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Teacher Preference, Peer Rejection, and Student Aggression: A Prospective Study of Transactional Influence and Independent Contributions to Emotional Adjustment and Grades

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Abstract

This study assessed the importance of teacher preference of individual students, relative to peer rejection and student aggression, as an independent predictor of children's emotional adjustment and grades. First, a longitudinal, cross-lagged path analysis was conducted to determine the patterns of influence among teacher preference, peer rejection, and student aggression. Then, parallel growth analyses were examined to test whether lower initial and declining teacher preference, beyond the influence of initial-level and change in peer rejection and student aggression, predicted change in loneliness, depression, social anxiety, and grades. Social adjustment, emotional adjustment, and academic adjustment were assessed in the fall and spring of two consecutive school years with 1,193 third-grade students via peer-, teacher-, and self-report instruments as well as school records. In the cross-lagged path analysis, reciprocal influence over time between teacher preference and peer rejection was found, and student aggression predicted lower teacher preference and higher peer rejection. In the growth analyses, initial and declining teacher preference were independent predictors of increasing loneliness and declining grades. Discussion focuses on the relevance of the results within a transactional model of school adaptation.

Researchers have identified social acceptance by teachers and peers as leading to divergent adjustment outcomes in middle childhood; however, research on teacher preference and peer social acceptance largely has proceeded as independent endeavors. As a result, little is known regarding the interrelation of teacher preference and peer rejection over time. The current study characterized both teacher social acceptance of individual students (i.e., teacher preference) and peer social acceptance as important aspects of overall classroom social acceptance, with implications for personal adjustment. Considering the developmental importance of social relationships with teachers and peers, we sought to clarify the longitudinal relations between teacher preference and peer rejection as well as the independent contributions of teacher preference to emotional adjustment and grades in middle childhood.

Given the complexity of variables impacting human development, transactional models appear best suited to conceptualizing and studying change and development over time. Transactional

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models characterize human development as the result of dynamic interactions between changing individuals and changing social contexts (e.g., Bronfenbrenner, 1979; Sameroff, 1987). Specifically, transactional models propose that change in children's behavior modifies the social environment, which, in turn, influences change in children's behavior. In addition to the bi-directionality between the child and environment, transactional models describe interactions among environmental elements (e.g., peers and the teacher), with resulting influence on the developing child (e.g., Bronfenbrenner, 1986).

Teacher preference is defined as the degree to which a teacher likes a specific student (Chang et al, 2004; Taylor, 1989; Wentzel & Asher, 1995). Evidence suggests that teacher-student and peer social relationships are related. For example, several studies have found that low teacher preference and problematic teacher-student relationships are related to peer rejection (e.g., Chang et al., 2004; Hughes, Zhang, & Hill, 2006; Wentzel & Asher, 1995). Inclusion of teacher preference in the study of classroom peer acceptance is important due to the possible influence of low levels of teacher preference on peer rejection and vice versa.

Low teacher preference may impact peer perceptions of individual children, influencing peer rejection (Hughes et al., 2006; Hymel, Wagner, & Butler, 1990; Taylor, 1989; White, Sherman, & Jones, 1996). In support, Hughes and colleagues (2006) found that positive teacher- student relationships predicted later peer acceptance; however, failure to include prior peer acceptance as a covariate is a limitation considering the strong concurrent relation between peer acceptance and positive teacher-student relationships (Hughes, Cavell, & Willson, 2001).Similarly, Taylor (1989) found that low teacher preference predicted subsequent peer rejection after controlling for prior peer rejection. In an analog study, White and colleagues (1996) demonstrated that derogatory teacher feedback related to low teacher preference influenced peer likeability and peer perceptions of behavior. By influencing peer likeability and perceptions of behavior, teachers may contribute to the social reputations of children, thereby influencing peer rejection (Hymel et al., 1990). Based on these findings, there is support for the contention that low teacher preference may be an antecedent to peer rejection.

Studies examining the possible influence of peer rejection on teacher preference have had mixed results. For example, Nesdale and Pickering (2006) noted that teachers' characterizations of students' behaviors differed depending on the peer popularity of the student, suggesting that teacher ratings of students might be biased by available information regarding peer social status. In addition, an indirect path from peer rejection to teacher preference via class disruption is possible. Peer rejection is related to peer exclusion and victimization (Buhs & Ladd, 2001), contributing to general class disruption. To the extent that rejected students are assigned blame for the disruption, which is possible considering that teacher ratings are biased by student popularity (Nesdale & Pickering, 2006), teachers may be more inclined to dislike rejected students. In a direct test of the path from peer rejection to subsequent teacher preference, Taylor (1989) found that peer rejection in kindergarten and first grade classes did not contribute to the prediction of teacher preference in second and third grade classes after accounting for prior teacher preference. Taylor, however, did not assess peer rejection and teacher preference more than once in the same academic year, preventing determination of whether within-teacher change in teacher preference was predicted by peer rejection. Further limiting the findings, Taylor used sociometric ratings of peer rejection, which are less reliable in early elementary school (Jiang & Cillessen, 2005). Based on the reviewed studies, it is plausible that peer rejection may influence teacher preference, particularly with more than one assessment per academic year as well as more reliable assessment of peer rejection due to the middle childhood sample in the current study. Moreover, the small number of studies investigating this path with inconsistent results supports further investigation of peer rejection as a predictor of teacher preference. Determination of the longitudinal relations between teacher preference and peer rejection is complicated, however, because both teacher preference and peer rejection are

related to student aggression (e.g., Coie, Dodge, & Kupersmidt, 1990; Wentzel & Asher, 1995).

In line with a transactional model that posits bidirectional influences, teacher preference and peer rejection may predict student aggression. The link between peer rejection and subsequent aggression is well established (see Coie et al., 1990, and Parker et al., 2006, for reviews), and studies support the role of the teacher-student relationship in the development of externalizing behavior (Hughes, Cavell, & Jackson, 1999; Silver, Measelle, Armstrong, & Essex, 2005). Hughes and colleagues (1999) found that teachers' and children's reports of relationship quality predicted student aggression across two years in elementary school. In addition, Silver and colleagues (2005) found that decreases in externalizing behavior from kindergarten through third grade were predicted by teacher-child closeness in kindergarten. Consequently, prior research supports links from peer rejection and teacher preference to subsequent aggression.

Student aggression also may predict both teacher preference and peer rejection. A number of studies identify aggressive behavior as a predictor of peer rejection (see Coie et al., 1990, and Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006, for reviews). In addition, student aggressive behavior has been associated with difficulty in the teacher-student relationship. Specifically, aggressive behavior is related to lower teacher preference (Wentzel & Asher, 1995) and predicts increased teacher-student conflict in early elementary school (Birch & Ladd, 1998; Buhs & Ladd, 2001; Henricsson & Rydell, 2004). As compared to other negative student behaviors, aggressive behavior has been described as most aversive to teachers and problematic for classroom behavior management (Safran & Safran, 1985), possibly contributing to low teacher preference for aggressive students. Based on these studies, there is support for student aggression as an antecedent to both peer rejection and low teacher preference.

Beyond the developmental relations among teacher preference, peer rejection, and student aggression, it also appears that teacher preference may influence emotional adjustment and grades. The transactional model proposes that reciprocal influences between children's behavior and their social relationships (e.g., peer and teacher) impact development, and prior studies support the importance of peer rejection and student aggression in emotional adjustment and academic performance. Both peer rejection and aggression predict higher risk of internalizing problems, including loneliness, depression, and social anxiety (e.g., Ladd, 1999, 2006; Parker et al., 2006; Sandstrom & Zakriski, 2004). Also, several studies have found concurrent relations between aspects of the teacher-student relationship and loneliness, depression, or social anxiety. For example, Birch and Ladd (1997) found that problems in the teacher-student relationship are related to higher levels of loneliness in kindergarten students, and Mullins and colleagues (1995) reported that teacher preference is lower for students with higher levels of depression during middle childhood. In addition, Barrett and Heubeck (2000) found that daily hassles with teachers are related to higher levels of anxiety during middle childhood.

Although research supports the general contention that low teacher preference is related to higher levels of internalizing problems, few prospective studies have examined developmental relations. Pianta and Stuhlman (2004) noted that internalizing problems in first grade were predicted by teacher support in preschool. In a study of adolescents, Reddy, Rhodes, and Mulhall (2003) found that higher levels of teacher support predicted lower levels of depression over time. These studies support a possible role of teacher preference in the development of internalizing problems; however, neither study investigated relations during middle childhood. Furthermore, it is unclear if teacher preference can predict emotional adjustment after accounting for the effects of peer rejection and student aggression. Because several studies demonstrate that both peer rejection and aggression predict internalizing problems (e.g., Ladd, 1999, 2006; Parker et al., 2006; Sandstrom & Zakriski, 2004), we considered the test of teacher

preference as an independent predictor of emotional adjustment to be necessary based on our transactional conceptualization, accounting for multiple influences (i.e., peer, teacher, and child characteristics) on child development.

Teacher preference, peer rejection, and student aggression have also been identified as predictors of future academic performance. For example, problematic teacher-student relationships in kindergarten predict academic difficulty, including lower student grades, standardized test scores, and work habits in lower elementary grades, with some negative associations persisting through eighth grade (Hamre & Pianta, 2001). Peer rejection and aggression also predict academic difficulty, including negative school attitudes, lower academic motivation, school avoidance, and absenteeism (DeRosier, Kupersmidt, & Patterson, 1994; Ladd, Birch & Buhs, 1999; Vandell & Hembree, 1994); however, no study, to our knowledge, has determined if teacher preference predicts academic performance after accounting for peer rejection and aggression. To address this gap, we investigated the independent contribution of teacher preference to students' grades.

Although the reviewed studies support the individual paths linking teacher preference, peer rejection, student aggression, emotional adjustment, and academic performance, research to date has tended to focus on only one or two of the above longitudinal patterns. Consequently, to our knowledge, no complete test of transactional influence among these variables has been conducted. To address this gap, we first investigated reciprocal influence in the relations among teacher preference, peer rejection, and student aggression as a test of key components of the transactional model. To this end, we first investigated reciprocal influence among teacher preference, peer rejection, and student aggression in longitudinal, cross-lagged path analyses to examine the viability of the hypothesized transactional model. We hypothesized that student aggression would predict lower teacher preference and higher peer rejection and that both, in turn, would predict increased student aggression. In addition, we expected to find reciprocal relations between teacher preference and peer rejection.

Second, we examined if teacher preference, beyond peer and student factors, influenced emotional adjustment and grades. Because the links between peer rejection and aggression and subsequent emotional adjustment and academic performance are well-established, we focused on the ability of teacher preference to predict emotional adjustment and grades, with variance explained by peer rejection and student aggression removed. A series of parallel process growth models examined the influence of teacher preference on loneliness, depression, social anxiety, and grades, while controlling for concurrent levels of peer rejection and student aggression. We hypothesized that lower levels of teacher preference would predict declines in emotional adjustment and grades over time. In addition, we hypothesized that children with declines in teacher preference would also tend to have declining emotional adjustment and grades over time.

Method

Participants

Eleven elementary schools from one public school system in a Southeastern state participated in the study.

Students—Parent information letters describing the research project were mailed to the home of each third-grade student attending general education classrooms within the 11 schools. Parents returned the form, indicating active or declined consent, to their child's classroom teacher. Parents who did not return the form were called by members of the research team to determine consent status and to request the return of the consent form to school. No incentives were provided for student participation. Of the total pool of 1,374 students, active parental

consent for data collection was obtained for 1,255 students (91%). Prior to the first assessment wave, 62 of the students with parental permission moved to other schools, resulting in a total sample of 1,193 for all analyses. This sample was evenly distributed by sex (50.9 % girls, 49.1 % boys). The approximate student racial distribution was 73% White (5% of Hispanic origin), 20% African American, 5% Asian, and 2% mixed race.

Within the data set, data were missing longitudinally (i.e., due to students moving to another school or due to extended absence during a particular assessment wave) and crosssectionally (i.e., due to student non-response or particular items or assessment instruments). Of the 1,193 students assessed during the first wave (T_1) in the fall of third grade, 13 students moved to other schools prior to the second wave (T_2: spring of third grade), 267 additional students moved prior to the third wave (T_3: fall of fourth grade), and 34 additional students moved prior the fourth wave (T_4: spring of fourth grade). Of the initial 1,193 students, 879 (74%) remained in the study throughout the four assessment waves. The increase in attrition from third to fourth grade was caused in part by school redistricting, in addition to general attrition due to student mobility, resulting in a sizeable proportion of the study participants attending schools not included in the study. To determine possible differential attrition, student participants were compared on all study variables at T_1 by attrition status. Students with incomplete data due to attrition (n = 314, 26%) were more aggressive, more peer rejected, rated by teachers more negatively, and had lower grades ($p < .001$ for all comparisons) than students remaining in the study (n = 879, 74%). No significant differences in social anxiety, depression, loneliness, or demographic variables (i.e., sex and race) by attrition status were observed. Of the 879 students remaining in the study over the four assessment periods, 413 (47%) had complete data on all variables at each assessment wave. Excluding the data missing due to attrition, an average of 12% of data was missing at each time point due to participant non-response for particular items or extended student absence during individual assessment waves. As described later below, we did not discard the incomplete cases, but treated missing data using full information maximum likelihood estimation.

Teachers—Primary participants also included third and fourth grade teachers in the eleven elementary schools. All of the 105 (55 third grade, 50 fourth grade) teachers agreed to participate. Each teacher rated an average of 20.52 students (SD = 3.93). Teachers were paid a modest amount for participation. The teacher sample was majority female (95%). Although more detailed demographic information on teachers was not available, the following estimates are provided based on school-level data. Approximately 90% of teachers at the schools in the study held a valid teaching license. Approximately 27% of teachers had completed a master's degree or higher, and 49% had 10 or more years of teaching experience.

Measures

Peer-reports—Peer nominations were group-administered in the classroom (Coie, Dodge, & Coppotelli, 1982). Using a standardized script, children were asked to nominate all the peers in their grade who matched each of the following descriptions: children who (a) they like the most (LM), (b) they like the least (LL), and (c) fight a lot (aggression). For each sociometric nomination, children indicated their choices on a roster of the names of all the children in their grade at their school. Unlimited nominations were used in this study, based on research indicating that they decrease error variance and improve stability and reliability in the measurement of children's peer relations (Terry, 2000). The number of nominations a child received for each sociometric item was averaged by grade in each school. Social preference scores were created by subtracting average LL from average LM scores (Coie et al., 1982), with higher scores indicative of higher levels of peer acceptance (Bukowski, Sippola, Hoza, & Newcomb, 2000). Although the use of standardized sociometric scores is typical in sociometric research, we used averaged scores because standardization is not recommended

in growth modeling (e.g., Willett, Singer, & Martin, 1998). For the purposes of this study, the social preference scores were reflected (i.e., multiplied by -1) so that higher scores indicated higher levels of peer rejection.

Although researchers collect peer nominations using both the class and the grade as the reference group, one of the most frequently cited studies employing sociometric methods (e.g., Coie et al., 1982) and recent sociometric studies (e.g., Sandstrom & Cillessen, 2006) have used within-grade nominations. The use of the classroom as reference group appears to be more common in sociometric studies employing rating scale methods (e.g., Asher & Dodge, 1986). Based on the use of nomination-based sociometric methods in this study, the grade was selected as the reference group. Further information on sociometric methododology can be found in Cillessen and Bukowski (2000).

Teacher-reports—As part of a comprehensive interview, teachers were asked to answer the following question about each student in class, “How easy is it for you to like this child?” Responses were given on a five-point scale (1 = *extremely easy* to 5 = *not at all easy*). The particular wording was chosen based on greater observed willingness for teachers to answer the item when phrased indirectly as “How easy is it for you to like this child?” versus “How much do you like this child?” The assessment of teacher preference with a single item is consistent with the operationalization of other published studies investigating teacher social preference of particular students (e.g., Chang et al., 2004; Taylor, 1989; Taylor & Trickett, 1989; Wentzel & Asher, 1995). Univariate analyses indicated that teacher responses were distributed across the full range of response options and were highly correlated within each academic year (r_{12} = .65, p < .001; r_{34} = .58, p < .001), demonstrating stability over a 6-month period. Although these estimates were below the commonly used criterion for short-term test-retest reliability (.80), the 6-month interval between assessments is longer than the intervals commonly used for test-retest reliability of dynamic constructs, thereby allowing more change to occur and reducing the test-retest correlation. Over a shorter interval of time, Chang and colleagues (2004) reported 3-month, test-retest reliability of .80. Other published studies employing single-item measures of teacher preference did not report test-retest reliability estimates.

Self-reports—Children's loneliness at school was measured with the Loneliness and Social Dissatisfaction Questionnaire (Asher & Wheeler, 1985). This questionnaire consists of 16 statements describing feelings or situations of loneliness, such as “I feel alone at school” and “I don't have anyone to play with at school.” Children indicated the degree to which each sentence was true about them on a 5-point Likert scale ranging from (1) *Always true* to (5) *Not at all true*. This scale has excellent reported internal consistency (α= .90), and its usefulness for assessing children's loneliness in the social context of the peer group at school has been repeatedly demonstrated (Asher & Wheeler, 1985; Crick & Ladd, 1993). Similar internal consistency was demonstrated in the current study (α = .88)

Children's depressive symptomatology was assessed with the Short Mood and Feelings Questionnaire (Angold et al., 1995). The 13-item questionnaire is a measure of core symptoms of depression for children and adolescents (e.g., “I felt miserable or unhappy”). Children rated each item on a 3-point scale ranging from (1) *Not True* to (3) *True*. This measure is widely used and has demonstrated evidence of reliability and validity (Angold et al., 1995; Messer et al., 1995). In this study, the scale demonstrated adequate internal consistency (α = .83).

The Social Anxiety Scale for Children-Revised (La Greca & Stone, 1993) was used to assess children's social anxiety with peers. The scale includes statements reflecting anxiety about interacting with peers, such as “I get nervous when I meet new kids” and “I feel shy even with kids I know well.“ Children rated 16 items on a 5-point Likert scale ranging from (1) *Not at*

all to (5) *All the time*, indicating how much they felt each statement was true for them. La Greca and Stone (1993) reported adequate internal consistency, and concurrent validity was demonstrated in that children with problematic peer relations reported significantly greater levels of social anxiety. The 16 items were averaged to form a social anxiety composite, with excellent internal consistency ($\alpha = .92$) in the current study.

School records review—School records were reviewed to obtain composite grade point averages (including grades in reading, language arts, math, science, and social studies) as a measure of global academic performance. Student race and sex were also obtained from school records for purposes of sample description. School records were collected each year by obtaining printed data from the school data management system.

Procedure

Pencil-and-paper questionnaires were group administered to children in their classroom by two to three trained staff members. Identical measures were collected at four time-points, 6 months apart, in October and April of consecutive school years (third and fourth grade, 1996-1998). Staff members provided instructions to students using a standardized data collection script, and children completed the sociometric items followed by self-report questionnaires. Teachers were individually interviewed by a trained staff member in a separate room while their students completed questionnaires. The teachers were provided a list of the students in the class with parental consent. Teachers verbally responded to the teacher preference question, and the interviewer recorded the response.

Analyses were conducted in Mplus 5.1 (Muthén & Muthén, 1998—2007) with the robust maximum likelihood estimator (MLR; to make the chi-square test and standard errors robust to non-normality; Yuan & Bentler, 2000), using Full-Information Maximum Likelihood (FIML) estimation to account for missing data. The MLR estimator was selected based on the discovery of statistically significant skew, indicative of non-normality, on some variables during data screening that was not remedied by linear data transformations. Because students were nested in classrooms, standard errors were adjusted to account for initial class membership to minimize bias on tests of statistical significance.[1] Based on the assumption that data missing due to attrition could be predicted by the individual's scores on measured variables at prior measurement occasions (supporting the assumption of data missing at random), FIML estimation is an appropriate technique to address missing values without the parameter and standard error biases and loss of statistical power that can be incurred through other techniques, such as listwise deletion or mean substitution (Allison, 2003; Raykov, 2005). FIML is commonly used to address data missing due to attrition in longitudinal studies (e.g., Gottfried, Marcoulides, Gottfried, Oliver, & Guerin, 2007). Data are considered to be missing at random if the probability that the data are missing is predictable by observed variables (i.e., attrition can be related to observed responses on prior occasions); in contrast, data are considered to be missing completely at random if attrition is independent of observed responses at every measurement occasion (Schafer & Graham, 2002). Based on the observed differential attrition (i.e., students with incomplete data due to attrition were more aggressive, peer rejected, rated more negatively by teachers, and had lower grades at T_1), the assumption that data are missing completely at random was not met in this sample, prohibiting the use of listwise deletion to address missing data (Allison, 2003; Schafer & Graham, 2002).

Evaluation of overall model fit was determined through investigation of the comparative fit index (CFI), the Tucker—Lewis Index (TLI), the Standardized Root Mean Square Residual

[1]We found similar results with standard error corrections for fourth grade class membership. Mplus currently does not support multiple membership models, necessary for models with changing cluster membership.

(SRMR), and the root mean square error of approximation (RMSEA). The reporting of multiple indices of fit is recommended, and these indexes are among the most frequently reported to indicate overall model fit (Kline, 2005). Hu and Bentler (1999), based on simulations of confirmatory factor analysis (CFA) models, recommended the following criteria for CFA model acceptance on each fit index: CFI > .95, TLI > .95, SRMR < .08, and RMSEA < .06. Because similar guidelines for acceptance of growth models have not been developed and the use of approximate fit indices and specific criterion levels to evaluate model fit is controversial (e.g., Barrett, 2007), readers should exercise caution in the interpretation of fit indices. Model chisquare values were also examined, with non-statistically significant values supporting model fit.

Descriptive statistics for all study variables are presented in Table 1. An alpha level of .05 was used for all statistical tests. To determine the effect size of the predictors of change in the outcome variables, the percentage of the variance explained (R^2) is reported for the parallel process growth models. The large sample size resulted in the ability to detect small relations as statically significant; consequently, readers are encouraged to consider the magnitude of standardized regression coefficients as well as estimates of effect size to determine the practical significance of the results.

Results

Cross-Lagged Path Analysis

To investigate the relations among teacher preference, peer rejection, and student aggression, longitudinal cross-lagged path analyses were conducted (Burkholder & Harlow, 2003; JÖreskog & SÖrbom, 1979). Teacher preference, peer rejection, and student aggression were measured at each of the four time points (see Figure 1). The variables were allowed to covary at each time point to account for concurrent relations; however, only the initial correlations are displayed in Figure 1. First, a model with autoregressive paths (predicting a variable from its values at prior time points; horizontal paths in Figure 1) and concurrent covariances was fit to assess the temporal stability of the constructs. Cross-lag paths (predicting values on a variable from prior values on a different variable; diagonal paths in Figure 1) were added to a second model to assess the variance explained by other variables, beyond the variance explained by the same variable at prior assessments. Indices of model fit are presented in Table 2. We investigated the comparative fit of the autoregressive vs. the full cross-lagged model using a chi-square difference test.[2] Figure 1 presents the final model as well as all path coefficients and initial correlations.

The autoregressive model did not meet guidelines for model acceptance (see Table 2),3 most likely due to unestimated, statistically significant paths. Inspection of model modification indices indicated that overall fit could be improved by adding higher order autoregressive paths (e.g., $T_1 \rightarrow T_4$); however, we had no compelling theoretical reason to do so, and non-theoretical modifications to models are discouraged (MacCallum, Roznowski, & Necowitz, 1992). At T_1, teacher preference and peer rejection were negatively related ($r = -.48$, $p < .001$). In addition, student aggression was positively related to peer rejection ($r = .48$, $p < .001$) and negatively related to teacher preference ($r = -.43$, $p < .001$). Inspection of the path coefficients in the autoregressive model indicated high temporal stability of peer rejection ($\beta = .70$ to .79, $p < .001$) and aggression ($\beta = .83$ to .88, $p < .001$). For teacher preference, ratings were highly stable within each academic year ($\beta_{12} = .57$, $\beta_{34} = .64$, $p < .001$), but were less stable across different teachers ($\beta_{23} = .32$, $p < .001$).

[2]The Chi-square difference value reported in text differs from the value calculated directly from model chi-square values in Table 2 due to the chi-square scaling correction factor of the MLR estimator (Muthén & Muthén, n.d.).

The full cross-lagged model fit significantly bettr than the autoregressive model, χ^2diff (18) = 185.27, $p < .001$. In addition, the full cross-lagged model met most guidelines for model acceptance, excluding the model chi-square (see Table 2).[3] Most autoregressive paths were unaffected by the addition of cross-lag paths; however, the addition of paths from prior peer rejection and student aggression to T_3 teacher preference reduced the autoregressive path from T_2 teacher preference to T_3 teacher ($\beta = .32$ to $\beta = .17$, $p < .001$). This reduction suggests that although the third and fourth grade teachers rated children similarly, some of the similarity could be explained by prior levels of peer rejection and aggression.

Paths from prior teacher preference to subsequent peer rejection were included in the full model. Results indicated that prior teacher preference, beyond the variance explained by prior peer rejection and aggression, predicted subsequent peer rejection within each academic year. Lower teacher preference in the fall of both years predicted higher peer rejection in the spring ($\beta = -.09$, $p = .002$, and -.07, $p = .02$), although the magnitude of the coefficients was small. As may be expected due to the change in teacher, teacher preference in the spring of third grade did not predict peer rejection in the fall of the fourth grade.

The full model also included paths from prior peer rejection to subsequent teacher preference. At each lag, prior peer rejection predicted lower subsequent teacher preference, ($\beta = -.14$, -.21, and -.16, $p < .001$). Lower teacher preference did not predict higher peer rejection across academic years; however, peer rejection predicted lower teacher preference across years. Although both teachers and peers changed across academic years, the finding that T_2 peer rejection predicted T_3 teacher preference and the greater stability of peer rejection as compared to teacher preference across academic years could be due to significant proportions of children from the same third grade class in fourth grade classes.

In addition, paths from student aggression to subsequent teacher preference and peer rejection were estimated in the full model. Prior aggression predicted lower levels of teacher preference and higher levels of peer rejection. Specifically, prior aggression predicted lower teacher preference at each time point ($\beta = -.10$, -.24, -.18, $p < .001$). In contrast, prior aggression predicted higher peer rejection inconsistently and with smaller coefficient magnitude when statistically significant ($\beta = .06$, $p = .06$; $\beta = .12$, $p = .008$; $\beta = .06$, $p = .02$). Consequently, prior aggression predicted both lower teacher preference and higher peer rejection, although the coefficients were larger and the results were more consistent for teacher preference.

Finally, the full model included paths of peer rejection and teacher preference as predictors of subsequent aggression. Inconsistent results were found. In third grade, low initial teacher preference as predictors of subsequent aggression. Inconsistent result were found. In third grade, low initial teacher preference ($\beta = -.05$, $p = .002$) and peer rejection ($\beta = .08$, $p < .001$) predicted, with small coefficient magnitude, higher levels of aggression at T_2. Teacher preference and peer rejection at T_2 and T_3, however, did not predict subsequent aggression. The small magnitude of the statistically significant regression coefficients coupled with the inconsistency of the results warrant caution in the interpretation of the findings concerning peer rejection and teacher preference as predictors of subsequent aggression.

Growth Models

Prior to investigation of teacher preference as a predictor of emotional adjustment and grades, separate latent linear growth models were estimated for teacher preference and each outcome variable (i.e., loneliness, depression, social anxiety, and grades). Initial levels (latent intercepts)

[3]This model has more free parameters than the number of clusters, possibly biasing standard errors. Model parameter estimates and standard errors appeared to be within reasonable limits, however. Subsequent Monte Carlo simulations suggested that parameter estimates and tests of statistical signficiance were unaffected.

and linear change (latent slopes) were estimated for each variable (unconditional growth models; see Table 3). Next, the individual growth models were estimated with peer rejection and aggression as time-specific covariates. For example, the latent linear growth model for loneliness was estimated with T_1 loneliness regressed on T_1 peer rejection and T_1 aggression, T_2 loneliness regressed on T_2 peer rejection and T_2 aggression, etc. Consequently, the second group of growth models assessed change in each outcome with variance related to peer rejection and aggression removed. To address the ability of teacher preference to predict emotional adjustment and grades with variance due to peer rejection and aggression removed, the latent linear growth model for teacher preference and each outcome variable growth model with time-specific covariates were combined in a series of parallel process growth models. Parallel process growth models estimate individual change in multiple variables simultaneously and analyze relations between the parameters of each growth model (Willett & Sayer, 1996). Of theoretical interest, linear change in each outcome variable was regressed on initial level and linear change in teacher preference. The remaining intercepts and slopes were allowed to covary. The correlations of the latent variable intercepts are reported as tests of concurrent relations of teacher preference with each outcome variable. In addition, the regressions of the outcome variable slopes on the teacher preference intercept are reported as tests of the ability of initial teacher preference to predict individual variance in change in the outcome variables. Last, the regressions of the outcome variable slopes on the slope of teacher preference are reported as tests of whether linear change in each outcome and teacher preference tended to be in the same direction and magnitude over time. The means and variances of the latent intercepts and slopes for all growth models are presented in Table 3. The standardized regression coefficients of the parallel process growth models are presented in Table 4.

Teacher preference—The unconditional teacher preference growth model had borderline fit (see Table 2). Although the CFI, TLI, and RMSEA were near recommended guidelines, the model chi-square was statistically significant and the SRMR was high. The borderline fit appeared to be the result of a large residual for T_3 teacher preference. Visual inspection of individual growth trajectories suggested that overall change in teacher preference followed a linear pattern for most children, with greater variability around the linear trend at T_3. The added variability at T_3 was likely due to the change in teacher. Because most children's change in teacher preference appeared to follow a linear trend, the latent linear growth model for teacher preference was retained as a reasonable approximation of both initial values and linear change in teacher preference. Because estimated slopes were influenced by within-year change in teacher preference from the same teacher (e.g., T_1 to T_2) as well as between-year change related to differences between teachers, estimated slopes should be interpreted as indictors of both types of change.[4] On average, there was no change in teacher preference, as evidenced by the mean of the latent slope (M = .00); however, there was statistically significant individual variability in change (SD = .30, p < .001).

Self-reported loneliness—The unconditional growth model for self-reported loneliness had a statistically significant model chi-square; however, all approximate fit indices were within guidelines for acceptance. Overall, self-reported loneliness decreased (M = -.05), and there was statistically significant individual variability in change (SD = .17, p < .001). The model with time-specific covariates and the parallel process model met most criteria for model acceptance. Although aggression was unrelated to self-reported loneliness, higher concurrent levels of peer rejection were related to higher levels of self-reported loneliness at most waves (T_1: β =.90, p = .01; T_2: β = .10, p = .001; T_3: β = .11, p = .001). Children with higher levels of initial teacher preference had lower initial levels of self-reported loneliness (r = -.19, p < .

[4]Although piecewise growth models can be used to estimate separate slopes for each teacher, these models did not fit the data well in this study due to the lack of an apparent break point beyond which change would differ from the prior linear trend.

001). Individual variability in change in loneliness was predicted by both initial teacher preference (β = -.29, p = .002) and change in teacher preference (β = -.35, p < .001). Consequently, children with lower initial levels of teacher preference tended to have increasing levels of self-reported loneliness over two years. In addition, children with decreasing teacher preference tended to also have increasing self-reported loneliness over time. Initial teacher preference and change in teacher preference explained a medium amount of the variance in change in self-reported loneliness (R^2 = .11), with variance due to peer rejection and student aggression removed.

Self-reported depression—The unconditional growth model for depression had a non-statistically significant model chi-square, and all approximate fit indices were within guidelines for acceptance. Depression decreased overall (M = -.08), with statistically significant individual variation in change (SD = .14, p = .001). Both the model with time-specific covariates and the parallel process model met most criteria for model acceptance. Concurrent aggression was unrelated to self-reported depression, and peer rejection was related to self-reported depression at only one time point (T_3: β = .07, p = .04). Children with higher initial levels of teacher preference had lower initial levels of self-reported depression (r = -.25, p < .001); however, individual variability in change in self-reported depression was predicted by neither initial levels of teacher preference (β = -.12, p -.34) nor change in teacher preference (β = -.17, p = .17).

Self-reported social anxiety—The unconditional growth model for self-reported social anxiety fit the data well, with a non-statistically significant model chi-square and approximate fit indices within guidelines for acceptance. Self-reported social anxiety declined overall (M = -.09, p < .001), with statistically significant individual variation in change (SD = .19, p < .001). The model with time-specific covariates and the parallel process model met most criteria for model acceptance. Concurrent peer rejection (T_2: β = .07, p = .02) and aggression (T_3: β = .11, p = .03) were each related to self-reported social anxiety at one time point. Initial teacher preference and initial self-reported social anxiety were unrelated (r = -.08, p = -.13). Neither initial levels (β = -.14, p = .16) nor change (β = -.13, p = .10) in teacher preference predicted individual variability in change in self-reported social anxiety.

Grades—The unconditional growth model for grades had questionable fit, with the model chi-square statistically significant and both the RMSEA and SRMR above guidelines for fit. Similar to the growth model for teacher preference, model fit appeared to be influenced by greater individual variability around linear trends at T_3, possibly related to the change in teacher. Visual inspection of individual growth trajectories supported the linear growth model as a reasonable approximation of observed individual change; consequently, the model was retained as an approximation of individual variability in linear change in grades. There was no consistent overall change in grades (M = -.01, p = .94); however, there was statistically significant individual variability in change (SD = .17, p < .001). Most fit indices for the growth model with time-specific covariates and the parallel process model were within acceptable limits, excluding the TLI. Higher levels of concurrent peer rejection was related to lower grades at two time points (T_1: β = -.05, p = .02; T_2: β = -.05, p = .01). In addition, higher levels of concurrent aggression were related to lower grades at one time point (T_3: β = -.11, p = .005). Higher levels of initial teacher preference were related to higher initial grades (r = .40, p < .001). Both initial teacher preference (β = .28, p = .006) and change in teacher preference(β = .33, p < .001) predicted individual variability in change in grades. Consequently, children with lower initial teacher preference tended to have decreasing grades over two years. Also, children with decreasing teacher preference tended to also have decreasing grades over time. Initial teacher preference and change in teacher preference explained a medium amount of the

variance in change in grades (R^2 = .10), with variance due to peer rejection and student aggression removed.

Discussion

The findings of the present study replicate and extend work on teacher-student and peer social relations in several important ways. Considerable information regarding the direction of influence among teacher preference, peer rejection, and student aggression was obtained. Although full support for the reciprocal influence between child behavior and social relationships predicted in transactional models (e.g., Bronfenbrenner, 1979; Sameroff, 1987) was not found, partial support was obtained. We found reciprocal influence among environmental elements (e.g., Bronfenbrenner, 1986). Specifically, peer rejection and teacher preference reciprocally influenced each other over time. These results are consistent with prior studies indicating that teacher preference and teacher support influence subsequent peer social preference and rejection (e.g., Hughes & Kwok, 2006; Taylor, 1989). Furthermore, the results also extend prior research by demonstrating the prediction of lower teacher preference from prior peer rejection. In fact, the paths from prior peer rejection to subsequent teacher preference were stronger and more consistent than paths from prior teacher preference to peer rejection. These results were surprising given that few studies have examined peer rejection as a predictor of teacher preference and the finding of Taylor (1989) that peer rejection did not predict teacher preference. Taylor (1989), however, used an early childhood sample. As compared to early childhood, middle childhood is marked by the formation of cliques (Cairns, Xie, & Leung, 1998), greater stability of friendships (Schneider, 2000), and more discernible popularity hierarchies (McHale, Dariotis, & Kauh, 2003). This greater differentiation between popular and rejected students during middle childhood may have contributed to the finding that peer rejection predicted teacher preference in our middle childhood sample.

Limited support, however, was found for other hypotheses more central to the transactional model. We predicted that student aggression would influence subsequent peer rejection and teacher preference, with resulting changes in student aggression. The established pathways from student aggression to subsequent peer rejection (see Coie et al., 1990; Parker & Asher, 1987; Parker et al., 2006, for reviews) and from prior aggression to lower subsequent teacher preference (e.g., Wentzel, 1991) were also found in the current study; however, findings regarding peer rejection and teacher preference as predictors of subsequent student aggression were inconsistent. In third grade, both initial peer rejection and low teacher preference predicted higher levels of aggression at the end of the year. In contrast, teacher preference and peer rejection did not predict subsequent aggression at other time points. The inconsistency in the findings may have been influenced by the high stability in ratings of aggression over time, limiting the amount of variance in subsequent aggression explained by variables other than prior aggression, as well as developmental changes. Considering prior research demonstrating that aggressive pathways emerge early (i.e., kindergarten classrooms) and are highly stable over time (Ladd & Burgess, 1999), investigation of the relative contributions of teacher preference and peer rejection on student aggression at younger ages, when aggression is more dynamic, is warranted.

More importantly, this study extended prior research by investigating if teacher preference independently predicted emotional adjustment and grades after controlling for levels of peer rejection and student aggression. A large body of research has established peer rejection and student aggression as predictors of impaired academic performance (see Coie et al., 1990; Parker & Asher, 1987; Parker et al., 2006, for reviews). Several studies also have identified problematic teacher-student relationships as predictive of lower academic performance (Hamre & Pianta, 2001; Pianta, Steinberg, & Rollins, 1995); however, the studies did not control for levels of peer rejection and student aggression. Considering the quantity of studies linking peer

rejection and student aggression to academic performance, the failure to examine aspects of the teacher-student relationship as predictors of academic performance beyond the impact of rejection and aggression was a significant gap in the literature. In addition, few prospective studies, prior to the current study, have examined the contribution of aspects of the teacher-student relationship to student internalizing behavior, and none, to our knowledge, have used a middle childhood sample. This limited research attention is surprising, considering the hypothesized impact of teacher-student relationships on students' levels of loneliness and social anxiety in an often-cited study in the teacher-student relationship literature (Birch & Ladd, 1997).

The ability of teacher preference to predict student outcomes beyond the impact of peer and student factors was central to our transactional conceptualization of the study, in which teacher, peer, and student level variables each influence student development. In this study, we found concurrent relations between low initial levels of teacher preference and higher initial levels of loneliness and depression as well as lower initial grades. Prospectively, individual variation in change in loneliness and grades, while controlling for concurrent levels of peer rejection and student aggression, was explained by initial levels and change in teacher preference. Children with lower initial levels of teacher preference tended to have increasing loneliness and declining grades over the course of the study. In addition, children with declining teacher preference tended to have increasing loneliness as well as declining grades over time. Teacher preference was unrelated to both change in depression and social anxiety. This finding was unexpected given the findings of Pianta and Stuhlman (2004) that teacher support predicted reductions in internalizing behavior from preschool to first grade and Reddy and colleagues (2003) that teacher support predicted change in depression during middle school. Both studies, however, did not control for levels of peer rejection and student aggression. In addition, both studies focused on teacher support. This study, in contrast, assessed teacher preference, and the relation between teacher support and teacher preference has yet to be established, although the variables are logically related. Despite the failure of teacher preference to predict depression and social anxiety, teacher preference did predict change in loneliness and grades after accounting for levels of peer rejection and student aggression. In general, this pattern of findings points to the importance of ruling out alternative explanations (i.e., peer and student factors) in future studies of the predictive relations between aspects of the teacher-student relationship and student outcomes.

Implications for Theory

In this study, low teacher preference predicted increases in loneliness over time, suggesting that teacher-rejected students may increasingly disengage from the social context of the classroom. Specifically, the quality of the teacher-student relationship has been linked to variation in classroom engagement and school relatedness with implications for academic achievement (Furrer & Skinner, 2003; Hughes & Kwok, 2006; Midgley, Feldlauffer, & Eccles, 1989; Ryan, Stiller, & Lynch, 1994), and withdrawal from the school setting and feelings of alienation in school are hypothesized to result from problematic teacher-student relationships (Birch & Ladd, 1997). These studies suggest that low teacher preference possibly impacts emotional adjustment and academic performance by promoting increased disengagement from social and academic activities at school. Future research is needed to explore this hypothesis in more detail.

Implications for Practice

This study has implications for intervention design and implementation. Based on the developmental importance ascribed to peer and teacher-student relationships due to their ability to predict future behavioral, emotional, and academic adjustment (e.g., Birch & Ladd, 1998; Coie et al., 1990; Parker et al., 2006; Pianta et al., 1995), separate interventions have been

developed targeting either social skills (see Gresham, Thomas, & Grimes, 2002) or teacher-student relationships (e.g., Hughes & Cavell, 1999; McIntosh, Rizza, Bliss, 2000; Murray & Malmgren, 2005; Pianta & Hamre, 2001). Considering the reciprocal relations over time between peer rejection and teacher preference, the development of multifaceted interventions targeting both peer and teacher relationships is warranted. In addition, few, if any, interventions for teacher-student relationships explicitly target teacher dislike of individual students. Targeting the negative affect teachers experience toward particular students, in combination with interventions to increase positive teacher interactions in the classroom, may improve these interventions. Although interventions targeting social skills and peer relationships are regularly implemented by school psychologists and other mental health professionals in school settings (Gresham et al., 2002), the results of the current study suggest that similar attention and resources should be allocated toward improving teacher preference and teacher-student relationships, based on their developmental importance. Furthermore, school psychologists have a unique ability to assess, reframe, and reduce teacher dislike when discovered during behavioral consultation, conversations in the teacher's lounge, and other professional activities.

Limitations

This study has several limitations. First, although lending some support for low teacher preference as a predictor of subsequent increases in loneliness and declines in grades while controlling for peer rejection and student aggression, the study does not rule out all potential unmeasured variables that could explain these relations; thus, causality is not intended to be inferred from the results. Second, peer-reported aggression was the only student behavior used to predict later peer rejection and teacher preference. Research has also identified socially withdrawn behavior as a predictor of peer rejection (e.g., Rubin, LeMare, & Lollis, 1990); consequently, the inclusion of withdrawn behavior and other relevant social behaviors in future studies will strengthen the tests of reciprocal influence among student aggression, peer rejection, and teacher preference.

Third, grades were the only measure of academic performance included in the study. Because grades are determined by teachers, the impact of low teacher preference on grades is likely stronger than what would be found in relation to more objective measures of academic performance such as standardized test scores. However, because referrals for special education are generally made by classroom teachers, subjective measures of academic performance can have important implications for student outcomes. Fourth, teacher preference was assessed using a single item. Although most research in this area has also used a single-item measure of teacher preference (Chang et al., 2004; Taylor, 1989; Taylor & Trickett, 1989; Wentzel & Asher, 1995), constructs measured with single items are less reliable than constructs measured with multiple items. The 6-month test-retest correlations for the teacher preference item in this study (i.e., r = .65 and .58, within academic year) were lower than the 3-month test-retest correlation (r = .80) reported by Chang and colleagues (2004); however, the difference could be influenced by the longer test-retest interval.

Test-retest correlations as reliability estimates confound error of measurement with temporal instability and are primarily useful over short intervals of time when limited change is expected to occur (Heise, 1969). Accordingly, the test-retest correlation for the teacher preference item was lowest for the between-year interval involving a change of teacher (r = .36), contributing to change beyond what would be expected for an individual teacher during an academic year or in related student behaviors during the test-retest interval. Although similar behavioral variables influence preference across teachers (i.e., aggression and peer rejection in this study) and similar student characteristics (i.e., cooperative and conforming) are preferred by teachers (see Wentzel, 1991), we assume that teachers have general differences in preferences, introducing additional change that could reduce the between-year test-retest correlation.

Assuming that the 6-month test-retest correlations indicated limited reliability (counter to these arguments), the impact of the unreliability of the measurement of change was minimized by the use of latent growth modeling. As noted by Willett (1989, 1997), the reliability of the measurement of change improves with the addition of more waves of data in latent growth modeling, even when measures have limited reliability at one time point. Regardless, the development of a multi-item measure of teacher preference is recommended to improve reliability of measurement and increase the precision with which change in the construct can be assessed.

Fifth, we used a latent linear growth model to characterize individual change trajectories on teacher preference, combining within-teacher and between-teacher change. Fit for the linear model was borderline, in part due to the greater variability around the general linear trend for the fall fourth grade rating involving the change of teacher. Including an additional wave of data per academic year might facilitate the estimation of a piecewise growth model, in which successive teachers are assigned separate slopes. A piecewise model would enable estimation of the contribution of subsequent teacher preference beyond prior teacher preference on academic adjustment, provided the slopes of subsequent teachers are significantly different from prior teachers. Finally, generalizability of the results to other samples might be limited due to the magnitude of the attrition between study years as well as the observed differential attrition in the sample.

Future Research

Although the current study demonstrated the independent ability of low teacher preference, beyond peer rejection and student aggression, to predict increasing loneliness and declining grades, additional research is necessary to investigate these relations in younger children and to investigate further the possible behavioral mechanisms (e.g., classroom disengagement and specific negative behaviors by peers and teachers) underlying the observed relations. The current investigation focused on teacher preference, peer rejection, aggression, and outcome variables in third and fourth grade students; however, prior research has demonstrated that peer rejection and teacher conflict resulting from aggression emerge in early school experiences and are largely stable thereafter (Ladd & Burgess, 1999). Consequently, investigation of these relations in preschool and early elementary school, when these patterns are emerging, is necessary.

Further, this study did not investigate possible behavioral mechanisms of the impact of teacher preference and peer rejection on emotional and academic adjustment. The degree to which teacher preference relates to negative teacher behavior toward the student has not been established. In addition, the protective effects of high teacher preference for students experiencing negative peer behaviors, such as social exclusion and physical and verbal aggression, have not been investigated. Accordingly, further research employing transactional models of school adjustment, including the reciprocal influence of peer and teacher social relations and their influence on student adjustment, is necessary to incorporate the complexity found in this and other studies.

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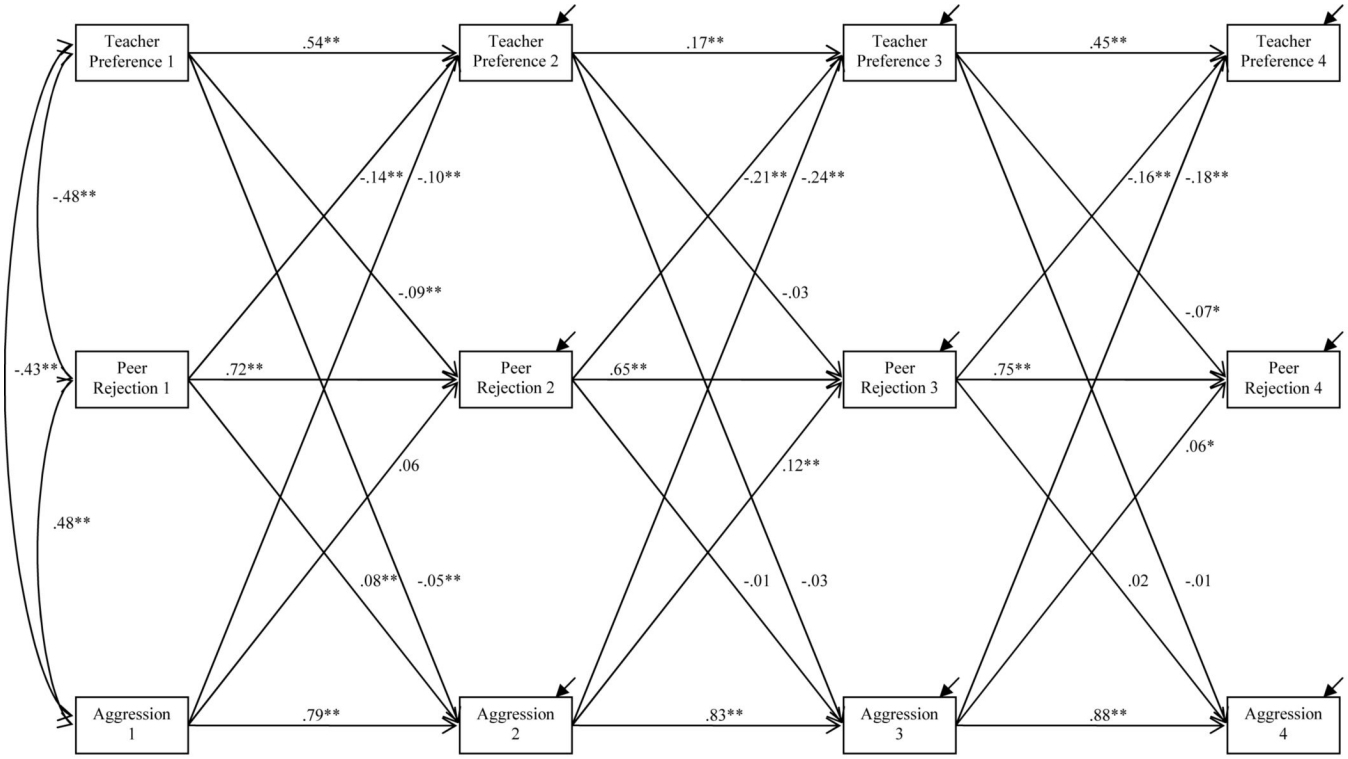

Note. Covariances among the residual variances of Teacher Preference, Peer Rejection, and Aggression at Times 2-4 were estimated but not displayed for visual simplicity.

Figure 1.
Initial Correlations and Standardized Regression Coefficients in the Final Cross-lagged Path Model

Table 1

Means and Standard Deviations

Variable	*M*	*SD*
Teacher Preference T_1	4.12	1.03
Teacher Preference T_2	4.06	1.02
Teacher Preference T_3	4.16	1.08
Teacher Preference T_4	4.07	1.10
Peer Rejection T_1	-.02	.17
Peer Rejection T_2	-.01	.19
Peer Rejection T_3	-.01	.22
Peer Rejection T_4	-.01	.22
Aggression T_1	.08	.10
Aggression T_2	.09	.11
Aggression T_3	.10	.15
Aggression T_4	.10	.15
Loneliness T_1	2.06	.71
Loneliness T_2	2.03	.73
Loneliness T_3	1.93	.70
Loneliness T_4	1.93	.67
Depression T_1	.92	.74
Depression T_2	.87	.71
Depression T_3	.73	.66
Depression T_4	.69	.65
Social Anxiety T_1	2.54	.79
Social Anxiety T_2	2.41	.74
Social Anxiety T_3	2.34	.75
Social Anxiety T_4	2.28	.72
Grades T_1	3.20	.73
Grades T_2	3.27	.74
Grades T_3	3.08	.81
Grades T_4	3.13	.82

Table 2

Indicators of Model Fit

Model	χ^2	*df*	CFI	TLI	SRMR	RMSEA (90% CI)
Cross-lagged Autoregressive	319.74**	45	.94	.92	.17	.07 (.06 to .08)
Cross-lagged Full	133.53**	27	.98	.95	.04	.05 (.05 to .07)
Teacher Preference Unconditional	36.43**	5	.95	.94	.11	.07 (.05 to .10)
Loneliness Unconditional	18.28**	5	.98	.98	.04	.05 (.03 to .07)
Loneliness with Covariates	22.74*	13	.99	.98	.01	.03 (.00 to .04)
Loneliness Parallel Process	122.51**	54	.97	.95	.03	.03 (.03 to .04)
Depression Unconditional	9.35	5	.99	.99	.02	.03 (.00 to .05)
Depression with Covariates	15.56	13	1.00	.99	.01	.01 (.00 to .03)
Depression Parallel Process	111.35**	54	.97	.95	.03	.03 (.02 to .04)
Social Anxiety Unconditional	8.93	5	.99	.99	.03	.03 (.00 to .05)
Social Anxiety with Covariates	22.41*	13	.99	.97	.01	.03 (.00 to .04)
Social Anxiety Parallel Process	124.89**	54	.97	.94	.03	.03 (.03 to .04)
Grades Unconditional	55.71**	5	.96	.95	.10	.09 (.07 to .12)
Grades with Covariates	80.46**	13	.96	.89	.02	.07 (.05 to .08)
Grades Parallel Process	178.22**	54	.96	.93	.03	.04 (.04 to .05)

* $p < .05$

** $p < .01$

Table 3

Intercept and Slope Parameters for Growth Models

Model	Intercept		Slope	
	Mean	Variance	Mean/Intercept	Variance
Teacher Preference Unconditional	4.11**	.82**	.00	.09**
Loneliness Unconditional	2.05**	.35**	-.05**	.03**
Loneliness with Covariates	2.06**	.33**	-.06	.03**
Loneliness on Preference	2.03**	.33**	.19*	.03**
Depression Unconditional	.92**	.28**	-.08**	.02**
Depression with Covariates	.90**	.28**	-.07*	.02**
Depression on Preference	.90**	.27**	.01	.02**
Social Anxiety Unconditional	2.52**	.39**	-.09**	.04**
Social Anxiety with Covariates	2.46**	.38**	-.09**	.04**
Social Anxiety on Preference	2.48**	.37**	.04	.04**
Grades Unconditional	3.21**	.52**	.00	.03**
Grades with Covariates	3.21**	.49**	-.02	.03**
Grades on Preference	3.22**	.48**	-.22**	.09**

* $p < .05$

** $p < .01$

Table 4

Standardized Regression Coefficients in the Parallel Growth Models

***Model*/Parameter**	**β**	***Model*/Parameter**	**β**
Loneliness		***Social Anxiety***	
sLoneliness on iTeacher preference	-.29**	sSocial Anxiety on iTeacher preference	-.14
sLoneliness on sTeacher preference	-.35**	sSocial Anxiety on sTeacher preference	-.13
T_1 Loneliness on T_1 Rejection	.09*	T_1 Social Anxiety on T_1 Rejection	.03
T_1 Loneliness on T_1 Aggression	.05	T_1 Social Anxiety on T_1 Aggression	.07
T_2 Loneliness on T_2 Rejection	.10**	T_2 Social Anxiety on T_2 Rejection	.07*
T_2 Loneliness on T_2 Aggression	.04	T_2 Social Anxiety on T_2 Aggression	.04
T_3 Loneliness on T_3 Rejection	.11**	T_3 Social Anxiety on T_3 Rejection	.05
T_3 Loneliness on T_3 Aggression	-.03	T_3 Social Anxiety on T_3 Aggression	.11*
T_4 Loneliness on T_4 Rejection	.08	T_4 Social Anxiety on T_4 Rejection	.00
T_4 Loneliness on T_4 Aggression	-.01	T_4 Social Anxiety on T_4 Aggression	.04
Depression		*Grades*	
sDepression on iTeacher preference	-.12	sGrades on iTeacher preference	.27**
sDepression on sTeacher preference	-.17	sGrades on sTeacher preference	.33**
T_1 Depression on T_1 Rejection	.01	T_1 Grades on T_1 Rejection	-.05*
T_1 Depression on T_1 Aggression	.02	T_1 Grades on T_1 Aggression	-.04
T_2 Depression on T_2 Rejection	-.01	T_2 Grades on T_2 Rejection	-.05*
T_2 Depression on T_2 Aggression	.04	T_2 Grades on T_2 Aggression	.04
T_3 Depression on T_3 Rejection	.07*	T_3 Grades on T_3 Rejection	-.03
T_3 Depression on T_3 Aggression	-.02	T_3 Grades on T_3 Aggression	-.11**
T_4 Depression on T_4 Rejection	.07	T_4 Grades on T_4 Rejection	-.01
T_4 Depression on T_4 Aggression	-.03	T_4 Grades on T_4 Aggression	-.06

***Note*. i = intercept, s = slope,**

* $p < .05$

** $p < .01$