, neither the variance component for the intercepts (χ^2 (95)=96.63, p =.343) nor the one for slopes (χ^2 (95)=98.33, p =.387) was statistically significant. It indicated that classrooms did not differ in the average level of learning engagement after controlling for the effects of normative and individual teacher support. The effect of individual support on learning engagement did not vary across classrooms, either.

Peer acceptance

After controlling for gender and majority–minority status, individual teacher support (t =6.142, p <.001) was a statistically significant predictor of students' social acceptance. Students who enjoyed a more supportive relationship with their teacher also enjoyed greater peer acceptance. In addition, normative teacher support (t = 4.294, p <.001) predicted students' peer acceptance. Students in classrooms high in teacher support enjoyed higher levels of peer acceptance. Neither gender nor majority status appeared to be a significant predictor of peer acceptance. The cross-level interaction between individual teacher support and normative teacher support was not statistically significant, which implies that normative teacher support did not moderate the relationship between students' individual teacher support and their peer preference.

As for the random effect estimates, neither the variance component for the intercepts (χ^2 (115)=112.31, p =.303) nor the one for slopes (χ^2 (95)=127.85, p =.195) was statistically significant. It indicated that classrooms didn't differ in the average level of peer preference after controlling for the effects of normative and individual teacher support. The effect of individual support on peer preference did not vary across classrooms, either.

School belonging

After controlling for gender and majority–minority status, neither individual teacher support nor normative teacher support appeared to a significant predictor for students' school belonging. However, both gender (t = −2.603, p < .05) and the majority or minority status (t = −2.401, p < .05) made unique contributions to predict the students' school belonging. Girls reported higher sense of school belonging than did boys. Majority status was associated with lower levels of perceived school belonging, after controlling for gender and teacher support at the individual and classroom level. No significant cross-level interaction was found between individual teacher support and normative teacher support.

As for the random effect estimates, the variance component for the intercepts (χ^2 (112) = 138.69, p = .044) was statistically significant, which implies that classrooms differed in the average level of school engagement after controlling for the effects of normative and individual teacher support. The variance component for slopes (χ^2 (115) = 104.58, p > .500) was not statistically significant. The effect of individual support on school engagement did not vary across classrooms.

Ego control and fearful as moderators of associations between support and student outcomes

Six additional HLM models were fitted to test the possible interaction between the two student temperament factors (ego control and fearful) and both normative classroom teacher support and individual teacher support. In each model, student gender and minority status were entered as covariates at level 1. The student temperament factors together with individual teacher support were entered as predictors at level 1. Normative teacher support was the context predictor at level 2. Two interaction terms were modeled in these hierarchical models: the within-level interaction between the student temperament factor and individual teacher support (at level 1) and the cross-level interaction between the student temperament factor and normative classroom teacher support. None of the interaction effects in the six models was statistically significant. This finding implies that the effects of normative classroom teacher support and individual teacher support on student outcomes are not moderated by student temperament factors.

Discussion

This study is the first to use multi-level modeling to examine the associations between individual and normative levels of teacher support and student outcomes. Our finding that individual teacher support is moderately and positively associated with both peer acceptance and classroom engagement is consistent with results reported by other investigators employing traditional OLS analyses and primary grade classrooms (Howes et al., 1994; Hughes et al., 1999; Ladd et al., 1999). Our study is the first to examine the additional benefit to children of being in a classroom with high levels of normative classroom teacher support. Independent of a child's gender, ethnic minority status, and relative level of individual teacher–student support, children in classrooms with greater normative teacher–student support enjoy greater peer acceptance and are more actively engaged in the classroom, relative to children in classrooms with lower normative teacher–student support.

The finding of an association between normative classroom teacher support and children's peer acceptance suggests that students whose teachers “like”, “get along with”, and “enjoy spending time” with more students model their teachers' acceptance of classmates. This interpretation is consistent with the view that students use information about the quality of teacher–student relationships in evaluating the social behaviors and likeability of classmates (Chang, 2003; Hughes, Cavell, & Willson, 2001). The association between classroom-level teacher–student support and children's competences reported by previous researchers (e.g., Peisner-Feinberg & Burchinal, 1997) may be mediated, at least in part, by the greater teacher and peer relatedness experienced by students in classrooms taught by emotionally supportive teachers. In turn, children's experience of peer acceptance may promote active classroom engagement (Furrer & Skinner, 2003; Hymel, Comfort, Schoonert-Reichl, & McDougall, 1996; Ladd et al., 1999).

We did not find support for the hypothesis that children with low ego control or high fearfulness would benefit more from either individual teacher–student support or normative classroom teacher support. At the individual level, our findings are inconsistent with those reported by Rimm-Kaufman et al. (2002), who reported that bold but not wary kindergarten

children were more positively engaged in the classroom when their interactions with teachers were rated as more sensitive. Differences in results between our study and those of Rimm-Kaufman et al. may be a result of differences in measures of teacher support. Rimm-Kaufman et al. used observations of teacher sensitivity in interactions with the student, whereas we used peer nominations of teacher–student support. It is interesting to note that the bivariate relations between teacher–reported ego control and both normative teacher support (.15) and individual teacher support (.33) were modest and statistically significant. This finding suggests that children are better able to regulate their behavior when they enjoy a more supportive relationship with their teacher or when in a classroom with higher levels of normative support.

Classrooms varied considerably with respect to the percentage of students nominated as receiving teacher support. The median percentage of children nominated for the teacher–student support item in classrooms ranged from 0% to 45%. This finding is consistent with findings reported by Pianta et al. (2002) regarding the tremendous variation kindergarten classroom contexts and with Pianta et al. (1995) regarding wide variation in the percentage of kindergarten children with whom teachers reported having either a close or a conflicted relationship. Although we conceptualize normative teacher support as largely teacher-driven, it is probable that the measure reflects both classroom student compositional factors and teacher characteristics. That is, some classrooms may have more children who are skilled at developing supportive relationships with children. Future studies should investigate the stability of teachers' normative support across years as well as student compositional factors that may predict normative teacher support.

Some discussion of the positive correlation between individual teacher support and normative teacher support (r = .32) is in order. These scores are standardized within classrooms and, therefore, represent a child's standing relative to other students in the classroom. Thus, the bivariate correlation between individual teacher–student support and normative classroom teacher support for all 5174 children participating in the sociometric assessment (and not just for the 509 study participants) is not statistically significantly different from 0. The positive association between individual student teacher support and normative classroom teacher support for our academically at-risk children suggests these children are more likely to be perceived by peers as supported by their teachers in classrooms in which teachers extend their support to more students, relative to academically at-risk children in classrooms with lower levels of normative classroom teacher support. That is, when teachers extend their support to more students, low achieving students are disproportionately more likely to be among those included as receiving teacher support. Because individual teacher support promotes positive peer relatedness and engagement, being in a classroom with high levels of normative teacher support may increase the odds that low-achieving students get off to a good start in school.

Limitations

These findings need to be interpreted in the context of study limitations. Because participants were selected based on scoring below the 50th percentile on a school district-administered test of early literacy, our findings may not generalize to average and high achieving students. The lack of an observational measure of normative classroom teacher support and of teacher–student individual support does not permit a determination of the convergence between our peer-nomination measure of these constructs and observed teacher–student interactions. A limitation of the peer-nomination measure of teacher–student support is the lack of full classroom participation in the peer nomination procedure. Following Terry's (1999) recommendation regarding level of classroom participation needed for reliable peer nomination results, we only included classrooms in which at least 40% of the students completed the peer nomination interview. Nevertheless, in some classrooms as

few as 6 children provided nominations of teacher–student support. Because information on the characteristics of children without parent consent to participate in the sociometric assessment was not available, we are unable to determine if children providing peer nominations were representative of children in their classrooms. Finally, the cross-sectional nature of our data does not permit conclusions regarding causal pathways. Future longitudinal investigations are needed to determine how normative teacher support and individual teacher–student support interact across time in accounting for children's social, emotional, and academic outcomes.

Implications for teacher preparation and professional development

These findings have implications for teacher preparation and teacher professional development. Teachers receive very little preparation in maintaining supportive teacher–student relationships. Given the increasing recognition of the future implications of social relatedness in the early grades(Furrer & Skinner, 2003; Ladd et al., 1999), it is critically important to identify interventions and school policies that enhance teachers' abilities to connect in emotionally positive ways with diverse students. Pianta (1999) suggests a number of strategies at the individual teacher-level and the school level for improving teachers' abilities to form close relationships with more students. However, the research basis to support any specific policy or intervention is slim to non-existent. Pianta is currently directing an intervention study funded by the National Institute of Child Health and Human Development that is aimed at providing internet-based consultation support to teachers interesting in enhancing classroom interactions and teacher–child relationships. The web resource is located at www.myteachingpartner.net. This effort is an example of the type of research needed to identify effective strategies for providing more students with relational supports that promote student engagement and learning.

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Table 1

Inter-correlations and descriptive statistics/for analyses variables

	Variable	1	2	3	4	5	6	7	8	9	10
1	Normative sup										
2	Individual sup	.320***									
3	Reading	.107**	.134**								
4	Gender	−.159***	−.333***	−.109**							
5	Majority[a]	−.048	−.018	.046	.038						
6	Ego control	.153**	.331***	.251***	−.178***	.091*					
7	Fearful	−.048	−.090	−.170***	.039	.090	−.387***				
8	Engagement	.230***	.332***	.349***	−.232***	−.027	.583***	−.260***			
9	Acceptance	.186***	.360***	.137**	−.005	−.023	.416***	−.059	.385***		
10	Belonging	.046	.114*	−.024	−.187***	−.167***	.080	−.059	.155***	−.036	
	Mean	.12	−.15	453.25	3.64		.40	3.23	−.06	4.13	4.17
	S. D.	.09	.89	25.39	.75		.51	1.06	.89	.76	.79

Note. Caucasians were coded as 1 and all other ethnic groups were coded as 0; sup=support.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2

Regression coefficients of the fixed effects in the hierarchical linear models predicting student outcomes from teacher support variables

	Outcome					
	Learning Engagement		Peer Acceptance		School Belonging	
	β	s. e.	β	s. e.	β	s. e.
Normative support	2.76***	.559	1.84***	.428	.52	.369
Individual support	.35***	.068	.34***	.056	.06	.043
Normative support X Individual support	.79	.744	.97	.588	.01	.463
Gender	−.31*	.124	.17	.099	−.22**	.080
Majority contrast[a]	−.02	.144	.19	.114	−.27**	.096

[a] Caucasians were coded as 1 and all other ethnic groups were coded as 0.

* $p < .05$.

** $p < .01$.

*** $p < .001$.