

Student–teacher relationships and achievement goal orientations: Examining student perceptions in an ethnically diverse sample

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ABSTRACT

Among an ethnically diverse sample of 803 preadolescent students (ages 9–13 years), the present study examined the associations between students' perceptions of the student–teacher relationship and their achievement goal orientations. Multilevel analyses showed that students who perceived more closeness in the relationship with their teacher reported a stronger endorsement of mastery goals, particularly when they experienced more emotional problems.

This finding was independent of students' perceptions of peer acceptance. Likewise, perceived relational negativity (conflict and dependency) was associated with a stronger endorsement of performance goals (approach and avoidance). The results were similar for ethnic minority and ethnic majority students, and consistent with an attachment perspective which explains the motivational impact of the student–teacher relationship in terms of the security it provides.

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Numerous studies in educational and developmental psychology have concluded that students' affective relationships with their teachers are crucial for their academic motivation and school engagement (see for reviews, Davis (2003); Roorda, Koomen, Spilt, and Oort (2011)). These studies have relied on insights and concepts from various theoretical viewpoints, but few of them have used the achievement goal approach to examine the motivational impact of the student–teacher bond. The achievement goal approach is one of the prominent and leading frameworks in motivational psychology and claims that students' motivation and behaviors in achievement situations should be understood by examining their endorsement of qualitatively different achievement goals (Eccles & Wigfield, 2002; Elliot, 1999; Nicholls, 1984; Wigfield & Cambria, 2010). There is ample evidence that teachers can affect this endorsement, but most of the research focuses on teachers' instructional practices and the creation of classroom goal structures rather than the affective relations between students and teachers (e.g., Meece, Anderman, & Anderman, 2006; Michou, Mouratidis, Lens, & Vansteenkiste, 2013; Schwinger & Stiensmeier-Pelster, 2011).¹

In the present study we examined how preadolescents' (ages 9–13 years) perceptions of the personal relationships with their teachers are related to their endorsements of different achievement goals. We aim to make a unique contribution to the literature by combining the achievement goal approach with an attachment perspective on the student–teacher relationship. We studied a large sample of students from various grade 4–6 classrooms in the Netherlands. In the Dutch school system, these students typically have the same single teacher all day long and the whole year round, which means that teachers are significant adults in their daily lives. Moreover, our sample consisted of different ethnic groups. In many (Western) countries student populations are increasingly ethnically diverse, and it is important that this diversity is represented in research.

1. An attachment perspective on motivation

The last two decades have seen a resurgence of research interest in the student–teacher relationship and much of this work has been conducted from an attachment perspective (see Davis (2003); Roorda et al. (2011)). This attachment perspective differs from other theoretical perspectives on the motivational impact of teachers – such as Self-Determination Theory (Ryan & Deci, 2000) or the Self-System Model of Motivation (Connell & Wellborn, 1991) – because it focuses on the mutual relationship between student and teacher, and because it explains the motivational impact of this relationship in terms of emotional security (Roorda et al., 2011) rather than the socialization of the motivation to learn (Davis, 2003). In addition, the attachment perspective

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¹ Later formulations of the achievement goal approach have distinguished between mastery-approach and mastery-avoidance goals as well, making a full crossing between mastery-performance and approach-avoidance (e.g., Elliot, 1999). However, the mastery-avoidance construct may be more realistic for older people versus preadolescent children (see Elliot and Thrash (2001); Jansen in de Wal (2010)).

makes the distinction between different aspects of the quality of the student–teacher relationship.

According to attachment theory (Ainsworth, 1989; Bowlby, 1982) the quality of children's relationships with their primary caregivers (their attachment bonds) is crucial for the ways they deal with stress and challenges. Securely attached children can use these relationships as a 'safe haven' to return to in times of need or stress but also as a 'secure base'. The latter means that they feel confident enough to explore their surroundings because they know that their attachment figure is there to help and protect them if necessary. Children's relationships with their teachers are typically of limited duration and not as exclusive as their bonds with their primary caregivers. Still, teachers can function as secondary or surrogate attachment figures for children (Ainsworth, 1989) as they can emotionally support and comfort them in times of stress (Pianta, 1992; van Ijzendoorn, Sagi, & Lambermon, 1992), and provide them with the security necessary for independent task behaviors (Thijs & Koomen, 2008). These attachment functions are particularly evident in early childhood but emotional security with teachers continues to be important throughout the school years (Baker, 2006; Little & Kobak, 2003).

Following the work of Pianta (1994, 2001), studies working from the attachment perspective have examined the quality of the student–teacher relationship along the dimensions of closeness, conflict, and dependency. Most of this research has relied on teachers' relationship perceptions, but there is evidence that at least two of these dimensions (conflict and closeness) can be reliably assessed in children as well (Spilt, Koomen, & Mantzicopoulos, 2010; Wu, Hughes, & Kwok, 2010). Closeness refers to the experience of mutual warmth and open communication in the relationship, and the student's confidence that she or he can effectively use the teacher as a source of emotional support. By contrast, conflict and dependency are negative indicators of relationship quality. They involve, respectively, the experience of mutually negative feelings and strenuous interactions, and the degree to which the student is overly concerned with the teacher's availability and in constant need of her or his reassurance. Whereas closeness is a sign that the student feels secure in the relationship, dependency and conflict, can be seen to indicate a lack of security in the student–teacher relationship (Pianta, 1994; Pianta, Hamre, & Stuhlman, 2003; Verschueren & Koomen, 2012). According to the attachment perspective, this relational security, or lack thereof, is crucial for understanding how the student–teacher relationship can affect the student's motivation. Whereas positive and secure relationships are assumed to promote students' natural inclinations to explore their learning environment and to be actively involved in it, negative and insecure relationships are assumed to undermine such tendencies (Pianta et al., 2003). There is good empirical support for these assumptions (see Roorda et al. (2011)) yet to date we know remarkably little about how students' security or insecurity with their teachers affects their endorsement of different achievement goals.

2. Achievement goals, attachment, and the student–teacher relationship

The achievement goal approach includes several conceptually similar frameworks which state that individuals can have qualitatively different goals in achievement situations (see for reviews, Eccles and Wigfield (2002); Elliot (1999); Wigfield and Cambria (2010)). Whereas some authors have examined these goals as situation-specific motivational states, most studies including the present research focus on people's general tendencies to endorse particular goals, i.e., their goal orientations (see Avery and Smillie (2013)). Traditionally, the distinction is made between mastery (or learning, or task) goals and performance (or ego, or self-validation) goals, and these goals are assumed to be the result of different underlying beliefs about the nature of competence. When people endorse mastery goals they seek to increase their skills and mastery in a particular task situation and the underlying belief is that their competence is malleable and can be developed. That is to

say, they have an incremental view of their ability. By contrast, performance goals are based on the belief that one's competence is fixed and reflected by one's achievement, which is also known as an entity view. Accordingly, individuals with performance goals are motivated to demonstrate their competence relative to others. Later, researchers have created a trichonomous framework by making the distinction between performance-approach and performance-avoidance goals. Whereas the former involve the tendency to prove that one is more competent than others, the latter involve the tendency to prove that one is not less competent than others (Elliot, 1999).¹ Several studies have examined the effects of these three different goals on various outcome measures – including challenge related affect, engagement, persistence, intrinsic motivation, and the processing and retention of information. Together they have shown that mastery goals and, to a slightly lesser extent, performance-approach goals are adaptive, but that performance-avoidance goals undermine students' academic adjustment (Dinger, Dickhäuser, Spinath, & Steinmayr, 2013; Elliot, 1999; Wigfield & Cambria, 2010).

Although there has been research on the link between students' perceptions of classroom goal structures and teacher support (Turner, Gray, Anderman, Dawson, & Anderman, 2013), educational psychologists have neglected the link between the dyadic, interpersonal student–teacher relationship and students' achievement goal orientations. To our knowledge there are three exceptions. Patrick, Ryan, and Kaplan (2007) studied a large sample of 5th grade students. They found that teachers had a unique influence on students' endorsement of mastery through their emotional support. Two other studies took a self-determination approach and examined secondary school students' perceptions of basic need support from their teachers. They found that these perceptions were positively related to students' mastery goals but also to their performance goals (Diseth, Danielsen, & Samdal, 2012; Diseth & Samdal, 2014). The present research goes beyond these previous studies by adopting an attachment approach and examining how students' achievement goal orientations are related to both positive and negative aspects of the student–teacher relationship.

Although interpersonal relationships are not central to it, different authors have tried to link the achievement goal approach to attachment theory (Elliot & Reis, 2003; Rusk & Rothbaum, 2010). The achievement goal approach claims that people's achievement goals or goal orientations are based on their beliefs about the nature of competence (incremental or entity). However, from an attachment perspective it can be argued that perceptions of (in)security are an additional source of influence (Rusk & Rothbaum, 2010). According to attachment theory (Ainsworth, 1989; Bowlby, 1982), the experience of attachment security allows children (and later adults) to follow their natural inclination to explore their environment and to effectively interact with it in a care-free manner (Cassidy, 1999). In achievement situations, this exploration tendency can be expected to manifest itself in approach tendencies and especially in the pursuit of mastery (Elliot & Reis, 2003; Rusk & Rothbaum, 2010). By contrast, individuals in insecure attachment relations may worry about the availability of the attachment figure. In that case, "the lack of a secure base is presumed to interfere with approach-based tendencies by making attachment concerns salient and by reorienting the individual toward the avoidance of failure", and the adoption of performance-avoidance should be more likely (Elliot & Reis, 2003, p. 319). Elliot and Reis (2003) examined these hypotheses in a study undergraduate students in romantic attachment relationships. As expected, they found that secure attachment was positively related to the adoption of mastery goals, whereas this relation was negative for avoidant attachment, and that anxious/ambivalent attachment was positively associated with the adoption of performance-avoidance goals. These results were consistent with previous research among a fairly younger sample: Moss and St-Laurent (2001) showed that 6-year-old children's attachment security to their mothers was related to their mastery motivation two years later. Unfortunately, performance goals were not included in that study.

Based on these findings and the underlying theoretical argument, we formulated specific hypotheses about the links between students' perceptions of the student–teacher relationship and their achievement goal orientations. According to the attachment perspective, the unique importance of the teacher lies in her or his ability to provide emotional support and to function as a secure base. As closeness is assumed to reflect relational security (Pianta, 1994), we expected it to be related to a stronger pursuit of mastery but not to stronger performance-avoidance goals. However, not all students use their teachers as attachment figures, and they vary in the degree to which they need to use the teacher as a secure base (Verschuere & Koomen, 2012). One possible source of this variation is the degree to which students experience problems of an emotional nature like excessive worrying, fear, and somatic complaints (Goodman, 2001). It is reasonable to assume that children who suffer more from these problems can also benefit more from the emotional support and security provided in close relationships with their teachers (Thijs & Koomen, 2008). Thus, in line with our theoretical approach, we tested the interaction hypothesis that the expected relation between closeness and mastery would be particularly strong for those students. In contrast, the combination of conflict and dependency can be seen to indicate insecurity in the student–teacher relationship (Pianta, 1994; Pianta et al., 2003). Hence we expected that students who experienced both aspects of relational negativity would have a stronger performance-avoidance goal orientation but not a stronger mastery orientation. Moreover, we tested the hypothesis that there would be a positive interaction between dependency and conflict – indicating that each of these variables would strengthen the link between the other and performance-avoidance.

We did not formulate any expectations for students' performance-approach goals. Elliot and Reis (2003) hypothesized that these goals would be related to secure attachment, because their approach component matches the exploration system posited by attachment theory. However, they consistently found a null relation in their (adult) studies. Moreover, in the case of the student–teacher relationship there is also the possibility that relational negativity is positively related to the adoption of performance-approach goals. According to Wentzel's (1999) notion of goal hierarchies, students' performance goals can be subservient to their social goals, which means that students want to perform well in order to please or impress their teacher. Students who share negative and especially dependent relationships with their teachers have a strong need for their confirmation and appreciation, and as teachers are the ones who evaluate the students and provide the grades, getting higher grades than one's classmates may be seen as one of the ways to secure this. It should be noted that this reasoning provides an additional argument for the expected link between relational negativity and performance-avoidance: According to the students, the avoidance of lower grades might ensure a minimum level of appreciation or recognition by the teacher.

3. Ethnicity and peer acceptance

We examined the aforementioned relations in a multi-ethnic sample including ethnic Dutch, Turkish–Dutch, and Moroccan–Dutch students. Due to labor migration, Turks and Moroccans constitute the largest non-Western ethnic groups in the Netherlands. They are considered “typical” minority groups as they face relatively high levels of discrimination, and compared to ethnic Dutch students they do consistently less well at school on a variety of indicators (Gijssberts & Dagevos, 2010). For instance, they score lower on standardized tests at the end of primary school, more often attend vocational rather than academic tracks and overall achieve lower levels of educational degrees than their peers with native-born parents (van de Werfhorst & van Tubergen, 2007). Moreover, unlike the Dutch culture and despite their mutual dissimilarities, both Turkish and Moroccan culture can be considered as collectivistic (implying a relatively strong group orientation) and power-distant (implying acceptance of differences in power and thus respect for

authority figures like parents and teachers; Hofstede, 1991; Phaet & Schönplüg, 2001; Thijs, 2011). Taken together, these differences in status and culture might produce group differences in the core variables in our study. For instance, consistent with the notion of stereotype threat (Steele, 1997), their minority status might lead Turkish- and Moroccan–Dutch students to be excessively concerned about their performance levels, leading to a stronger endorsement of performance-approach and -avoidance goals compared to the ethnic Dutch students. Likewise, the Turkish- and Moroccan–Dutch students might report higher levels of dependency on their teacher due to their stronger orientation on their teacher (Thijs, 2011). We controlled for these potential ethnic differences in our examination of the links between students' relationship perceptions and goal orientations. In addition, we explored whether those links were similar for the three ethnic groups, to test whether our findings supported a “one model fits all” approach.

We also examined children's perception of peer acceptance. Students' relationships with their teacher do not develop in a vacuum but are part of a wider school environment which includes the relations with their peers as well. Like teachers, peers can contribute to students' sense of belonging at school (Osterman, 2000), which in turn can have a positive effect on their academic motivation (Gillen O'Neel & Fuligni, 2013). Related to this, research has shown that the quality of students' peer relations is important for their academic engagement (Fredericks, Blumenfeld, & Paris, 2004; Juvonen, Wang, & Espinoza, 2011). For this reason, and also because previous research has revealed positive links between peer acceptance and the quality of the student–teacher relationship (Hughes & Kwok, 2006; Wentzel, 1998), perceived peer acceptance was examined as control variable in our analyses.

4. Overview of the current study

The goal of this study was to systematically examine, for the first time, the links between students' perceptions of different aspects of the student–teacher relationship and their achievement goal orientations. We did not formulate any hypothesis for students' performance-approach goals. However, we tested the expectation that the perception of relational closeness would be associated with a stronger endorsement of mastery goals, especially among students with more emotional problems, and the hypothesis that the perceptions of conflict and dependency as well as the interaction between them would be positively related to students' performance-avoidance goals. We evaluated these hypotheses controlling for students' perceptions of peer acceptance as well as their ethnicity. In addition, we examined whether the relations were similar for different ethnic groups (Turkish-, Moroccan-, and ethnic-Dutch) to explore the generality of our findings.

5. Method

5.1. Participants and procedure

Participants were 803 students (grades 4–6) of diverse ethnicities from 51 classrooms in 17 regular elementary schools in different parts of the Netherlands. These students had a mean age of 10.76 years ($SD = 1.05$) and 50.4% of them was female. According to their ethnic self-definition and the reported ethnicity of their parents 293 of these children were identified as Dutch. According to the same criteria, 287 children were identified as Turkish ($n = 112$) and Moroccan ($n = 175$). Of the remaining 223 children, 7% did not report their ethnicity or the ethnicity of their parents. The rest of them belonged to other ethnic groups that were too small to separately include them in the analyses, or they were of mixed ethnicities. The students were examined in the spring to make sure that the relationships with their teachers were sufficiently developed by then. They anonymously and voluntarily filled out a questionnaire in the classroom.

Originally, the sample consisted of 831 students, but 28 of them had missing values on the dependent variables (achievement goals) and were therefore not included in our eventual analyses. Overall, the number of missing values per scale (see below) was small (<3.5%) and Little's MCAR test indicated that missingness was completely at random, $\chi^2(141) = 169.094, p > 0.05$. Hence, we used the expectation maximization (EM) procedure in SPSS (single imputation) to replace missing values for the other scales in the original sample (Tabachnick & Fidell, 2007). The imputed data-set was further analyzed in MlwiN but we analyzed the raw dataset to examine the psychometric properties of our measures (see below).

Teacher data were available for 44 of the 51 participating classrooms. These 44 teachers had a mean teaching experience of 15.25 years ($SD = 11.49$) and 30 of them were female. Thirty-six of them (81.5%) were ethnic Dutch, whereas two teachers were Turkish–Dutch (4.5%), five teachers were Surinamese–Dutch (11.4%), and one teacher was Moroccan–Dutch (2.3%). These data were not included in the analyses.

5.2. Measures

5.2.1. Achievement goals

Students' achievement goals were measured with a Dutch adaptation of the revised version of the Achievement Goal Questionnaire (AGQ-revised, Elliot & Murayama, 2008). The AGQ-revised contains four scales including two measures for performance-approach and performance-avoidance goals. In addition, it also assesses mastery goals in terms of approach and avoidance. Together, two researchers who were fluent in both English and Dutch translated these scales into Dutch and adapted them for preadolescent students. Previous research (Jansen in de Wal, 2010) supported the psychometric qualities of the Dutch translation, by confirming the four-factor structure, and showing that students' mastery-approach goals were uniquely and positively related to their intrinsic motivation whereas their performance goals were not. However, it also showed that the mastery-avoidance scale had unacceptable reliability (Jansen in de Wal, 2010), which supports the notion that mastery avoidance may be less realistic for children versus older people (see Elliot and Thrash (2001)). Thus, in the present study we did not include the mastery-avoidance items, and we measured mastery goals in terms of approach only. Each scale consisted of three questions with a response scale ranging from 1 (*No, certainly not!*) to 5 (*Yes, certainly!*). The mastery scale included questions like "Is it your goal to learn as much as possible in school?", yielding a Cronbach's α of 0.71. For performance-approach goals (e.g., "Is it your goal to perform better than the other children in class?") Cronbach's α was 0.87, and for performance-avoidance goals (e.g., "Is it your goal to avoid getting lower grades than the other children in class?") it was 0.73. Scale means were 4.31 for mastery goals ($SD = 0.68$), 2.93 for performance-approach goals ($SD = 1.20$), and 3.55 for performance-avoidance goals ($SD = 1.06$). In addition, all scales were positively related: for mastery – performance-approach, $r = 0.35$; for mastery – performance-avoidance, $r = 0.38$; and for performance-approach – performance-avoidance, $r = 0.62$, all $p < 0.01$.

To test whether these three scales corresponded to three different factors we specified a correlated three-factor model without cross-loadings in Mplus (Muthén & Muthén, 1998–2007). We relied on four fit indexes: the comparative fit index (CFI), the Tucker Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean residual (SRMR). Model fit is considered good if CFI and TLI have values of 0.95 or higher, and RMSEA and SRMR are lower than 0.05. CFI and TLI values larger than 0.9 and RMSEA and SRMR values smaller than 0.1 are considered acceptable (Kline, 2005). Results showed that the fit of the three-factor model was satisfactory, $\chi^2(24) = 60.578$, CFI = 0.983, TLI = 0.974, RMSEA = 0.051, SRMR = 0.031. Moreover, the model fitted the data significantly better

than a two-factor model that included a single factor for both performance goals: $\chi^2_{\text{dif}}(2) = 113.79, p < 0.01$.²

5.2.2. Student–teacher relationship

To assess students' perceptions of their relationship with their teachers they completed a preliminary version of the Student Perception of Relationship with Teacher Scale (SPRTS; Koomen & Jellesma, submitted for publication) which contains subscales for closeness, conflict, and dependency. The SPRTS was newly developed because hitherto no measures were available to simultaneously assess these relationship dimensions from the perspective of preadolescent children. Its items came from three sources: the Network of Relationship Inventory (Buhrmester & Furman, 1987) and the Relatedness Scale (Wellborn & Connell, 1987) both of which are self-report measures, and the Dutch version of the Student Teacher Relationship Scale (Koomen, Verschueren, van Schooten, Jak, & Pianta, 2012) which is an instrument for teachers. These items were translated into Dutch and adapted for Dutch preadolescents.

Closeness was measured with seven items (including "If I have a problem I can share it with my teacher" and "I feel at ease with my teacher") for which Cronbach's α was 0.86. Conflict consisted of six items (e.g., "My teacher often treats me unfairly" and "I think my teacher thinks I whine a lot"), and dependency consisted of four items (e.g., "I am sad if my teacher tells me I do something wrong" and "I wish my teacher had more time for me"). Cronbach's α was, respectively, 0.83 and 0.63 for those subscales. For all subscales, a response scale from 1 (*No, certainly not!*) to 5 (*Yes, certainly!*) was used. The mean score for closeness was 3.53 ($SD = 0.86$), for conflict it was 2.07 ($SD = 0.85$), and for dependency it was 2.30 ($SD = 0.79$). Closeness was negatively related to conflict, $r = -0.61$, and dependency, $r = -0.30$, and the latter scales were positively related, $r = 0.48$, all $p < 0.01$.

To test the factor structure underlying these measures we conducted Confirmatory Factor Analysis (CFA). The analyses showed that the fit of the anticipated (correlated) three-factor model was acceptable, $\chi^2(116) = 524.198$, CFI = 0.903, TLI = 0.887, RMSEA = 0.078, SRMR = 0.061, and satisfactory once error correlations were allowed between two closeness items ("I can talk with my teacher about things that are important to me" and "If I have a problem I can share it with my teacher"), between two conflict items ("I think my teacher thinks I whine a lot" and "I think my teacher gets tired with me sometimes"), and between two dependency items ("I wish my teacher would listen more

² In order to examine whether the nested structure of our data affects the results derived from single-level CFA's, we also conducted 2-level CFA in Mplus, using classrooms as cluster variable. Regarding achievement goals, the 2-level model had a satisfactory fit: $\chi^2(57) = 149.440$, CFI = 0.963, TLI = 0.953, RMSEA = 0.050, SRMR_{within} = 0.028, SRMR_{between} = 0.128. As with the single-level model, the three-factor model fitted the data significantly better than a two-factor model that included a single factor for both performance goals: $\chi^2_{\text{dif}}(4) = 225.11, p < 0.01$. Regarding peer acceptance, the multilevel CFA showed that a one-factor model is a reasonably good fit to the data, once an error correlation between the items "Do you sometimes feel alone in class?" and "Are you sometimes lonely in class?" is allowed: $\chi^2(23) = 89.230, p < .01$, CFI = 0.961, TLI = 0.950, RMSEA = 0.066, SRMR_{within} = 0.031, SRMR_{between} = 0.158. Regarding emotional problems, a one-factor model had a good fit in the multilevel CFA: $\chi^2(15) = 25.397, p < .05$, CFI = 0.984, TLI = 0.979, RMSEA = 0.034, SRMR_{within} = 0.024, SRMR_{between} = 0.196. In all cases, the patterns of loadings of the items on the latent variables was very similar to the loadings pattern found in single-level CFA's and did not differ substantially across the two levels of analysis. For the relationship variables, consisting of three latent variables and 17 indicators, the 2-level model could not be estimated due to convergence problems, which most likely result from the complexity of the model paired with a small number of level-1 units within each level-2 unit (Cheung & Au, 2005). As an alternative way to account for the multilevel structure, we reran the CFA described in the text using instead of the original relationship variables each student's distance to the class mean (residuals adjusted to the class mean). This model yielded the same results as the CFA described in the text. The model fit was satisfactory when the errors of the same indicators (or in this case, their residuals) were allowed to be correlated: $\chi^2(113) = 446.789, p < .01$, CFI = 0.931, TLI = 0.917, RMSEA = 0.060, SRMR = 0.049. Moreover, the three-factor model with residuals fitted the data significantly better than a two-factor model based on the residuals and including a single factor for relational negativity (conflict and dependency combined), $\chi^2_{\text{dif}}(2) = 198.24, p < 0.01$.

carefully to what I have to say” and “I don't like it if my teacher has attention for other children”), $\chi^2 (113) = 331.875$, CFI = 0.948, TLI = 0.938, RMSEA = 0.058, SRMR = 0.049. Moreover, the three-factor model fitted the data significantly better than a two-factor model including a single factor for relational negativity (conflict and dependency combined), $\chi^2_{\text{dif}} (2) = 139.44$, $p < 0.01$.

Finally, to explore the validity of our measures of students' perceptions of the relationship with their teacher we related them to teachers' perceptions of the same relationship which were available for a subset of the students ($n = 291$ – 303). More specifically, we calculated the correlations with the closeness, conflict, and dependency subscales from the authorized Dutch version of the Student–Teacher Relationship Scale (Koomen et al., 2012). Student–teacher relationship representations are subjective psychological realities colored by personal feelings, evaluations, beliefs, and expectations (Murray, Waas, & Murray, 2008; Pianta et al., 2003) but they also refer to the ‘actual’ interactions between both parties. This means that it is reasonable to expect small to moderate positive correlations between perceptions of similar relationship dimensions. Accordingly, we found medium-sized convergent correlations (see Cohen (1988)) for closeness ($r = 0.36$) and for conflict ($r = 0.30$, both $p < 0.01$), and a small convergent correlation for dependency ($r = 0.12$, $p < 0.05$). There were also two divergent correlations. Student-reported dependency and teacher-reported conflict were positively related ($r = 0.14$, $p < 0.05$), which indicates that students' excessive concerns with the availability of their teacher might cause irritation and negative feelings in the latter. In addition there was a negative correlation between student-reported conflict and teacher-reported closeness ($r = -0.27$, $p < 0.01$) but this correlation was smaller than the convergent correlations for closeness and conflict, and no longer significant once these convergent correlations were partialled out. Taken together, these correlations provide some initial support for the validity of our relationship measures.

5.2.3. Emotional problems

Children reported on their emotional problems by using an adaptation of the homonymous subscale from the self-report version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001). The SDQ is a brief, widely used screening and research instrument addressing both negative and positive aspects of behavior. It has a child (i.e. self-report), parent-, and teacher version, and good psychometric qualities – including good internal consistencies, satisfactory cross-informant correlations, and concurrent validity – have been reported for the original as well as for the Dutch version (Goodman, 2001; van Widenfelt, Goedhart, Treffers, & Goodman, 2003). The emotional problems subscale consists of five items. To reduce children's tendency to give socially desirable responses, we reformulated these items to make them refer to other children as well (see Harter (1988)). Note that the content of the items remained the same. Thus children were asked, for example, “Some children worry a lot. You too?”, and “Some children are often unhappy or sad. You too?” We used the same five-point response scale as for the other measures, and Cronbach's alpha was 0.71 which was higher than for the original Dutch version (van Widenfelt et al., 2003). A CFA in Mplus showed that the five items loaded on one factor, $\chi^2 (5) = 8.316$, $p = 0.140$, CFI = 0.993, TLI = 0.987, RMSEA = 0.033, SRMR = 0.019.

5.2.4. Peer acceptance

Children's perceived peer acceptance was measured with six items adapted from Rutland et al.'s (2012) ten-item measure. The items were selected to diminish the burden of data collection for the participating students, translated by researchers fluent in English and Dutch, and reformulated to pertain to the classroom rather than the school in general. Sample items are “Do you get along with other kids in class?” and “Is it hard for you to make friends in class?” (reverse-coded). Again we used the same five-point response scale as for the other measures. Cronbach's alpha was 0.82. The items were originally based on

Cassidy and Asher's (1992) loneliness and social dissatisfaction measure, which has been found to be significantly and positively related to peer rejection (e.g., Cassidy & Asher, 1992; Coplan, Closson, & Arbeau, 2007). To examine the psychometric properties of our six-item adaptation, we first conducted CFA in Mplus. Results showed that a one-factor model is a good fit to the data, once an error correlation between the items “Do you sometimes feel alone in class?” and “Are you sometimes lonely in class?” is allowed: $\chi^2 (8) = 14.168$, $p > .05$, CFI = 0.995, TLI = 0.991, RMSEA = 0.036, SRMR = 0.023. These two correlated items load negatively on the latent variable peer acceptance, while the other four items have positive loadings. All loadings are significant and above the threshold value of 0.4 for standardized loadings (Kline, 2005). Next, we inspected the validity of the scale by relating it to children's self-reports of peer victimization measured with three items involving their experiences with teasing, name-calling, and social exclusion (Verkuyten & Thijs, 2006). As expected, there was a strong negative correlation, $r = -0.57$, $p < 0.01$ ($n = 762$). Hence, our scale can be considered as an appropriate indicator of children's perceived peer acceptance (Cohen, 1988).

5.3. Analyses

Our data had a multilevel structure as the 803 participating students were nested within 51 classrooms. Hence, we tested our hypotheses with multilevel analyses in MLwiN version 2.15 (Rasbash, Browne, Healy, Cameron, & Charlton, 2004). In the analyses, we specified a Level 1 to denote individual children, and a Level 2 to denote different classes. We did not specify a school level, as there were only 17 schools and three of them were represented by one class only. All models were estimated using the Iterative Generalized Least Squares (IGLS) algorithm, and relative model improvement was assessed by comparing the fit (deviance) of nested models. Differences between these statistics follow a chi-square distribution with degrees of freedom given by the difference in parameters (Snijders & Bosker, 1999).

To examine ethnic differences we used two dummy variables representing, respectively, the Turkish students and the Moroccan students, and the Dutch students were examined as a reference group. We also included a dummy for the group of “other” students to retain those students in the analyses. Note that the heterogeneity of that group makes comparisons with other groups not very meaningful. For ease of interpretation all continuous measures were standardized (z-scores) in the total sample before including them in the multilevel analyses.

6. Results

6.1. Preliminary analyses

Prior to testing our hypotheses we conducted two sets of preliminary analyses. First, we conducted multiple-group CFA's in Mplus using the default maximum likelihood estimator to test whether the factor structures of the core measures in our study (the three relationship variables, the three goal orientations, emotional problems, and peer acceptance) were similar for the Turkish, Moroccan, and Dutch students. Thus, we examined whether the intercepts and loadings of the underlying factors were invariant across the three ethnic groups, and given sample size restrictions (Kline, 2005) we did so for each measure separately and without taking the nested structure of the data into account. As the model fit statistics show (Table 1), scalar invariance across all three groups was supported for all but one latent variable given non-significant differences according to the Likelihood-ratio test of configural, metric and scalar invariant models. Note that configural invariance models are not identified in the case of the achievement goals constructs as each of them is measured by three manifest variables only, leading to a lack of degrees of freedom to estimate model fit of this unconstrained model. The non-significant Likelihood-ratio tests imply

Table 1
Summary of model fit indices for analyses of measurement invariance.

	χ^2 (df)	CFI	TLI	RMSEA	SRMR
Mastery goals					
Configural invariance	Not identified				
Metric invariance	0.323 (4)	1.000	1.000	0.000	0.008
Scalar invariance	16.391 (8)	0.971	0.967	0.074	0.043
Performance-approach goals					
Configural invariance	Not identified				
Metric invariance	7.143 (4)	0.996	0.991	0.064	0.034
Scalar invariance	8.386 (8)	0.999	0.999	0.016	0.036
Performance-avoidance goals					
Configural invariance	Not identified				
Metric invariance	5.310 (4)	0.996	0.992	0.041	0.032
Scalar invariance	6.389 (8)	1.000	1.000	0.000	0.034
Closeness					
Configural invariance	134.813 (42)	0.948	0.922	0.107	0.043
Metric invariance	138.328 (54)	0.953	0.945	0.090	0.047
Scalar invariance ^c	182.128 (66)	0.935	0.938	0.096	0.059
Conflict ^a					
Configural invariance	54.617 (24)	0.978	0.959	0.081	0.034
Metric invariance	65.964 (34)	0.977	0.970	0.070	0.057
Scalar invariance	81.539 (44)	0.973	0.973	0.066	0.061
Dependency					
Configural invariance	1.073 (6)	1.000	1.000	0.000	0.009
Metric invariance	5.637 (4)	1.000	1.000	0.000	0.029
Scalar invariance	26.975 (18)	0.965	0.965	0.051	0.056
Emotional Problems					
Configural invariance	23.003 (15)	0.984	0.968	0.052	0.031
Metric invariance	36.599 (23)	0.973	0.964	0.055	0.056
Scalar invariance	51.013 (31)	0.960	0.961	0.057	0.062
Peer acceptance ^b					
Configural invariance	42.612 (24)	0.986	0.973	0.063	0.033
Metric invariance	50.524 (34)	0.987	0.983	0.050	0.044
Scalar invariance	63.119 (44)	0.985	0.985	0.048	0.048

Note.

^a An error correlation between the items “I think my teacher thinks I whine a lot” and “I think my teacher gets tired with me sometimes” is allowed in all models

^b An error correlation between the items “Do you sometimes feel alone in class?” and “Are you sometimes lonely in class?” is allowed in all models

^c Model fit comparison with metric invariance is significant according to a Likelihood ratio test, $p < .001$

that each of the latent variables has the same factor structure across ethnic groups (configural invariance), as well as the same loadings (metric invariance) and intercepts (scalar invariance). The only exception was the latent variable closeness, where metric, but not scalar invariance was supported. All in all, the measurement models show that the measured constructs can be meaningfully compared across ethnic groups.

Next, we conducted a first set of multilevel analyses in MLwiN to explore ethnic differences in student–teacher relationship quality as well as the relation between peer acceptance and relationship quality. We specified separate regression models for closeness, conflict, and dependency, and we added the ethnic group dummies and peer acceptance as

predictor. Female gender (a dummy variable) and age (a continuous measure) were included as controls as boys and older children tend to have less positive relationships with their teachers (Baker, 2006; Rudasill, Reio, Stipanovic, & Taylor, 2010). Results showed that there were no ethnic differences in closeness. However, the Moroccan students reported more conflict than the Dutch students ($b = 0.25$, $p < 0.05$) and both the Turkish and the Moroccan students reported more dependency than the Dutch students (respectively, $b = 0.30$, and $b = 0.28$, both $p < 0.05$). In addition, peer acceptance was positively related to closeness ($b = 0.17$) and negatively to conflict and dependency (respectively, $b = -0.18$, and $b = -0.21$, all $p < 0.01$). There were no effects of age, but girls reported less conflict ($b = -0.34$, $p < 0.01$) and more dependency than boys ($b = 0.13$, $p < 0.05$).

6.2. Predicting achievement goals

6.2.1. Variance distributions and effects of controls

First, we specified three intercept-only multilevel models for, respectively, mastery goals, performance-approach goals, and performance-avoidance goals. These models provided estimates of the variance distributions (i.e. the intra-class correlations) of students' achievement goals across Level 1 (children), Level 2 (classrooms). For mastery goals, 11.2% of the variance was at Level 2, and for performance-approach goals these percentages were, respectively, 22.7%, and 10.8%, all $p < 0.01$. This means that there were systematic differences between classrooms which necessitated our use of multilevel modeling.

We proceeded by conducting stepwise regression analyses. To examine the role of ethnicity and perceived peer acceptance, as well as gender and age we added these variables as predictors to the intercept-only models for mastery goals, performance-approach goals, and performance-avoidance goals. The results of this first step are shown in Table 2. Compared to their Dutch peers, the Turkish and Moroccan students scored significantly higher on all achievement goals. In addition, peer acceptance was positively related to mastery goals but unrelated to performance goals, and girls had a weaker performance-approach orientation than boys. There were no significant effects of age.

6.2.2. Main effects of relationship perceptions

Third, and as shown in Table 3 (Step 2), we examined the unique contributions of students' relationship perceptions. Adding closeness, conflict, and dependency as predictors significantly improved the fit of the regression models (for mastery goals, $\chi^2_{\text{dif}}(3) = 22.649$, $p < 0.01$, for performance-approach goals, $\chi^2_{\text{dif}}(3) = 54.039$, and for performance-avoidance goals, $\chi^2_{\text{dif}}(3) = 23.871$, all $p < 0.01$). As expected, closeness was positively associated with mastery goals but the negative relationship variables were unrelated to it. In addition, only dependency had an effect on performance-avoidance goals. This effect was positive implying that the more concerned students were with their

Table 2
Effects of ethnicity, peer acceptance, gender, and age on achievement goals.

Predictors	Mastery goals Step 1	Performance-approach goals Step 1	Performance-avoidance goals Step 1
Turkish	0.35**	0.82**	0.34**
Moroccan	0.49**	0.80**	0.59**
'Other'	0.29**	0.38**	0.24**
Perceived peer acceptance	0.15**	−0.05	−0.05
Gender	−0.07	−0.13*	−0.07
Age	−0.07	−0.04	−0.06
Variance			
Level 1 (Student)	0.858	0.756	0.888
Level 2 (Teacher)	0.061	0.065	0.042
Deviance	2193.389	2097.345	2211.285

* $p < 0.05$, ** $p < 0.01$.

Table 3
Unique effects of relationship measures on achievement goals.

Predictors	Mastery goals		Performance-approach goals	Performance-avoidance goals	
	Step 2	Step 3	Step 2	Step 2	Step 3
Closeness (CLO)	0.18**	0.18**	0.06	0.05	0.05
Conflict (CO)	0.01	0.00	0.11*	0.04	0.02
Dependency (DEP)	0.04	0.07	0.20**	0.17**	0.16**
Emotional problems (EP)	–	–0.08	–	–	–
EP X CLO	–	0.08**	–	–	–
CO X DEP	–	–	–	–	0.07*
Variance					
Level 1 (student)	0.834	0.823	0.719	0.865	0.859
Level 2 (teacher)	0.060	0.056	0.041	0.035	0.035
Deviance	2170.695	2159.384	2043.306	2187.414	2182.141

* $p < 0.05$, ** $p < .001$.

teacher's (lack of) availability the more important it was for them to not show underperformance. Students' performance-approach goals were positively related to both measures of relationship negativity (conflict and dependency).

6.2.3. Interactions

Next, we tested our interaction hypotheses a) that the effect of relational closeness would be particularly important for the mastery goals of students with more emotional problems, and b) that the combination of conflict of dependency would be associated with stronger endorsement of performance-avoidance goals. First, we entered the standardized measure for emotional problems as well its interaction with closeness as predictors to the previous models. This led to a significant improvement in model fit for students' mastery goals only, $\chi^2_{\text{dif}}(2) = 11.311$, $p < 0.01$, and the interaction between closeness and emotional problems was significant (see Table 3, Step 3). To inspect the nature of this interaction we conducted simple slope analyses (Aiken & West, 1991). That is to say, we calculated the effects of closeness for high ($1\text{ SD} > M$) versus low ($1\text{ SD} < M$) levels of emotional problems. As expected and as shown in Fig. 1, the link between closeness and mastery was stronger among the former than among the second group of students, respectively, $b = 0.26$, $p < 0.01$, versus $b = 0.10$, $p < 0.05$.

Second, we examined the combination of conflict and dependency by adding the interaction between the two standardized measures to the models in Table 3 (Step 2). Only for students' performance-avoidance goals there was a significant improvement in model fit, $\chi^2_{\text{dif}}(1) = 5.273$, $p < 0.05$ (see Step 3). We further examined this interaction by calculating the effects of dependency for high ($1\text{ SD} > M$) versus low ($1\text{ SD} < M$) levels of conflict with their teachers. The results are shown in Fig. 2 and are consistent with our hypotheses. The link between dependency and performance-avoidance was relatively strong when the degree of conflict was high, $b = 0.23$, $p < 0.01$, but it was weak and non-significant when the degree of conflict was low, $b =$

0.09. We also examined the effect of conflict for high versus low levels of dependency (respectively, $1\text{ SD} > M$, and $1\text{ SD} < M$) but in both cases the effect was non-significant.

6.2.4. Ethnic differences

In a final set of models, we explored whether the effects of perceived relationship quality on students' goal orientations were similar for the different ethnic groups. As we had no a priori hypotheses about specific group differences, we did this in a step-wise fashion whereby we focused on the improvement in model fit. First, we added the interactions between the three ethnic group dummies ("Turkish", "Moroccan", and "Other") and the three relationship variables as predictors to the Step 2 regression models in Table 3. For all achievement goals there was no significant improvement in model fit, respectively, $\chi^2_{\text{dif}}(9) = 3.042$ for mastery goals, $\chi^2_{\text{dif}}(9) = 11.755$, for performance-approach goals, and $\chi^2_{\text{dif}}(9) = 8.507$ for performance-avoidance goals. Next, we examined whether the two-way interactions between closeness and emotional problems, and between dependency and conflict in Table 3 depended on students' ethnicity. Thus for both mastery goals and performance avoidance goals, we tested a full model, which included all control variables, all predictors from Step 3, and the (two- and three-way) interactions of those predictors with students' ethnicity. Next, we compared the full model for mastery to a model without the three-way interactions between ethnicity, closeness, and emotional problems. Likewise, we compared the full model for performance-avoidance to a model without the three-way interactions between ethnicity, conflict, and dependency. For performance-avoidance, there was no difference in model fit, $\chi^2_{\text{dif}}(3) = 2.160$, indicating that the interaction between conflict and dependency was similar for the different ethnic groups. However, model improvement was significant in the case of mastery, $\chi^2_{\text{dif}}(3) = 8.144$, $p < 0.05$. Further inspection showed that the two-way interaction between closeness and emotional problems differed significantly between the ethnic Dutch students, and the Turkish,

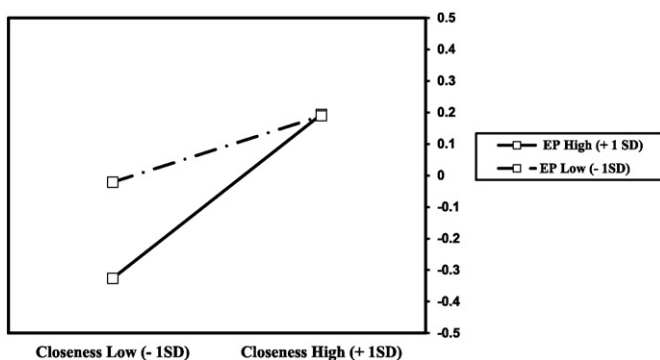


Fig. 1. Relation between closeness and mastery goals (standardized) for students with high versus low levels of emotional problems (EP).

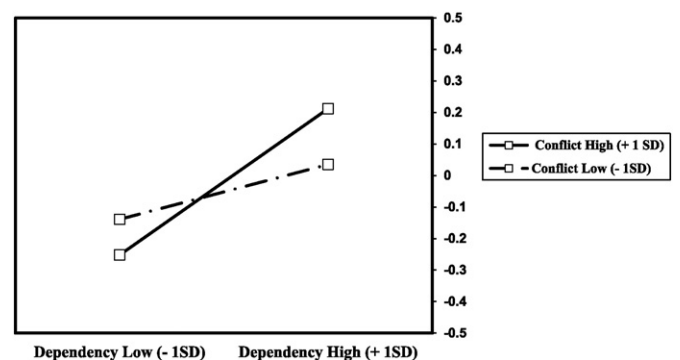


Fig. 2. Relation between dependency and performance-avoidance goals (standardized) for students with high versus low levels of relational conflict.

Moroccan, and 'other' students, respectively, $b = -0.19, p < 0.05$, $b = -0.20, p < 0.01$, and $b = -0.17, p < 0.05$. Only for the former that the two-way interaction was significant, $b = 0.21, p < 0.01$.

7. Discussion

Despite the large literature on teachers' motivational impact on their students and the popularity of the achievement-goal framework, the question of how students' perceptions of the interpersonal student–teacher relationship contribute to their achievement goals has received little attention in the educational literature. The present study addressed this question by examining a multi-ethnic sample of preadolescent students in the Netherlands. Although its cross-sectional design prevents us from drawing causal conclusions, our analysis and interpretation of the direction of effects is consistent with our theoretical expectations and previous research (Elliot & Reis, 2003; Moss & St-Laurent, 2001).

Consistent with our first hypothesis, our analyses showed that perceived closeness was associated with a stronger endorsement of mastery goals but that conflict and dependency were unrelated to it. This suggests that it is not the absence of relational negativity but the experience of a warm, trusting, and confiding bond with their teacher that makes students more open to learning and more willing to increase their skills. We also expected that this effect would be particularly pronounced for students with strong emotional problems as those students are assumed to have a stronger need for relational security from their teachers. Our results confirmed this prediction for the ethnic Dutch students but not for the other ethnic groups in our sample, a finding we will return to in our discussion below. In support of our second hypothesis, perceived dependency was related to a stronger endorsement of performance-avoidance goals, and this relation was particularly strong when students reported higher levels of conflict with their teacher. Thus, students who were overly concerned with their teacher's availability and approval were motivated to show that they were no less academically competent than their classmates. And this was especially the case for those students who experienced a lot of anger and mutual negativity in the interactions with their teacher. Together these findings align well with the idea that attachment security is connected to achievement goals (Elliot & Reis, 2003; Rusk & Rothbaum, 2010). Although there is no one-to-one correspondence between the three relationship dimensions and the attachment classifications known from the literature, some important parallels can be drawn. Specifically, relationships characterized by a high degree of closeness can be regarded as secure, and the combination of conflict and dependency can be seen to indicate insecurity of the resistant/ambivalent type (Pianta, 1994; Pianta et al., 2003). Security enables a carefree exploration of the learning environment and the attainment of mastery (Flum & Kaplan, 2006; Moss & St-Laurent, 2001). By contrast, insecurity is assumed to increase the focus on the possibility of failure which may lead to the adoption of performance-avoidance goals in educational situations (Elliot & Reis, 2003).

We had no clear expectations for students' performance-approach goals but we found small- to medium-sized positive effects of conflict and dependency and no effect of closeness. It is difficult to interpret these findings from an attachment perspective, and they contradict the idea that a performance-approach orientation matches the exploration that is typical for secure attachment (Elliot & Reis, 2003). Yet these results might be explained by the strong need for teacher approval and attention in relationships characterized by dependency. Students in such relationships are sensitive to their teacher's judgments about them ("I am sad if my teacher tells me I do something wrong") but also want their teachers to have more attention for them ("I wish my teacher had more time for me"). Teachers are the prime evaluators of students' academic performance. Hence, dependency may motivate students to prove their academic abilities in order to gain the teacher's respect and regard (see Wentzel (1999)). Regardless of their self-reported

dependency, students' perceptions of conflict with their teacher were uniquely associated with a stronger performance-approach orientation as well. This suggests that even if students are not particularly concerned with their teacher's attention and approval for them, their experience of relational negativity with their teacher may motivate them to prove that they are good students after all.

As noted, we found that the interaction between closeness and emotional problems in relation to mastery was significantly smaller and absent for the Turkish- and Moroccan-Dutch as well as the "other" students. This finding suggests that the experience of their teacher as a safe base helps ethnic minority children to be open to exploration and learning even in the absence of emotional problems. Moreover, it fits with the notion that the student–teacher relationship can be particularly important for students from non-dominant cultures for whom there might be a larger gap between the school and the home environment (den Brok, van Tartwijk, Wubbels, & Veldman, 2010; Murray et al., 2008). Still, the relations between students' relationship perceptions and achievement goals were largely similar for the different ethnic groups in our sample, thus our study supports a "one model fits all" approach. In addition, our findings held despite a number of important ethnic differences in the means of our variables. Like other studies (e.g., Murray et al., 2008; Spilt, Hughes, Wu, & Kwok, 2012) we found that the perceived quality of the student–teacher relationship was lower for the ethnic minority students than for the ethnic majority students. That is to say, both the Turkish- and Moroccan-Dutch students reported more dependency than the ethnic Dutch students, and the Moroccan-Dutch students also reported more conflict. At the same time, the minority students reported a stronger endorsement of all achievement goals (mastery, performance-approach, and performance-avoidance). It was not our aim to explain these differences but some tentative interpretations can be made. It could be for instance, that the differences in dependency reflect different cultural orientations in the students. Both Turkish and Moroccan cultures can be regarded as relatively power distant (Hofstede, 1991; Phalet & Schönpflug, 2001), and related to this, Turkish-Dutch and Moroccan-Dutch students have been found to be more teacher-oriented (i.e. more inclined to work hard to please the teacher, and to rely on the teacher for academic help) than their ethnic-Dutch contemporaries (Thijs, 2011). The ethnic differences in achievement goals may also be related to cultural factors (Dekker & Fisher, 2008; Elliot, Chirkov, Kim, & Sheldon, 2001) though these factors may not explain why the Turkish- and Moroccan-Dutch students had higher scores on *each* of the achievement goals. Alternatively, the stronger endorsement of performance goals might be due to students' minority status (see Steele (1997)), and the stronger mastery orientation might be related to positivity in immigrant families about the opportunities for their children's upward mobility (Kao & Tienda, 1995; Thijs, 2011).³

It is also important to note that our findings were obtained independent of students' perceptions of peer acceptance. Consistent with previous research (Hughes & Kwok, 2006; Wentzel, 1998) we found that children's perceptions of acceptance by their classmates were positively related to closeness and negatively to dependency and conflict. Perhaps this was a consequence of a process of third-party observation, whereby the actual acceptance of a child by his or her classmates depends on the classmates' observations of the relationship between that child and the teacher. Indeed, other research has suggested that children observe the interpersonal relationships between their fellow students and their teachers, and use these observations to form their own judgments about those students (Hughes, Cavell, & Jackson, 1999; Hughes et al., 2001). For example, classmates may be less inclined to like and accept

³ For the 44 classrooms where teacher data were available, we also explored whether the ethnic differences could be attributed to the match between students' and teachers' ethnicities. All ethnic Dutch students had a same-ethnic teacher but the ethnic match was low for the Turkish-Dutch students (21.3%) and the Moroccan-Dutch students (17.6%). However, ethnic match had no unique effect and could not explain the ethnic differences.

another student when they see that she has a conflicted bond with her teacher, and thus that student may feel less accepted by her peers. Additionally, it is possible that students' perceptions of peer acceptance and their perceptions of the student–teacher relationship reflected their general sense of relatedness (Furrer & Skinner, 2003). Although perceived acceptance was related to a stronger endorsement of mastery it was less important for students' achievement goals than the perceived quality of the student–teacher relationship. This indicates that the latter has special motivational significance for the students.

7.1. Study implications

Although they should be substantiated in future studies, the present findings have relevance for future research on students' goal orientations as well as educational practice.

Our results suggest that attempts to promote adaptive goal orientations in students should target, or at least take into consideration, students' perceptions of the student–teacher relationship. Although (students' perceptions of) student–teacher relationships are only partly dependent on the teachers' behaviors and attitudes (Pianta et al., 2003), teachers might try to improve it to make students more mastery-oriented and less focused on the possibility of failure (for suggestions on relationship improvement, see Pianta and Hamre (2009); Sabol and Pianta (2012)). Even in cases where it is difficult to change students' subjective perceptions of the student–teacher relationship, it is still important to be aware of the implications of these perceptions for students' achievement goals. Numerous studies have shown that teachers can affect those goals through their instructional practices and the creation of classroom goal structures (Meece et al., 2006; Schwinger & Stiensmeier-Pelster, 2011; Wigfield & Cambria, 2010). Teachers may make mastery goals salient, for example, by among other things focusing on students' individual improvement, by recognizing their effort, and by teaching that mistakes are part of successful learning (Ames, 1992). Theoretically, it can be assumed that such practices predominantly affect students' entity or incremental beliefs rather than their sense of relational security and thus that both practices and relationship perceptions are important (Rusk & Rothbaum, 2010). However, teaching practices are often performed in the context of interpersonal relationships with students, and it is reasonable to expect that their effects depend on the quality of those relationships. For instance, it may very well be that teachers' attempts to promote the pursuit of mastery in their students will be less successful when the students experience insecurity in the relationships with them. Thus, future research should examine how the perceived quality of the student–teacher relationship interacts with teachers' instructional practices.

7.2. Limitations

To evaluate the present research some qualifications and limitations need to be considered. First, our conclusions are based on cross-sectional analyses. Although our analyses and the interpretation of the direction of effects are consistent with our theoretically based expectations, we should acknowledge the possibility of reciprocal influences. It could be, for instance, that students who often display mastery goals in their classroom are also more liked by their teachers. Also, students with a strong performance-approach orientation might have a stronger need for recognition and thus be more easily dissatisfied with the frequency and the quality of their teacher's attention for them. To examine such alternative interpretations future research should employ cross-lagged designs.

Second, this study exclusively relied on students' self-reports, which means that we cannot rule out the possibility of common method variance and social desirability. Future research could try to replicate our findings by using different informants. Note, however, that our theoretical interest was in students' perceptions of the student–teacher

relationship, which means that those future studies use other ways to assess students' achievement goals. This might prove difficult because in older children (and adults) these different goals, and especially the subtle distinction between performance-approach and performance-avoidance, are probably best assessed by the self-report method (see Elliot and Murayama (2008)). Fortunately, previous research on Turkish-, Moroccan-, and ethnic-Dutch preadolescents found that controlling for socially desirable responding did not affect the relations between students' evaluations of their teacher and their self-reported motivation (Thijs, 2011).

Third, we controlled for students' perceptions of peer acceptance, but as in all non-experimental studies, we cannot rule out the possibility that our findings are partly due to third variables not included in our research. Thus, future research should also include factors like students' academic self-efficacy and achievement, and their bonds with their parents (see Wentzel (1998)) when examining the link between their perceptions of the student–teacher relationship and their achievement goals. Related to this, Turkish and Moroccan families in the Netherlands tend to have low socioeconomic status (SES) compared to ethnic-Dutch families (Gijbels & Dagevos, 2010) but we did not measure this variable in our study. Future research should include SES to address its confound with ethnicity. Still, we think that the possible impact of this confound was limited in our study, as previous studies have reported relatively small (Rudasill et al., 2010) or non-significant relations between SES and student–teacher relationship quality (Hughes & Kwok, 2006). Moreover, the links between relationship perceptions and achievement goals were largely similar for the different ethnic groups.

Finally, our findings were obtained among preadolescents in the Netherlands, and an important question is whether they can be replicated in other countries. Unlike their contemporaries in American middle schools, preadolescent students in the Netherlands tend to have the same single teacher all day and the whole year round, which means that the student–teacher relationship may be relatively important to them. Related to this, future studies should also examine the links between students' perceptions of the student–teacher relationship and their achievement goals in different age samples. Research has shown that over time, students come to endorse performance goals more than mastery goals, and this has been related to changes in classroom goal structures (see Wigfield and Cambria (2010)). Yet, this finding might be attributed to changing relationships with teachers as well (see Spilt et al. (2012)).

Despite its limitations and qualifications, we think that our study makes an important contribution to the literature on the motivational impact of the student–teacher relationship. In particular, we showed that perceived relational negativity is not so much associated with less motivation, but with motivation of a qualitatively different type. Whereas the experience of relational closeness was found to be associated with a stronger endorsement of mastery goals, students who experienced dependency and conflict in the relationship with their teacher appeared to be more strongly motivated to prove their competence by getting good results and avoiding bad ones. Future research should examine how students' relationship perceptions interact with teachers' instructional practices, and thus contribute to the further development of classroom interventions aimed to promote students' endorsement of adaptive achievement goals.

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