



UvA-DARE (Digital Academic Repository)

Relevant classroom events for teachers: A study of student characteristics, student behaviors, and associated teacher emotions

de Ruiter, J.A.; Poorthuis, A.M.G.; Koomen, H.M.Y.

DOI

[10.1016/j.tate.2019.102899](https://doi.org/10.1016/j.tate.2019.102899)

Publication date

2019

Document Version

Final published version

Published in

Teaching and Teacher Education

License

CC BY-NC-ND

[Link to publication](#)

Citation for published version (APA):

de Ruiter, J. A., Poorthuis, A. M. G., & Koomen, H. M. Y. (2019). Relevant classroom events for teachers: A study of student characteristics, student behaviors, and associated teacher emotions. *Teaching and Teacher Education*, 86, [102899]. <https://doi.org/10.1016/j.tate.2019.102899>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (<https://dare.uva.nl>)



Relevant classroom events for teachers: A study of student characteristics, student behaviors, and associated teacher emotions

Janneke A. de Ruiter ^{a,*}, Astrid M.G. Poorthuis ^b, Helma M.Y. Koomen ^a

^a Research Institute of Child Development and Education, University of Amsterdam, Nieuwe Prinsengracht 127, 1018 WS Amsterdam, the Netherlands

^b Department of Psychology, Utrecht University, Heidelberglaan 1, 3584 CS Utrecht, the Netherlands

HIGHLIGHTS

- When asked to describe one classroom event, teachers tend to select events with male students.
- Teachers describe positive and negative events with students who have relatively high externalizing behavioral attributes.
- Relational or social-emotional student behaviors were more relevant for teachers than motivational or achievement behaviors.
- Events with student behaviors that threaten interpersonal relationships in the classroom predict teachers' emotions best.

ARTICLE INFO

Article history:

Received 19 September 2018

Received in revised form

14 June 2019

Accepted 3 August 2019

Available online 24 August 2019

Keywords:

Teacher student relationship

Student behavior

Emotional experience

Elementary school teachers

Coding

Teacher emotions

ABSTRACT

To gain insight in relevant classroom events for teachers, this study asked 218 elementary school teachers to describe the most relevant event of the past workday, involving an individual student. Male students and students with relatively high externalizing, antisocial behavioral attributes were overrepresented in both positively and negatively valued events. Independent coders classified all student behaviors described in the event based on a newly developed coding system. Teachers described more social-emotional and relational student behaviors than achievement or motivational behaviors. Hostility and aggression towards the teacher was the strongest predictor of teachers' enjoyment, anger, anxiety, and self- and other-related emotions.

© 2019 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

The last couple of weeks, this student displays a lot of resentful behavior. In his opinion he is treated unfairly and often feels wronged by me. Today during gym class, I didn't allow this boy to play in the same team as his friend and therefore he accused me of favoritism. I ignored this behavior until he disrespected me with childish sounds. I felt angry because his behavior undermined my positive approach. I didn't feel appreciated by him for all the energy I once again put in my lessons. My emotional bank account towards this child was in bankruptcy. (Teacher no. 209 when describing a relevant classroom event).

The quote above is one example of a classroom event teachers

experience on a daily level when interacting with their students. When asked about uplifts and hassles during their workday, teachers describe events like interacting with colleagues and work preparation, but by far most events pertain to interaction with students in the classroom (Schmidt, Klusmann, Lüdtke, Möller, & Kunter, 2017). These daily events might seem minor but may have immediate effects on teachers' state emotions (i.e., emotions experienced during the specific classroom event) and by piling up these emotions might also be relevant for changes in teachers' wellbeing in the long run (Almeida, 2005; Lazarus, 1999). It is therefore important to deepen our understanding of classroom events that are considered relevant by teachers and the teacher emotions associated with these events.

Previous research has demonstrated links between students' behaviors and teachers' emotions. Most studies examine these links on a general classroom level (e.g., Becker, Keller, Goetz, Frenzel, & Taxer, 2015; Hagenauer, Hascher, & Volet, 2015), by

* Corresponding author.

E-mail addresses: J.A.deRuiter@uva.nl (J.A. de Ruiter), a.poorthuis@uu.nl (A.M.G. Poorthuis), H.M.Y.Koomen@uva.nl (H.M.Y. Koomen).

investigating behaviors of the whole class. The quote of the teacher above, however, illustrates that in fact behaviors of individual students can play an important role in teachers' emotional experiences. Indeed, when teachers are asked to describe an emotionally challenging classroom event, they are inclined to report misbehaviors of individual students (Chang, 2013). During a workday, teachers participate in many events, the majority of which is positive rather than negative (Schmidt et al., 2017). Hence, it is necessary to examine both positive and negative classroom events. Moreover, certain students may come to teachers' minds easier when teachers are asked to select a relevant event. To date, not much is known about the characteristics of these students involved in relevant classroom events.

To extend our knowledge on relevant classroom events for teachers, the present study therefore aims to (1) identify the characteristics of the students described in the classroom events teachers consider to be relevant, (2) systematically classify the behavior(s) of these students during the event using a newly developed coding system, and (3) investigate whether the presence or absence of certain student behaviors in the event predicts teachers' emotional experiences.

1. Relevant student characteristics

Teachers' assessments of the relevance of classroom events might be influenced by certain student characteristics, which make some students more visible for teachers than others. Kokkinos, Panayiotou, and Davazoglou (2005) assessed how teachers perceive the severity of undesirable student behaviors. They found that teachers appraised externalizing behaviors, characterized by high levels of oppositional, aggressive, or social impairment, as more serious than behaviors of a more internalizing and emotional nature. In another study, Molins and Clopton (2002) asked teachers to describe actual students that concerned them. They found that teachers identified significantly more children with externalizing problems than internalizing problems. Thus, it seems that teachers are primarily concerned by students high on externalizing behaviors, perhaps because externalizing behaviors are highly visible and disturbing for others.

In addition to behavioral attributes, the gender of students seems to be a relevant characteristic in teachers' perceptions of their students' behaviors. Research has shown that teachers are primarily concerned by the behavior of male students (Molins & Clopton, 2002). This was partly due to more externalizing problems in male students, but teachers also identified more male than female students as having internalizing problems. Likewise, qualitative studies inquiring teachers about difficult students in their classrooms have found that all teachers identified male students (Joosten, Verwoerd, & Smeets, 2014; Rytivaara & Frelin, 2017). Strikingly, the study by Rytivaara and Frelin (2017) showed that teachers identified the same male students as the ones causing trouble and bringing joy. The present research will address both the behavioral attributes and the gender of the student involved in events teachers describe as being relevant to them.

2. Student behaviors as antecedents of teacher emotions

Teaching is an emotional practice (Hargreaves, 2000). In understanding a person's emotional experiences, Lazarus (2006) stressed the relational meaning of emotions. This means that emotions always depend on interactions between a person and the environment. Consequently, when examining teachers' emotions, it is important to focus on teacher-student interactions. Indeed, qualitative empirical studies have shown that interactions with students seem to be very powerful in evoking positive and negative

emotions in teachers (Cross & Hong, 2012; O'Connor, 2008; Sutton & Wheatley, 2003; Zembylas, 2002).

To be able to capture these relevant interactions between teachers and students, the present study was inspired by part of Frenzel's theoretical model on the antecedents and effects of teachers' emotions (Frenzel, 2014; Frenzel, Goetz, Stephens, & Jacob, 2009). In this model, it is argued that teachers' emotions are elicited by appraisals which depend on teachers' evaluations of students' behaviors. Frenzel (2014) roughly divided these student behaviors into four overarching themes: achievement, motivational, social-emotional, and relational behavior. The achievement theme refers to students' acquisition of subject-specific competencies. The motivational theme pertains to students' motivational engagement in classroom activities and learning content, i.e. topic interest, the willingness to invest, self-regulation, and goal setting. The social-emotional theme concerns students' development of competencies in terms of respect for themselves and others and the ability to function within a social group, including empathy and thoughtfulness towards classmates and student discipline. Finally, the relational theme pertains to the establishment of a good relationship between teacher and students. Frenzel (2014) added this last theme to a previous version of this model (Frenzel et al., 2009), based on research demonstrating the importance of teacher-student relationships (e.g., Chang & Davis, 2009; Spilt, Koomen, & Thijs, 2011).

Inspired by Frenzel's model, three recent quantitative studies have empirically examined links between aspects of the four broad student behavior themes and associated teachers' emotions (Becker et al., 2015; Frenzel et al., 2009; Hagenauer et al., 2015). These studies found that student classroom behaviors from all four behavior themes, i.e., academic performance, engagement, discipline, and closeness were related to teachers' enjoyment, anger, and anxiety. This finding holds for studies using trait level (Frenzel et al., 2009; Hagenauer et al., 2015) and state level measures (Becker et al., 2015; Frenzel et al., 2009) and for studies measuring student behaviors reported by teachers (Frenzel et al., Hagenauer et al., 2015) and by students themselves (Becker et al., 2015). In particular, all studies found that student engagement (motivational theme) was the strongest predictor of teachers' experiences of enjoyment whereas student discipline (social-emotional theme) was most relevant for feelings of anger. The only study that investigated closeness (relational theme) found that when adding closeness as a predictor of teachers' emotions in addition to students' engagement and lack of discipline, this relational behavior became the strongest predictor of teachers' enjoyment and anxiety, but not of anger (Hagenauer et al., 2015).

These studies have provided valuable insights in the associations between general classroom behavior and the emotions teachers experience. However, there is also research pointing to a need for examining emotions during specific events (Almeida, 2005; Chang, 2013; Lazarus, 2006). In addition, by providing teachers with a list of pre-structured student behaviors, it is possible that other emotionally relevant student behaviors are missed. Chang (2013; Chang & Davis, 2009) used a different approach and asked 492 beginning teachers to recall and briefly describe a recent classroom incident in which they felt emotionally challenged. Many student behaviors were described, which were coded based on nine types of students identified as problematic by Brophy and Rohrkemper (1988). Results showed that teachers felt most emotionally challenged when students demonstrated hostility or aggression towards peers and teachers (38% of reported incidents), followed by defiance (18%) and hyperactivity/distractibility (11%). These behaviors were associated with teachers' self-reported state levels of anger and frustration (Chang, 2013).

Chang's studies (Chang, 2013; Chang & Davis, 2009) show that

teachers recall a wide variety of student behaviors when they feel emotionally challenged. In addition, they revealed that during specific emotionally challenging classroom events, teachers tend to describe behaviors of individual students. This is in line with research highlighting the importance of individual student-teacher interactions (Spilt et al., 2011; Davis, 2006). However, Chang's research (Chang, 2013; Chang & Davis, 2009) did not incorporate the four behavior themes identified in Frenzel's conceptual model of emotion-relevant student behavior (2014), nor did it include positive student behaviors. Positive student behaviors can be a source of positive emotions and psychic rewards for teachers (Hargreaves, 2000) and can increase wellbeing (Uusiautti, Harjula, Pennanen, & Määttä, 2014). Hence, this study will focus on both positively and negatively valued relevant classroom events including individual students' behaviors across the four behavior themes in Frenzel's model (2014): achievement, motivational, social-emotional, and relational student behavior.

3. Relevant teacher emotions

The studies described examined teachers' enjoyment, anger, or anxiety or a combination of these emotions. Indeed, research on emotions in everyday life in a large national Swiss sample demonstrated that these three emotions were most reported (Scherer, Wrantik, Sangsue, Tran, & Scherer, 2004). Also in teaching they seem highly relevant. Frenzel et al. (2016) therefore developed a multi-item emotion questionnaire for measuring these three discrete teacher emotions, the Teacher Emotions Scales (TES), with four items tapping into each emotion. Although this instrument was originally developed to measure trait emotions, Frenzel et al. (2016) argue that it could easily be adapted for state assessment after a lesson or workday.

Whereas the TES addresses three highly relevant and/or frequent emotions experienced by teachers, there are also other emotions that deserve attention. In a related field of research on student achievement and learning, student emotions were differentiated based on source and direction (e.g., Hareli & Weiner, 2002). In this field, authors note that emotions can be oriented towards a task, directed towards the self, such as self-confidence, or directed towards the other, such as sympathy (Pekrun, Goetz, Titz, & Perry, 2002; Wosnitza & Volet, 2005). The distinction of emotions directed towards the self and towards the other might be especially important in the context of teacher-student interactions because they align with the basic duality of human experience, which consists of "the striving for self-enhancement" and "longing for contact and union with the other" (Hermans, 1987; cf. van Geel & De Mey, 2003). These strivings resemble the agency and communion dimensions conceptualized in interpersonal theory (Horowitz et al., 2006), which are often used in educational contexts to characterize how teachers relate to students (Mainhard, Oudman, Hornstra, Bosker, & Goetz, 2018; Wubbels, Créton, & Hooyman, 1985). This study will therefore not only address teachers' enjoyment, anger, and anxiety oriented towards a classroom event, but also self- and other-related emotions.

4. Present study

The overall aim of the present study was to gain a deeper understanding of relevant events for teachers when dealing with individual students. Similar to previous study designs, this study combined an idiographic and a nomothetic approach within a questionnaire (e.g., Chang, 2013; Schmidt et al., 2017). The idiographic part consisted of teachers describing the most relevant event with an individual student of the past workday. By using an open answer format we allowed participants to describe any

unique subjective situation that was relevant to them, without influencing them by presenting a pre-structured list of negative or positive student behaviors. The other part of the study was nomothetic and in this part the qualitatively reported events were quantified by external coders in terms of the described student behaviors.

The present study addressed three research goals. First, the characteristics of the students described in these events were identified (i.e., their gender and behavioral attributes). Previous research demonstrated that teachers are primarily concerned by students displaying (extreme) externalizing problem behavior, particularly boys (Joosten et al., 2014; Kokkinos, Panayiotou, & Davazoglou, 2004; Molins & Clopton, 2002; Rytivaara & Frelin, 2017). In addition, a qualitative study showed that teachers identified the same student as the ones causing trouble and bringing joy (Rytivaara & Frelin, 2017). It was therefore expected that in both positively and negatively valued relevant classroom events, the majority of students described would score relatively high on externalizing problems and would be of male gender.

Second, it was examined which student behaviors were present in teachers' descriptions of the most relevant event of the past workday. It was assumed that the more frequent a behavior was reported, the more relevant this student behavior was for teachers. A coding system was developed to assess the presence or absence of 21 possible student behaviors in each event. This system was centered around the four overarching themes of student behaviors described by Frenzel (2014), incorporating the student misbehaviors as identified by both Chang (Chang, 2013; Chang & Davis, 2009) and Brophy and Rohrkemper (1988). Since we were not only interested in student misbehaviors, we also developed codes for positive counterparts of all negative behaviors. Although previous research suggests that some misbehaviors are reported more often than others when asked for events in which teachers feel emotionally challenged (see Chang, 2013), no specific hypotheses were formulated for this study because this is the first that systematically identified both positive and negative relevant student behaviors.

Third, the present study investigated the association between the presence or absence of described student behaviors in an event and the emotions teachers experienced in response to the relevant event. Based on the theoretical assumption that relevant events lead to more intense emotional experiences (Chang, 2009; Lazarus, 1999) and previous empirical evidence (e.g., Becker et al., 2015; Chang, 2013; Frenzel et al., 2009; Hagenauer et al., 2015), we expected that teachers would report higher levels of enjoyment in response to events in which positive student behaviors are described and higher levels of anger and anxiety in response to events in which negative student behaviors are described. In contrast, negative associations were expected between events in which positive student behaviors are described and teachers' anger and anxiety and between events in which negative student behaviors are described and teachers' enjoyment. Because little research has been done in relation to teacher-student interactions and associated self- and other-related emotions, this study examined the links between student behaviors and these emotions in events exploratively.

5. Method

5.1. Participants

A convenience sample of 218 teachers from regular elementary schools (grade 3–6) participated in the study. They were recruited from all over the Netherlands via phone, email, and calls on social media across the school year. They were on average 38.5 years old

($SD = 12.1$). Teaching experience ranged from one to 42 years ($M = 13.9$; $SD = 11.1$). The majority was female (80%, $n = 174$), which is quite representative for the Dutch educational system where nationwide 87% of elementary school teachers are female (DUO, 2018). Most participants (81%) taught their students three or more days a week. Ethical approval was granted prior to the start of the research by the Ethics Review Board of the Faculty of Social and Behavioral Sciences, University of Amsterdam (project no. 2015-CDE-178). Informed consent was obtained from all participants. A random selection of five percent of the participants received a gift card of 25 or 50 euros. All participants received a summary report of important findings.

5.2. Procedure

Teachers completed a single 20-min questionnaire. First, they provided personal details (e.g., age, gender) and school and class characteristics (e.g., number of students in their class). Next, they were asked to recall and describe the most relevant classroom event of that workday, in which one of their students played a leading part. Specifically, the instruction read: "The next part of this questionnaire is about an event of today that you remember and that you consider relevant. The event needs to be related to one specific student in your class and may be positive or negative. Please select one concrete event, not a longer period of time." To ensure that teachers actually described an event having one student in mind, they were prompted with questions regarding this student's gender and age before moving on to describing the event in an open answer format. The instruction then read: "Please describe the event that you have in mind as detailed as possible. What happened exactly? Describe how the student behaved, how you behaved (and possible others involved). Please do not mention names of individual students in order to guarantee anonymity. Instead, use student X or Y." After describing the event, participants responded to questions regarding the event, including their valence ratings of the event and the intensity of different emotions experienced during the event (see measures). Last, teachers reported on the general behavioral attributes of the student involved in the event and on several other constructs that are not part of the present study.

5.3. Measures

5.3.1. Students' behavioral attributes

Teachers' perceptions of their selected student's general behavioral attributes were measured using four scales of the Dutch version of the Strengths and Difficulties Questionnaire (SDQ; Van Widenfelt, Goedhart, Treffers, & Goodman, 2003): Emotional symptoms (5 items, e.g., many worries or often seems worried), Conduct problems (5 items, e.g., often fights with other children or bullies them), Hyperactivity-inattention (5 items, e.g., restless, overactive, cannot stay still for long), and Prosocial behavior (5 items, e.g., helpful if someone is hurt, upset or feeling ill). All items were rated on a 5-point Likert scale (1 = *not true*; 5 = *certainly true*). Psychometric properties of the SDQ in Dutch community samples have been shown to be satisfactory (Muris, Meesters, & van den Berg, 2003; Van Widenfelt et al., 2003). Also in this study, all scales showed sufficient internal consistency: Cronbach's alphas ranged from .77 for Emotional symptoms and Conduct problems to .79 for Prosocial behavior and .87 for Hyperactivity-inattention.

5.3.2. Student behaviors during event

All events were dummy coded on 21 student behavior variables with a newly developed coding system (0 = behavior absent or 1 = behavior present). Table 1 provides an overview of the student

behavior variables and examples of (parts of) associated events. The coding system was adapted from Brophy and Rohrkemper (1988)'s identification of problem behaviors (e.g., defiant behavior towards teacher and peer rejection) that Chang (2013) also used to code student misbehavior. The problem behavior categories were supplemented with positive counterparts of these behaviors (e.g., listening behavior and positive peer feedback). Consistent with Frenzel (2014), categories of student behaviors were grouped in four overarching themes: achievement behavior, motivational behavior, social-emotional behavior, and relational behavior (towards teacher). Some of the behaviors described by Brophy and Rohrkemper (1988) and Chang (2013) were combined into one category for this study (i.e., passive aggression, overt aggression, and defiance became one category aggression), whereas others were disentangled (e.g., hostility/aggression towards peers and teachers were disentangled in separate categories: a) towards peers, and b) towards teachers). Also, a new category (i.e., lack of discipline) was added, inspired by Frenzel's theoretical framework. In addition, an 'other' category was added for two overarching themes for behaviors that did not fit within the existing categories. Before coding, all events were checked for eligibility by examining whether teachers had complied with the instructions. After consultation between two trained coders, this resulted in the exclusion of 8 events because a) no concrete student behavior was described ($n = 6$), b) different behaviors of two students were described and it was not clear which student the teacher had focused on ($n = 1$), and c) no concrete event was described but instead a whole time period of several days involving that student ($n = 1$). Subsequently, the two coders independently coded the remaining 210 events for student behaviors described by the teacher. Teachers' cognitions, reflections, emotions, or behaviors were not coded. The open answer format allowed participants to describe multiple student behaviors in one event. Each described student behavior was used as indication for the presence of one behavioral category, not more. For the overall coding system, a substantial level of agreement (Cohen's $\kappa = .73$) was found between the two coders (Landis & Koch, 1977). Disagreements between the two coders were discussed thoroughly until agreement was reached.

5.3.3. Teachers' valence of event

Teachers were asked how they rated the event they had described. They could answer on a 6-point Likert scale ranging from 1 (*very negative*) to 6 (*very positive*). Events were then recoded into positive (i.e., score of 4, 5 or 6 on the valence scale) and negative (i.e., a score of 1, 2, or 3 on the valence scale) events.

5.3.4. Teachers' state emotions

Teachers' state experiences of enjoyment, anger, and anxiety and self- and other-related emotions were assessed with three emotion items each, measuring intensity on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very strongly*). Participants were asked: "Please rate the intensity of the emotions you felt during the event". A list of emotion terms followed. **Anger** included the items anger, annoyance, and frustration (Cronbach's $\alpha = .89$). **Enjoyment** included the items enjoyment, enthusiasm, and contentment (Cronbach's $\alpha = .95$). The scale **Anxiety** (including anxiety, tension/nervousness, and worry) did not reach acceptable reliability (Cronbach's $\alpha = .55$). Consistent with previous research (e.g., Becker, Goetz, Morger, & Ranellucci, 2014; Frenzel et al., 2009), the item "anxiety" was very low in intensity and had the lowest variance of all emotions ($M = 1.12$, $SD = 0.47$ on a 5-point Likert Scale), indicating that this emotion term might be too strong for many of the events. In addition, closer inspection revealed that the item "worry" was interpreted ambiguously, since participants

Table 1
Overview of the categories in the newly developed coding system and examples of associated events.

Overarching theme of student behavior (Frenzel, 2014)	Valence of student behavior	Described student behavior (Brophy & Rohrkemper, 1988; Chang, 2009)	Description	Exemplary event (shortened for clarification purposes)
Achievement behavior n = 17	Positive n = 15	Positive achievement behavior n = 15	Student is successful regarding school work: receives a good grade, understands the material (sometimes after first not understanding), creates something beautiful.	<i>This student received a good grade for an important test, which does not happen very often due to his low work ethic.</i>
	Negative n = 4	Low achievement behavior n = 4	Student experiences difficulties with learning; does not understand something, works slowly, does not finish task. [Behavior is caused by not being able to, not because of motivation problems]	<i>This student came home crying because the level of all courses is too high. He already follows an adapted school program but this is apparently still too difficult.</i>
Motivational behavior n = 62	Positive n = 32	Engagement n = 32	Student is interested in or actively participates in a school activity/lesson/instruction. Student is concentrated when working on a task, works hard, shows good work ethic. Student asks for help regarding school task.	<i>This student became entirely engrossed in a drawing assignment. This stood out, because normally he is easily distracted.</i>
	Negative n = 36	Disengagement n = 20	Student is indifferent towards school (work), for example works with minimal effort; does not do (home)work.	<i>Yesterday it was decided that this student will go to a different school. Today the student said 'I don't have to do anything anymore, because I'm leaving anyways'. The whole day he did not do his school work, disrupted my lessons and loafed around.</i>
Social-emotional behavior n = 116		Hyperactivity/distractibility/impulsivity n = 8	Student is overactive, cannot sit still, shows constant movements. Student does not pay attention, is dreamy (attention deficit). Student calls out or blurts out in class.	<i>This student constantly interrupted me when I spoke and could not wait for my attention. I talked to him and said that I don't want him to shout out the answers but that he waits until I am finished, just like the other students.</i>
		Performance anxiety n = 8	Student is afraid to make mistakes in a school task, is afraid to start an assignment. Student is insecure or tense about assignment or school performance.	<i>This morning all students had to make an important test. This student was completely exhausted; he was crying and upset all afternoon. He felt that he was not good enough and was afraid that his writing was terrible.</i>
		Disciplined behavior n = 5	Student adheres to the rules that apply in class, for example does not disturb other students or teacher. [Behavior can be atypical for student]	<i>This time this student did not react to everything his peers said and did. Therefore, I gave him a compliment.</i>
	Positive n = 32	Positive peer contact n = 7	Student is attentive/kind to peers; helps peer; plays nicely with peer; has a nice chat with peer.	<i>This student said to another student who is not good at gymnastics: "That does not matter, just do what you can!" She kept encouraging and was very patient.</i>
		Positive peer feedback n = 11	Student receives compliments from peer(s); receives help from peer(s); feels understood by peer(s).	<i>This student has a form of autism. After the lunch break he came back to class very frustrated. I thought: 'Oh no, did something happen again?' Although I did not have time for it, I spoke about it to the class. After a while this student felt understood and everything was resolved. I was so happy with the openness of the whole class and thought: this is worth much more than following my intended lesson plan. This student told funny stories about the peculiarities of her parents with a touch of self-mockery.</i>
		Other positive social-emotional behavior n = 12	Positive student behavior that is social-emotional in nature, but does not fit in any other social-emotional behavior category.	
		Negative n = 91	Lack of discipline n = 40	Student does not adhere to the rules that apply in class or does something that is not allowed, for example cheating, talking during instruction, or disturbing the teacher at undesirable moments.
	Shyness/Withdrawal n = 2	Student is quiet and avoids interaction.	<i>Another student came to me and told me that this student is very insecure and often plays by herself. She asked me if I could talk to this student. I did and this student told me that she experienced many negative thoughts.</i>	
	Hostility or aggression towards peers n = 42	Student displays verbal or non-verbal aggression, intimidates, threats, bullies, damages properties or other negative behaviors directed towards peers.	<i>This student cannot stand losing during gymnastics. He bit another student in his arm because that student had blocked him.</i>	
	Peer-rejection/negative peer feedback n = 15	Student interacts with peer but is bullied, misunderstood, rejected, physically or mentally hurt, ignored, or excluded.	<i>During gymnastics, this student provided tips to his peers on how they should hit a baseball. He means well, but often seems very coercive. His peers ignored him and hit the ball in their own way. I thought: 'Calm down dude and leave your peers alone'.</i>	
Relational behavior n = 108	Positive n = 66	Other negative social-emotional behavior n = 7	Negative student behavior that is social-emotional in nature, but does not fit in any other social-emotional behavior category.	<i>This student was upset because his aunt had passed away. He went to the bathroom to drink some water.</i>
		Listening behavior n = 31	Student listens to the teacher after being reprimanded or has a good conversation with the teacher about negative behavior.	<i>This student was angry with me because of a warning I gave him. I realized that he needed some space. I kept approaching him in a friendly tone and slowly he became happier. At the end of the lesson, I asked him if he wanted to talk about it. He indicated that this was not necessary and that he understood why he had received my initial warning.</i>
		Personal positive behavior towards teacher n = 31	Student shares something personal with the teacher, helps the teacher, has a chat or jokes with the teacher, or gives a compliment or gift to the teacher.	<i>This student gave me a hug and said: "I'm looking forward to class today!" Despite the fact that it was going to be a busy day, I thought to myself: "Me too! This is why I teach!"</i>

(continued on next page)

Table 1 (continued)

Overarching theme of student behavior (Frenzel, 2014)	Valence of student behavior	Described student behavior (Brophy & Rohrkemper, 1988; Chang, 2009)	Description	Exemplary event (shortened for clarification purposes)
		Other positive relational behavior <i>n</i> = 4	Positive student behavior that is relational in nature, but does not fit in any other relational behavior category.	<i>This student asked me why I had not spoken about the terrorist attacks in Paris that happened yesterday. I told him that I thought these conversations should be discussed at home first.</i>
	Negative <i>n</i> = 51	Hostility/Aggression towards teacher <i>n</i> = 48	Student resists the authority of the teacher (verbally and non-verbally), ignores (a reprimand of) the teacher, participates in power struggle with the teacher (e.g., talking back, denying, lying).	<i>This student did not listen to me at all. I sent him out of my class but he did not go. He kept running around and did crazy things.</i>
		Personal negative behavior towards teacher <i>n</i> = 5	Student expresses dissatisfaction with teacher personally, hurts the teacher, does not confide in the teacher.	<i>This student had a note in her hand. Since writing notes is not allowed in class, I took it away from her. There was a quote about me: 'Miss X is stupid, annoying and obnoxious'.</i>
		Other negative relational behavior <i>n</i> = 1	Negative student behavior that is relational in nature, but does not fit in any other relational behavior category.	<i>This student was so clingy today. She was following me around as if she was glued to me.</i>

could not only worry about the event, but also about the future or family of the student described in the event. Therefore, only the item "tension/nervousness" ($M = 1.48$, $SD = 0.88$) was chosen for further analysis.

In addition to enjoyment, anger, and anxiety, self- and other-related emotions were measured. These two scales reflected the source and direction of emotions (Wosnitzer & Volet, 2005). The **Self-related emotion scale** (Cronbach's $\alpha = .78$) was inspired by emotions identified in van Geel and De Mey (2003). Participants were asked: "How did you feel about yourself during the event? Please rate the intensity of the emotions." A list with the items effectiveness, self-confidence, and powerlessness (reverse scored) followed. The **Other-related emotion scale** (Cronbach's $\alpha = .86$) was inspired by the identification of these relational emotions in teachers by Chang and Davis (2009). Participants were asked: "How did you feel towards the student during the event? Please rate the intensity of the emotions." A list with the items caring, connectedness, and distance (reverse scored) followed.

6. Results

6.1. Descriptive analyses

Teachers differed in their description of relevant events in terms of length, valence, and number of student behaviors described in the most relevant event. First, the length of teachers' descriptions of events ranged from 6 to 388 words ($M = 117$, $SD = 81$). Second, teachers valued 52.9% ($n = 111$) of the events as positive and 47.1% ($n = 99$) as negative. Noticeably, events in which student misbehavior was described could still be valued positively by the teacher. Closer inspection revealed that this was probably due to events where misbehavior was followed by positive behavioral outcomes, for example a good talk or apologies after negative behavior (occurring in 24% of all events that started with student misbehavior). Third, in half of the events ($n = 105$) teachers described just one behavior displayed by the student, whereas in the other half of the events multiple behaviors by the student were described (ranging from 2 behaviors in $n = 78$ events to 5 behaviors in $n = 1$ event).

Descriptive statistics for relevant study variables are presented in Table 2. On average, teachers reported the highest intensity of other-related emotions ($M = 3.48$), followed by self-related emotions ($M = 3.28$), on a scale ranging from 1 to 5. Small to moderate correlations were found between teachers' gender on the one hand and teachers' valence of the event and teachers' enjoyment, anger, and self- and other-related emotions during the event on the other

hand. Female teachers described more negatively valued events compared to their male counterparts (52% vs. 32%), $t(69.71) = 2.47$, $p = .016$. Events described by females were also accompanied by a higher intensity of anger ($M_{\text{female}} = 2.34$, $M_{\text{male}} = 1.79$, $t(216) = -2.68$, $p = .008$) and a lower intensity of enjoyment ($M_{\text{female}} = 2.28$, $M_{\text{male}} = 3.11$, $t(216) = 3.20$, $p = .002$), self-related emotions ($M_{\text{female}} = 3.28$, $M_{\text{male}} = 3.78$, $t(216) = 2.86$, $p = .005$), and other-related emotions ($M_{\text{female}} = 3.37$, $M_{\text{male}} = 3.90$, $t(216) = 2.80$, $p = .006$). No significant gender differences were found for teachers' anxiety ($M_{\text{female}} = 1.54$, $M_{\text{male}} = 1.32$, $t(216) = -1.46$, $p = .145$).

6.2. Characteristics of student involved in relevant classroom event (aim 1)

First, the gender of the students described in the relevant events was examined. Two chi-square tests were performed to test whether one gender was overrepresented in both positively valued and negatively valued events described by teachers. Results showed that in two third of the events, the behavior of a male student was described by the teachers. Male students were overrepresented in both positively valued ($n = 75$, 65.8%; $\chi^2(1) = 11.37$, $p = .001$) and negatively valued ($n = 75$, 71.2%; $\chi^2(1) = 18.62$, $p = .000$) events.

In addition, the behavioral attributes of the students described in the events were inspected. Because we wanted to examine whether the behavioral attributes of the students described in positively and negatively valued events differed from those of typical students, we compared the students in the present sample to students that were randomly selected in similar classrooms in the Netherlands (Zee, de Jong, & Koomen, 2016). This typical sample consisted of 262 male and 263 female students. Table 3 displays the means and standard deviations of the emotional symptoms, conduct problems, hyperactivity-inattention, and pro-social behavior scales for male and female students in three groups of students (typical students, students described in positively valued events, and students described in negatively valued events). A two-way between-groups multivariate analysis of variance (MANOVA) with gender as fixed factor indicated that overall there were significant differences between the three groups of students on the four behavioral attributes ($F(8, 1468) = 21.39$, $p = .000$; Wilks' $\lambda = 0.80$, partial $\eta^2 = .10$). The interaction between group and student's gender was not significant ($F(8, 1468) = 0.73$, $p = .668$; Wilks' $\lambda = 0.99$, partial $\eta^2 = .00$), indicating that the significant effect of student group did not depend on an unequal distribution of student's gender in the three groups. Univariate testing revealed significant

Table 2
Descriptive statistics and correlations for relevant variables.

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
Teacher demographics															
1. Gender teacher	0.80	.40	1	-.27**	.10	.01	.09	.06	.00	-.16*	-.21**	.18**	.10	-.19**	-.19**
2. Experience teacher (years)	13.91	11.00	1		.01	.04	-.16*	-.15*	.06	.08	.11	-.11	-.06	.11	.19**
Student characteristics															
3. Gender student	0.32	.47		1	.09	-.16*	-.29**	.24**	.06	.06	-.04	.03	-.07	.00	
4. Emotional symptoms	2.35	0.94			1	.19**	.12	.00	-.09	-.17*	.05	.20**	-.22**	.01	
5. Conduct problems	2.25	0.96				1	.52**	-.53**	-.40**	-.38**	.44**	.26**	-.31**	-.48**	
6. Hyperactivity-inattention	3.20	1.16					1	-.32**	-.25**	-.19**	.25**	.09	-.17*	-.17**	
7. Prosocial behavior	3.33	0.92						1	.26**	.32**	-.34**	-.15*	.23**	.45**	
Teacher's valence and emotions															
8. Valence of event	0.53	.50							1	.79**	-.72**	-.26**	.60**	.71**	
9. Enjoyment	2.45	1.58								1	-.70**	-.29**	.65**	.68**	
10. Anger	2.23	1.24									1	.43**	-.59**	-.64**	
11. Anxiety	1.50	0.90										1	-.39**	-.24**	
12. Self-related emotions	3.38	1.06											1	.53**	
13. Other-related emotions	3.48	1.15												1	

Notes. Gender: 0 = male, 1 = female; Valence of event: 0 = negative event, 1 = positive event; *Correlations significant at $p < .05$; ** Correlations significant at $p < .001$.

Table 3
Descriptive statistics for behavioral attribute scores by group of students (displayed separately for male and female students).

	Male students			Female students		
	Typical student	Positively valued events	Negatively valued events	Typical student	Positively valued events	Negatively valued events
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Emotional symptoms	2.03 (0.91)	2.18 (0.83)	2.43 (0.98)	2.10 (0.91)	2.47 (1.12)	2.47 (0.82)
Conduct problems	1.71 (0.77)	2.00 (0.82)	2.71 (0.94)	1.42 (0.66)	1.65 (0.80)	2.50 (0.90)
Hyperactivity-inattention	2.63 (1.11)	3.16 (1.12)	3.70 (1.04)	2.08 (1.00)	2.44 (1.12)	3.06 (1.00)
Prosocial behavior	3.76 (0.83)	3.39 (0.84)	2.96 (0.94)	4.28 (0.66)	3.98 (0.77)	3.22 (0.79)

group effects for all four behavioral attributes: emotional symptoms ($F(2, 737) = 8.55; p = .000$, partial eta squared = .02), conduct problems ($F(2, 737) = 68.23; p = .000$, partial eta squared = .16), hyperactivity-inattention ($F(2, 737) = 38.04; p = .000$, partial eta squared = .09), and prosocial behavior ($F(2, 737) = 55.06; p = .000$, partial eta squared = .13). Tukey's post-hoc follow-up tests showed that mean scores for emotional symptoms were significantly different between typical students and students described in negatively valued events. For the other three behavioral attributes, mean scores were significantly different between all three groups. Thus, students described in both positively valued and negatively valued events had higher levels of conduct problems and hyperactivity-inattention and lower levels of prosocial behavior as compared to a typical sample. The students described in negatively valued events had even more problematic behavioral attributes as compared to students described in positively valued events (see Table 3 for this stepwise pattern, for both genders separately).

6.3. Frequencies of student behaviors (aim 2)

For research aim 2 concerning which student behaviors teachers described when asked to recall a relevant event, the number of events in which a particular student behavior category ($N = 21$ categories) was mentioned were counted. The frequencies of events in which the coded behaviors were mentioned are displayed in Fig. 1, ordered based on the four themes of student behaviors (achievement, motivational, social-emotional, and relational behavior).

In many of the events social-emotional behavior ($n = 141$) and/or relational behavior ($n = 120$) was described. Within the social-emotional behavior theme, hostility or aggression towards peer(s) ($n = 42$) and student's lack of discipline ($n = 40$) were most often described. Within the relational behavior theme, hostility or

aggression towards the teacher ($n = 48$), personal positive behavior towards the teacher (e.g., a private or personal chat with the teacher; $n = 31$) and listening behavior (i.e., a student listening to the teacher after being reprimanded; $n = 31$) were mentioned often.

Behaviors that were less often described in the events were motivational behaviors ($n = 68$) and to an even lesser extent achievement behaviors ($n = 19$). Within the motivational behavior theme, students' engagement ($n = 32$) was most often described. Moreover, in half of the events in which achievement-related behavior was described, teachers explicitly mentioned that the behavior displayed was atypical for that particular student, e.g., a student receiving a good grade for an important test, whereas s/he normally receives bad grades.

6.4. Associations between student behaviors present in events and teacher emotions (aim 3)

A hierarchical multiple regression analysis was conducted to uncover the relative contributions of the presence or absence of different student behaviors in the event predicting teacher emotions, for each of the five teachers emotions separately. Based on mixed literature findings that teachers' gender and experience might have an influence on the emotions teachers experience (see for an overview Koenen, Vervoort, Kelchtermans, Verschueren, & Spilt, 2019), these two variables were included as covariates in the first step of the models. In the second step, 17 of the 21 dummy-coded student behavior variables (0 = behavior absent or 1 = behavior present) were added simultaneously as predictors. Because the behaviors that fell within each of the four 'other' categories did not form a coherent and meaningful group of behaviors, these variables were excluded from the analyses. To account for the multiple comparisons and reduce the risk of making false

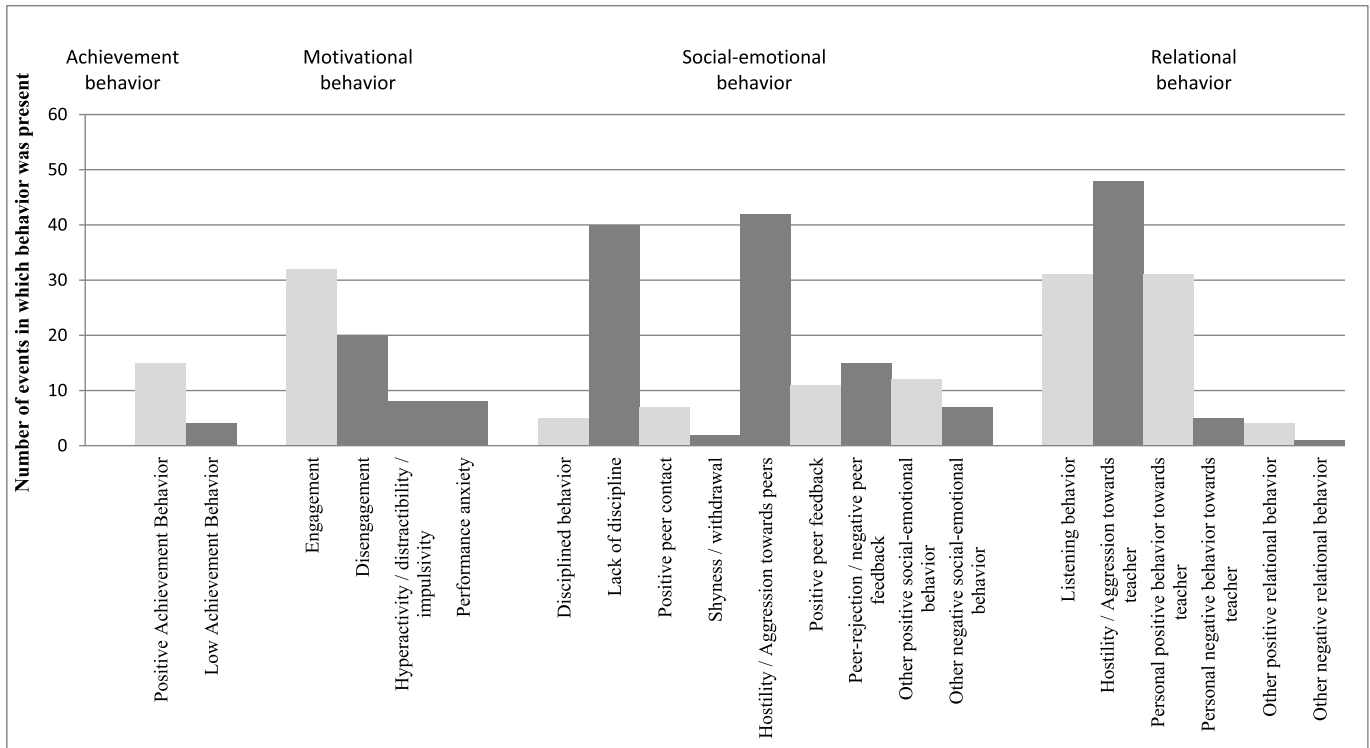


Fig. 1. Frequencies of events in which student behaviors were present. Note. Dark grey bars represent student misbehaviors and light grey bars represent positive student behaviors.

discoveries, the Benjamini-Hochberg method (Benjamini & Hochberg, 1995) was used to adjust the raw p-values. A 0.05 level was used for the false discovery rate. Results of the five regression models are presented in Table 4.

Teachers' gender and experience served as the models' covariates. As can be seen in Table 4, female teachers reported lower levels of enjoyment ($\beta = -.14, p < .05$) and higher levels of anger

($\beta = .14, p < .05$) compared to their male counterparts. Notably, adding both covariates to our models did not alter the direction of the coefficients in the models. However, the covariates did alter the magnitude of some of the coefficients, which made some student behaviors no longer significant predictors. Therefore, we report the parameter estimates of the models with the two covariates.

Teachers reported higher levels of enjoyment in response to

Table 4

Predicting teacher enjoyment, anger, anxiety, self- and other-related emotions from the different student behaviors described in the events.

	Enjoyment		Anger		Anxiety		Self-related		Other-related	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Covariates										
Teacher gender	-0.56 (.21)*	-.14	0.43 (.17)*	.14	0.24 (.13)	.14	-0.36 (.17)	-.13	-0.20 (.16)	-.07
Teacher experience in years	-0.01 (.01)	-.08	0.00 (.01)	.03	0.00 (.01)	.05	-0.00 (.01)	-.02	0.01 (.01)	.02
Achievement behavior										
Positive achievement	1.00 (.33)**	.16	-0.23 (.28)	-.05	-0.32 (.20)	-.12	0.35 (.27)	.09	0.52 (.26)	.12
Low achievement	-0.09 (.60)	-.01	-0.07 (.50)	-.01	0.52 (.36)	.10	-0.60 (.48)	-.08	-0.21 (.46)	-.03
Motivational behavior										
Engagement	1.12 (.24)**	.25	-0.56 (.20)**	-.16	-0.27 (.14)	-.14	0.51 (.19)**	.18	0.32 (.18)	.10
Disengagement	-0.75 (.29)**	-.14	0.73 (.24)**	.17	-0.06 (.17)	-.02	-0.44 (.23)	-.13	-0.20 (.22)	-.05
Hyperactivity/distractibility/impulsivity	-0.86 (.43)	-.11	0.84 (.36)*	.13	0.20 (.26)	.05	-0.40 (.35)	-.07	-0.49 (.34)	-.08
Performance anxiety	-1.12 (.44)*	-.14	0.19 (.36)	.03	-0.08 (.26)	-.02	-0.41 (.35)	-.08	-0.18 (.34)	-.03
Social-emotional behavior										
Disciplined behavior	0.70 (.53)	.07	-0.05 (.44)	-.01	-0.24 (.32)	-.05	0.25 (.43)	.04	0.30 (.41)	.04
Positive peer contact	0.91 (.45)	.10	-0.18 (.37)	-.03	-0.38 (.27)	-.10	0.18 (.36)	.03	0.23 (.35)	.04
Positive peer feedback	0.40 (.37)	.06	-0.47 (.30)	-.09	0.01 (.22)	.00	0.20 (.29)	.04	0.38 (.28)	.07
Lack of discipline	-0.90 (.23)**	-.22	0.80 (.19)**	.26	-0.18 (.14)	-.10	-0.11 (.18)	-.04	-0.53 (.18)**	-.18
Shyness/Withdrawal	-0.87 (.82)	-.05	0.25 (.68)	.02	-0.08 (.49)	-.01	-0.24 (.66)	-.02	-0.25 (.63)	-.02
Hostility or aggression towards peers	-1.01 (.23)**	-.26	0.69 (.19)**	.23	0.04 (.13)	.02	-0.16 (.18)	-.06	-0.76 (.17)**	-.27
Peer-rejection/negative peer feedback	-0.37 (.32)	-.06	0.27 (.26)	.06	0.34 (.19)	.12	-0.42 (.26)	-.10	0.31 (.25)	.07
Relational behavior										
Listening behavior	0.53 (.24)	.12	-0.48 (.20)*	-.14	0.01 (.14)	.01	0.52 (.19)**	.18	0.28 (.18)	.09
Personal positive behavior towards teacher	0.54 (.26)	.12	-0.36 (.21)	-.10	0.07 (.15)	.03	0.33 (.21)	.11	0.50 (.20)**	.16
Hostility or aggression towards teacher	-0.86 (.21)**	-.23	0.86 (.17)**	.30	0.42 (.12)**	.25	-0.76 (.17)**	-.31	-0.84 (.16)**	-.31
Personal negative behavior towards teacher	-0.79 (.54)	-.08	0.59 (.44)	.07	0.06 (.32)	.01	-0.69 (.43)	-.10	-1.34 (.41)*	-.18

Notes. Gender: 0 = male, 1 = female; ** $p < .01$ * $p < .05$ (all p-values are corrected using the Benjamini-Hochberg method to account for multiple comparisons).

events in which they described a student's engagement ($\beta = .25$, $p < .01$) and positive achievement ($\beta = .16$, $p < .05$). Lower levels of enjoyment were reported in response to events in which a student displayed hostility or aggression towards peers ($\beta = -.26$, $p < .001$), hostility or aggression towards the teacher ($\beta = -.23$, $p < .001$), lack of discipline ($\beta = -.22$, $p < .001$), disengagement ($\beta = -.14$, $p < .05$), and performance anxiety ($\beta = -.14$, $p < .05$). The overall model of enjoyment was significant at $p = .000$ and explained 51% of the variance, $F(19,209) = 12.20$.

Teachers reported higher levels of anger in response to events in which they described a student's hostility or aggression towards the teacher ($\beta = .30$, $p < .001$), lack of discipline ($\beta = .26$, $p < .001$), hostility or aggression towards peers ($\beta = .23$, $p < .001$), disengagement ($\beta = .17$, $p < .05$), and hyperactivity, distractibility or impulsivity ($\beta = .13$, $p < .05$). Lower levels of anger were reported in response to events in which a student displayed engagement ($\beta = -.16$, $p < .05$) and listening behavior ($\beta = -.14$, $p < .05$). The overall model of anger was significant at $p = .000$ and explained 43% of the variance, $F(19,209) = 9.32$.

Teachers' anxiety was more difficult to predict by the coded student behaviors in the event, with the overall model explaining only 10.8% of the variance, $F(19,209) = 2.33$, $p = .002$. Events in which teachers described a student's hostility or aggression towards the teacher seemed to be the only significant predictor ($\beta = .25$, $p < .001$; Table 4). In addition, it was difficult to reliably measure anxiety with an emotion scale in the current study. Therefore, we chose to qualitatively examine the events in which teachers rated their anxiety intensity level as more than two standard deviations from the mean, i.e. events in which teachers rated the intensity on the tension/nervousness item as higher than 3.24 on a 5-point scale ($n = 10$). This revealed four main themes for teachers: 1) not being able to reach a student after negative behavior ($n = 4$), 2) dealing with a critical parent or colleague ($n = 3$), 3) being anxious about the future of a troubled student ($n = 1$), and 4) regretting own actions during the event ($n = 1$).

Teachers reported higher levels of self-related emotions in response to events in which they described a student's listening behavior ($\beta = .18$, $p < .01$) and engagement ($\beta = .18$, $p < .05$). Lower levels of self-related emotions were reported in response to events in which a student displayed hostility or aggression towards the teacher ($\beta = -.31$, $p < .001$). The overall model of self-related emotions was significant at $p = .000$ and explained 26.6% of the variance, $F(19,209) = 4.99$.

Teachers reported higher levels of other-related emotions in response to events in which they described a student's personal positive behavior towards the teacher ($\beta = .16$, $p < .05$). Lower levels of other-related emotions were reported in response to events in which a student displayed hostility or aggression towards the teacher ($\beta = -.31$, $p < .001$), hostility or aggression towards peers ($\beta = -.27$, $p < .001$), lack of discipline ($\beta = -.18$, $p < .01$), and personal negative behavior towards the teacher ($\beta = -.18$, $p < .01$). The overall model of other-related emotions was significant at $p = .000$ and explained 43.5% of the variance, $F(19,209) = 9.46$.

7. Discussion

The purpose of the present study was to deepen our understanding of daily classroom events that were relevant for elementary school teachers. More specifically, the current study attempted to identify the characteristics of the students involved in these events, the behaviors these students displayed, and to examine the emotional impact of these behaviors. Results of the present analyses indicate that teachers seem primarily concerned with male students. Moreover, students involved had relatively high levels of externalizing, antisocial behavioral attributes. A wide variety of

student behaviors are displayed in relevant classroom events, many of which are relational or social-emotional in nature. Some of these behaviors are more emotionally relevant for teachers than others. Hostility and aggression towards the teacher seems to be most emotionally relevant, both in terms of intensity and scope, i.e., impacting many different teacher emotions.

The findings that the students involved in the relevant events were mostly of male gender and had relatively high levels of externalizing, antisocial behavioral attributes are well aligned with previous research (e.g., Greene, Beszterczey, Katzenstein, Park, & Goring, 2002; Joosten et al., 2014; Kokkinos et al., 2004; Kokkinos et al., 2005; Molins & Clopton, 2002). Moreover, by differentiating between positively and negatively valued classroom events, it was found that even students involved in positively valued events had relatively high levels of externalizing, antisocial behavioral attributes compared to a typical student sample, although not as high as students involved in negatively valued classroom events. This stepwise pattern indicates that many teachers did not describe a typical or well-behaved student in classroom events they considered relevant in a positive way. It might imply that for many teachers their reflections of a particular workday depend on the behavior of certain 'key' students. When these students behave well, teachers look back with positive feelings on that workday, whereas negative feelings prevail when these students misbehave. Consistent with this idea, previous qualitative research concluded that teacher-student interactions with difficult students can be both hard and rewarding (Rytivaara & Frelin, 2017).

Due to the open answer format, this study could identify the student behaviors in events teachers marked themselves as relevant. Negative behaviors, such as hostility and aggression towards the teacher, hostility and aggression towards peers, and students' lack of discipline emerged as most relevant for teachers, based on the frequency of events in which they were reported. These negative student behaviors were relational or social-emotional in nature and seem to be more relevant for teachers than students' motivational or achievement behaviors. These findings align with results of Chang's (2013) study, which showed that the majority of emotionally challenging incidents reported by teachers were characterized by student defiance, resistance towards teachers, and hostility and aggression towards either peers or teachers. Chang (2013), however, solely focused on negative classroom events and did not differentiate student behaviors based on the four main student behavior themes identified by Frenzel (2014). The present study therefore adds to existing research by showing that although negative student behaviors were somewhat more reported, many teachers also described positive student behaviors when they were asked to report on any relevant classroom event. Moreover, when teachers felt that an event was solved or ended well, they could still look back positively at classroom events that started with student misbehaviors.

Furthermore, this study empirically tested parts of a theoretical model on student behaviors as antecedents of teacher emotions (Frenzel, 2014), within a relational context (Lazarus, 2006). Consistent with previous research testing Frenzel's model on a more general classroom level (Becker et al., 2015; Frenzel et al., 2009; Hagenauer et al., 2015), the current study found that also during specific teacher-student interactions, students' engagement and discipline were relatively strong predictors of teachers' enjoyment and anger. However, our study revealed that hostility and aggression towards either peers or the teacher are even more important predictors of enjoyment and anger. It is possible that these latter behaviors are seen by teachers as more threatening and interfering with social processes in the classroom than other misbehaviors that are merely irritable (Brophy & Rohrkemper, 1988). Student behaviors that hamper close and warm interpersonal

relationships, not only with the teachers but also with peers, seem to have a large impact on teachers' emotional wellbeing. In all analyses, we controlled for the teacher characteristics gender and experience.

A strength of the current study is that it also included three other important teacher emotions: anxiety and self- and other-related emotions, in addition to anger and enjoyment. Teacher anxiety is considered important for teachers' health and wellbeing (Frenzel, 2014; Taxer & Frenzel, 2015), but difficult to capture in quantitative study designs because of its low prevalence (Becker et al., 2014; Frenzel, 2014; Frenzel et al., 2009; Hagenauer et al., 2015). As in other studies, the prevalence of anxiety reported in this study was low. However, the combined idiographic and nomothetic approach of this study made it possible to explore teacher anxiety in more detail. As the low explained variance of the regression model already suggested, student behaviors alone were not sufficient to explain experiences of anxiety. Qualitative examination revealed that teachers' anxiety was often a result of not being able to cope with a threat (Smith & Lazarus, 1993), such as a student not listening, or teachers' dissatisfaction with how they dealt with negative student behavior (Darby, 2008). In addition, in line with research on students' test anxiety (Zeidner, 1998), the qualitative analyses indicated that teachers reported high levels of anxiety when they felt evaluated by other adults, such as other teachers or parents.

Teachers' self- and other-related emotions might be especially important to study in the context of teacher-student interactions, because during these interactions teachers might strive for self-enhancement but also long for contact (Hermans et al., 1985; cf. van Geel & De Mey, 2003). Across all described events, teachers on average experienced relatively high levels of self- and other-related emotions. Findings of the regression analyses showed a different pattern of student behaviors associated with these emotions. For teachers' self-related emotions, students' motivational behavior (engagement) was a distinctive predictor. Teachers seem to feel more competent when students show engagement (Skinner & Belmont, 1993). For teachers' other-related emotions, negative social-emotional student behaviors were distinctively important. Teachers seem to have lower levels of caring for those students that display hostile or aggressive behaviors towards peers or lack of discipline.

Relational student behaviors were substantially associated with both teachers' self- and other-related emotions. Teachers seem to feel less competent when students display hostility or aggression towards them and more competent when students listen after being reprimanded. Teachers seem to care less for their students when they display negative relational behaviors, whereas they feel closer to their students when they show personal positive behavior towards the teacher, such as a nice chat. In addition, many relational behaviors seem to be important for teachers' enjoyment and anger. These findings are consistent with qualitative research showing the importance of relational behaviors, such as enjoying humor and informality with students, for teachers' emotional experiences (Hargreaves, 2000), and quantitative research demonstrating the impact of student-teacher closeness on teachers' enjoyment, anger, and anxiety (Hagenauer et al., 2015). However, none of these studies have systematically identified actual student behaviors and linked these to such a variety of teachers' emotions. Based on the frequency of reporting and the many links found, the current study therefore indicates how important these relational behaviors of students are for teachers' emotional wellbeing and implies that many emotional rewards of teaching center around relationships with students (Hargreaves, 2000).

7.1. Limitations and recommendations for future research

Despite the strengths and contributions to the literature of the current research, there are also several limitations that should be considered. First, this study assumed that the more frequent a student behavior was reported by teachers, the more relevant this behavior was. Teachers were asked to describe the most relevant event of that particular workday. It is possible that infrequent, but extreme student behaviors (e.g., behaviors associated with severe emotional problems; Chang, 2013), with a high emotional impact, were not captured in our design because they do not occur on a daily level.

Second, even though we did find links between events in which certain student behaviors were described by teachers and emotions teachers experienced, closer inspection during coding revealed the importance of interpreting teacher emotions within an appraisal perspective (Moors, Ellsworth, Scherer, & Frijda, 2013; Smith & Lazarus, 1990). From this perspective, teacher emotions are considered a response to interpretations of student behaviors reported in events, rather than to behaviors themselves. Based on qualitative examination of the events, we suggest that future research examining relevant classroom behaviors and associated teacher emotions could take two important appraisals into account: goal conduciveness, i.e., whether the behavior of the student is threatening the teachers' teaching goals, and teachers' coping potential, i.e., whether the teacher has personal control over the student behavior (Becker et al., 2015; Chang, 2009, 2013).

Third, this study used a convenience sampling procedure. Although this sample of teachers was representative in terms of gender and age (Central Bureau for Statistics, 2019), it is possible that the teachers included in the study differ from the general population of teachers, e.g., in their tendency to experience certain emotions.

Fourth, within one questionnaire, teachers were asked to rate event-related emotions directly after they described the most relevant event and later quantify the behavioral attributes of the students referred to in the event. This contains the risk that the described event and associated emotions primes teachers to rate the students' behavioral attributes in line with the behavior in the event (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

The cross-sectional study design also prohibits any conclusions about the direction of influence between events with students' behaviors and teachers' emotions in this study. As Frenzel's (2014) model also assumed, these relations are likely reciprocal. In addition, there might be teacher characteristics that influence both this reciprocal process and the selection of what events teachers consider relevant. Lazarus (2006) has argued that an emotional event is never a single action or reaction, but "a continuous flow of actions and reactions among the persons who participate in it" (p. 14). To make sense of why and how an event is relevant, it is important to know characteristics of the person participating in the event and the history of the relationship. Similarly in the context of teacher-student interactions, Chang and Davis (2009) have argued that teachers' appraisals of behaviors of individual students are influenced by their past experiences working with that student. Indeed, in many of the events in the current study, such as the example event at the beginning of this paper in which the teacher refers to behaviors of the last few weeks, teachers list their past experiences with the student concerned. Future research would therefore benefit from investigating individual teacher-student interactions by using a diary approach (see Bolger & Laurenceau, 2013), with multiple events concerning one individual student to carefully map this reciprocal process and to take teacher characteristics into account.

8. Conclusion and implications

The results of this study indicate that teacher-student interactions and the characteristics and behaviors of students within these interactions are relevant for teachers, especially when these student behaviors threaten interpersonal relationships in the classroom. This interpersonal aspect needs to receive more attention in educational policy and teacher programs, that thus far have mainly focused on improving teachers' knowledge of content and of methods for teaching content (Davis, 2006). Since emotions guide teachers' thoughts and actions (Cross & Hong, 2012), thereby impacting both teachers and students, it is important that teachers become aware of classroom events that might hamper their emotional wellbeing. As teaching is often marked by a focus on day-to-day-events, with little time for reflection (Fullan as cited in Chang, 2009), teachers might not reach this awareness on their own. In addition, qualitative research observed that teachers have difficulties with critical emotional reflection (Cross & Hong, 2012; Zembylas, Charalambous, Charalambous, & Kendeou, 2011). Therefore, interventions and teacher education programs could benefit teachers by promoting and increasing their emotional awareness, especially by recognizing positive emotions during classroom events with misbehaviors or during interactions with students with more problematic behavioral attributes. Seeing 'problem' students in a positive light by focusing on the positive daily events these students are involved in, can be seen as a powerful source of positive emotions (cf. Hargreaves, 2000), which might increase teacher resilience (Fredrickson & Joiner, 2002). Teaching is an emotional practice involving many daily classroom events with students that may lead teachers to feel tense or angry, but that may also bring joy, self-confidence, and connectedness.

Acknowledgements

This research was supported by grant 405-14-306 from the Netherlands Initiative for Education Research.

References

- Almeida, D. M. (2005). Resilience and vulnerability to daily stressors assessed via diary methods. *Current Directions in Psychological Science*, 14(2), 64–68. <http://doi.org/10.1111/j.0963-7214.2005.00336.x>.
- Becker, E. S., Goetz, T., Morger, V., & Ranellucci, J. (2014). The importance of teachers' emotions and instructional behavior for their students' emotions - an experience sampling analysis. *Teaching and Teacher Education*, 43, 15–26. <http://doi.org/10.1016/j.tate.2014.05.002>.
- Becker, E. S., Keller, M. M., Goetz, T., Frenzel, A. C., & Taxer, J. L. (2015). Antecedents of teachers' emotions in the classroom: An intraindividual approach. *Frontiers in Psychology*, 6(635). <http://doi.org/10.3389/fpsyg.2015.00635>.
- Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society: Series B*, 57, 289–300.
- Bolger, N., & Laurenceau, J.-P. (2013). *Intensive longitudinal methods: An introduction to diary and experience sampling research*. New York, NY: The Guilford Press.
- Brophy, J., & Rohrkemper, M. (1988). *The classroom strategy study: Summary report of general findings*. East Lansing, MI: Institute for Research on Teaching, Michigan State University.
- Central Bureau for Statistics. (2019, February 14). *Werkzame beroepsbevolking [Data file] [active labor force]*. Retrieved from <https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82808NED/table?dl=B034>.
- Chang, M.-L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review*, 21, 193–218.
- Chang, M.-L. (2013). Toward a theoretical model to understand teacher emotions and teacher burnout in the context of student misbehavior: Appraisal, regulation and coping. *Motivation and Emotion*, 37(4), 799–817. <http://doi.org/10.1007/s11031-012-9335-0>.
- Chang, M.-L., & Davis, H. A. (2009). Understanding the role of teacher appraisals in shaping the dynamics of their relationships with students: Deconstructing teachers' judgments of disruptive behavior/students. In P. A. Schutz, & M. Zembylas (Eds.), *Advances in teacher emotion research* (pp. 95–127). New York, NY: Springer.
- Cross, D. I., & Hong, J. Y. (2012). An ecological examination of teachers' emotions in the school context. *Teaching and Teacher Education*, 28(7), 957–967. <http://doi.org/10.1016/j.tate.2012.05.001>.
- Darby, A. (2008). Teachers' emotions in the reconstruction of professional self-understanding. *Teaching and Teacher Education*, 24(5), 1160–1172. <http://doi.org/10.1016/j.tate.2007.02.001>.
- Davis, H. A. (2006). Exploring the contexts of relationship quality between middle school students and teachers. *The Elementary School Journal*, 106(3), 193–224. <http://doi.org/10.1086/501483>.
- DUO. (2018). *Onderwijspersoneel po in personen [Educational staff primary education in persons] [Data file]*. Retrieved from <https://duo.nl/open Onderwijsdata/databestanden/po/onderwijspersoneel/po-personeel1.jsp>.
- Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science*, 13(2), 172–175. <http://doi.org/10.1111/1467-9280.00431>.
- Frenzel, A. C. (2014). Teacher emotions. In E. A. Linnenbrink-Garcia, & R. Pekrun (Eds.), *International handbook of emotions in education* (pp. 494–519). New York: Routledge. Retrieved from <http://www.tandfonline.com/doi/full/10.1080/02667363.2014.994350>.
- Frenzel, A. C., Goetz, T., Stephens, E. J., & Jacob, B. (2009). Antecedents and effects of teachers' emotional experiences: An integrated perspective and empirical test. In P. A. Schutz, & M. Zembylas (Eds.), *Advances in teacher emotion research: The impact on teachers' lives* (pp. 129–151). New York, NY: Springer.
- Frenzel, A. C., Pekrun, R., Goetz, T., Daniels, L. M., Durksen, T. L., Becker-Kurz, B., et al. (2016). Measuring teachers' enjoyment, anger, and anxiety: The Teacher Emotions Scales (TES). *Contemporary Educational Psychology*, 46, 148–163. <http://doi.org/10.1016/j.cedpsych.2016.05.003>.
- van Geel, R., & De Mey, H. (2003). Self, other, positive, and negative affect scales of the self-confrontation method: Factorial structure and unidimensionality. *Personality and Individual Differences*, 35(8), 1833–1847. [http://doi.org/10.1016/S0191-8869\(03\)00033-3](http://doi.org/10.1016/S0191-8869(03)00033-3).
- Greene, R. W., Beszterczey, S. K., Katzenstein, T., Park, K., & Goring, J. (2002). Are students with ADHD more stressful to teach? *Journal of Emotional and Behavioral Disorders*, 10(2), 79–89. <http://doi.org/10.1177/10634266020100020201>.
- Hagenauer, G., Hascher, T., & Volet, S. E. (2015). Teacher emotions in the classroom: Associations with students' engagement, classroom discipline and the interpersonal teacher-student relationship. *European Journal of Psychology of Education*, 30(4), 385–403. <http://doi.org/10.1007/s10212-015-0250-0>.
- Hareli, S., & Weiner, B. (2002). Social emotions and personality inferences: A scaffold for a new direction in the study of achievement motivation. *Educational Psychologist*, 37(3), 183–193. http://doi.org/10.1207/S15326985EP3703_4.
- Hargreaves, A. (2000). Mixed emotions: Teachers' perceptions of their interactions with students. *Teaching and Teacher Education*, 16(8), 811–826. [http://doi.org/10.1016/S0742-051X\(00\)00028-7](http://doi.org/10.1016/S0742-051X(00)00028-7).
- Hermans, H. J. M. (1987). Self as an organized system of valuations: toward a dialogue with the person. *Journal of Counseling Psychology*, 34, 10–19.
- Horowitz, L. M., Wilson, K. R., Turan, B., Zolotsev, P., Constantino, M. J., & Henderson, L. (2006). How interpersonal motives clarify the meaning of interpersonal behavior: A revised circumplex model. *Personality and Social Psychology Review*, 10(1), 67–86. http://doi.org/10.1207/s15327957pspr1001_4.
- Joosten, F., Verwoerd, A., & Smeets, K. (2014). Welk gedrag mag? Een onderzoek naar de manier waarop leraren met probleemgedrag omgaan [what behavior is allowed? An investigation into the way in which teachers deal with problem behavior]. *Tijdschrift voor Orthopedagogiek*, 53, 395–408.
- Koenen, A.-K., Vervoort, E., Kelchtermans, G., Verschuere, K., & Spilt, J. L. (2019). Teachers' daily negative emotions in interactions with individual students in special education. *Journal of Emotional and Behavioral Disorders*, 27(1), 37–51. <http://doi.org/10.1177/10634266177395>.
- Kokkinos, C. M., Panayiotou, G., & Davazoglou, A. M. (2004). Perceived seriousness of pupils' undesirable behaviours: The student teachers' perspective. *Educational Psychology*, 24(1), 109–120. <http://doi.org/10.1080/0144341032000146458>.
- Kokkinos, C. M., Panayiotou, G., & Davazoglou, A. M. (2005). Correlates of teacher appraisals of student behaviors. *Psychology in the Schools*, 42(1), 79–89. <http://doi.org/10.1002/pits.20031>.
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159–174. <https://doi.org/10.2307/2529310>.
- Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. New York, NY, US: Springer Publishing Co.
- Lazarus, R. S. (2006). Emotions and interpersonal relationships: Toward a person-centered conceptualization of emotions and coping. *Journal of Personality*, 74(1), 9–46. <http://doi.org/10.1111/j.1467-6494.2005.00368.x>.
- Mainhard, T., Oudman, S., Hornstra, L., Bosker, R. J., & Goetz, T. (2018). Student emotions in class: The relative importance of teachers and their interpersonal relations with students. *Learning and Instruction*, 53, 109–119. <http://doi.org/10.1016/j.learninstruc.2017.07.011>.
- Molins, N. C., & Clopton, J. R. (2002). Teachers' reports of the problem behavior of children in their classrooms. *Psychological Reports*, 90(1), 157–164. <http://doi.org/10.2466/PRO.90.1.157-164>.
- Moors, A., Ellsworth, P. C., Scherer, K. R., & Frijda, N. H. (2013). Appraisal theories of emotion: State of the art and future development. *Emotion Review*, 5(2), 119–124. <http://doi.org/10.1177/1754073912468165>.
- Muris, P., Meesters, C., & van den Berg, F. (2003). The strengths and difficulties questionnaire (SDQ). *European Child & Adolescent Psychiatry*, 12(1), 1–8. <http://doi.org/10.1007/s00787-003-0298-2>.
- O'Connor, K. E. (2008). "You choose to care": Teachers, emotions and professional identity. *Teaching and Teacher Education*, 24(1), 117–126. <http://doi.org/10.1016/j.tate.2012.05.001>.

- j.tate.2006.11.008.
- Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational Psychologist*, 37(2), 91–105. http://doi.org/10.1207/S15326985EP3702_4.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <http://doi.org/10.1037/0021-9010.88.5.879>.
- Rytivaara, A., & Frelin, A. (2017). Committed to trouble. Learning from teachers' stories of challenging yet rewarding teacher-student relationships. *Teaching and Teacher Education*, 68, 12–20. <http://doi.org/10.1016/j.tate.2017.08.004>.
- Scherer, K. R., Wrantik, T., Sangsue, J., Tran, V., & Scherer, U. (2004). Emotions in everyday life: Probability of occurrence, risk factors, appraisal and reaction patterns. *Social Science Information*, 43(4), 499–570. <http://doi.org/10.1177/0539018404047701>.
- Schmidt, J., Klusmann, U., Lüdtke, O., Möller, J., & Kunter, M. (2017). What makes good and bad days for beginning teachers? A diary study on daily uplifts and hassles. *Contemporary Educational Psychology*, 48, 85–97. <http://doi.org/10.1016/j.cedpsych.2016.09.004>.
- Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, 85(4), 571–581. <http://doi.org/10.1037/0022-0663.85.4.571>.
- Smith, C. A., & Lazarus, R. S. (1990). Emotion and adaptation. In *Handbook of personality: Theory and research* (pp. 609–637). New York, NY, US: Guilford Press.
- Smith, C. A., & Lazarus, R. S. (1993). Appraisal components, core relational themes, and the emotions. *Cognition & Emotion*, 7(3/4), 233–269. <http://doi.org/10.1080/02699939308409189>.
- Spilt, J. L., Koomen, H. M. Y., & Thijs, J. T. (2011). Teacher wellbeing: The importance of teacher-student relationships. *Educational Psychology Review*, 23(4), 457–477. <http://doi.org/10.1007/s10648-011-9170-y>.
- Sutton, R. E., & Wheatley, K. F. (2003). Teachers' emotion and teaching: A review of the literature and directions for future research. *Educational Psychology Review*, 15(4), 327–358. <http://doi.org/10.1023/A:1026131715856>.
- Taxer, J. L., & Frenzel, A. C. (2015). Facets of teachers' emotional lives: A quantitative investigation of teachers' genuine, faked, and hidden emotions. *Teaching and Teacher Education*, 49, 78–88. <http://doi.org/10.1016/j.tate.2015.03.003>.
- Uusiautti, S., Harjula, S., Pennanen, T., & Määttä, K. (2014). Novice teachers' well-being at work. *Journal of Educational and Social Research*, 4(3), 177–186. <http://doi.org/10.5901/jesr.2014.v4n3p177>.
- Van Widenfelt, B. M., Goedhart, A. W., Treffers, P. D. A., & Goodman, R. (2003). Dutch version of the strengths and difficulties questionnaire (SDQ). *European Child & Adolescent Psychiatry*, 12(6), 281–289. <http://doi.org/10.1007/s00787-003-0341-3>.
- Wosnitzer, M., & Volet, S. (2005). Origin, direction and impact of emotions in social online learning. *Learning and Instruction*, 15(5), 449–464. <http://doi.org/10.1016/j.learninstruc.2005.07.009>.
- Wubbels, T., Créton, H. A., & Hooymayers, H. P. (1985, March–April). Discipline problems of beginning teachers, interactional teacher behaviour mapped out. In *Paper presented at the annual meeting of the American educational research association*, Chicago (ERIC document 260040).
- Zee, M., de Jong, P. F., & Koomen, H. M. Y. (2016). Teachers' self-efficacy in relation to individual students with a variety of social-emotional behaviors: A multilevel investigation. *Journal of Educational Psychology*, 108(7), 1013–1027.
- Zeidner, M. (1998). *Test anxiety: The state of the art*. New York: Kluwer Academic Publishers. <https://doi.org/10.1007/b109548>.
- Zembylas, M. (2002). Constructing genealogies of teachers' emotions in science teaching. *Journal of Research in Science Teaching*, 39(1), 79–103. <http://doi.org/10.1002/tea.10010>.
- Zembylas, M., Charalambous, C., Charalambous, P., & Kendeou, P. (2011). Promoting peaceful coexistence in conflict-ridden Cyprus: Teachers' difficulties and emotions towards a new policy initiative. *Teaching and Teacher Education*, 27(2), 332–341. <http://doi.org/10.1016/j.tate.2010.08.015>.