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### Through the teacher's mind

*Understanding and improving teacher-child relationships in elementary school*

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# Chapter 5

*Using relationship-focused reflection  
to improve teacher–child relationships  
and teachers’ student-specific self-  
efficacy*

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*Manuscript submitted to journal.*



## CHAPTER 5

### Using relationship-focused reflection to improve teacher–child relationships and teachers’ student-specific self-efficacy

The present study evaluated whether LLInC (Leerkracht-Leerling Interactie Coaching in Dutch, or Teacher Student Interaction Coaching), a teacher-based coaching-intervention, yields improvements in dyadic affective teacher–child relationship quality and teachers’ student-specific self-efficacy beliefs in elementary school. Based on an extended attachment framework, LLInC aims to foster more flexible and differentiated mental representations of teachers’ relationships with individual children with whom they experience relationship difficulties. We compared an intervention group of teachers receiving LLInC with a control group receiving no form of intervention. To investigate possible transfer effects, we asked teachers in the intervention group to report on their relationships and self-efficacy beliefs regarding two other children with whom they experienced relationship difficulties as well. Multilevel models were used to examine intervention effects on teachers’ perceptions of relationship quality (i.e., Closeness, Conflict, and Dependency), and teachers’ student-specific self-efficacy beliefs for Behavior Management and Emotional Support. Teachers receiving LLInC reported short-term improvements in Closeness and self-efficacy beliefs for Emotional Support, and decreases in Conflict compared to control teachers. In addition, teachers receiving LLInC had short-term and longer-term improvements in self-efficacy beliefs for Behavior Management compared to control teachers. Improvements in relationship quality and self-efficacy beliefs also transferred to relationships with children that were not directly targeted during LLInC.

#### Introduction

Recent review studies show that dyadic teacher–child relationship quality and teachers’ self-efficacy beliefs are associated with children’s school adjustment and teachers’ functioning (Roorda, Jak, Zee, Oort, & Koomen, 2017; Zee & Koomen, 2016). When teachers experience poor affective teacher–child relationships with individual children, characterized by high levels of conflict or low levels of closeness, children are more likely to be at risk of academic and behavioral maladjustment (e.g., Hamre & Pianta, 2001;

Roorda et al., 2017). Teachers' perceptions of conflict, disrespect, and anger in dyadic teacher–child relationships may even elicit feelings of helplessness and stress in teachers (Spilt & Koomen, 2009; Yoon, 2002). In a different research tradition, poor teacher self-efficacy beliefs have also been found to contribute negatively to children's school adjustment (e.g., Caprara et al., 2006; Chang, 2011), and to teachers' job satisfaction and commitment (e.g., Klassen & Chiu, 2010; Skaalvik & Skaalvik, 2010; Zee & Koomen, 2016).

The impact of low-quality teacher–child relationships and poor teacher self-efficacy can thus be detrimental for both children and teachers, and therefore, researchers have called for interventions that can break negative relationship patterns (e.g., Hughes, 2012; Jerome, Hamre, & Pianta, 2009) and improve teachers' self-efficacy beliefs (e.g., Klassen & Chiu, 2010; Woolfolk Hoy & Davis, 2006). One such method to improve dyadic teacher–child relationship quality and teachers' self-efficacy is LLInC (Leerkracht-Leerling Interactie Coaching in Dutch, or Teacher Student Interaction Coaching), which was previously known as the Relationship-Focused Reflection Program (RFRP; Spilt, Koomen, Thijs, & van der Leij, 2012b). This intervention aims to stimulate teachers to reflect on their feelings, cognitions, and associated behaviors in interactions with individual children (e.g., Pianta, 1999; Spilt, et al., 2012). In the current study, we evaluated the effects of LLInC on teachers' relationship experiences with and self-efficacy toward children in elementary school. Theoretically, LLInC is based on an extended attachment perspective in which teachers' mental representations about relationships include affective components of teacher–child relationship quality and cognitive-behavioral components including teachers' self-efficacy beliefs. In what follows we discuss relationship-focused reflection as a tool to alter teachers' mental representations and describe empirical research into the effects of LLInC.

### **The role of mental representations in relationships**

Teacher–child relationships are often examined from an attachment perspective. Following attachment theory focusing on parent–child relationships (Bowlby, 1982; Bretherton, 1990), it is believed that dyadic teacher–child relationships are shaped by each individual's mental representation of this relationship, which in turn guides behavior and expectations in the relationship (Pianta, Hamre, & Stuhlman, 2003). Mental representations of teachers and children are considered to be formed by previous experiences with attachment figures and include feelings of the self, the other, and relationships with others with the goal of maintaining security. Accordingly, teachers' mental representations are considered to be formed by previous

experiences in relationships with individual children and contain general beliefs, feelings, and expectations about interacting with children (Pianta, 1999).

Experiences in relationships are thought to be internalized at different levels of generalization (Mikulincer & Shaver, 2003; Sibley & Overall, 2008). At the lowest level, mental representations can be relationship-specific for relationships with specific persons. For example, teachers are believed to develop relationship-specific models for individual children in their classrooms (Pianta et al., 2003; Spilt et al., 2011). These relationship-specific models reflect teachers' images of an individual child, and specific feelings and self-efficacy beliefs that accompany these images of the child (Zee et al., 2017). These models also include teachers' affective feelings about interacting with that individual child. At a higher level, mental representations of relationships are domain-specific (Sibley & Overall, 2008). These consist of a set of feelings and cognitions that refer to a particular domain of relationships. More specifically, teachers develop mental representations of their relationships with children that comprise generalized expectations and beliefs about themselves as a teacher, about how children relate to a teacher, and self-efficacy beliefs about their role as a teacher (Pianta et al., 2003; Spilt et al., 2011). This domain-specific representational model also includes teachers' feelings about interacting with all children in the classroom (O'Connor, 2008). At the highest level, mental representations are global. They consist of sets of feelings, beliefs and cognitions that are similar across various relationship contexts. For instance, teachers may develop mental representational models that are similar for them in different roles (e.g., as a teacher, a romantic partner, a child, and possibly as a parent). It is believed that these three hierarchically organized mental representations function alongside each other, with the global attachment representation as a default or automatic representation. The more specific representations, such as the domain-specific and relationship-specific representation, may be activated depending on the context and relationships. These more specific representations are believed to be more useful and to contain more accurate attachment information (e.g., Collins & Read, 1994; Overall, Fletchen, & Friesen, 2003).

To date, attachment-based research has primarily focused on relationship-specific mental representations and dyadic teacher-child relationship quality (e.g., Hamre & Pianta, 2001). The affective quality of these dyadic teacher-child relationships is usually qualified using teacher reports of three attachment-related dimensions, closeness, conflict, and dependency (Pianta, 1999; Spilt et al., 2011). Representational models about relationships that are primarily negative are generally marked by high levels of conflict

or dependency, and low levels of closeness (Pianta, 1999). Conflict refers to negativity, anger, and discordance in the relationship. Dependency refers to a teacher's interpretation of how a child can be overly relying on the teacher as a source of support, even when this is not necessary. Representational models that are mostly positive reflect relationships that are generally close: There is warmth, trust, and open communication between a teacher and a child and there are low levels of conflict and dependency (Pianta, 1999; Spilt et al., 2011).

From a cognitive-behavioral perspective, mental representational models of relationship also include self-efficacy beliefs. In parent-child relationships, it is believed that self-efficacy beliefs are part of representational models that guide relationships with individual children (e.g., Grusec, Hastings, & Mammone, 1994). Grusec et al. (1994) suggest that individuals have cognitive structures that represent regularities in their representational models, including beliefs about relating to others. They even empirically found that self-efficacy beliefs of parents were positively related to a secure attachment style (Grusec et al., 1994). These notions and findings about parents' self-efficacy beliefs may also be applicable to teachers' domain-specific representational model of relationships. Teachers' self-efficacy refers to beliefs or cognitions about their confidence to organize and execute daily teaching activities in their classroom (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001). Such beliefs are considered important for teachers' abilities to continuously motivate, manage, and emotionally support all children in their classroom (Morris, Usher, & Chen, 2017; Zee & Koomen, 2016). Teacher self-efficacy beliefs are considered relatively stable character traits that develop through multiple experiences and cognitions about interacting with children (Tschannen-Moran & Woolfolk Hoy, 2001; Zee et al., 2016). In that sense, teachers' domain-specific mental representations of relationships may either include or result in certain self-efficacy beliefs.

Recently, research has indicated that teachers' self-efficacy beliefs vary across individual children in their classroom (Zee, Koomen, Jellesma, Geerlings, & de Jong, 2016). This is referred to as teachers' student-specific self-efficacy. Teachers seem to construct a unique sense of self-efficacy for different children in their classroom. For instance, when a child is displaying disruptive behavior or undermines the authority of the teacher, the teacher may experience more difficulty in dealing with this child's behavior compared to dealing with other children in the classroom (see also Zee, de Jong, & Koomen, 2017). The teacher may feel, despite his or her efforts, less effective in teaching and motivating this child (Zee et al., 2017). Research with this interpersonal focus on self-efficacy beliefs relates to the idea that teachers'

student-specific self-efficacy may be part of the relationship-specific mental representational model.

## **Creating more flexible mental representational models**

Teachers are believed to interact in stable patterns based on existing beliefs. Teachers' relationship-specific mental representations can act as self-fulfilling prophecies over time, resulting in fixed interaction patterns and self-reinforcing self-efficacy beliefs (Pianta, 1999). More specifically, teachers may be more focused on behavior similar to the beliefs they already have (cf., Bandura, 1997). For instance, when teachers feel that interactions with a child are mainly negative, teachers will be more focused on negative aspects of the child's behavior instead of having a more open mindset about the child. Creating more flexible and differentiated mental representations in teachers is suggested as a way to improve relationship patterns (Pianta, 1999). With a more flexible mental representation of the relationship, teachers may interpret interaction patterns in a variety of ways (e.g., positive, neutral, and negative). In that case, teachers may for instance believe that both their own behavior and the child's behavior contribute to their mutual relationship, whereas with a more constrained view of the relationship, they only blame negative relationship patterns on the child's relationship contribution and not on their own interaction style towards the child. It is expected that, when teachers' mental representations become more flexible and differentiated, this could promote more positive and even secure relationship patterns (Pianta, 1999).

A way of creating more flexible and differentiated mental representational models of relationships may be accomplished via teachers' reflection about the individual relationship (Pianta, 1999). Reflection, or reflective functioning, is often referred to as the capacity to think about unconscious desires, emotions, and ideas in an attempt to make sense of behavior that was displayed in the past and the present (Fogany, Steele, Steele, Moran, & Higgitt, 1991). In parent-child relationships, reflection was associated with parent's ability to read one's own intentions and mental states, as well as the intentions and mental states of the child (Fogany et al., 1991). As teachers, like parents, seem often unaware of their mental representational model of the relationship, reflection can be an important tool to create awareness of the feelings, beliefs, and cognitions they have about a child. In empirical research on parent-child attachment, parents'

ability to reflect on the relationship with their child has been found to result in more secure relationships (Slade, Grienenberg, Bernbach, Levy & Locker, 2005; Suchman et al., 2008). Based on parent–child research, we expected that relationship-focused reflection could also alter teachers' mental representations of relationships. A different mental representation of a specific relationship may include improvements in both affective (i.e., teacher–child relationship quality), and cognitive-behavioral components (i.e., teachers' student-specific self-efficacy beliefs) of this relationship.

### **The intervention program**

Following the ideas of Pianta (1999), Spilt and colleagues (2012) developed LLInC. LLInC is aimed at altering teachers' mental representations about their relationship with individual children, with the ultimate goal of enhancing dyadic teacher–child relationship quality and teachers' self-efficacy beliefs. During two series of two sessions, a consultant (i.e., a school psychologist) guides a teacher in becoming aware of his or her mental representational models about the individual relationships with two different children from their classroom. Subsequently, the consultant encourages the teacher to reflect on thoughts, actions, and feelings in relation to these children. To achieve this goal, LLInC uses a slightly modified version of the Teacher Relationship Interview (TRI; Pianta, 1999) during the first session to elicit and evaluate the teacher's narratives about their relationship with an individual child. During this session, reflection is already stimulated by encouraging the teacher to think about various recent experiences and feelings regarding his or her relationship with the child. After this first session, the consultant labels the teacher's narratives of the relationship in more general, scientifically substantiated terms. To this aim, the consultant uses the TRI coding manual to create a relationship profile of strengths and difficulties representing several aspects of teachers' sensitive behavior, self-efficacy beliefs, feelings, and processes of narratives (Appendix 1; Bosman, Zee, & Koomen, in press; Spilt & Koomen, 2009). This relationship profile is discussed during a second session with the goal of further stimulating the teacher's reflection. The consultant stimulates the teacher to reflect on dissonances between theory and narrated practices, on feelings or affect toward the individual child, on the connection between teaching practices and feelings, and on ways in which improvement could be achieved. These two sessions, administering the TRI and presentation of the relational profile, are repeated for a second child, resulting in a total of four sessions between a teacher and a consultant.

Spilt et al. (2012b) evaluated if LLInC yields changes in dyadic relationships between teachers and behaviorally at-risk kindergartners. They compared a group of teacher–child dyads who received LLInC with a group of teacher–child dyads who received an Interpersonal Skills Training (IST). Whereas LLInC tries to promote teacher–child relationships by creating more flexible mental representations of relationships in teachers, IST aims to improve teachers' behaviors in interactions with individual children. This comparison was made to investigate whether teachers' reflection on internalized beliefs, feelings, and attitudes resulted in better teacher–child relationships, compared to an intervention that was directed at changing teachers' behavior. Using independent observations, Spilt et al. (2012b) found that receiving LLInC resulted in increased sensitive behavior in teachers, whereas this was not found for IST. Mixed results were found with regard to teachers' perceptions of affective teacher–child relationship quality. Only half of the teachers receiving LLInC had increased levels of closeness regarding the at-risk kindergartners. The other half of the teachers either had a high, stable level of closeness or a slight decrease after LLInC, indicating that a ceiling effect could have affected the results. With regard to teacher–child conflict, a decrease was only found in teachers with high self-efficacy beliefs prior to LLInC, whereas for IST a decrease in conflict was found for the entire group.

The mixed results with regard to perceived teacher–child relationship quality could possibly be explained by how teacher–child dyads were selected. In their study, Spilt et al. (2012b) selected children based on the degree of disruptive behavior. Although relationship problems and children's disruptive behaviors are correlated, it seems unlikely that all relationships with children showing disruptive behavior are of low quality (cf. Bosman et al., in press). Indeed, many children had less teacher–child conflict than was predicted by the degree of disruptive behavior (cf. Hamre, Pianta, Downer, & Mashburn, 2008). Therefore, it may be relevant to select teacher–child dyads based on teachers' judgments of relational difficulties with individual children.

## **Present study**

In the current study, we examined whether LLInC was successful in enhancing affective teacher–child relationship quality and teachers' student-specific self-efficacy in elementary school. We included an intervention group of teachers receiving LLInC and a control group of teachers who did

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not receive any form of intervention. When teachers in the intervention group receive LLInC about two individual children that are subject of the intervention, teachers may realize that interactions with individual children are also based on a more general expectation of what he or she believes to be important as a teacher (Sibley & Overall, 2008). This implies that domain-specific mental representations, instead of only relationship-specific mental representations, could also be activated. Consequently, intervention effects of self-efficacy beliefs and perceptions of relationship quality may be transferred to relationships with other children in the classroom. To investigate possible transfer effects of LLInC to relationships with other children, we asked teachers in the intervention group to also report on their affective relationships and self-efficacy beliefs about two other children from their classroom with whom they experience difficulties. We refer to these teacher–child dyads as intervention-transfer dyads.

To sum up, we addressed the following research questions: How does LLInC influence (1) teachers' perceptions of teacher–child relationship quality (conflict, closeness, and dependency)?; and (2) teachers' feelings of student-specific self-efficacy (behavioral management and emotional support) with children directly targeted during LLInC?; (3) teachers' perceptions of relationship quality and self-efficacy beliefs about children in the classroom that were not directly targeted during LLInC? Based on the theoretical framework and previous research, we expected that LLInC resulted in more positive perceptions of teacher–child relationship quality and increased student-specific self-efficacy beliefs of teachers. Furthermore, we expected that the effects of LLInC also transferred to teachers' perceptions of relationships with other children from their classroom with whom they experienced relational difficulties.

## Method

### **Design and selection**

The present study was conducted in the school years 2015-2016 and 2017-2018 in elementary schools across the Netherlands. Data for the intervention group and the control group were collected separately. For both the intervention group and the control group, a substantial list of schools, randomly selected from a website with all schools in the Netherlands, was selected to be contacted for the study. In addition, messages in professional journals for teachers and on social media invited teachers and schools to contact researchers for participation in the intervention group. The large majority of teachers and school principals contacted the first author via social media messages. Data for the control group were collected as part of another longitudinal study focusing on teacher–child relationship quality in elementary school. The data that were collected were identical. We ensured that measurements of the control group were administered at exactly the same time, compared to the measurements for the intervention group. Data were collected at three time points during the schoolyear: Pretest (Fall), posttest (Winter), and follow-up (Spring). There were two months in between each school visit. Teachers in the intervention group received the LLInC after pretest. A graphical display of the design is displayed in Figure 1.

Each participating teacher selected four children from his or her classroom with whom he or she experienced difficulties in the relationship. Examples were given to the teachers, such as teachers experiencing many conflicts, low levels of warmth or problems to get through to the child. With regard to teachers in the intervention group who received LLInC, two of the four selected children were randomly selected by the researchers. These two teacher–child dyads were subjects of LLInC (i.e., the intervention group). The other two teacher–child dyads functioned as intervention-transfer conditions: Teachers did receive LLInC, but teachers did not reflect on the dyadic relationship with these children (i.e., the intervention-transfer group). A third group consisted of teachers who did not receive any form of intervention, but teachers did report on their relationship with the four selected children (i.e., the control group). This resulted in three separate teacher–child groups: the intervention group, the intervention-transfer group, and the control group.

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The intervention group consisted of 46 teachers and 92 children (i.e., 92 teacher–child dyads). The intervention-transfer group consisted of the same 46 teachers and 81 other children from their classrooms (i.e., 81 teacher–child dyads). Last, the control group consisted of 32 teachers and 88 children (i.e., 88 teacher–child dyads). The number of selected children in the intervention-transfer group and control group were somewhat smaller than expected based on the number of teachers. Reasons were that some teachers found it difficult to select four children with whom they experienced difficulties in the relationship and were therefore not willing to select a fourth child from their classroom ( $n = 3$  teachers). For other selected children, parents were not willing to sign an informed consent for participation in the study ( $n = 48$  children). Therefore, teachers could not report about these children.

### Participants

A total of 45 elementary schools participated in the present study. The sample included second- through sixth grade children ( $N = 261$ ) and their teachers ( $N = 78$ ; see also Table 1). Participating teachers were on average 38.9 years of age ( $SD = 12.0$ , ranging from 21 to 65) and had on average 13.2 years of teaching experience ( $SD = 10.2$ , ranging from 0 to 40 years). The majority of teachers was female (78.2%). Children (63.6% boys) were in grade 2 ( $n = 7$ ), grade 3 ( $n = 42$ ), grade 4 ( $n = 62$ ), grade 5 ( $n = 66$ ), and grade 6 ( $n = 84$ ), respectively. Children were on average 9.86 years ( $SD = 1.30$ , ranging from 7 to 13 years). Based on both parents' country of origin, 41% of the children had at least one parent with an ethnic minority background. There were no significant differences between groups with regard to teacher demographic variables and child demographic variables (Table 1), except for children's age. Children in the control group were in general somewhat older ( $F(2, 259) = 2.90, p = .022$ ).

### Procedure

Ethical approval was granted from the Ethics Review Board of the Faculty of Social and Behavioral Sciences of the University of Amsterdam (project 2017-CDE-8653). Teachers and school directors received an information letter and signed an informed consent form. Similarly, parents of selected children received an information letter and gave their consent to their child's participation in the present study. After receiving all consent

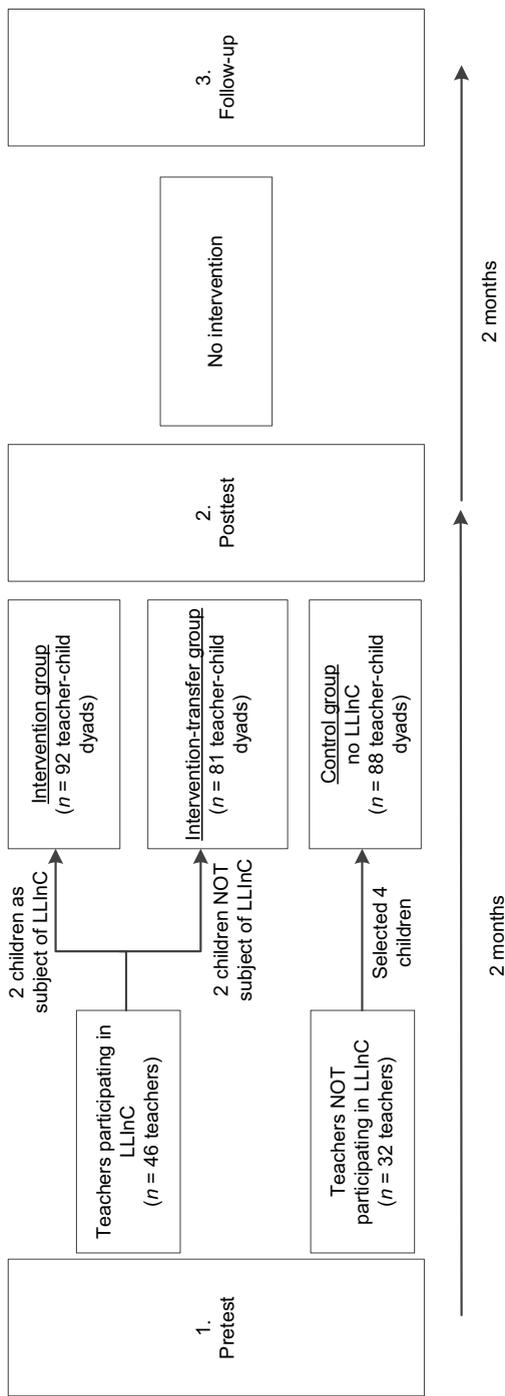


Figure 1. A graphical display of the study design.

forms, data were collected from the teachers. During planned school visits at pretest, posttest, and follow-up, teachers were asked to fill out an online questionnaire about their relationships with and self-efficacy toward the four selected children. Completing the teacher-questionnaire took about 30 minutes.

One or two weeks after the first planned school visit, teachers from the intervention group started with LLInC. A trained consultant visited the teacher's school after school hours. At the start of the first session, teachers were informed by the consultant about which of the four selected children the intervention was focused on (i.e., two sessions about one child, and the other two sessions about a second child). The intervention consisted of four weekly sessions with the consultant ranging from 30 minutes to 1 hour. After the last school visit (follow-up), all participating teachers received a voucher of €20, and were informed about findings of the study.

## **Intervention program**

LLInC consisted of four sessions. The first two sessions were about teachers' relationship with one individual child, and the third and fourth session were focused on another individual child. During the first (and third) session of LLInC, a semi-structured interview consisting of 12 questions about the teacher-child relationship took place (Teacher Relationship Interview, TRI; Pianta, 1999; Koomen & Lont, 2004). Teachers were interviewed about recent specific experiences in interaction with the child in question and accompanying feelings they had during these interactions. The TRI gives insight in four aspects of the teacher's beliefs of interacting with the child, including teacher's self-efficacy toward an individual child, (i.e., sensitivity of discipline, secure base, perspective taking, and intentionality) and four aspects of the teacher's feelings about the child (i.e., feelings of helplessness, negative affect, positive affect, and neutralizing of negative affect). These aspects were coded by the consultant right after the interview took place (Spilt & Koomen, 2009). All sessions were audio recorded, such that the consultant was able to listen again to the teacher's answers. The eight different aspects of the relationship were then depicted in a relationship profile consisting of strengths and weaknesses of the separate constructs (see Figure 2).

During the second (and fourth) session, this relationship profile was used extensively. During these sessions, the consultant started with explaining what each construct of the relationship profile actually means. The consultant

additionally explained why the teacher had a high, low, or medium level score for each particular construct, by relating these scores to examples of teacher-child interactions that were discussed during the interview session. Next, the consultant explained for each construct why other teachers may score lower or higher on certain constructs. For example, the consultant could explain that the level of Secure Base is lower when a teacher does not even respond to emotional cues of the child, whereas the level of Secure Base would be higher when a teacher explains that he or she helps the child sufficiently to cope with these emotional stressors. With all positively stated constructs, such as Secure Base, the consultant always started by giving an example of a fictive teacher that scored lower, whereas for negatively stated constructs, such as Helplessness, an example was given about a teacher that scored higher. This was done to give the teacher a better feeling about what

*Table 1. Participant Demographics.*

		Intervention group	Intervention-Transfer group	Control group	Total
Teachers	<i>N</i>	46		32	78
	Gender				
		Female	36 (78.3%)	24 (75.0%)	60 (76.9%)
		Male	10 (21.7%)	5 (15.6%)	15 (19.2%)
	Working Experience	Mean (SD)	13.76 (11.27)	11.43 (7.49)	13.2 (10.2)
Children	<i>N</i>	92	81	88	261
	Gender				
		Female	29 (31.5%)	32 (39.5%)	34 (38.6%)
		Male	63 (68.5%)	49 (60.5%)	54 (61.4%)
	Age at entry	Mean (SD)	9.67 (1.21)	9.74 (1.41)	10.17 (1.25)
	Ethnicity				
		Majority	60 (65.2%)	51 (63%)	43 (48.9%)
		Minority	32 (34.8%)	30 (37%)	45 (51.5%)

he or she is doing. After that, the consultant always gave an example of a fictive teacher that already was scoring a bit higher (or lower, based on the construct). This was done to motivate the teacher to think about possibilities to change his or her behaviors toward the child. Next, the teacher was invited to react on the consultant's interpretation of each of the constructs.

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In connection with discussing all constructs separately, the consultant further stimulated reflection by asking multiple questions about the teacher's overall view of the relationship profile, for instance: "Can you see connections between the four aspects of the interactions with the child and the feelings you have about the child?", and "What do you think are strengths or weaknesses of your relationship with the child?". After that, the consultant stimulated the teacher to reflect on potential changes of his or her behaviors and feelings that contribute to relationship quality. For instance: "Do you want to change certain aspects in your interactions or feelings regarding this child?" and "When you enter the classroom tomorrow, which aspects of the relationship do you want to be different?". At the end of the session, the consultant asked the teacher to give a summary of the potential changes that were discussed to improve teacher-child relationship quality.

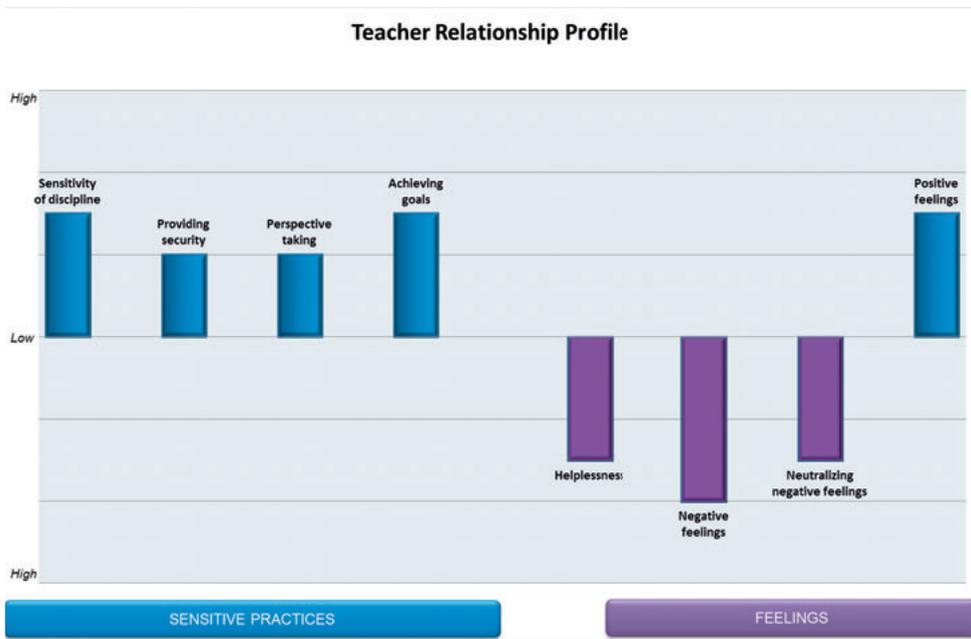


Figure 2. An example of the relationship profile that is communicated with the teacher in session 2 and session 4 of LLInC.

At the end of the fourth session, the two relationship profiles from session 2 and session 4 were compared with each other. The consultant asked

the teacher to identify similarities and differences between the relationships with the two children. This last step was implemented because it was thought that by comparing both relationships with the two children, the teacher also learns more about his or her style of relating to children. Possibly, not only a relationship-specific representational model is activated, but also the domain-specific mental representational model about relationships with children in the classroom.

*Training of consultants.*

Consultants ( $n = 9$ ) in the present study were all master or graduate students in Social Sciences. They were all trained extensively before administering LLInC to teachers. The training consisted of four sessions in which they practiced with the TRI, about coding teachers' answers, and about stimulating reflection during both sessions. They were asked to practice with the TRI on a real teacher or colleague, which they audio recorded. Consequently, the consultants received feedback on the quality of their interview and about their coding. Additionally, they were shown good and bad practices of presenting the relationship profile to teachers and they practiced with asking questions that stimulated reflection. Consultants received extensive feedback during training from the last author, one of the developers of LLInC.

*Treatment fidelity.*

To test whether LLInC was administered correctly, we evaluated the total duration of each session. Ideally, all sessions of LLInC should be around ranging from 30 minutes up to 1 hour. When the sessions were 20% shorter than expected (less than 24 minutes), the sessions were not executed following the guidelines of the program. We found that 2 sessions were too short and of bad quality ( $n = 2$  teacher-child dyads). Therefore, we excluded these two teacher-child dyads from our data analysis.

In addition, because the LLInC-manual was less structured regarding sessions two (and four), we evaluated these sessions more thoroughly to ensure that teachers were challenged enough by the consultant to think about the relationship with the selected children. According to the manual, at least 15 questions should be asked that invite critical thinking of the teacher. With these questions, the consultant stimulates the teacher to change perspectives on relational matters, think of situations from the child's perspective, and

explore changing pedagogical practices and feelings. When the consultant asked less than 15 questions stimulating critical thinking, the session was listened to again by the first author to inspect if manual guidelines were accurately followed. In 6 sessions, the guidelines were not appropriately followed ( $n = 3$  teacher–child dyads). Therefore, these teacher–child dyads were excluded from the final analyses. In total, 5 teacher–child dyads were not included in the data analysis.

## Measurements

### *Teachers' perception of relationship quality.*

The short Dutch version of the validated Student–Teacher Relationship Scale (STRS; Pianta, 2001; Koomen, Verschueren, van Schooten, Jak, & Pianta, 2012) was used to measure teachers' perceptions of teacher–child relationship quality. Three different dimensions can be distinguished in the STRS. Closeness (5 items, e.g., "I share an affectionate and warm relationship with this child") refers to warmth, trust, and open communication, Conflict (5 items, e.g., "This child and I always seem to be struggling with each other") refers to negativity and discordance, and Dependency (5 items, e.g., "This child asks for my help when he/she really does not need help") refers to the overly dependent behavior of the child on the teacher. All items were rated on a 5point Likert scale, ranging from 1 (Definitely does not apply) to 5 (Definitely applies). Psychometric properties of the Dutch version of the original STRS were adequate (Koomen et al., 2012) and the shortened Dutch version also showed high internal consistencies and good construct validity (Zee, Koomen, & van der Veen, 2013). Cronbach's alpha coefficients in the present study were .81, .83, .84, for Closeness, .84, .85, .88, for Conflict, and .83, .88, .88, for Dependency at pretest, posttest, and follow-up test, respectively.

### *Teachers' student-specific self-efficacy.*

Teachers rated their student-specific self-efficacy beliefs towards the selected children using the Student-Specific Teacher Self-Efficacy Scale (Zee et al., 2016). This questionnaire comprises four subscales: Instructional Strategies, Student Engagement, Behavior Management, and Emotional Support. As the first two were highly correlated in previous research (Zee et al., 2016), their uniqueness could not be guaranteed. Therefore, we did

not include the subscales Instructional Strategies and Student Engagement in our analyses. We only focused on the two subscales of student-specific self-efficacy that were most likely to be influenced by LLInC (i.e., Behavior Management and Emotional Support).

Behavior Management includes teachers' judgments of their ability to accurately manage the behavior of the child (e.g., "How well can you control disruptive behavior in this student?"). The Emotional Support dimension refers to teachers' judgments of their ability to establish a caring relationship with the child, and taking the child's perspective and feelings into account (e.g., "How well can you provide a safe and secure environment for this student?"). The two subscales each consist of 4 items that were rated on a 7-point Likert scale, ranging from 1 (Nothing) to 7 (A great deal). Prior research showed adequate construct validity for the student-specific TSES (Zee et al., 2016). Cronbach's alpha coefficients in the present study were .91, .93, .93, for Behavioral Management, and .83, .85, .88, for Emotional Support, at the pretest, posttest and follow-up test, respectively.

## **Data analysis**

The longitudinal data were analyzed in R using multilevel modeling with maximum likelihood estimation using the nlme-package (Pinheiro, Bates, DebRoy, Sarkar, R Core Team, 2018). For all models, a three-level structure was used: Repeated measurements (pretest, posttest, follow-up) were nested in children, who, in turn, were nested in teachers. We dummy coded the three groups for each of the three waves, resulting in a total of nine dummy variables (see Table 2). Random intercepts and random slopes were included for all models. First, we created a dummy variable which represented the control group at pretest. This dummy variable functioned as an intercept in our analyses (see Intercept in Appendix 2). The second dummy variable represented the difference between the control group and the intervention group at pretest ( $dl_{T_1}$ ). The third dummy variable represented the added effect of the intervention-transfer group on top of the effect of the intervention group at pretest ( $dIC_{T_1}$ ). Next, we created three dummies for the posttest measurement consisting of the different groups ( $dC_{T_2}$ ,  $dl_{T_2}$ ,  $dIC_{T_2}$ ). By using these dummy variables at posttest, and entering them in the hierarchical models after the three dummies of the pretest, we were able to control for pretest differences between the three groups. For instance, the dummy  $l_{T_2}$  represented the difference between the intervention group and the control group at posttest, while taking into account the group differences

at pretest. Last, we created three dummy variables for the groups at follow-up, also taking into account pretest differences ( $dC_{T3}$ ,  $dI_{T3}$ ,  $dIC_{T3}$ ). All nine dummy variables were entered into the hierarchical linear models as main effects. Considering our research questions, we were especially interested in the effects of  $dI_{T2}$  and  $dI_{T3}$ , to inspect whether teacher–child dyads differed significantly from the control group, while taking into account the pretest differences. We were also interested in the main effects of  $dIC_{T2}$  and  $dIC_{T3}$ . We expected that results of the intervention-transfer group did not have an additional effect above the results of the intervention group, implying a possible transfer effect of the intervention.

We computed separate hierarchical linear models for each outcome variable from teachers' perspectives (i.e., Conflict, Closeness, Dependency, and teachers' self-efficacy for Behavior Management, Student Engagement). All outcome variables were transformed to standard normal scores. The parameter estimates of a dummy variable can therefore be interpreted as an effect size (i.e., Cohen's  $d$ ). Effects were interpreted as small ( $d = 0.2$ ), medium ( $d = 0.5$ ), and large ( $d = 0.8$ ; Cohen, 1988).

## Results

### Data screening

Prior to analysis, data were checked for missing values. For all variables, missing data ranged from 0 to 14.2%. These data appeared to be missing completely at random (MCAR; Little's test,  $\chi^2(364) = 378.55$ ,  $p = .289$ ). As maximum likelihood estimation takes into account all available information for each case in the data (Snijders & Bosker, 2012), we did not apply an imputation method. There were no outliers and all variables were normally distributed according to acceptable ranges of skewness and kurtosis (values were all between  $-1.5$  and  $+1.5$ ; Tabachnick & Fidell, 2007). Means and standard deviations of outcome variables for each group are depicted in Table 3. Although children were randomly divided into the intervention group and the intervention-transfer group, there still appeared to be mean differences between these groups at pretest (see Table 3). As children's age differed in the three groups, we included this as covariate in our models. However, age was never a significant predictor and therefore we excluded it from our final models.

## **Effects of LLInC**

Separate hierarchical linear models were used for each respective outcome variable. Parameter estimates and significance tests are reported in Table 4.

### *Teachers' perception of relationship quality.*

We examined how LLInC affected intervention teachers' perceptions of Closeness, Conflict, and Dependency compared to perceptions of control teachers. We also examined if transfer effects of LLInC could be identified for the intervention-transfer group. First, we estimated a model for teachers' perceptions of Closeness, in which nine dummy variables were included as main effects (Table 4). At pretest, the level of teacher-child Closeness in the intervention group did not differ significantly from the level of Closeness in the control group ( $b = -0.11, p = .533$ ) and the intervention-transfer group ( $b = 0.13, p = .339$ ). At posttest, teacher-child dyads in the intervention group had significantly higher levels of Closeness than teacher-child dyads in the control group ( $b = 0.40, p = .001$ ), which means that LLInC seemed to have helped teachers to improve their relationship with individual children. This effect could be considered small to medium. In addition, the level of Closeness reported by the intervention-transfer group did not differ significantly from that of the intervention group ( $b = 0.06, p = .636$ ), indicating that LLInC may have also influenced teacher's perceptions of relationships with children that were not subject of the LLInC.

However, at follow-up, while controlling for pretest differences, teachers in the control group also showed small increases in Closeness ( $b = 0.28, p = .016$ ). The intervention group did not differ significantly from the control group anymore at follow-up ( $b = 0.17, p = .265$ ). This indicated that effects of LLInC were not present during follow-up. A graphical display of Closeness and all other outcomes is shown in Figure 3.

With regard to Conflict, the intervention group had significantly higher levels of Conflict at pretest compared to the control group ( $b = 0.52, p = .002$ ) and the intervention-transfer group ( $b = -0.56, p < .001$ ). When controlling for these pretest differences, LLInC led to small decreases in the level of Conflict for the intervention group compared to the control group at posttest ( $b = -0.24, p = .009$ ). The level of Conflict in the intervention-transfer group was similar to that of the intervention group at posttest ( $b = 0.10, p = .259$ ), indicating that the effects of LLInC may have transferred to the control group at posttest ( $b = -0.24, p = .009$ ). The level of Conflict in the intervention-

transfer group was similar to that of the intervention group at posttest ( $b = 0.10, p = .259$ ), indicating that the effects of LLInC may have transferred to the intervention-transfer group. At follow-up, there was a strong trend towards significance between the intervention and control group ( $b = -0.21, p = .051$ )<sup>3</sup>, although this result was not statistically significant and the effect size was small. Again, there were no differences between the intervention group and the intervention-transfer group at follow-up ( $b = 0.05, p = .658$ ).

With regard to teachers' perceptions of Dependency, the intervention group reported higher levels compared to the control group ( $b = 0.35, p = .032$ ) and the intervention-transfer group ( $b = -0.54, p < .001$ ) at pretest. There were no group differences between pretest and posttest and between pretest and follow-up test.

#### *Student-specific self-efficacy.*

We examined how LLInC affected intervention teachers' beliefs in their self-efficacy for Behavior Management and Emotional Support compared to teachers in the control group. We also examined if transfer effects of LLInC could be identified for the intervention-transfer group. With regard to teachers' self-efficacy for Behavior Management, the intervention group reported lower levels compared to the control group ( $b = -0.47, p = .006$ ) and the intervention-transfer group ( $b = 0.34, p = .019$ ) at pretest. After LLInC, and controlling for pretest differences, teachers in the intervention group

3 Using a less conservative approach (i.e., without the inclusion of random slopes in the hierarchical model), this effect was significant ( $b = -0.21, p = .04$ ). All the other parameters remained the same in the model of Conflict.

Table 2. Dummy coding of all three repeated measurements and groups.

	Intercept	dIT <sub>T1</sub>	dIT <sub>T1</sub>	dC <sub>T2</sub>	dIT <sub>T2</sub>	dIT <sub>T2</sub>	dC <sub>T3</sub>	dIT <sub>T3</sub>	dIT <sub>T3</sub>
IT <sub>T1</sub>	1	1	1	0	0	0	0	0	0
I <sub>T1</sub>	1	1	0	0	0	0	0	0	0
C <sub>T1</sub>	1	0	0	0	0	0	0	0	0
IT <sub>T2</sub>	1	1	1	1	1	1	0	0	0
I <sub>T2</sub>	1	1	0	1	1	0	0	0	0
C <sub>T2</sub>	1	0	0	1	0	0	0	0	0
IT <sub>T3</sub>	1	1	1	0	0	0	1	1	1
I <sub>T3</sub>	1	1	0	0	0	0	1	1	0
C <sub>T3</sub>	1	0	0	0	0	0	1	0	0

Note. C = control group, I = intervention group, IT = intervention-transfer group. T1 = first wave, T2 = second wave, T3 = third wave. Dummy codes are represented with a 'd' in front of the categorization of the variable. The control group in the first wave functions as an intercept in all models.

reported small to medium increases in teachers' self-efficacy for Behavioral Management compared to the control group at posttest ( $b = 0.30, p = .017$ ). The intervention-transfer group had similar levels of self-efficacy for Behavioral Management compared to the intervention group at posttest ( $b = -0.02, p = .871$ ), indicating that effects of LLInC may have transferred to other children. The intervention effect was still present at follow-up, considering the small to medium difference between the intervention group and the control group at follow-up ( $b = 0.33, p = .024$ ). Again, there was no difference between the intervention group and the intervention-transfer group ( $b = -0.05, p = .703$ ), which suggests a transfer-effect.

With regard to teachers' self-efficacy for Emotional Support, the intervention group reported lower levels compared to the control group ( $b = -0.57, p = .003$ ) and the intervention-transfer group ( $b = 0.31, p = .011$ ) at pretest. After LLInC, and controlling for pretest differences, the intervention group had higher levels of Emotional Support compared to the control group at posttest ( $b = 0.49, p = .002$ ). This effect size was considered to be medium. In addition, the intervention-transfer group showed a similar increase compared to the intervention group ( $b = -0.11, p = .392$ ), indicating that LLInC was also effective for these teacher-child dyads in improving teachers' self-efficacy beliefs for Emotional Support. At follow-up, when controlling for pretest differences, there was a trend towards a difference between the intervention group and the control group ( $b = 0.35, p = .095$ )<sup>4</sup>, although this result was not statistically significant. The effect was small to medium. Again, increases in teachers' self-efficacy for Emotional Support were similar for the intervention group and the intervention-transfer group from pretest to follow-up ( $b = -0.05, p = .721$ ).

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4 Using a less conservative approach (i.e., without the inclusion of random slopes in the hierarchical model), this effect was significant ( $b = 0.33, p = .03$ ). All the other parameters remained the same in the model of Emotional Support.

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*Table 3. Descriptive statistics for all outcome variables of the intervention group, the control group, and the intervention-transfer group.*

	Intervention Group		Control Group		Intervention-Transfer Group	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>Pretest</i>						
Closeness	3.35	0.87	3.47	0.76	3.40	0.95
Conflict	2.58	1.00	2.09	0.95	2.04	0.99
Dependency	2.53	0.90	2.27	0.98	2.04	0.90
Behavioral Management	4.85	1.25	5.40	1.15	5.24	1.30
Emotional Support	4.76	0.88	5.38	0.91	5.01	1.08
<i>Posttest</i>						
Closeness	3.70	0.85	3.50	0.87	3.83	0.77
Conflict	2.39	0.97	2.12	1.01	1.91	0.99
Dependency	2.44	1.05	2.20	1.07	2.04	0.88
Behavioral Management	5.16	1.18	5.41	1.27	5.58	1.29
Emotional Support	5.14	0.84	5.29	1.00	5.34	0.91
<i>Follow-up test</i>						
Closeness	3.71	0.75	3.65	0.84	3.85	0.87
Conflict	2.34	0.97	2.05	0.99	1.87	1.00
Dependency	2.29	1.02	2.21	1.08	1.96	0.88
Behavioral Management	5.32	1.21	5.55	1.13	5.64	1.20
Emotional Support	5.22	0.97	5.52	1.01	5.42	0.98

*Table 4. Results of the multilevel models of teachers' perception of relationship quality and student-specific self-efficacy concerning the effects of time and groups.*

	Closeness		Conflict		Dependency		Behavior Management		Emotional Support	
	Estimate	<i>SE</i>	Estimate	<i>SE</i>	Estimate	<i>SE</i>	Estimate	<i>SE</i>	Estimate	<i>SE</i>
Intercept	-0.22 <sup>a</sup>	0.13	-0.09	0.12	-0.02	0.12	0.05	0.12	0.09	0.14
dI <sub>T1</sub>	-0.11	0.18	0.52**	0.16	0.35*	0.16	-0.47**	0.17	-0.57**	0.19
dIT <sub>T1</sub>	0.13	0.14	-0.56**	0.15	-0.54**	0.14	0.34*	0.14	0.31*	0.12
dC <sub>T2</sub>	0.06	0.09	0.01	0.07	-0.03	0.08	0.00	0.09	-0.03	0.11
dI <sub>T2</sub>	0.40**	0.12	-0.24**	0.09	-0.12	0.11	0.30*	0.12	0.49**	0.15
dIT <sub>T2</sub>	0.06	0.12	0.10	0.09	0.17 <sup>a</sup>	0.10	-0.02	0.12	-0.11	0.14
dC <sub>T3</sub>	0.28*	0.11	-0.02	0.08	-0.06	0.10	0.07	0.11	0.15	0.16
dI <sub>T3</sub>	0.17	0.15	-0.21 <sup>a</sup>	0.11	-0.16	0.13	0.33*	0.15	0.35 <sup>a</sup>	0.21
dIT <sub>T3</sub>	0.08	0.13	0.05	0.11	0.15	0.11	-0.05	0.12	-0.03	0.14

*Note.* <sup>a</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ . ICCs for the teacher-level ranged from 0.32 to 0.52 for all variables at the teacher level. ICC for the school level were negligible (ranging from <.001 to 0.02).

## Discussion

We examined whether LLInC, a teacher-based coaching-intervention, was effective in improving teachers' perceptions of affective teacher–child relationship quality and cognitive-behavioral student-specific self-efficacy beliefs in elementary school. We compared an intervention group, in which teachers received LLInC about their relationship with two individual children, with a control group, in which teachers received no intervention. An additional condition was added to evaluate if effects of LLInC transferred to other problematic teacher–child dyads that were not specifically included in LLInC.

The results provide initial support for the effectiveness of LLInC. First, teachers receiving LLInC experienced short-term improvements in perceived teacher–child relationship quality compared to teachers receiving no intervention. Second, LLInC yielded both short-term and longer-term improvements in teachers' student-specific self-efficacy. Third, similar improvements in teacher–child relationship quality and teachers' self-efficacy were found for teacher–child dyads in the intervention-transfer condition. This may indicate that the improvements in teachers' perceptions of relationship quality with and self-efficacy towards targeted children generalized to teachers' dyadic relationships with children in the classroom who were not included as subjects in LLInC. Taken together, these findings support the usefulness of a teacher-based coaching intervention to improve teachers' affective relationship quality and teachers' self-efficacy beliefs with individual children.

### **Effects of LLInC on affective teacher–child relationship quality**

We examined the effect of LLInC on separate dimensions of perceived teacher–child relationship quality. Directly after receiving LLInC, teachers in the intervention group experienced higher increases in their perceived closeness than teachers in the control group. Furthermore, LLInC appeared to yield improvements in closeness between teachers and children who were not targeted during the intervention. As such, teachers receiving LLInC also experienced higher levels of closeness with other children from their classroom with whom they reported to have relationship difficulties, without specifically talking about their mutual relationship during the consultations that were part of the intervention.

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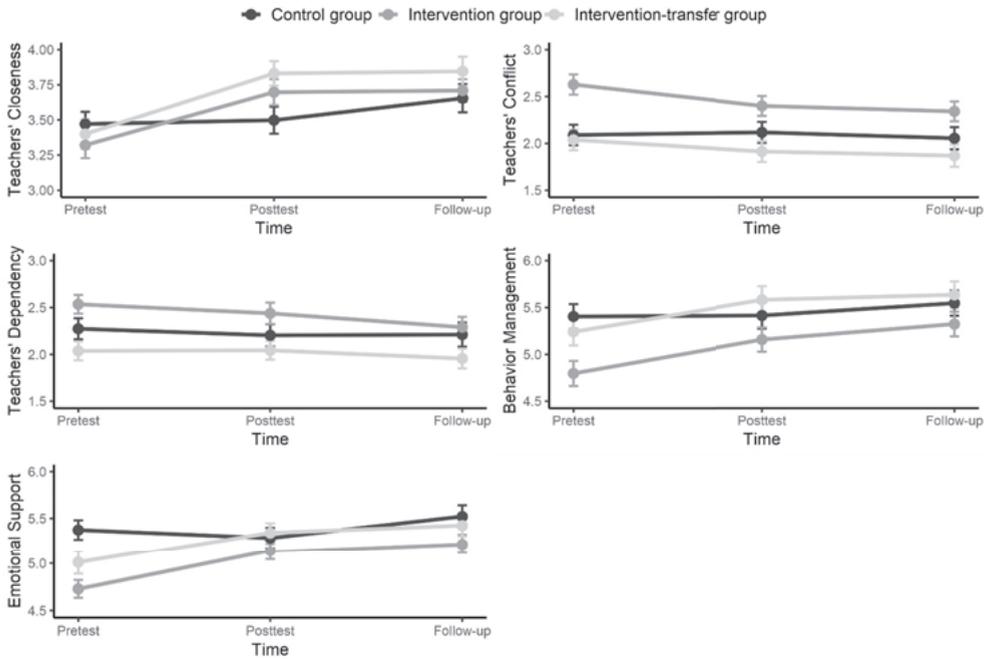
Notably, the effects for teacher–child closeness disappeared from pretest to the follow-up measurement. This was due to the fact that, in contrast with our expectations and with findings from previous research about non-problematic teacher–child relationships (e.g., Doumen et al., 2008), teachers in the control group also had increased levels of closeness, especially in the months after LLInC. It may be that teachers, irrespective of the condition they were in, started to think more about their relationship with an individual child with whom they experience relationship problems. In both conditions the teacher had to answer questions about their relationship with such children. As the time in between filling out questionnaires was relatively short and the questionnaires were completed three times, monitoring a specific teacher–child relationships itself may have had a positive influence on teacher–child closeness. More research is necessary to tease apart the effects of guided and focused reflection, versus merely monitoring.

Next to closeness, intervention teachers experienced small decreases in conflict in the relationship directly after receiving LLInC, compared to control teachers. This implies that LLInC helped teachers reduce negativity and discordance in interactions with particular children. More specifically, the degree of conflict between teachers and children in the intervention group reduced after LLInC ended, whereas control teachers did not report a lower level of conflict. Again, it appeared that LLInC also yielded decreases in teacher–child conflict for teacher–child dyads that were not included as subjects in the intervention, suggesting a transfer effect of LLInC on reducing conflict in teacher–child dyads.

An explanation for the decreasing level of conflict is that during LLInC teachers often get confronted with the fact that they have negative interaction patterns with a child, which may result in negative feelings about dealing with this child. During four sessions of LLInC, the teacher talks extensively about his or her relationship with two individual children, on the basis of which the consultant invites the teacher to think about how a child is feeling, why a child behaves the way he or she does, how a child responds to certain behavior, and what this would imply for teachers' daily practices. As a result, teachers receiving LLInC may have realized that they need to change certain behaviors to break negative interaction patterns, also in relationships with children who are not subject of consultation during LLInC. Our findings are important considering that a low level of negativity and frustration in teacher–child relationships may help children develop social and emotional competencies and reduce the risk of further maladaptive development of children (e.g., Baker, Grant, & Morlock, 2008; Meehan, Hughes, & Cavell, 2003).

*Improving teacher-child relationships - a group-design study*

Figure 3. Mean levels and standard deviations of teachers' perceptions of teacher-child relationship quality and teachers' student-specific self-efficacy beliefs over time, with separate lines for the control group, intervention group, and intervention-transfer group.



Notably, we also found a trend towards longer-term decreases in conflict as experienced by teachers in the intervention group, compared to teachers in the control group. However, this effect just missed significance at follow-up ( $p = .051$ ) and the effect size was considered small ( $b = -.21$ ). On the one hand, the lack of significance may be a power problem in the hierarchical model as, with less parameters, this effect did reach significance and the other fixed effects in the model remained the same. On the other hand, it may also be that the effect is not strong enough to represent a clinically meaningful decrease in teacher-child conflict two months after LLInC. It may be that some teachers still need more help or support to include sensitive teaching practices into their daily teaching behavior, in order to reduce teacher-child conflict. Another recent study combined elements

of LLInC with other strategies (Hoogendijk et al., 2019), such as functional behavior analysis (Ellis, 1991), practicing interactions with an individual child using video interaction guidance (VIG; Hayes, Richardson, Hindle, & Grayson, 2001), and synchronous coaching (Coninx, Kreijns, & Jochems, 2012). This intervention, Key2Teach, was also shown to be effective in reducing teacher–child conflict, even over a longer time period. This result is promising and suggests that a combination of LLInC with other coaching strategies may be helpful in improving teacher–child relationships. However, Hoogendijk et al. (2019) did not include follow-up measurements to test whether effects lasted. In sum, it may be that LLInC, as evaluated in the present study, may be helpful to some degree, but that some teachers need additional help in reducing teacher–child conflict.

In contrast with our expectations, we did not find any differences between the intervention group and control group with regard to teacher-reported dependency in the teacher–child relationship. A possible explanation for this lack of significant decreases of LLInC in the intervention group can be found in the definition of teacher–child dependency. Dependency is sometimes believed to be a marker of child adjustment problems rather than a relational dimension (e.g., Doumen et al., 2008). Given that LLInC is mainly focused on improving interaction patterns through teachers' reflection on their own feelings and beliefs, and not on improving children's adjustment in the classroom, this program may not be most suitable for improving dependency. It is possible that, to reduce teacher–child dependency, interventions should more specifically target dependency-related problems instead of only relationship problems. As teacher–child dependency is an important predictor of poor child outcomes (Bosman, Roorda, van der Veen, & Koomen, 2018; Zee et al., 2013), future research should find ways to decrease teacher–child dependency in elementary school.

### **Effects of LLInC on teachers' student-specific self-efficacy**

With regard to the two specific domains of teachers' student-specific self-efficacy, behavior management and emotional support, we found improvements in the weeks after LLInC, and for behavior management also at follow-up. To be specific, stimulating teachers to reflect on their feelings and beliefs about their relationship with an individual child seemed to enhance teachers' beliefs in their capability to manage individual children's behavior and support these children emotionally. These results are promising considering

that teachers with positive self-efficacy beliefs have previously been found to use better teaching strategies and experience less burnout symptoms (e.g., Woolfolk Hoy & Davis, 2006; Zee & Koomen, 2016). In addition, it appeared that LLInC yielded improvements in teachers' self-efficacy beliefs for behavior management and emotional support about interactions with children that were not included as subjects in the intervention. Thus, without specifically talking about the mutual relationship during LLInC, teachers receiving LLInC also felt more self-efficacious toward other children from their classroom with whom they experienced relationship difficulties.

Several aspects of LLInC may have positively influenced teachers' student-specific self-efficacy beliefs. According to Bandura's social-cognitive paradigm (1997), people reflect on and evaluate their capability beliefs by interpreting information from several sources. Three of these sources, including mastery experiences, verbal persuasion, and affective states, might have been vital in the development of teachers' self-efficacy beliefs through LLInC. The first, mastery experience, refers to reflection on and interpretation of previous teaching performances (Bandura, 1997; Usher & Pajares, 2008). Teachers who believe their past teaching performances were successful are more likely to feel confident about these teaching tasks in future practices. During LLInC, especially during the first (and third) session, the consultant asked the teacher about several specific experiences regarding their interactions with the child. These questions were not only about negative experiences of teachers, but also about recent positive experiences. An example question is: "Can you describe a specific moment in which you really connected with this child?" Follow-up questions are: "What happened in this situation" and "How did you feel about this?". Because the consultant specifically asked also about positive experiences during these sessions, teachers may become more aware of these successful teaching practices instead of only focusing on more ineffective teaching experiences. As a result, teachers may feel more self-efficacious about future interactions with an individual child.

Second, social persuasion or social evaluation is seen as a potential source that can influence teachers' efficacy beliefs (Bandura, 1997). Social evaluation refers to a process in which teachers receive verbal, positive feedback about their teaching practices from important others, such as colleagues or school administrators. This positive feedback, once it is specific and sincere, can enhance teachers' self-efficacy beliefs (Schunk, 1984; Hattie & Timperley, 2007). During LLInC, in sessions two (and four), the consultant gives feedback to teachers in the form of a relational profile of strengths and difficulties, representing eight constructs of teachers' pedagogical practices

and feelings (see also Appendix 1). The consultant explains why teachers received a high, medium, or low score for each construct, by giving examples of specific recent situations that teachers described during the interview sessions. Subsequently, the consultant described for each construct of the relationship profile what the teacher already does better compared to other teachers. The consultant thus gives every teacher several specific, positive encouragements in terms of skills and adaptive ways of teaching. Providing teachers with specific and individualized social evaluations is found to be especially important in the enhancement of self-efficacy (Tschannen-Moran & McMaster, 2009). This may explain our findings of the effects of LLInC on teachers' student-specific self-efficacy beliefs.

Third, the meaning that teachers give to their physiological and affective states informs their self-efficacy beliefs (Bandura, 1997; Klassen & Durksen, 2014). For example, high classroom stress of teachers was found to be related to low general self-efficacy (Klassen & Chiu, 2011), and low student-specific self-efficacy (Zee et al., 2016). During LLInC, teachers get insight in the degree of negative affect, positive affect, and helplessness about dealing with an individual child. In general, teachers are not used to talk about their feelings in relationships with individual children, and especially not to receiving feedback from a professional about these feelings. Conceivably, teachers' realization that they also had positive feelings about a child, instead of only negative feelings, may have increased their self-efficacy beliefs about dealing with this child in the domains of behavior management and emotional support. Although we did not investigate this directly, it is possible that LLInC may have influenced teachers' self-efficacy beliefs through teachers' increased positive affect about a specific child.

It must be noted, however, that for teachers receiving LLInC, student-specific self-efficacy beliefs of Emotional Support did not differ significantly from that of teachers who did not receive LLInC a few months after the intervention ended. It appeared that teachers' self-efficacy for emotional support did not increase further in the months after LLInC ended, whereas teachers in the control group increased slightly in self-efficacy for emotional support (see Table 2 and Figure 2). Possibly, control teachers' monitoring had, similar to what happened with regard to teacher-child closeness, an influence on teachers capability beliefs in establishing a caring relationship with the child. Teachers' self-efficacy beliefs for emotional support measures teachers' judgments of whether they are capable of effectively supporting the child's needs and teacher-child closeness measures the extent to which teachers feel that there is affect and support in the teacher-child relationship.

The cognitive-behavioral construct of emotional support and the more affective construct of teacher–child closeness may be highly related to each other. That may be a reason why both aspects of teachers’ relationships have comparable results.

To sum up, the results of this study indicate that improvements in teachers’ self-efficacy are in general somewhat stronger (i.e., larger effects, and also a longer-term effect for teachers’ self-efficacy for behavior management) compared to improvements in teachers’ perceptions of affective relationship quality (i.e., no longer-term effects and no effects for teacher–child dependency). It may be that effects of teachers’ self-efficacy beliefs precede effects on affective teacher–child relationship quality. Teachers may first become more confident in their abilities how to effectively deal with an individual child, before actual interpersonal effects of improved affective teacher–child relationship quality may take place. To further entangle and compare effects of LLInC on teachers’ perceptions of relationship quality, future research could include a mid-intervention measurement to identify possible mechanisms of the intervention-effects.

### **Transfer effects of LLInC**

An important feature of the present study was that we included an intervention-transfer condition: Teachers receiving LLInC also reported about their relationships with children that, although also being selected for relationship difficulties, were not included as subjects of conversations during LLInC. It was expected that when teachers would reflect on their relationship with two children during LLInC, they could also start to become aware of feelings and beliefs about other children in the classroom that they experienced difficulties with. We found that teacher–child dyads that were not subject of LLInC had similar improvements in teacher-reported relationship quality and student-specific self-efficacy beliefs compared to the teacher–child dyads that were discussed extensively during the four sessions of LLInC. These results indicate that effects of LLInC may generalize to teachers’ relationships with other children in the classroom. The domain-specific representational model (i.e., the teacher’s mental representation of his or her role as a teacher) may be explicitly activated during LLInC, as teachers compared two profiles of their relationship with two individual children with each other. During this comparison, the consultant actively stimulated teachers to reflect on aspects of the relationships that were affected by the

child's behavior, but also about the teacher's characteristics that affected their relationship. Consequently, the teacher started to think about how he or she contributed to both relationships and what he or she considered to be important in interacting with the two children differently. As such, at the end of LLInC, the conversation between the consultant and the teacher changed from a dyadic relationship perspective to comparing relationships by focusing on characteristics of the teacher and how they influence the teachers' general relationships with all children in the classroom. Therefore, not only the reorganization of relationship-specific mental representations may have changed teachers' perspectives, but also their domain-specific mental representational model (Sibley & Overall, 2008) may have been activated during LLInC (Pianta et al., 2003).

Teachers may realize during or after LLInC that relationships depend also on characteristics of themselves and consequently think about how these characteristics influence relationships with other children in the classroom. For instance, a teacher may realize that he or she enjoys it more to work with certain types of children because it matches their character more. The teacher may realize that it is important to put more effort in constructing a positive relationship with a child who is very different from the teacher. If teachers' domain-specific mental representational model is also activated, or even reorganized, it could be expected that teachers' more general self-efficacy beliefs, instead of only student-specific self-efficacy beliefs, also improve after LLInC about two individual children (Grusec et al., 2014). Future research can additionally investigate to what extent teachers' general self-efficacy beliefs improve after LLInC.

### **Limitations and suggestions for future research**

Our findings should be interpreted in light of several limitations. First, we did not use a fully randomized design to include teacher-child dyads in the intervention and control conditions. As we collected data for the intervention group and the control group in separate data collections, we could not randomly assign teachers to the two groups. However, note that, with respect to the intervention-transfer condition, we did assign two children randomly to be subject of LLInC. Additionally, we were able to control for pretest differences in measurements of teacher-child relationship quality and teachers' student-specific self-efficacy. Moreover, we did not find any notable differences between the groups on demographic variables (see also Table 1), indicating that the groups were comparable, at least on several important

variables. Despite this, in future research, a fully randomized design is to be preferred.

A main assumption of the present study was that teachers in the intervention group became aware of and reorganized their mental representations of relationships with individual children. We assumed that more flexible and differentiated mental representations would improve affective teacher–child relationships and teachers’ self-efficacy beliefs. However, as a second limitation, we should acknowledge that we did not measure changes in mental representations. Therefore, it is as yet unclear whether improvements in teacher–child relationship quality and teachers’ student-specific self-efficacy were due to actual changes in teachers’ mental representations. One way of studying these changes is by using the Teacher Relationship Interview again during a follow-up measurement later in the school year instead of only using it as a tool during LLInC itself.

A third limitation is that we did not investigate all possible effects of LLInC. For instance, we did not include observational measures to examine if LLInC led to changes in teachers’ behaviors or moderators to examine how LLInC improved teachers’ self-efficacy. Although we already included a variety of outcome measurements, future research could include more various measurements and outcomes to fully understand if and how LLInC can affect teachers and children in elementary school.

## **Conclusions and practical implications**

To conclude, LLInC is an intervention that generates short-term improvements in teacher-perceived relationship quality, and both short-term and longer-term improvements in teachers’ self-efficacy beliefs. This sustained change in teachers self-efficacy beliefs is important, considering that teachers with a strong sense of self-efficacy have more adequate teaching strategies, are more committed and motivated for their work, and have less burnout-symptoms compared to teachers with lower self-efficacy (e.g., Morris et al., 2017; Woolfolk Hoy & Davis, 2006; Zee & Koomen, 2016). It is also important that these improvements regarding teacher–child relationship quality and teachers’ student-specific self-efficacy transferred to teachers’ relationships with other children in the classroom with whom they experienced difficulties. Taken together, the findings of this study are promising, considering that LLInC only includes four sessions ranging from 30 minutes to 1 hour. LLInC is much shorter than other potentially effective interventions that aim to

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improve teacher–child relationships and teachers’ self-efficacy beliefs (e.g., Driscoll & Pianta, 2010; Vancraeyveldt et al., 2015). Furthermore, LLInC can be relatively easily implemented within schools. As school psychologists or other professionals within the schools are usually in close contact with teachers, they have an opportunity to function as a consultant that engages teachers in the reflective process. Moreover, brief relationship-focused reflection coaching based on LLInC can be continued with behavior interventions such as video interaction guidance (cf., Hoogendijk et al., 2019), especially when teachers do need more practical tips of how they can improve problematic interactions. As this study shows, engaging teachers in reflection can be a good start in enhancing teacher–child relationships and, especially, teachers’ student-specific self-efficacy.