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Children's perceptions of the relationship with the teacher: Associations with appraisals and internalizing problems in middle childhood



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ABSTRACT

In this study, we aimed to examine the associations between child-perceived teacher–child relationships, children's appraisals of interactions with their teacher, and internalizing problems. Five hundred third- to sixth-graders reported about their experiences of closeness, conflict, and negative expectations in the relationship with their teacher. Furthermore, their appraisals of fictive interactions with their teachers were measured. Internalizing problems were measured by children's self-reported depression, anxiety, and somatic complaints. The negative relation between closeness and internalizing problems in children was fully mediated by children's appraisals. The associations between conflict and negative expectations, respectively, and children's internalizing problems were only partly mediated. Effects for the negative relationship dimensions as well as the negative appraisals in the associations were stronger than effects for positive perceptions about the teacher. It can be concluded that child perceptions about the teacher matter for internalizing children.

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The linkages between children's behavior disturbances in middle childhood and their affective relationships with teachers continue to attract research interest (Pianta, Hamre, & Stuhlman, 2003). The importance of teacher–child relationship quality is almost exclusively studied in relation to externalizing problems, which obviously call for more immediate attention and response from teachers than internalizing problems (Howes, 2000; Howes, Phillipson, & Peisner-Feinberg, 2000; Ladd & Burgess, 1999). In contrast to externalizing problems, internalizing problems are not necessarily a disturbance for the teacher. Rather, these problems are directed to the self, and characterized by difficulties in coping with negative emotions or stressful situations, as is the case with anxiety, depression, and somatization (Zahn-Waxler, Klimes-Dougan, & Slattery, 2000). Yet, teacher–child relationships seem highly important for children with internalizing problems.

Children's internalizing problems in middle childhood may have negative consequences for school. For example, they increase the amount of school absence (Saps et al., 2009) and negatively affect school achievement (Lundy, Silva, Kaemingk, Goodwin, & Quan, 2010). Negative relationships with others have been shown to be a risk factor (Hymel, Rubin, Rowden, & LeMare, 1990) and can increase problems

in internalizing children (Baker, Grant, & Morlock, 2008). In contrast, positive relationships are considered a protective factor in the development of internalizing problems (Steinhausen & Metzke, 2001). In middle childhood, teacher–child relationships may be especially salient to the development of internalizing problems in children. As children grow older and get confronted with the challenges of middle childhood, teachers are the primary figures children can turn to for guidance and help (Hamre & Pianta, 2001). In this developmental span, children increasingly apply abstract thinking to a range of problems, which not only makes them able to make more complex reasoning about social situations, but also puts more tension on their self-evaluations and increases the pressure on autonomous functioning and living by the social rules (Jacobs, Bleeker, & Constantino, 2003; Kalish & Shiverick, 2004). Having favorable relationships with teachers in school settings may support children's confidence to approach these challenges within the school setting (Murray & Greenberg, 2000). Further, children with positive relationships may be more willing to imitate and adopt teachers' examples of reasoning and behavior. Hence, in this study we focus on the relationship with the teacher to gain insight into the potential role of this relationship with respect to internalizing problems at this age.

A lot of what goes on in the minds of children may go unnoticed by the teacher. In the literature on internalizing problems, children's appraisals of situations are often referred to as a potential mediator of (interpersonal) stressors and the development of internalizing problems (e.g., Ciarrochi, Heaven, & Davies, 2007; Jellesma, Rieffe, Terwogt, &

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Westenberg, 2009). More specifically, when children appraise situations negatively, they also often experience negative affect. Applying this to the teacher–child relationship, we will argue that children with a negative relationship will probably appraise interactions with their teachers more negatively than peers with positive relationships, which, in turn, may lead to more internalizing problems.

An attachment perspective on teacher–child relationships

The present study's theoretical framework stems from the (extended) attachment perspective (Hamre & Pianta, 2001). This perspective posits that children draw on relationships with significant others to construct views about themselves and to form mental representations of social situations and interactions. For most children, the relationship with the teacher is not a full attachment bond. By far, this relationship is not as exclusive and durable as the relationship that most children have with their parents, and the teacher's formal job is primarily focused on education and instruction (Verschuere & Koomen, 2012). Caring and providing emotional support are, nevertheless, considered to be important aspects of the teacher's role as well. Similar to the primary attachment bond, a positive teacher–child relationship creates feelings of security that allow children to explore freely (Bergin & Bergin, 2009).

A teacher–child relationship is multidimensional: the quality is a total of the positive and negative feelings along these dimensions. A positive relationship that provides feelings of security is characterized as 'close': there is warmth and open communication (Pianta, 1994; Pianta, Steinberg, & Rollins, 1995). Additionally, it is important that there is little negativity in the relationship, that is: little discord and mutual negativity or anger (referred to as 'conflict') and little possessive or clingy behavior (referred to as 'dependency'; Pianta, 1994; Pianta et al., 1995). The dimensions closeness, conflict, and dependency are often measured from the teachers' perspective, whereas research on the children's perspective more often includes a one dimensional measure of emotional support. Recent research (Koomen & Jellesma, under revision) has revealed that children are also able to separate the amount of closeness from the amount of conflict in the relationship. Whereas it seems difficult in middle childhood to be able to reflect on dependency, in children's reports there is also a second negative dimension besides conflict: 'negative expectations'. Negative expectations refer to uncertain feelings and unfulfilled needs in the relationship and therefore to a lack of confidence in the teacher (Koomen & Jellesma, under revision).

Children's perspectives on the quality of the teacher–child relationship are important, as the teacher–child agreement on the teacher–child relationship appears to be only low to modest (Wu, Hughes, & Kwok, 2010). This implies that the reports made by children provide additional information to that of the teachers. Guided by Bowlby's (1969) theoretical notions on parent–child relationships (see also Pianta et al., 2003), the attachment perspective states that the teacher and the child each form their own 'internal working model' of the relationship, based on their personal relationship history: a mental representation of the self, the other, and the bond with the other. Thus, both the teacher and the child each have their own appreciation and perception of the relationship because they process information differently and have different needs and emotions. This explains why child perceptions of the relationship provide important information that goes above and beyond information provided by the teacher. This point is also essential with respect to the appraisals we focus on in the current study, but first we will discuss the empirical information with respect to associations between teacher–child relationships and internalizing problems.

The teacher–child relationship and internalizing problems

Central to the attachment perspective on teacher–child relationships is the notion that children derive feelings of safety and

well-being from this relationship. Previous research (Baker et al., 2008; Murray & Murray, 2004) indeed shows that when teachers view the teacher–child relationship as more problematic, children have more internalizing problems. Baker et al. (2008) for example, found that higher levels of conflict and lower levels of closeness in the relationship with the teacher in kindergarten to fifth-grade children were associated with more internalizing problems. In middle childhood, Murray and Murray (2004) found that closeness was negatively associated with internalizing problems, including somatic, anxious and withdrawn symptoms, and that conflict and dependency were positively associated with internalizing problems.

These previous studies primarily studied the link between teacher–child relationship quality and children's internalizing problems from the perspective of the teacher. With some exceptions, children's perspective on this association seems to be lacking. It was recently found that emotional problems are associated with children's negative expectations (Koomen & Jellesma, under revision). In a diary study in primary school, Little and Kobak (2003) demonstrated that children's self-esteem was affected less by negative peer events when children experienced a more positive relationship with their teacher. In a later study, Martin and Marsh (2008) found that among high school students, positive reports of the teacher–child relationship also predicted more positive experiences of 'buoyancy' (i.e., resilience to everyday challenges, such as receiving a bad mark) with respect to mathematics. Although none of these studies addressed the full domain of internalizing problems and negative relationship dimensions were only addressed in the study of Koomen and Jellesma, they are in support of the assumption that when the teacher is perceived by the child as a source of warmth and support, children will experience fewer internalizing problems (Downer, Sabol, & Hamre, 2010).

Children's appraisals and internalizing problems

Important for the current study is that children's general tendency to make negative appraisals is associated with internalizing problems, which might (partly) explain why negative teacher–child relationships are associated with internalizing problems (Seligman et al., 1984). In studies addressing inter-individual differences in appraisal, fictive scenarios are often used (Seligman et al., 1984). Recollection of real events is not used, as children's appraisals might affect their perceptions and, in turn, their memory as well. For instance, whereas some children might perceive a situation as a negative event, others might have completely forgotten this situation because it was positively appraised. Ciarrochi et al. (2007) showed that children who tend to make more depressive appraisals for events reported more fear and sadness one year later. Moreover, Jellesma et al. (2009) showed that children with many somatic complaints described more and stronger negative emotions in response to various scenarios than children with few complaints. Robinson, Garber, and Hilsman (1995) demonstrated that negative appraisals are positively associated with depressive symptoms. Furthermore, Bell, McCallum, and Doucette (2004) found that school-related negative appraisals (appraisals with respect to academic and social situations) were even stronger predictors of depression than a more general measurement of children's appraisal that included all kinds of settings.

The latter finding suggests that there are intra-individual differences with respect to appraisal styles in relation to different events and people. For example, imagine a child having a positive perception of his relationship with the teacher. When he appraises a situation in which the teacher does not answer his question, this child might think something like: 'She probably did not hear me'. If this same child is bullied by his classmates, his appraisal of the same situation with a peer might be completely different, for example: 'He does not want to answer my question because I am not a cool

person'. To give another example: imagine a child having a negative relationship with the teacher. When he appraises a day during which he and the teacher had a lot of conflict, he might think something like: "The teacher and I do not get along". In contrast, when this child has a day full of conflict with his best friend, he might think: "We had a bad day".

Children's perception of the teacher–child relationship and appraisal of situations

Importantly, children do not seem to hold one strong, consistent pattern of reasoning, but instead seem to use various internal working models of different types of social relationships that are only weakly correlated (Bell et al., 2004). It is believed that established internal working models of social relationships result in differentiated perceptions of new interactions and may therefore underlie various styles of appraisal. The reason for this is that people tend to make inferences about situations in such a way that they confirm or fit with their working models (Collins, Ford, Guichard, & Allard, 2006). O'Connor and Hirsch (1999) provided some support for the assumption that children's internal working model of the teacher–child relationship shapes appraisals of everyday (fictive) interactions with the teacher. They found that secondary school students more often showed a negative bias when appraising described behavior of their least-liked teacher compared to when they appraised similar behavior of their best-liked teacher. Yet, there is no available research on the influence of children's teacher–child relationship perceptions on appraisal in middle childhood.

The current study

In this study, we aimed to examine the associations between teacher–child relationships, children's appraisals of interactions with their teacher, and internalizing problems. The theoretical model is depicted in Fig. 1. We assumed that negative teacher–child relationships, at least in part, increase the risk of internalizing problems through negative appraisals, and that positive teacher–child relationships decrease the risk of internalizing problems via optimistic appraisals of interactions with the teacher. With respect to the teacher–child relationship, we addressed children's perceptions of closeness, conflict, and negative expectations and analyzed their associations with internalizing problems (symptoms of depression, anxiety, and somatic complaints) separately.

Method

Participants and procedure

The present project was carried out among 500 third- to sixth-graders and their 27 teachers (for validation of the Student Perception

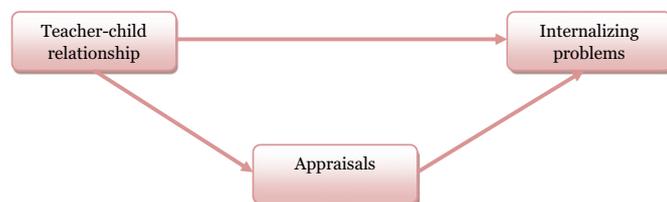


Fig. 1. Theoretical model of the study. Teacher–child relationships affect appraisals of interactions with the teachers: when positive resulting in fewer internalizing problems, and when negative resulting in more internalizing problems in addition to a direct path from the relationship to internalizing problems.

of Relationship with Teacher Scale; see Measures) in regular primary schools in the Netherlands. In total, 18 schools across the country were approached to take part in this study, 12 of which ultimately chose to participate. Non-participation was due to schools being involved in other research projects or having an already busy schedule. After schools decided to participate, parents received a letter about the study's purposes that was distributed by the schools. Parents were asked to give written consent by returning the lower part of the letter to the classroom teacher. Only children whose parents gave informed consent participated in the study. The participation rate was 74%.

Of the participating children, 235 (47%) were male and 265 (53%) were female, and their mean age was 10 years and 10 months (range = 8 to 13 years, $SD = 0.98$). Based on their parents' educational level, all children were considered to have an average to high socioeconomic status. Although the majority of the students had an ethnic-Dutch background, specific information about students' ethnicity was unfortunately unavailable. Of the teachers, 22 (81%) were female and 7 (19%) were male. They filled out the Student–Teacher Relationship Scale about a random subsample that included 120 boys and 126 girls with a mean age of 10 years and 10 months, equal to the total sample.

Data were collected by the end of the fall, during regular school hours, such that teachers had taught their students for approximately 3.5 months. To ensure that the children felt safe to answer freely, the questionnaires were filled out anonymously. In addition, when children completed the questionnaires, the teacher was not allowed to be present in the classroom. A test leader was present to answer children's questions and to help children with reading problems.

Measures

Teachers' perception of the teacher–child relationship

For validation purposes, a short form of the Student–Teacher Relationship Scale (STRS) was used to assess the teacher perspective of the teacher–child relationship. The full version of this questionnaire (Koomen, van Verschuere, Schooten, Jak, & Pianta, 2012) is a translated and slightly adapted Dutch version of the STRS (Pianta, 2001). The short form consists of 15 items on a five-point Likert-type scale, ranging from 1 (*not at all applicable*) to 5 (*very applicable*). The questionnaire has three, 5-item subscales: Closeness (e.g., I share an affectionate, warm relationship with this child), Conflict (e.g., This child and I always seem to be struggling with each other), and Dependency (e.g., This child asks for my help when he/she really does not need help). The internal consistencies of these scales were $\alpha = .86$, $\alpha = .91$, and $\alpha = .88$ respectively.

Children's perception of the teacher–child relationship

A slightly adapted version of the Student Perception of Relationship with Teacher Scale (SPRTS; Koomen & Jellesma, under revision) was used to estimate students' perception of the teacher–child relationship. This 34-item scale intends to reflect three subscales that refer to the relationship dimensions of Closeness (e.g., I tell my teacher things that are important to me), Conflict (e.g., I easily have quarrels with my teacher), and Negative Expectations (e.g., I wish my teacher could spend more time with me). All items were rated on a five-point Likert-type scale, ranging from 1 (*No, that is not true*), to 5 (*Yes, that is true*). Whereas the SPRTS subscales of Closeness and Conflict can be considered to be largely similar to those of the STRS, the Negative Expectations subscale seems to differ conceptually from STRS Dependency. Rather than representing over-reliance (Dependency), Negative Expectations refers to children's feelings of uncertainty regarding their relationship with the teacher, and a desire for more teacher attention.

Preliminary support for the three-factor structure and reliability for the SPRTS has been provided by Koomen and Jellesma (under

revision). To check whether the SPRTS also reflected the same relationship dimensions in the present study, a confirmatory factor analysis (CFA) was performed. After excluding both ambiguous items ($N = 4$), and items that loaded below .40 on the three respective factors ($N = 4$), the analysis yielded satisfactory results, $\chi^2(293) = 770.94$, $p < .001$, RMSEA = .05 (90% CI [.05–.06]), CFI = .90, SRMR = .05. The internal consistencies of the scales in the current study were $\alpha = .80$, $\alpha = .89$, and $\alpha = .69$ for Closeness (7 items), Conflict (12 items), and Negative Expectations (7 items), respectively.

Children's appraisals of teacher–child interactions

There is no existing measure to assess children's appraisals of interactions in which the teacher is involved. The Children's Attribution Style Questionnaire (CASQ) is the most often used measurement of children's attributions, but this questionnaire measures all kinds of attributions and has a forced choice answering format, two factors that seem to cause low internal consistencies (Blount & Epkins, 2009; Gibb & Abela, 2008; Reijntjes, Dekovic, Vermande, & Telch, 2008; Seligman et al., 1984; Shih, Abela, & Starrs, 2009) and make the questionnaire unsuitable for the current study. We developed a new, teacher-related appraisal scale. Analogous to the Student Academic Attribution Scale and the Student Social Attribution Scale of Bell and McCallum (1994) and Bell et al. (2004), we allowed children to rate each of the two possible appraisals in response to a scenario on a 3-point scale (*not true, somewhat true, and true*). We presented 36 scenarios about interactions with the teacher. "The whole day long, the teacher and you are fighting with each other about all kinds of stuff" is an example of such a scenario, with (1) the teacher and I do not get along (*not true, somewhat true, true*) and (2) the teacher and I did not have a good day together (*not true, somewhat true, true*) as the appraisals that children can make in response to this scenario.

Using Maximum Likelihood estimation, we performed an exploratory factor analysis (EFA). The scree plot clearly indicated a 3-factor solution, $\chi^2_D(6783) = 9311.51$, $p < .001$, and this model fitted the data significantly better than models with a 1-factor, $\chi^2_D(237) = 2220.83$, $p < .001$, or 2-factor solution, $\chi^2_D(118) = 1046.31$, $p < .001$. To facilitate the interpretability of the 3 factors, a varimax rotation was carried out. We chose to retain items that had loadings of $\geq .40$ (see Appendix 1 for an overview of items and associated factor loading for this scale) to reflect the dimensions of Negative Teacher Appraisals, Positive Interaction Appraisals and Situation-Specific Appraisals.

Negative Teacher Appraisals consist of items that reflect a dislike of the teacher and felt negative attitude of the teacher, Positive Interaction Appraisals consist of items that reflect mutual pleasure and enjoyment during moments of contact between the teacher and the child and Situation-Specific Appraisals consist of items that reflect coincidental situations in which the teacher is practically not involved. Two items had cross-loadings and were considered to be part of the scale on which they had the highest factor loading. Subscales reflect the mean scores of the corresponding items.

Internalizing problems

We used the short version of the Children's Depression Inventory (Kovacs, 1985, 1992) to measure symptoms of Depression. For each of the ten items, the child chooses one of three statements that are given a score of 1 to 3 ($\alpha = .69$) with 3 representing the severe form of a depressive symptom and 1 representing the absence of that symptom. Anxiety was measured with the generalized anxiety subscale of the Screen for Child Anxiety Related Disorders (Monga et al., 2000). These are nine items on a 3-point scale (*almost never, sometimes, often*), $\alpha = .83$. Somatic Complaints were measured with the Somatic Complaint Index (Jellesma, Rieffe, & Terwogt, 2007) that contains 11 symptoms, rated on a 5-point scale ranged from 1 (almost never) to 5 (quite often), $\alpha = .81$.

Analytical strategy

Structural equation modeling was applied to fit the proposed path model to the collected sample data, using Mplus version 6.11 (Muthén & Muthén, 1998–2007). In this model, all predictor and outcome variables were represented by the mean score on the respective scales. To ascertain possible deviations from multinormality, the distributional properties of all variables in the model were evaluated. Analyses indicated only moderate skewness and kurtosis for the largest part of the model's variables. Among conflict, negative appraisals, and depression, however, relatively high levels of positive skewness (ranging from 1.31, $SE = .11$ to 1.78, $SE = .11$) and kurtosis (ranging from 1.60, $SE = .22$ to 3.24, $SE = .22$) were evident. Therefore, Maximum Likelihood estimation with robust standard errors and a scaled test statistic (MLR) was used to yield estimates of the model's path-coefficients.

The overall goodness-of-fit of the models was evaluated by the mean-adjusted χ^2 test, with non-significant chi-squares indicating satisfactory fit. Differences in overall model fit were tested with the Satorra–Bentler scaled chi-square difference test (TRd; Satorra, 2000; Satorra & Bentler, 2001). A non-significant chi-square difference test generally indicates equivalent fit. Approximate fit was assessed with the root mean square of approximation (RMSEA), with values below .05 reflecting close fit, and below .08 signifying reasonable fit (Browne & Cudeck, 1993), and the Comparative Fit Index (CFI), with values $\geq .90$ indicating satisfactory fit, and values $\geq .95$ indicating close fit (Bentler, 1992). Lastly, component fit was evaluated by inspecting the modification indices, residual correlations, and their associated summary statistic SRMR (standardized root mean square residual). Values $\leq .08$ indicate relatively good fit of the model to the data (Kline, 2011).

Results

Preliminary analyses

Means, standard deviations and intercorrelations between the variables in the model were studied to determine the strength of relations (see Table 1). As expected, children who perceived the relationship with their teacher to be warm and nurturing were likely to make more Positive Interaction Appraisals and less Negative Teacher Appraisals, compared to peers with a more pessimistic view of the teacher–child relationship. Moreover, whereas relational Closeness was negatively associated with children's internalizing problems, Negative Expectations and Conflict were both positively related to the internalizing problem subscales. The bivariate correlations between children's appraisals and internalizing problems were also in the expected direction. Although children's Situation-Specific Appraisals appeared to be unrelated to any of the internalizing problem dimensions, Positive Interaction Appraisals were associated with lower levels of Depression, and Negative Teacher Appraisals were related to higher levels of Depression, Anxiety, and Somatic Complaints.

For validation purposes, the bivariate correlations between teacher- and child perceived dimensions of the teacher–child relationship were also inspected. In line with expectations, child-perceived Closeness, though modest, was positively associated with teacher-perceived Closeness ($r = .21$, $p < .001$), negatively associated with Conflict ($r = -.13$, $p < .05$), and not related to Dependency ($r = -.01$). Child-perceived Conflict showed statistically significant positive links with teachers' experiences of Conflict ($r = .31$, $p < .001$) and Dependency ($r = .14$, $p < .05$), and negative links with Closeness ($r = -.13$, $p < .05$). Children's Negative Expectations, lastly, were not correlated to any of the teacher-perceived dimensions of relationship quality.

Overall, child-perceived Closeness appeared to be generally high for all children ($M = 3.77$, $SD = 0.88$, range = 1–5), whereas Negative Expectations and Conflict were slightly lower ($M = 2.00$, $SD = 0.69$ and $M = 1.61$, $SD = 0.68$, respectively). With respect to children's internalizing problems, levels of Anxiety ($M = 1.55$, $SD = 0.44$,

Table 1

Means, standard deviations and intercorrelations between teacher–child relationship quality, appraisals, internalizing problems, and covariates.

	1	2	3	4	5	6	7	8	9	10	11	12
Teacher–child relationship												
1. Closeness	1											
2. Negative expectations	-.44**	1										
3. Conflict	-.62**	.65**	1									
Appraisals												
4. Positive interaction	.66**	-.23**	-.43**	1								
5. Negative teacher	-.57**	.60**	.71**	-.47**	1							
6. Situation specific	-.06	.06	.02	-.15**	.10*	1						
Internalizing problems												
7. Depression	-.28**	.38**	.36**	-.16**	.36**	.04	1					
8. Anxiety	-.18**	.46**	.36**	-.03	.25**	.09	.52**	1				
9. Somatic complaints	-.14**	.29**	.26**	-.04	.21**	.07	.51**	.53**	1			
Covariates												
10. Child Gender	-.14**	.01	.15**	-.13**	.10*	-.11*	-.07	-.04	-.04	1		
11. Grade	-.10**	-.02	.06	-.28**	.09*	.15**	-.08	-.09*	-.07	-.06	1	
12. Teacher Gender	-.21**	.04	.09*	-.33**	.16**	.21**	.01	-.06	-.05	-.07	.33**	1
Mean	3.77	2.00	1.61	2.29	1.48	2.37	1.27	1.55	2.09	–	–	–
SD	0.88	0.69	0.68	0.38	0.38	0.44	0.23	0.44	0.61	–	–	–

Note. Child Gender: 0 = girl, 1 = boy; Teacher Gender: 0 = female, 1 = male.

* $p < 0.05$.

** $p < 0.01$.

range = 1–5), Depression ($M = 1.27$, $SD = 0.23$, range = 1–5), and Somatic Complaints ($M = 2.09$, $SD = 0.61$, range = 1–5) were considered to be low to moderate for all participating children. Lastly, the means of children's Situation-Specific Appraisals ($M = 2.37$, $SD = 0.44$) and Positive Interaction appraisals ($M = 2.29$, $SD = 0.38$, range = 1–3) were slightly higher than their appraisals of negative teacher events ($M = 1.48$, $SD = 0.38$).

Overall model fit

The hypothesized model tested was a non-recursive partial mediation model, placing children's appraisals of situations in a mediational role between aspects of the teacher–child relationship and internalizing problems. In this model, the study's covariates (i.e., Teacher Gender, Child Gender, and Grade) as well as direct paths from the teacher–child relationship and internalizing problem dimensions were freely estimated. Given that Anxiety, Depression, and Somatic Complaints are indicators of a similar overarching construct (i.e., internalizing problems), their disturbances were allowed to correlate in the model.

The first model failed to provide an adequate overall fit of the observed data: $\chi^2(3) = 19.99$, $p < .001$, $RMSEA = .11$ (90% CI [.07, .15]), $CFI = .99$, $SRMR = .01$. To diagnose potential sources of misfit in the model, both coefficients and modification indices were inspected. It appeared that one of the three covariates, Child Gender, did not significantly add to prediction and consequently deteriorated the model's fit. Therefore, we used a model trimming approach in which we successively constrained the non-significant paths to be zero (Kline, 2011). To ensure the empirical and conceptual validity of the model, decisions to remove paths from the model were based on both modification indices and theoretical considerations (Kline, 2011; Tabachnick & Fidell, 2007). The resulting final model had a satisfactory fit to the data: $\chi^2(11) = 32.30$, $p < .001$, $RMSEA = .063$ (90% CI [.038, .088]), $CFI = .98$, $SRMR = .024$. Therefore, this more parsimonious modified model was retained.

In addition to testing the hypothesized model, we also considered the alternative possibility that children's internalizing problems affect the quality of the teacher–child relationship through their appraisals of situations. The alternative model did not approximate the hypothesized model's fit to the data and only yielded statistically significant paths from Depression and Anxiety to Positive Interaction Appraisals, and from Positive Interaction and Negative Teacher Appraisals to relational Closeness and Conflict. Thus, in this model, Somatic Complaints, Situation-Specific Appraisals, and Negative Expectations appeared to have a virtually nonessential role. Given the better overall fit of the

hypothesized model, and the more accurate reflection of the predicted associations, results are reported for the hypothesized model. This final path model and its standardized regression coefficients are shown in Table 2 and in Fig. 2.

Associations between teacher–child relationship quality and appraisal of situations

In line with expectations, direct paths from child-perceived Closeness to Positive Interaction Appraisals ($\beta = .59$, $p < .01$) and Negative Teacher Appraisals ($\beta = -.19$, $p < .01$) were found to be statistically significant. This indicates that while holding other aspects of the teacher–child relationship constant, a level of Closeness one standard deviation above the mean predicts Positive Interaction Appraisals around .60 standard deviation above the mean. Thus, the magnitude of the positive path coefficient between Closeness and Positive Interaction Appraisals is almost three times greater than the negative path from Closeness to Negative Teacher Appraisals (Kline, 2011). In terms of relational negativity, the model also pointed to statistically significant paths from both Conflict and Negative Expectations to Positive Interaction Appraisals ($\beta = -.11$, $p < .05$; $\beta = .11$, $p < .01$) and Negative Teacher Appraisals ($\beta = .43$, $p < .01$; $\beta = .24$, $p < .01$), respectively. The positive path from Negative Expectations to Positive Teacher Appraisals was quite unexpected, given that the initial correlation between the two variables was negative in sign ($r = -.23$). It seems as if when the overlap between Conflict and Negative Expectations is partialled out by Conflict the effect of the motivation for positive contact with the teacher of the child that is present in this scale and not in the Conflict scale becomes visible. Negative Expectations overall, are however, negatively associated with positive appraisals. No support was found for the hypothesized associations between the child-perceived teacher–child relationship dimensions and children's Situation-Specific Appraisals. Jointly, children's perception of the teacher–child relationship quality accounted for 50% of the variance in children's appraisals of positive interactions with their teacher, 57% of the variance in Negative Teacher Appraisals, and 5% of the variance in children's Situation-Specific Appraisals.

Associations between children's appraisal of situations and internalizing problems

The final model provided only partial support for the hypothesized relationships between children's Appraisal of Situations and Internalizing Problems. Of the three appraisal variables, only the path from Negative

Table 2
Maximum Likelihood estimates for the final structural model.

	Negative Teacher Appraisals	Positive Interaction Appraisals	Situation-Specific Appraisals	Depression	Anxiety	Somatic Complaints
	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
Direct effects						
Closeness	-.19 (.04)*	.59 (.04)**				
Conflict	.43 (.05)**	-.11 (.05)*			.22 (.07)*	
Negative Expectations	.24 (.04)**	.11 (.04)*		.21 (.06)*	.40 (.06)**	.20 (.06)*
Negative Teacher Appraisals				.14 (.07)*		
Pos. Interaction Appraisals					.13 (.06)*	
Situation-Specific Appraisals					.09 (.04)*	
Teacher Gender	.07 (.03)*	-.14 (.04)**	.21 (.04)**			
Grade		-.16 (.03)**				
Indirect effects						
Closeness via Pos. Interaction Appraisals					.08 (.03)*	
Conflict via Negative Teacher Appraisals				.06 (.03)*		
Negative Expectations via Negative Teacher Appraisals				.03 (.02)*		

Note. N = 500.

* p < .05.

** p < .01.

Teacher Appraisals to Depression ($\beta = .14, p < .05$) and from Situation-Specific Appraisals to Anxiety ($\beta = .09, p < .05$) appeared to be statistically significant. Unexpectedly, a positive coefficient was found for the path between Positive Interaction Appraisals and Anxiety ($\beta = .13, p < .05$). This might be a suppressor effect (Maassen & Bakker, 2001).

Associations between teacher–child relationship quality and internalizing problems

Results suggest that child-reported teacher–child relationship quality affects not only children’s appraisal of situations, but also their perceived internalizing problems. Inspection of the model’s coefficients revealed that the path from Conflict to Anxiety ($\beta = .22, p < .01$) was

statistically significant. In addition, children who reported to have more uncertain feelings about the relationship with their teacher also reported higher levels of Anxiety ($\beta = .40, p < .01$), Depression ($\beta = .21, p < .01$), and Somatic Complaints ($\beta = .20, p < .01$). The direct paths from Closeness to internalizing problem dimensions were all non-significant.

Next to these direct associations, children’s Positive Interaction Appraisals and Negative Teacher Appraisals also served as mediators of the relationship between the quality of teacher–child relationships and internalizing problems. More specifically, Positive Interaction Appraisals mediated the associations between relationship Closeness and Anxiety ($\beta = .08, p < .05$). Additionally, Negative Teacher Appraisals mediated the relationships between Conflict and Depression ($\beta = .06$

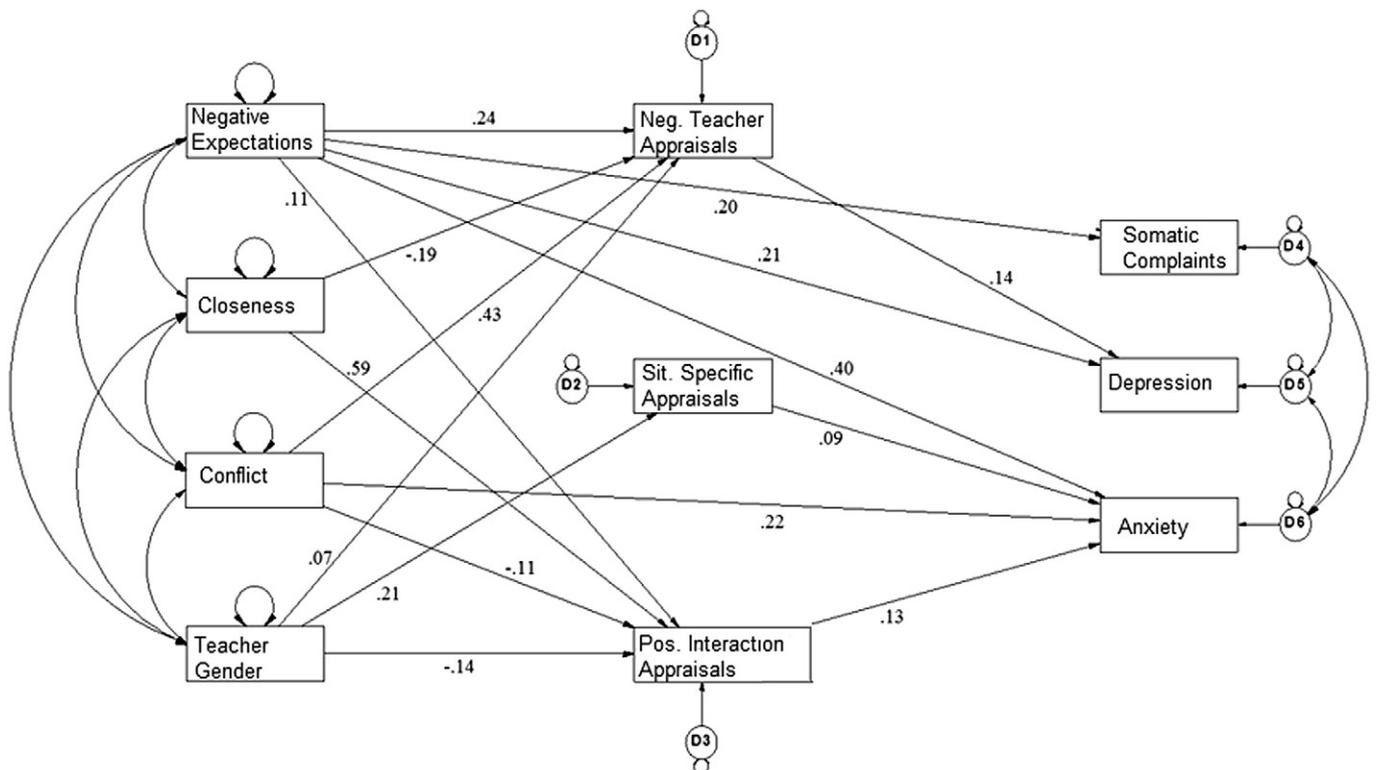


Fig. 2. Structural equation model of the study.

$p < .05$), and Negative Expectations and Depression ($\beta = .03, p < .05$). Thus, support was found for a model in which the paths from Closeness to Anxiety were fully mediated by children's Positive Interaction Appraisals, and the paths from Conflict and Negative Expectations to internalizing problems were partially mediated by Negative Teacher Appraisals. In total, 24% of the variance in children's perceived Anxiety, 18% of the variance in Depression, and 10% of the variance in Somatic Complaints were explained by children's appraisals of situations, and their perceived relationship with their teacher.

Discussion

In the current study, we tested a conceptual model positing that the child-perceived quality of the teacher–child relationship, through children's appraisals of situations in the classroom, predicts the risk of internalizing problems in middle childhood. The results of this study only provided partial support for our theoretical model, but draw some interesting implications for theory and practice.

Teacher–child relationship quality and children's appraisals of situations

We found that children's appraisals of teacher–child interactions are associated with their perception of the teacher–child relationship quality. In line with the attachment perspective, children who experienced more conflict, or had more negative expectations regarding the teacher–child relationship, also appraised the interactions with their teacher as more negative. In contrast, children who perceived the relationship with their teacher to be warm and caring and less conflictuous made more positive interaction appraisals. To some extent, these findings mirror the results of Little and Kobak (2003), who noted that children's experience of teacher support and availability may affect how children cope with negative interpersonal events in the classroom.

Links between children's situation-specific appraisals and dimensions of relationship quality could not be established. Probably, situation-specific appraisals indicate that children feel that an event is not typical nor a threat to the self or the social relationship. The function of reflecting on events is that they help interpret situations and deal with a wide range of situations in the future adaptively (Coplan, 2010). Hence, the situation-specific appraisals are probably of little relevance for children's internal working models of their relationship with the teacher: they will not help a child in understanding or responding to new situations. In future research, it would be interesting to gain insight in the thoughts of children when they use a situation-specific appraisal for an event by asking them about the importance of the event and the likelihood of it to happen again.

Notably, the strongest associations were found between variables of the same valence, indicating that closeness contributed most to positive interaction appraisals and that conflict and negative expectations were primarily associated with negative interaction appraisals. Dimensions of positive and negative valence are not often separately addressed in studies focusing on children's perceptions of the teacher–child relationship (Little & Kobak, 2003; Murray & Murray, 2004). The current study, however, points to the importance of analyzing both positive and negative relationship dimensions. Similar to Koomen and Jellesma's (under revision) findings, this investigation implicates that children do distinguish not only positive from negative aspects of the teacher–child relationship, but also negative expectations regarding their teacher from the amount of conflict in the relationship. The results indicate that children who hold negative expectations about the teacher–child relationship can perhaps still enjoy positive interactions with their teacher as long as they experience warmth and little negative disturbances in the relationship. It may be that only negative or relatively ambiguous situations trigger children's feelings of uncertainty, resulting in more negative teacher appraisals. Future studies are needed to investigate the ways in which the three dimensions of the child-perceived teacher–

child relationship affect the quality of children's appraisals of teacher–child interactions in the classroom.

Children's appraisals of situations, and internalizing problems

We found that positive interaction appraisals mattered little for children's internalizing problems. In fact, we even found an unexpected positive association with anxiety, but this effect was probably due to suppression as the simple correlation was insignificant (and negative). In contrast, we found associations between negative teacher appraisals and depression, and somatic complaints. This indicates that negative perceptions matter more for internalizing problems. Negative interaction perceptions thus seem to have a larger impact compared to positive events. This is in support of previous findings that to maintain positive relationships, at least five positive interactions are necessary to compensate for one negative interaction (Gottman, 1994).

Teacher–child relationship quality, appraisals, and internalizing problems

Children's perceptions of the teacher–child relationship were associated with internalizing problems and these associations, in part, were mediated by children's appraisals. Regarding closeness, children's appraisals of negative teacher interactions fully mediated the association between closeness on the one hand and depression and somatic complaints on the other. This finding is noteworthy, given that the quality of children's appraisal of situations seems to be more important for children's level of internalizing problems than having a positive relationship with the teacher. Probably, for children who have confidence in their teacher, negative teacher events have a far larger impact on their self-esteem than for children who experience conflict or uncertainty in the teacher–child relationship, resulting in such internalizing problems as depression and somatic complaints.

With respect to negative relationships, the results demonstrated that children who felt uncertain about the relationship with their teacher were more depressed because they made more negative appraisals, and experienced more anxiety and somatic complaints than their less uncertain counterparts. The effects on anxiety and somatic complaints were not fully mediated by appraisal. Conflict was associated with all three forms of internalizing problems and these associations were also only partly mediated, that is: child-perceived conflict was also directly associated with anxiety. Thus, in contrast to positive relationships, negative relationships do seem to be playing a direct role, besides the mediation through appraisals, in children's internalizing problems, thereby constituting a risk factor for children's internal state.

Contributions

These findings contribute to the current literature in several ways. First, by using an attachment approach the present study has yielded support that children's internal working model of the relationship is associated with their interpretations of subsequent interactions with the teacher. This association has been assumed by many researchers, but never explicitly addressed in middle childhood. In addition, most previous studies carried out in middle childhood have focused on the positive aspect of the relationship from a teacher-support approach (e.g. Little & Kobak, 2003). The current study clearly demonstrates that the negative relationship dimensions provide important additional information. Finally, the current study contributes to the literature by its focus on internalizing problems instead of the more often studied externalizing problems. As explained in the introduction, externalizing behavior of children calls for immediate attention and response from teachers, whereas internalizing problems can be more hidden (Howes, 2000; Howes et al., 2000; Ladd & Burgess, 1999). The results of the current study demonstrates that positive teacher–child relationships are associated with fewer internalizing problems.

Limitations of the current study

It is difficult to theorize about the found associations because there is no information about the causal direction. We have explained the findings assuming that children's perceptions of the relationship affect appraisal and that both affect internalizing problems. Yet, it is imaginable that the reversed paths also explain the strength of some of the associations. For example, an anxious child might find it difficult to ask for teacher attention in a direct way, leaving him unsatisfied with the attention received from the teacher. The alternative model, however, did not fit well with the data. In this model the effects of children's internalizing problems on the quality of the teacher–child relationship through children's appraisals were tested. Longitudinal research and/or studies with clinical groups might provide more insight into the paths of causality.

Besides being unable to draw conclusions about the direction of causality in the associations between internalizing problems, appraisals, and relationship perceptions, there are some additional study limitations that need to be addressed. First of all, we did not use a previously tested questionnaire to assess children's appraisals. We found that our questionnaire showed an interpretable factor structure that was sufficiently reliable. Nevertheless, it will be necessary to further assess the validity of these scales. Second, the use of self-reports to measure children's relationship perceptions as well as their internalizing problems and appraisals, although inevitable to answer our questions, may have led to overestimations of the strength of the associations because of shared method variance. Third and finally, the low reliability estimate of Negative Expectations might have affected the meaningfulness of the results. Although the SPRTS has been shown to be psychometrically

suited for measuring child-perceived teacher–child relationship quality in this age group (Koomen & Jellesma, under revision), replication is needed to ensure the consistency of the results found in this study.

Conclusions

In conclusion, we found full mediation of the negative relationship between closeness and internalizing problems in children by their appraisals. The associations between conflict and negative expectations and children's internalizing problems were only partly mediated. As a practical implication, the finding that child-perceived teacher–child relationships play an important role in the quality of children's appraisals is of concern. Most interventions aimed at improving teacher–child relationships are focused on the teacher (e.g., Sabol & Pianta, 2012). Probably, changes in teachers' thoughts and behavior might take a long time to result in changes in the child's perception of the relationship. After all, the child will tend to appraise the new behavior of the teacher in confirmation of the established internal working model of the relationship with the teacher. Therefore, interventions on teacher–child relationships in internalizing children are probably more effective if they also intervene in the children. Finally, we found strongest effects for the negative relationship dimensions as well as the negative appraisals in the associations. This stresses the importance of taking into consideration negativity in teacher–child relationships and interaction perceptions. Overall, the findings support the importance of taking child perceptions into consideration.

Appendix 1. Factor loadings of the appraisal scale items

Answer (on 3-point scale)	Negative Teacher Appraisals ($\alpha = .86$)	Positive Interaction Appraisals ($\alpha = .83$)	Situation Specific Appraisals ($\alpha = .69$)
The teacher gets angry easily	.66		
The teacher is boring	.60		
The teacher always spoils it	.57		
The teacher is strict	.55		
Working on something with the teacher is not a success	.54		
The teacher is not interested in my stories	.53		
The teacher gets angry easily if you talk during the lesson	.52		
I am often unkind about the teacher	.51		
The teacher sometimes gives me little attention when I want to answer	.50		
The teacher should have cleared them away	.48		
Sometimes I am unkind about the teacher	.48		
The teacher always makes sure that it is nice in the classroom	–.43	.41	
The teacher and I don't get along with each other	.42		
The teacher likes me		.61	
I enjoy doing stuff with the teacher		.58	
The teacher always takes good care of me		.54	
The teacher is always kind to me when I am sad		.52	
I can work well with the teacher		.51	
I enjoy talking with the teacher		.46	
I can work well with the teacher on the school paper		.46	
The teacher is a cheerful person	–.42	.46	
I always like to help		.45	
The teacher thinks I am a good student		.44	
I am good at handing out notebooks		.41	
The teacher looks especially at me because playing at marbles is going so well		.41	
I can come to the teacher with everything		.41	
I was bold			.61
The teacher thinks I did not behave well today			.60
I did not watch out			.48
The teacher and I did not have a good day together			.46
The teacher just did not feel like listening to my story at the time			.44
It was stupid of me not to visit the toilets when the teacher asked us to			.43
I was busy doing something else			.42

Note. Extraction Method: Maximum Likelihood, Rotation Method: Varimax with Kaiser Normalization. Only items with factor loadings $\geq .40$ are shown.

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