Teachers as Co-Regulators of Children's Emotions:

A Descriptive Study of Teacher-Child Emotion Dialogues in Special Education

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Background: The study examined how teachers and children with emotional and behavioral disturbances engage in dialogues about children's emotional experiences. Dialogues about emotions are an important strategy for teachers to co-regulate children's emotions but have remained understudied.

Aims: This study aimed to explore whether the Autobiographical Emotional Events Dialogue (AEED) can help to assess the quality of teacher-child emotion dialogues about past emotional events and examined associations with child behavior and teacher-child relationship quality.

Method: The sample included 85 children and 70 teachers from special education schools serving children with emotional and behavioral disturbances. Teacher-child dialogues were videotaped and coded using the 16 rating scales of the AEED coding system (Koren-Karie, Oppenheim, Carasso, & Haimovich, 2003).

Results: The scales (except child boundary dissolution) could be reliably assessed. A Principal Component Analysis yielded 4 factors: Adequate task completion (coherent dialogues and positive child task behavior), Negativity (hostility and teacher boundary dissolution), Teacher Guidance (involvement, structuring, and acceptance), and Resolution (positive closure of negative stories). Child age, verbal intelligence, prosocial behavior, and higher teacher-child relationship scores (higher closeness, lower conflict) were positively associated with the quality of the dialogues but behavior problems were not.

Conclusions and Implications: The study provides first insight in teachers' scaffolding of dialogues with children about negative emotional events in special education serving children with emotional and behavioral disturbances.

Keywords: emotion dialogues, teacher-child relationships, emotional and behavioral disturbances, special education, observations

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Highlights

- There is a paucity of research on teacher-child emotion dialogues
- The AEED was successfully used to assess teacher-child emotion dialogues
- Emotion dialogue quality was related to children's prosocial but not problem behavior
- Emotion dialogue quality was related to teacher-child relationship quality
- Training teachers to structure emotion dialogues and to engage children in positive resolution could be beneficial

What this paper adds (250 words)

Children with emotional and behavior disturbances often are not able to explain their own emotions and do not oversee the consequences of their behaviors. Talking with these children about autobiographical emotional events is a key strategy of teachers to co-regulate children's emotions. However, there is a paucity of research that examines how teachers and children engage in dialogues about children's emotional experiences. The current study evaluated whether the 16 ratings scales of the Autobiographical Emotional Events Dialogue (AEED) coding system (Koren-Karie, Oppenheim, Carasso, & Haimovich, 2003) could be useful to reveal reliable and valid differences between teacher-child dialogues about (negative) emotional events.

The scales (except child boundary dissolution) could be reliably coded by the raters. The average quality of the teacher-child dialogues was moderate to high, indicating that it could be beneficial to improve teachers' skills in scaffolding emotion dialogues. Stories about negative emotional events were not always ended positively. Although positive aspects were frequently emphasized, teachers were not very good in structuring the story in ways that children's strengths were emphasized and children were sometimes left with negative stories that remained unresolved. There seems also room to improve teachers' capacity to help structure the dialogue. On average, teachers provided some structuring but did not strive to elicit full and elaborated stories from the child and stories sometimes remained underdeveloped.

Child age, verbal intelligence, prosocial behavior, and higher teacher-child relationships were positively associated with the quality of the dialogues, but behavior problems were not. Together, the results provide first support for the validity of the AEED for the assessment of teacher-child dialogues about emotional events in education.

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Teaching children with severe emotional and behavioral disturbances, either in mainstream or special education, is no easy task. Unforeseen situations can trigger intense emotions in these children that swiftly rise and escalate, resulting in temper tantrums or oppositional-aggressive behavior. Children with emotional and behavior disturbances often struggle to explain their own emotions and may fail to oversee the consequences of their behaviors. How can teachers promote the self-understanding of children with emotional and behavioral disturbances? This study examined dialogues between teachers and children about autobiographical emotional experiences of children in special education as a strategy with the potential to support child self-understanding.

For a healthy socioemotional development, it is critical that children can construct meaning of emotional experiences to increase their understanding of their own inner worlds. One way to promote such understanding is by engaging children in conversations about emotional experiences (Fivush, Berlin, McDermott Sales, Mennuti-Washburn, Cassidy, 2003; Oppenheim & Koren-Karie, 2014; Silkenbeumer, Schiller, Holodynski, & Kärtner, 2016). Through emotion dialogues, teachers engage children in a co-construction process of meaning-making of emotional experiences. Emotion dialogues sensitize children for internal emotional states (e.g., "What did I feel? How did it feel?"), raise awareness of causes (e.g., "What made me feel so angry?") and consequences (e.g., "Because of my anger I did things that are not acceptable"), and help children explore appropriate expressions of emotions or strategies to relieve stress (e.g., "What will help me calm down instead of going mad?"). Although emotion dialogues are beneficial to all aspects of emotional competence, they are particularly key to raising emotional awareness (Silkenbeumer et al., 2016), which is critical for the development of socioemotional competence (Bajgar, Ciarrochi, Lane, & Deane, 2005; Denham, 2005; Payton et al., 2000) and self-regulation (Stegge & Terwogt, 2007).

The Importance of Caregivers' Co-regulation of Emotions

By engaging children in emotion dialogues, teachers become co-regulators of children's emotions. Co-regulation is defined as "a warm, responsive relationship in which a caregiver positively structures the environment and provides support, coaching, and modeling for self-regulation skills." (Murray & Rosanbalm, 2017, p.2). Young children depend on their primary caregivers to help them (co-)regulate their emotions. Co-regulation occurs, for example, when a mother labels and explains a young child's emotions. This helps the child acquire emotional awareness and self-understanding (e.g., "You look sad. Are you disappointed that the toy is broken?"). It is through such co-regulation of caregivers in the context of a supportive relationship that children gradually develop self-regulation skills. As children grow older, there is a gradual shift from co-regulation (interpersonal regulation) to self-regulation (intrapersonal regulation) through a process of internalization (Silkenbeumer et al., 2016). A close caregiver-child relationship is a primary context in which the process of internalization evolves.

Ample studies have highlighted the influence of the co-regulation of (in)sensitive parents on the social-emotional development of children (e.g., Edwards, Shipman, & Brown, 2005; Guo, Leu, Barnard, Thompson, & Spieker, 2015). However, there has been limited research on the co-regulatory abilities of professional (non-parental) caregivers like teachers, in particular in the period of middle childhood (Murray & Rosanbalm, 2017). This is unfortunate because the time that children spend at school makes it very likely that teachers also play a role as co-regulators of children's emotions in the school context (e.g., Kam, Greenberg, & Kusché, 2004; Murray & Rosanbalm, 2017). Professional co-regulators may play a critical compensating role in the lives of children with a history of insensitive parenting

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who have had little emotion regulation support from parents (Bergin & Bergin, 2009; Buyse, Verschueren, & Doumen, 2011; Sabol & Pianta, 2012).

Teachers' Sensitivity and Ability in Co-regulation of Emotions

Evidence indicates that children's socioemotional development is enhanced in classrooms in which teachers provide children an emotionally supportive environment (Hamre & Pianta, 2005; Vandenbroucke, Spilt, Verschueren, Piccinin, & Baeyens, 2018). However, emotionally supportive teaching and teacher sensitivity have typically been observed at the classroom level. There is much less observational research on dyadic teacher-child interactions (e.g., Spilt, Koomen, Thijs, & Van der Leij, 2012; Alamos & Williford, 2020; Thijs & Koomen, 2008). Yet, such observational studies at the dyadic level are needed to understand how teachers can scaffold the development of individual children. The attachment perspective on teacher-child relationships posits that teacher sensitivity is a key component of the teacher-child relationship quality and closely related to the co-regulatory function of this relationship (Howes & Hamilton, 1992; Pianta, 1997; Verschueren & Koomen, 2012). Research in special education indeed confirms that dyadic teacher sensitivity enhances the socio-behavioral development and exploratory behavior of children with emotional, behavioral and relational disturbances (Spilt, Vervoort, Koenen, Bosmans, & Verschueren, 2016; Spilt, Vervoort, Verschueren, 2018). From a clinical perspective, these research findings are encouraging given the stability of emotional and behavioral problems in special education (Montague, Enders, & Castro, 2005). Although such findings have important practical implications, their usefulness in practice may be limited due to the generic (non-specific) measurement of dyadic teacher sensitivity: teacher sensitivity is a broadly defined 'umbrella' concept referring to teachers' positive affect, provision of comfort, reassurance, and encouragement with respect to the child's academic and emotional needs in a variety of contexts. More fine-grained analyses of what teachers do to promote an open communication about negative emotions with emotionally disturbed children will not only enhance theoretical understanding but also generate applied knowledge to stimulate teacher sensitivity in practice. In this way, we will advance the understanding of the co-regulation abilities of teachers.

Teacher Emotion Talk and Teacher-Child Emotion Dialogues

The current study was developed to examine how teachers and children engage in dialogues about children's emotional experiences. These dialogues in middle childhood are an important co-regulation strategy given the centrality of verbal adult-child interactions in this developmental stage (Oppenheim & Koren-Karie, 2014). Teachers have an active role in the regulation of children's emotional arousal and in the co-construction of a coherent narrative of negative emotional events at school. High-quality conversations require an open and warm attitude of teachers including the communication of genuine interest, empathy, acceptance, and tolerance (in contrast to disapproval) of sometimes inappropriate negative emotions of children (e.g., feelings of anger or revenge).

Caregiver-child emotion dialogues are believed to reflect the (psychological) secure base function of the attachment relationship (Brumariu et al., 2018; Oppenheim & Koren-Karie, 2014). Through dialogue about past emotional events, the caregiver guides the child's psychological exploration of his or her inner and outer world. High-quality dialogues thus reflect secure caregiver-child relationships. In line with views on teachers as socializers of emotions (Denham, Bassett, & Zinsser, 2012) and the teacher-child relationship as a source of emotional security (Verschueren, 2015), this reasoning can be extended to teacher-child relationships, positing that high-quality emotion dialogues reflect a high-quality affective teacher-child relationship.

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There are several studies in early childhood education that have observed teachers' emotion talk in the classroom (Garner, Bolt, & Roth, 2019; Morris, Denham, Bassett, & Curby, 2013). Teachers use emotion talk to label emotions, explain causes and consequences of emotions, and teach children how to express emotions in an appropriate manner by teaching and modelling adequate coping strategies and expressions (Denham et al., 2012). Observations of emotion talk of teachers typically focus on the frequency of emotion-related utterances, often categorized in different categories including affect type (e.g., positive or negative) and different functions (e.g., explaining, guiding, or socializing; Alamos & Williford, 2020; Yelinek & Grady, 2019). Moreover, observations have been mostly focused on the classroom level rather than the dyadic level (for an exception, see Alamos & Williford, 2020).

There is almost no research on teacher-child reminiscing conversations (i.e., talk about past shared events). Parent-child research revealed the benefits of joint exploration or recall of past (negative) autobiographical events for children's cognitive and social-emotional development (Fivush et al., 2003; Neale & Pino-Pasternak, 2017). In this literature, the quality of the dialogue is described in terms of content (emotion-related utterances) and elaborative style (scaffolding of the conversation, for example through the use of "wh-" questions). First research shows that teachers differ in elaborative style and that this difference is linked to children's own contributions to the conversation (Andrews, Van Bergen, & Wyver, 2019).

Research further suggests that the beneficial effect of emotion talk depends on the extent to which it is embedded in a warm and sensitive teacher-child relationship (Alamos & Williford, 2020; see also Eisenberg, Spinrad & Cumberland, 1998). This observation is in line with the definition of co-regulation that emphasizes the importance of a "warm relationship" (Murray & Rosanbalm, 2017) and in line with the attachment perspective on teacher-child relationships (Howes & Hamilton, 1992; Pianta, 1997; Verschueren & Koomen, 2012). Therefore, rather than focusing on the frequency of (different categories of) emotion talk of teachers as a set of discrete emotion-related utterances, in the current study, teacher-child emotion dialogues were considered from an attachment perspective. This is in keeping with the work of Oppenheim and Koren-Karie (2014) who reason that emotion dialogues reflect the secure base function of the dyadic caregiver-child relationship.

It is hypothesized in the literature that the quality of emotional dialogues, and caregiver sensitivity in general, is primarily related to caregivers' abilities and characteristics and largely independent from children's characteristics (Koren-Karie, Oppenheim, Yuval-Adler, & Mor, 2013). For example, Koren-Karie et al. (2013) examined emotion dialogues in a sample of foster caregivers and found no differences between dialogues with the "most" and "least" challenging child. Moreover, they did not only find no differences in caregivers' guidance of the conversation but also no differences in children's behavior and cooperation. Thus, children who exhibited challenging behavior in daily life did not necessarily display these behaviors in one-on-one caregiver-child conversations. However, moderate associations have been found with children's verbal ability (e.g., McDonnell, Fondren, Speidel, & Valentino, 2019).

The Current Study

The current study examined the quality of teacher-child emotion dialogues in middle childhood in a sample of children with severe emotional and behavioral disturbances. To analyze teachers' ability to engage children in high-quality conversations, we used the Autobiographical Emotional Events Dialogue (AEED) coding system of Koren-Karie and colleagues (Koren-Karie et al., 2003). The AEED coding system is developed to assess caregiver-child conversations along various caregiver dimensions and child dimensions. An

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overview is given in Table 1. The AEED coding system has been validated in mother-child samples and has shown the expected associations with attachment classifications, maternal sensitivity, and (un)resolved traumas of mothers (Oppenheim & Koren-Karie, 2014). The AEED is typically used as a categorial measure of caregiver-child attachment status and the dimensional scales are often not considered. However, in the current study, we were particularly interested to explore whether the dimensional scales can provide a detailed assessment of how teachers and children each contribute to the conversation, and how teachers sensitively guide the conversation by for example providing structure and acceptance, and by helping children to resolve negative emotions.

The study was conducted in schools serving children with severe emotional and behavioral disturbances. These children are impaired in their emotional self-regulation abilities and tend to rely on socially maladaptive or aggressive forms of communication. For 48% of the children, school psychologists indicated (suspicions of) a history of pathogenic care (e.g., physical or emotional maltreatment or neglect, or sexual abuse). Thus, a substantial proportion of children in this sample did not experience a secure parent-child relationship. These children's socioemotional development can benefit from the corrective effect of a secure and supportive context provided by other (professional) caregivers, including teachers (Sabol & Pianta, 2012). Unfortunately, research shows that, instead, these children are at increased risk of forming poor relationships with teachers upon school entry (Buyse, Verschueren, & Doumen, 2011). Because emotional dialogues might be a good tool to strengthen this relationship, a more detailed understanding of the quality of these dialogues can inform teacher training and increase the likelihood that teachers become a buffering, supportive context for disadvantaged children.

Most studies on emotional dialogues have focused on children in early childhood. The present study included children from 6 to 10 years old. Co-regulation of emotions remains a central teaching task of teachers who teach primary school children with low emotional control (Murray & Rosanbalm, 2017). Moreover, given the heightened prevalence of attachment problems and pathogenic care in the current sample (see selection procedure and sample description below), *non-parental* socializers of emotions may be particularly important for this group of children.

The aim of the current descriptive study was twofold. First, we aimed to evaluate whether we could reliably assess the quality of teacher-child dialogues in this special education sample. We were guided by the attachment perspective on teacher-child interactions and the proposed conceptual overlap between the co-regulatory functions of the parent-child and teacher-child relationship (Howes & Hamilton, 1992; Pianta, 1997; Verschueren, 2015; Verschueren & Koomen, 2012). Hence, we expected that the quality dimensions of the AEED coding system, initially developed to assess parent-child dialogues, could also be used to reliably assess teacher-child dialogues by trained coders.

Second, we tested associations with children's characteristics and social behavior to provide initial support for the construct validity of the AEED in special education. Guided by previous research, we expected that children's verbal skills would correlate moderately and positively with the positive quality dimensions and correlate negatively with the negative quality dimensions (McDonnell et al., 2019). These hypotheses were tested against the null hypothesis of a zero correlation. We did not expect that socio-behavioral problems would be associated with lower quality (Koren-Karie et al., 2013). We tested this null hypothesis against the alternative hypotheses that socio-behavior problems would be negatively correlated with the positive quality dimensions and positively with the negative quality dimensions. Finally, in line with the proposition that high-quality emotion dialogues reflect the secure base function of caregiver-child relationships (Oppenheim & Koren-Karie, 2014),

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we expected positive associations with close teacher-child relationships and negative associations with conflictual and dependent teacher-child relationships.

Method

Sample

Sample Characteristics

The sample included 85 children (83% boys, 99% Caucasian) and 70 teachers from 20 special education schools for children with emotional and behavioral problems in Flanders, the Dutch-speaking region of Belgium. Children can be enrolled in this type of special education when they have a diagnostic report of a multidisciplinary diagnostic team. Group sizes are maximum 8 students.

Children's mean age was 8.32 year (*SD* = 0.97). Most children (83%) had one or more psychiatric diagnoses. More than half of them (67%) had more than one diagnosis. Examination of the children's clinical files indicated that about 30% of the children were diagnosed with or suspected to have a Reactive Attachment Disorder according to the DSM-IV criteria (American Psychiatric Association, 2000). For 48% of the children, psychologists indicated (suspicions of) a history of pathogenic care (e.g., physical or emotional maltreatment or neglect, or sexual abuse). Further, 29 children were diagnosed with Autism Spectrum Disorder (ASD) and 28 children with Attention Deficit Hyperactivity Disorder (ADHD), which we controlled for in the analyses. Approximately 40% of the children stayed at a specialized boarding school during the week where they received care from multiple caregivers. The parental level of education was distributed as follows: 12% primary education, 24% lower secondary education, 44% higher secondary education, and 20% higher education.

Most teachers (90% female) were employed full-time (93%). Their mean age was 34.5 years (*SD* = 8.08) and they had on average 6.7 years (*SD* = 7.35) experience in special education for children with emotional and behavioral disturbances.

Procedure

Selection Procedure

All 38 special schools in Flanders (the Dutch speaking part of Belgium) that serve children with severe emotional and behavioral disturbances were invited to participate and 21 agreed (of which one school participated in the pilot study). Parent informed consent was obtained for 166 children (39%). For 152 children, teachers and parents completed the Relationship Problems Questionnaire in May and June (RPQ; Minnis et al., 2007). Seventy-five percent of children with the highest scores on the teacher or parent RPQ with a maximum of two children per teacher (given the intensity of data collection for teachers) were selected, resulting in a sample of 85 children. In the following school year (children changed teachers), the study started in October. All (new) teachers (*N*=70) of the 85 children agreed to participate.

Administration of Measures

Teacher questionnaires were administered in October. The observational data were collected from October to December. Teachers and children completed three tasks that each lasted approximately 10 minutes. The third task was the emotional events dialogue.

Child reports and the verbal intelligence test were administered individually in the middle of the school year (January to April).

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Measures

Teacher-Child Dialogues

We used the Autobiographical Emotional Events Dialogue (AEED; Koren-Karie et al., 2003) to elicit teacher-child conversations on emotional experiences of children. The children were presented with four cards, each with a pictorial representation of a child's facial expression of a feeling. The feelings were joy, anger, fear, and sadness. The children were asked by the teacher to choose an emotion card and recall a similar emotional experience, talking about what they felt, thought, and did.

Teachers were observed in interaction with the target child in a dyadic setting outside the classroom. Although using structured tasks outside the classroom setting is generally considered to be less ecologically valid, this does not apply to the current research aims. In the daily reality of the school context, conversations about emotions and emotional events occur outside the classroom, during breaks or after school hours, or at least in absence of other classmates. Moreover, the structured task provides a controlled context for examining systematic differences between teacher-child dyads: by reducing the confounding influence of contextual factors, measurement error is reduced (cf. Zaslow et al., 2006).

The conversations were video-taped. The scoring procedure of Koren-Karie et al. (2003) was employed to code the dialogues. The scales are explained in Table 1. After training (5 sessions of 2 hours), four raters (including the trainer) coded each dialogue on a scale from 1 (the construct is not present) to 9 (the construct is very present). The training consisted of practice coding of randomly selected video's and discussions of discrepancies. Raters were psychology master students.

Verbal Intelligence

Verbal intelligence (receptive vocabulary) was measured with the Word Meaning subtest of the Revision Amsterdam Intelligence Test for Children (RAKIT). The RAKIT has good factorial and convergent validity (Resing, Bleichrodt, Drenth, & Zaal, 2012).

Child Behavior

To assess children's aggressive and prosocial behaviors with peers, teachers completed the Teacher Assessment of Social Behavior Questionnaire (TASB; Cassidy & Asher, 1992) and the Children's Social Behavior Scale—Teacher Form (CSBS-T; Crick, 1996). Items of the TASB are rated on a 5 point Likert scale (1=very uncharacteristic; 5 =very characteristic). Items of the CSBS-T are also rated on a 5 point Likert scale (1= this is never true of this child; 5=this is almost always true of this child). Both instruments have shown adequate psychometric qualities (e.g., Collett, Ohan, & Myers, 2003; Howes, 2000).

The Overt aggression scale of the CSBS-T (4 items, $\alpha = .90$) and the Aggression scale of the TASB (3 items, $\alpha = .90$) were averaged to create a single measure of Aggression ($r = .89$, $p < .001$; sample item: "This child bites, shoves, or pushes peers"). The Prosocial subscales of the TASB (3 items, $\alpha = .83$) and the CSBS-T (4 items, $\alpha = .89$) measure friendly and helpful behaviors. The subscales were averaged to create one scale for prosocial behavior ($r = .74$, $p < .001$; sample item: "This child is helpful to peers"). Finally, the Shy/withdrawn scale of the TASB was included (3 items, $\alpha = .66$, e.g., "Is shy/withdrawn").

Teacher-Child Relationships

Teacher report. The Student–Teacher Relationship Scale (STRS; Pianta, 2001) is a teacher-report questionnaire of dyadic teacher-child relationships framed within the attachment perspective. In this study, an authorized Dutch translated and slightly adapted version (Koomen, Verschueren, Van Schooten, Jak, & Pianta, 2012) was employed measuring

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Closeness (11 items), Conflict (11 items), and Dependency (6 items). Closeness refers to the degree of warmth and open communication. Conflict refers to negative and coercive teacher–child interactions. Dependency refers to possessive and overly clingy child behavior. Items were rated on a scale ranging from 1 (*definitely does not apply*) to 5 (*definitely does apply*). Research demonstrates good construct validity of the adapted STRS (Koomen et al., 2012). In the present study, Cronbach's alpha coefficients were .81, .86, and .75 respectively.

Child report. Children completed a parallel version of the STRS developed for children in middle childhood: The Child Appraisal of the Relationship with the Teacher (CARTS; Vervoort, Doumen, & Verschueren, 2015). The CARTS was individually administered. Children were asked to respond to the items according to a two-step procedure. First, they were asked to confirm ("yes") or disconfirm ("no") an item. Second, they were asked whether this was "always" or "sometimes" true. Answers were scored on a 1-5 rating scale. Cronbach's alpha's were .81, .86, and .75 for respectively Closeness (4 items, e.g., "My teacher likes me"), Conflict (7 items, e.g., "My teacher easily gets angry with me"), and Dependency (5 items, e.g., "I often ask my teacher for help"). Research in special and regular education supports the convergent validity of the Closeness and Conflict scales (Gregoriadis, Grammatikopoulos, Tsigilis, & Verschueren, 2020; Vervoort et al., 2015). Dependency correlated positively with positive feelings about the teacher and with Closeness (while a positive correlation with Conflict was expected). It was suggested that children may have a different (more positive instead of negative) understanding of Dependency than teachers.

Results

Missing Data

For two children, there was no observational data. One child was excluded because the observation was ended by the research assistant after a few minutes due to refusal of the child to begin the task. Three children did not complete the teacher-child relationship questionnaire. Teachers did not complete questionnaires for seven children. There was no missing data for age and verbal intelligence.

Interrater Reliability, Descriptive Statistics, and Principal Component Analysis.

Intraclass correlations (for average measures using a two-way fixed effects model of consistency) ranged between .60 and .83 (Table 2) for all scales except child boundary dissolution, which indicates moderate to high interrater reliability. The ICC of child boundary dissolution was .31. Child boundary dissolution (i.e., child adopting a 'teacher role') was observed only sporadically in this sample (M = 1.29; SD = .42). Therefore, the scale was excluded from further analysis.

Table 2 reports the descriptive statistics of the AEED rating scales. The mean scores on the positive quality scales were between 4.92 and 6.61, indicating moderate to moderately-high quality. The *range* of scores, however, suggests considerable differences in dialogue qualities, ranging from low or modest to very high. The scores on teacher boundary dissolution and on the hostility scales were on average in the low range. With respect to the distribution of the scores, only the scores on the hostility scales were skewed. The correlations between the scales ranged between .18 to .85, suggesting minimal to substantial overlap.

To reduce the number of variables, we performed a Principal Component Analysis. Four factors with eigenvalues > 1 were retained (Table 3), explaining 76% of the total variance. The scale child acceptance and tolerance loaded on multiple factors (i.e., a difference < .20) and was therefore excluded. The factor scales were labeled Adequate task completion (including overall quality of the stories and positive task behavior of the child), Negativity (including the hostility scales and teacher diffusion of boundaries), Teacher

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guidance (including positive guidance and acceptance of the teacher), and Resolution. The Cronbach's alphas were .91, .68, .84, and .67, respectively.

Correlations

The correlations are presented in Table 4. Child age and verbal intelligence were associated with higher scores on Adequate task completion and with less Negativity. However, child age was no longer significantly related to these scales when verbal intelligence was controlled for. Child aggression and shyness were not associated with the factors. Child prosocial behavior was positively associated with Teacher guidance. The negative association between prosocial behavior and Negativity was small and did not reach significance.

Teacher-rated conflict was associated with more Negativity in the dialogue. Child-reported closeness and conflict were most consistently related to the quality of the dialogues. Children who perceived their relationship with their teacher as more close received higher scores on Adequate task completion, lower scores on Negativity, and higher scores on Resolution. Children who perceived the relationship with their teacher as more conflictual received lower scores on Adequate task completion, Teacher guidance, and Resolution. This pattern of associations remained virtually similar when verbal intelligence was controlled for.

Because twelve teachers were observed with two children, we also examined correlations in a subsample without these double cases (n = 58; see correlations between brackets in Table 4). There was one notable difference in the results: the negative correlation between teacher-rated conflict and Adequate task completion was significant (r = -.37, p = .03).

Discussion

Complementing studies that have examined teacher emotion talk as a set of discrete categories (e.g., content and function) in the context of teachers' socializing strategies in the classroom, the current study examined dyadic teacher-child emotion dialogues from an attachment perspective. The assessment of the dialogues focused on how teachers were involved and how they sensitively guided the conversation. The current study also differs from previous educational research in its focus on dialogues about children's memories of emotional autobiographical events. Finally, the current study was conducted in special education serving children with severe emotional and behavior disturbances.

We expected that the 16 quality dimensions of the AEED coding system (Koren-Karie et al., 2003), initially developed to assess parent-child emotion dialogues, could be used to reliably assess the quality of teacher-child emotion dialogues. In line with this expectation, good interrater reliability was obtained for all scales, except for child boundary dissolution. Boundary dissolution of children was rarely observed by the raters and raters did not show sufficient agreement in their ratings, suggesting that there were no signs that children adopted a teaching or caregiver role during the conversations (e.g., by taking care of the teacher's emotions), which is also not to be expected in an educational setting. Therefore, this scale was excluded from further analysis. All other scales were reliably coded by the raters and showed sufficient variance in scores across teacher-child dialogues.

The average quality of the dialogues was moderate to moderately-high. Most (but not all) stories matched the emotion to a sufficient degree (although not perfectly) and were moderately coherent. Dialogues were generally focused, although there were also some difficulties in maintaining the focus. Both children and teachers showed on average moderately-high acceptance of each other's ideas and suggestions. Children's involvement and cooperation were on average moderate with some incidents of withdrawal from the task.

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The quality of a dialogue is the result of an interactional, co-constructed process between the teacher and the child. Nevertheless, we found separate factors for children's contributions to the conversation (including positive task behavior and coherence of the dialogues, i.e., Adequate task completion) and teachers' contributions or guidance (including involvement, structuring, and acceptance, i.e., Teacher guidance). From a practical perspective, it is interesting to look more closely into *teacher guidance*. Seventy special education teachers were invited to participate in the study after one or two children in their classroom were selected for the study. All teachers agreed, which added to the strength of this study. Teachers showed high involvement, acceptance, and interest most of the time. But there seemed room to improve the structuring of the dialogue. Teachers on average did provide some structuring but did not strive to elicit full and elaborated stories from the children and stories sometimes remained underdeveloped. In addition, stories about negative emotional events were not always ended positively. *Resolution* of negative events appeared a separate factor or quality dimension of the dialogues. Resolution of negative stories, by emphasizing the child's ability to cope with negative emotions, may be particularly important to enhance children's understanding of effective coping and promote their self-esteem in such a way that they are more inclined to adopt positive coping skills in the future. Yet, although positive aspects were frequently emphasized, teachers did not always structure the story in a way that the child's strengths were emphasized. Moreover, children were sometimes left with negative stories that remained unresolved.

A fourth factor we found, was *negativity* in the dialogues. This is consistent with other continuous relationship measures that have yielded a distinct scale for the negative dimension of teacher-child relationships (e.g., Pianta, 2001). We observed only minimal hostility or dissatisfaction, although hostility was not entirely absent in all dialogues. Research indicates that already little negativity may have repercussions for children's development as the impact of 'bad' is stronger than the impact of 'good' (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Teacher boundary dissolution was part of the negativity factor and was also only occasionally observed. Boundary dissolution refers to a confusion of roles or a failure to distinguish the other as a separate person with his/her own personality, perspectives and feelings, and has been observed in dysfunctional mother-child relationships. In our sample, only mild forms of boundary dissolution of the teacher were occasionally observed. For example, sometimes teachers attended more to their own emotions than to the child's emotions. Levels of teacher boundary dissolution were generally low, which is in line with the fact that teachers are generally less emotionally involved with children than parents (Verschueren, 2015).

Associations between the quality of the dialogues and the socio-behavioral and relational variables were largely as expected. The quality of the dialogues was higher for children with higher verbal intelligence and for older children (McDonnell et al., 2019; Oppenheim, Koren-Karie, & Sagi-Schwartz, 2007). The latter finding could be explained by the higher verbal abilities of older children. Challenging behavior, including aggression and shyness, was not associated with the quality of the dialogue. This finding is encouraging because one-on-one conversations about emotional events can contribute to the co-regulation function of relationships. This is in particular important for children with emotional and behavioral disturbances. These results are in agreement with the findings of Koren-Karie et al (2013) to the extent to which it concerned problem behavior. We did find, however, that prosocial behavior was positively related to teacher guidance. This raises the question for future research whether this association is driven by the teachers' *perception* of prosocial behavior or by children's *actual* prosocial behavior.

The quality of the emotion dialogues is believed to reflect caregivers' ability to afford children a psychological secure base (Oppenheim & Koren-Karie, 2014) and emotion talk

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appears beneficial "only in the context of positive teacher-child interactions" (Alamos & Williford, 2020, p.8). The results supported this. In particular child reports of closeness and conflict were related to different aspects of the dialogue, including task completion, negativity, teacher guidance and resolution. Poor teacher-child dialogues, as measured with the AEED, may thus indicate impairment in children's use of the teacher as a secure base and a source of co-regulation. The patterns of associations with teacher and child reports of the teacher-child relationship were rather divergent, which underscores the unique value of both perspectives (Hughes, 2011). The results suggest that the quality of the dialogues is more strongly related to how *children* experience the teacher-child relationship than to how *teachers* experience the teacher-child relationships. The relational experience of teachers is typically more related to perceptions of children's problem behaviors in general (Nurmi, 2012), which were unrelated to the quality of the dialogues.

Limitations and Future Research

This study provided a detailed observational analysis of teacher-child dialogues about children's emotional experiences using the 16 rating scales of the AEED coding system (Koren-Karie et al., 2003). As expected, the dialogues could be reliably coded and there was meaningful variation in quality that was significantly related to child verbal intelligence, prosocial behavior, and relational correlates. When interpreting the results, the strength of the associations should be considered in relation to the moderate sample size. Although the associations between the dialogue quality dimensions and the correlates may appear small, the magnitude is comparable (or even higher) to the magnitude reported in other observational research on teacher-child interactions (Farran & Hofer, 2013; Weiland, Ulvestad, Sachs, & Yoshikawa, 2013). In addition, the sample size was moderate (although the response rate was good). The study may therefore be underpowered to detect smaller associations. By testing associations in one direction, there was more power to detect smaller associations and thus decreasing the risk of type II errors. However, this increased the risk of type I errors. The correlational results should thus be considered as preliminary. Moreover, the strength of evidence cannot be 'boiled down to binary decisions based on a p-value threshold" (Trafimow et al., 2018, p.6). Multiple studies, using similar and different designs, are needed to replicate the results before definite conclusions can be drawn. Finally, the sample included mainly boys. Different results may have been found when more girls would have been included, although research suggests that caregiver-child emotion talk is not gendered (Aznar & Tenenbaum, 2020).

Together, the study provides first evidence of the usefulness of the AEED as a measure of teacher-child emotion dialogues in a controlled situation and advances our understanding of how special education teachers engage children with emotional and behavioral disturbances in dialogues about autobiographical emotional events. Future research should examine how the AEED relates to other assessment approaches like the frequency coding of categories of emotion talk (e.g., content, function), coding of elaborative style (e.g., "wh-" questions), and coding of emotion talk in the context of autobiographical versus non-autobiographical events (e.g., experiences of other people). Research should also evaluate how these approaches may complement each other in the prediction of child self-understanding and emotion regulation. In addition to the quality of the dialogues, it is important to know how often, when, why, and how long teachers tend to have (spontaneous or planned) conversations with children about emotional autobiographical events in order to understand the developmental impact of emotion dialogues on children. Furthermore, future research may examine the influence of teacher characteristics and training on the quality and frequency of emotion dialogues.

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Conclusion

There is little research on teachers' roles as co-regulators of children's emotions in middle childhood (Murray & Rosanbalm, 2017). We therefore examined how teachers and children engaged in dialogues about past emotional events in a sample of children with behavioral, emotional, and relational disturbances who were particularly in need of sensitive adults as co-regulators. The results indicated the usefulness of the AEED coding scheme (Koren-Karie et al., 2003) for the assessment of teacher-child emotion dialogues. The quality of the dialogues was average to moderately-high, and was significantly related to child age, verbal intelligence, prosocial behavior, and teacher-child relationship quality, but not to behavior problems. The descriptive statistics suggest that teachers' structuring of the dialogues and attempts to positively close negative stories could be improved.

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Tables

Table 1: Rating scales (AEED, Koren-Karie et al., 2003)

Scale	Caregiver	Child
Shift of focus	Focus on child's emotional experiences and completion of the task (instead of own experiences)	Focus on own emotional experiences and completion of the task (instead of irrelevant details or unnecessary repetitions)
Boundary dissolution	Relate to the other as an independent person with own perspectives, needs, and feelings; no role reversal (e.g., behaving in a childish way)	Relate to the other as an independent person with own perspectives, needs, and feelings; no role reversal (e.g., child behaving in a caregiving manner or controlling manner, or using a 'teaching-like tone')
Acceptance and tolerance	Acceptance of child's perspective and ideas (instead of expressions of devaluation, disapproval, disappointment)	Carefully listens to the caregiver, accepting guidance and suggestions (instead of interruption, criticism, preventing caregiver from coming up with suggestions or feedback)
Cooperation, involvement, reciprocity	Stories are constructed in teamwork (instead of separate dealings with the task, low involvement and interest, refusal to help the child, lack of interest, leaving no room for the child to express himself)	Stories are constructed in teamwork (instead of low involvement and interest, separate dealings with the task, lack of interest in caregiver's participation or leaving no room for caregiver's participation)
Hostility	Acceptance and understanding of negative events and behavior (instead of expressions of anger, hostility, impatience)	Idem
Resolution (closure of negative feelings)	Ending negative stories with positive resolution emphasizing the child's strength and ability to cope with the negative feelings (instead of enhancing negative feelings)	Ending negative stories with positive resolution emphasizing own strength and ability to cope with the negative feelings (instead of ending with strong negative aspects, emphasizing or repeating frightening details, resistance of caregiver's efforts to bring in positive aspects)
Elaboration and structuring of the interaction	By providing appropriate guidance and structure, the caregiver helps the child to tell stories that are rich and coherent (without too less or too much details or drifting away)	Elaborated and coherent stories, without repetition and irrelevant details.
Adequacy of stories	The stories are consistent with the emotions	
Coherence	Coherence of the dialogue (i.e., process leading to the stories): Stories have a beginning, middle, and end, are fluent and clear, seem authentic (instead of irrelevant topics and details, shifts of focus, lack of elaboration).	

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Table 2. Descriptive statistics (*N*=82)

AEED Scales	*ICC*	*Min.*	*Max.*	*Mean*	*SD*	*Skewness*
Teacher scales						
T_shift_of_focus	.78	2.25	8.50	6.55	1.31	-.91
T_acceptance_and_tolerance	.66	4.50	9.00	6.53	1.17	-.06
T_involvement_and_reciprocity	.70	2.50	9.00	6.38	1.27	-.41
T_hostility	.73	1.00	5.00	1.62	.79	1.90
T_resolution	.81	2.50	8.50	5.42	1.22	.32
T_structuring_of_interaction	.73	1.00	9.00	5.54	1.35	-.25
T_boundary_dissolution	.61	1.00	4.50	2.24	.97	.63
Child scales						
C_shift_of_focus	.76	2.00	8.50	5.69	1.58	-.31
C_acceptance_and_tolerance	.76	3.00	9.00	6.61	1.41	-.61
C_cooperation_and_reciprocity	.77	2.25	9.00	5.70	1.44	-.25
C_hostility	.83	1.00	5.00	1.52	.87	2.22
C_resolution	.60	3.75	6.75	5.11	.60	.51
C_elaboration_on_stories	.77	1.50	8.00	4.95	1.53	-.33
Overall scales						
O_adequacy	.75	3.00	8.50	5.75	1.63	-.12
O_coherence	.72	2.00	7.75	4.92	1.37	-.16

Note. T = teacher, C = child, O = overall

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Table 3. Principal Component Analysis (*N*=82)

	Factor			
	1 Task completion	2 Negativity	3 Teacher guidance	4 Resolution
AEED rating scales				
C_elaboration	**.92**			
O_coherence	**.91**			
O_adequacy	**.85**			
C_shift_of_focus	**.70**			-.31
C_cooperation_and_reciprocity	**.69**			.30
C_hostility		**.69**		
T_hostility		**.69**	-.45	
T_boundary_dissolution	-.31	**.62**		
C_acceptance_and_tolerance	.43	-.53		
T_shift_of_focus			**.82**	
T_Acceptance_and_tolerance		-.31	**.70**	
T_involvement_and_reciprocity			**.65**	.43
T_structuring_of_interaction	.39	.32	**.56**	.36
T_ resolution				**.79**
C_ resolution		-.34	-.10	**.70**
Explained variance	47%	11.1%	9.7%	7.8%

Note: factorloadings < .30 were removed from the table; T = teacher, C = child, O = overall

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Table 4. Zero-order associations of AEED factor scales with correlates

	Adequate task completion	Negativity	Teacher guidance	Resolution
Child characteristics				
Verbal intelligence	.34 (.39)**	-.22 (-.19)*	.04 (-.06)	.17 (.20)†
Child age	.33 (.32)**	-.18 (-.16)*	-.07 (-.13)	.17 (.14)†
Aggression	-.01 (-.06)	-.05 (-.04)	.01 (-.01)	-.15 (-.15)†
Prosociaal	.11 (.16)	-.15 (-.19)†	.19 (.28)*	.04 (.08)
Shy/withdrawn	-.09 (.02)	.10 (.02)	-.05 (-.06)	.04 (.01)
Teacher-child relationship				
Closeness (Teacher)	.09 (.06)	.04 (.04)	.05 (.09)	-.10 (-.09)
Conflict (Teacher)	-.12 (-.27)	.19 (.26)*	-.11 (-.21)	-.04 (-.13)
Dependency (Teacher)	.03 (-.03)	.10 (.08)	-.08 (-.10)	-.07 (-.18)
Closeness (Child)	.26 (.21)**	-.19 (-.35)*	.05 (.14)	.23 (.24)*
Conflict (Child)	-.23 (-.23)*	.13 (.21)	-.20 (-.29)*	-.22 (-.20)*
Dependency (Child)	.13 (.11)	-.13 (-.18)	.06 (.06)	.01 (.00)

Note: **$p \leq .01$, *$p \leq .05$, †$p \leq .10$ (one-tailed). Correlations between brackets are based on a subsample of 58 teachers (excluding all dyads with the same teachers).

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