How do teachers benefit from training on social interaction skills?

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Developing and utilising an instrument for the evaluation of teachers' social and emotional learning

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Abstract

By using their social interaction skills, teachers create an autonomous and supportive climate in the classroom and promote feelings of being included among students. Research, however, is scarce on how teachers can develop these skills despite being emphasised as key tools in modern learning psychology.

This intervention study explored the development of teachers' social and emotional learning (SEL) skills during Teacher Effectiveness Training (TET) (Teacher effectiveness training, 2014). Gordon's (Gordon & Burch 1974; Gordon, 2003) theory of social interaction was approached from the perspective of the modern educational psychology. The effects of the TET intervention on teacher outcomes were examined at various levels of Kirkpatrick and Kirkpatrick (2006), including the effects on participants' reactions, knowledge, the application of knowledge (social and emotional skills) and overall well-being. In addition, a new case-based measurement instrument, the *dealing with challenging interactions (DCI)* instrument, was developed. Finally, the sustainability of the studied skills were examined nine months after completing TET.

The intervention group consisted of 21 primary school classroom teachers and 23 secondary school subject-matter teachers in Finland. The comparison group comprised 26 subject-matter teachers who did not participate in TET. The data were collected before and after the four-day TET. In addition, data regarding the sustainability of the studied skills were collected and analysed nine months after completing the TET.

In *Study I*, the DCI method was developed to measure the social interaction skills of teachers. The participants are presented with seven scenarios, after which they are asked what they would say or do in that situation. The answers are content analysed. DCI appeared to be a reliable and valid tool. The discriminant validity was supported by a cluster analysis which differentiated between skilful and less skilful teachers. The results of the knowledge test, a supplementary instrument, were equivalent to the cluster analysis and supported the criterion-oriented validity of the method developed.

The multi-phase quantitative analyses in *Study II* showed that teachers benefitted from TET. Among those who participated in TET, both knowledge and the application of knowledge (of social and emotional skills) improved significantly. In the comparison group, no differences between the pre- and post-test measurements were found. In addition, the teachers' reactions towards TET were positive and the overall well-being of the teachers measured at the end of the intervention with the well-being profile (Konu, Lintonen, & Autio, 2002) showed minor positive changes.

Study III showed that a qualitative change took place among those teachers participating in TET. With regards to the TET course goals, teachers learned to apply the TET skills in their responses to situations and improved their readiness to support their pupils' autonomy. By giving room to pupils, for example, by emphasising listening skills or by asking pupils to actively participate in a problem-solving procedure, teachers were also more likely to support pupils' actions, which reinforced student autonomy and agency. In some descriptions, however, teachers used the skills only partially.

In *Study IV*, the development of teachers' social interaction skills was investigated nine months after TET. The participants still remembered the central skills studied during TET and were able to reflect that knowledge in their own behaviour from the perspective of the TET skills. Almost all of the participants said that they would recommend TET to their colleagues. The participants were quite realistic in their self-assessment given how difficult it is to learn how to deal with challenging interactions inside and beyond the classroom.

To conclude, TET appeared to achieve its goals since both classroom and subject-matter teachers seemed to benefit from the training on social interaction skills and became socially and emotionally more competent, which has positive effects on the learning environment. While training on teachers' social interaction skills is often recommended, little evidence regarding its effectiveness exists. This study adds to both the theoretical and practical development of continuing teacher education.

Markus Talvio

Hyötyykö opettaja vuorovaikutustaitojen koulutuksesta?

Haasteellisissa tilanteissa toimiminen -menetelmän kehittäminen ja hyödyntäminen opettajien tunne- ja vuorovaikutustaitojen arvioimiseksi

Tiivistelmä

Vuorovaikutustaitoja käyttämällä opettaja luo luokkaan autonomiaa tukevan ilmapiirin ja edistää oppilaiden osallisuuden tunnetta. On kuitenkin vain vähän tutkimusta siitä, kuinka opettaja voi näitä taitoja kehittää, vaikka vuorovaikutustaitoja pidetään kasvatuspsykologiassa keskeisinä työkaluina.

Tässä tutkimuksessa opettajien tunne- ja vuorovaikutustaitojen kehittymistä tutkittiin siten, että kaksi opettajaryhmää osallistui Toimiva koulu -kurssille, minkä vaikutuksia tutkittiin palautteen, tiedon, tiedon soveltamisen ja yleisen hyvinvoinnin näkökulmasta. Gordonin vuorovaikutusteoriaan (Gordon & Burch, 1974; Gordon, 2003) perustuvaa Toimiva koulu-kurssia tarkasteltiin modernin kasvatuspsykologian näkökulmasta. Tutkimuksessa kehitettiin uusi tapauspohjainen mittausmenetelmä nimeltään *Haasteellisissa tilanteissa toimiminen*. Lisäksi opittujen taitojen pysyvyyttä tutkittiin myöhemmin seuraavana lukukautena.

Interventioryhmään osallistui 21 luokanopettajaa ja 23 aineenopettajaa Suomesta. Vertailuryhmässä oli 26 suomalaista aineenopettajaa, jotka eivät osallistuneet koulutukseen. Aineisto kerättiin ennen kurssia ja sen jälkeen. Lisäksi kerättiin aineistoa taitojen pysyvyyden arviointia varten yhdeksän kuukautta kurssin päättymisen jälkeen.

Osatutkimuksessa I kehitettiin Haasteellisissa tilanteissa toimiminen -mittausmenetelmä (DCI), joka mittaa opettajaryhmien tunne- ja vuorovaikutustaitoja. Osallistujille esitetään seitsemän tapausta, jonka jälkeen heitä pyydetään kertomaan miten he toimisivat kyseisissä tilanteissa. Vastaukset luokitellaan sisällöllisesti. DCI osoittautui reliabiliteetiltaan ja validiteetiltaan käyttökelpoiseksi. Erottelu-validiteetti sai tukea klusterianalyysistä, joka erotteli opettajat heidän kurssilla oppimiensa taitojen mukaan. Muilla mittausmenetelmillä saadut tulokset olivat samansuuntaiset kuin klusterianalyysin tulos, mikä tuki mittauksen kriteerivaliditeettia.

Osatutkimus II:n monivaiheiset luokitusanalyysit osoittivat, että opettajat hyötyivät Toimiva koulu-kurssista. Kurssille osallistuneiden opettajien tietämys tunne- ja vuorovaikutustaidoista ja tämän tiedon soveltaminen paranivat merkitsevästi mittauskertojen välillä. Vertailuryhmässä tätä eroa ei havaittu. Lisäksi opettajien palaute kurssista oli positiivista. Myös opettajien kokema yleinen hyvinvointi parani jonkin verran.

Osatutkimuksessa III tutkittiin opettajien vastausten laadullista muutosta. Toimiva koulu-kurssin jälkeen opettajat käyttivät opittuja vuorovaikutustaitoja ja paransivat kykyään tukea oppilaan autonomiaa. Antamalla oppilaille tilaa, esimerkiksi painottamalla kuuntelun taitoja tai pyytämällä oppilasta osallistumaan ongelmanratkaisuun, opettajat todennäköisesti edistivät oppilaan toimijuutta ja autonomisuutta. Joissakin kuvauksissa opettajat tosin käyttivät taitoja vain osittain.

Osatutkimuksessa IV opettajien vuorovaikutustaitojen kehittymistä tutkittiin yhdeksän kuukautta Toimiva koulu-kurssin päättymisen jälkeen. Kurssille osallistujat muistivat vielä keskeiset kurssilla opitut vuorovaikutustaidot ja pystyivät tutkimaan omaa toimintaansa niiden avulla. Lähes kaikki osallistujat olisivat suositelleet kurssia työtovereilleen. Kurssille osallistuneet olivat myös melko

kriittisiä omaan osaamiseensa tuoden esiin, kuinka vaikeaa taitojen käyttö haasteellisissa tilanteissa on luokassa ja sen ulkopuolella.

Yhteenvetona voidaan todeta, että Toimiva koulu-kurssin tavoitteet näyttivät toteutuvan, sillä sekä aineen- että luokanopettajat kehittyivät vuorovaikutustaidoissa. Vaikka vuorovaikutustaitojen koulutusta opettajille usein suositellaan, koulutuksen hyödyistä ei juuri ole näyttöä. Tämä tutkimus lisää sekä käytännöllistä että teoreettista tietoa siitä, miten opettajat oppivat tunne- ja vuorovaikutustaitoja. Tätä tietoa voidaan hyödyntää mm. suunniteltaessa opettajien täydennyskoulutusta.

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Without sufficient financial support, I could not have conducted this research project. First, I am grateful to the Finnish National Board of Education, which funded the Teacher Effectiveness Training courses which I investigated. In addition, I would like to thank the Finnish Cultural Foundation for a three-year researcher grant and RYM Indoor Environment (462054) for their contribution towards other costs. This financial safety net has helped me to concentrate on the science and, thus, the present research.

Of course, I am grateful to all of my friends as well. During this seven-year period, there have been several people supporting and listening to me. I have been fortunate to share great days and bad days with you. Many of you have said that you are proud of me, which felt great. Thank you—I am proud to be your friend. Elena and Iain Baikie, the parents of my sweet goddaughter Kati: thank you for helping me with the language, and for the interesting conversations with Iain on how to create a business. I envy you.

Family is the nearest and dearest. Since both of my parents come from families of teachers, education is highly respected within my family. Unfortunately, my mother—a teacher herself—died during my PhD studies, and did not see the day when I completed my degree. I know she would have loved to see that. However, she is always here. Fortunately, my Dad, Mika and Aila have given me all of the support a family can give, such that I have been left wanting nothing. Dad: your great way of taking care of people is truly remarkable, supportive and helpful. Thank you, Dad! Mika and Aila: it has been great to experience such an empathetic understanding and interest towards my job from both of you.

And, finally, Matti: I am sorry that I have been so loud. I feel I have been selfish, egocentric and boring. Thank you for letting me process and go through the difficulties with you. And, thanks for allowing me to change as a part of this process. Thanks for sharing the good moments as well. I love you.

Markus

Contents

List of original publications

This thesis is based on the following publications:

I: Talvio, M., Lonka, K., Komulainen, E., Kuusela, M., and Lintunen, T. (2012). The development of the Dealing with Challenging Interactions (DCI) method to evaluate teachers' social interaction skills. *Procedia: Social and Behavioral Sciences 69*, 621–630.

II: Talvio, M., Lonka, K., Komulainen, E., Kuusela, M., and Lintunen, T. (2013). Revisiting Gordon's Teacher Effectiveness Training: An Intervention Study on Teachers' Social and Emotional Learning. *Electronic Journal of Research in Educational Psychology, 11* (3), 693–716.

III: Talvio, M., Lonka, K., Komulainen, E., Kuusela, M., and Lintunen, T. (in press). The development of teachers' responses to challenging situations during interactions training. *Teacher Development*.

IV: Talvio, M., Ketonen, E., and Lonka, K. (2014). How long lasting are the effects of training on interaction skills? Teachers' sample. Proceedings of *2014 International Conference on Advanced Education and Management (ICAEM2014)* (pp. 125–131).

The publications are referred to in the text by their roman numerals.

List of abbreviations

ANOVA Analysis of variance
DCI   Dealing with challenging interactions evaluation method
SEL   Social and emotional learning
TET   Teacher Effectiveness Training

1   Introduction

This dissertation addresses the complex problem of developing teachers' social interaction skills. My main concerns that triggered the process of carrying out this study were: Is it possible to provide training on such skills? And, how can the outcomes of such training be evaluated?

I became interested in social interaction skills when I worked as a teacher in primary school. I realised that I had not received much training on group dynamics or how to create respectful relationships with pupils and their parents, despite these being key issues in teaching and bringing up children in the school environment. Therefore, I participated in Lions Quest, one of a variety of courses based on social and emotional learning, such as Gordon's (2003) Teacher Effectiveness Training (TET). After these courses, I began to enjoy teaching. I learned, for example, to share responsibility in the classroom and to give more space for my pupils' thinking. When I was asked to become a trainer of these courses, my knowledge of the topic deepened. This also convinced me, after training hundreds of people, that teachers truly benefitted from these courses. However, I did not understand the process that begins when a teacher participates in a course on social interaction skills. Thus, I wanted to start studying why teachers, including myself, experienced satisfaction and even relief after the training on social interaction skills. Accordingly, in this study, I focus on my own work and its effectiveness from various perspectives, including modern educational psychology.

The teaching profession is highly interactive by nature. During a typical day, teachers come into contact with tens or even hundreds of people. Primarily, teachers interact with their pupils in the classroom and in other places in the learning environment where they teach. Providing explanations and giving advice regarding a subject (such as, for example, mathematics) is not, however, the only way teachers interact with their pupils. For example, teachers encourage, comfort, solve conflicts between and discipline their students. Diverse interactions with pupils are central to a teacher's work.

Outside the classroom, there are many shared issues at school which require negotiation, such as planning common events or designing school curricula with other teachers. Sometimes, teachers need to have discussions with a school counsellor, psychologist, nurse or other members of the pupil care team. Hence, during a typical school day, teachers engage in many interactions not only in the classroom, but also beyond it with their colleagues and other members of the school community. One part of a teacher's task is to also collaborate with the pupil's parents. Thus, teachers may also spend much of their time explaining basic school practices such as student evaluations, because parents might come from a very different background, which includes placing a different value on or having different thoughts regarding or experiences from school. Furthermore, teachers are encouraged by policy-makers and other authorities to join the local network of professionals. Various local projects targeted on the well-being and positive growth of

children need careful cooperative planning and bring youth workers, sports coaches or social workers together.

Accordingly, teachers interact with many members of the school community, including parents and other professionals who work with children and youth beyond the classroom. In addition, it is important to know the content of the subjects being taught as well as how to teach in such a way that pupils are able to learn. Overall, teachers should possess a wide variety of knowledge and skills in order to promote their pupils' learning.

The teacher's position within society in recent decades has changed rapidly. In the 1950s, a teacher was a highly respected and, at times, even feared professional whose authority was not questioned. The teacher's task was to determine what, how and when pupils study and control the results of learning through testing on the information that had been studied. Research at that time analysed teachers' questions, how teachers organise and manage the classroom and how they construct appropriate lessons (Wubbels & Levy, 1997). In other words, teaching was primarily looked at from a didactic perspective and not from the perspective of the relationship between pupils and the teacher.

The humanistic psychology movement during the 1960s emphasised the importance of using the resources of the specific individual and adopting a respectful attitude towards others. It was believed that, by freely fulfilling various needs, individuals are able to attain the highest phase of being—that is, self-actualisation (Rogers, 1970). This movement also influenced teaching. For example, Thomas Gordon (Gordon & Burch, 1974; Gordon, 2003) argued that teachers could influence pupils only by refusing to use their power and authority. According to him, using power creates its own opposition and relationships between a teacher and pupils become unpleasant and hostile (Gordon & Burch, 1974; Gordon, 2003). Gordon did not, however, support the so-called laissez-faire method, which leaves all of the power in the hands of the pupils, but, instead, stressed the notion that all of the members of the learning community are treated respectfully. For example, he suggested that decisions in the classroom should be taken by utilising both the needs of the teacher and the pupils. Hence, as early as the 1960s, a respectful teacher–pupil relationship was seen as an important factor in creating an effective and successful school.

Today, the need for productive interactions and good relationships are explained through the sociocultural context. It is known that knowledge, skills and understanding are negotiated and developed in a social setting—through interacting with peers, teachers, parents and the broader community (Wenger, 1998). Learning is, thus, an interactive and co-regulative process mediated by thinking tools and social practices (Bandura, 2006; Hakkarainen, Palonen, Paavola, & Lehtinen, 2004; Vygotsky, 1978; Wenger, 1998) in which individuals constantly alter their actions according to the other members of the learning community (Fogel, 1993). In the classroom, teachers and pupils tailor their actions according to the clues they receive from one another (Rogoff, 1990). Hence, good teachers know how they are perceived by pupils. By regulating the amount of affiliation and control they wield, teachers are able to align their instruction with their pupils' needs and expressed preferences (Wubbels & Levy, 1997). Since the prerequisite of learning is a con-

sciousness of cognitive and metacognitive experiences, emotions and motivation, it is important that these elements are not ignored. Instead, by using their interaction skills, teachers share a relative agency with their pupils and encourage pupils to play a major role in their own learning (Edwards, 2005; Salonen, Vauras, & Efklides, 2005).

Indeed, the active role of the pupil in the classroom is emphasised in socio-constructivist theories (Lonka & Ahola, 1995). Accordingly, pupils should be able to experience autonomy and self-efficacy (Bruner, 1996; Sfard, 1998; Vygotsky, 1978) in interactions with members of the school community (Pietarinen, Soini, Pyhältö, & Jindal‑Snape, 2010). The teacher's task is to help their pupils actively participate in shared learning processes and to foster adaptive patterns of engagement (Emmer, Sabornie, Evertson, & Weinstein, 2013; Freeman, Anderman, & Jensen, 2007; Hakkarainen et al., 2004; Patrick, Turner, Meyer, & Midgley, 2003). They provide the cultural tools for participating in learning situations which help pupils to adopt, master and use knowledge, skills and ways of thinking characteristic of the cultural setting (Bruner, 1996). By using social interaction skills, pupils also become intrinsically motivated and demonstrate high levels of self-determination, which lead to self-regulation and psychological well-being (Deci, Koestner, & Ryan, 2001; Leroy, Bressoux, Sarrazin, & Trouilloud, 2007).

Consequently, modern learning psychology emphasises creating effective teacher–pupil collaboration and a good learning environment, where interaction is effective, active and respectful (Allodi, 2010; de Kock, Sleegers, & Voeten, 2005). It is known that social and emotional processes affect how and what we learn. These are related to pupils' well-being and academic performance (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Elias et al., 1997). Therefore, schools should promote these aspects in order to maintain the learning and well-being of the pupils (Elias et al., 1997). By using social interaction skills, teachers facilitate learning through fostering their pupils' experiences of participation, autonomy and agency, which also lead to better academic performance (Brophy-Herb, Lee, Nievar, & Stollak, 2007).

The above-mentioned elements are crucial in pupils' learning. However, teachers who have adopted knowledge and skills related to social and emotional learning also benefit from these skills when at work in the classroom. According to Jennings and Greenberg (2009), socially competent teachers are able to recognise their pupils' emotions and cognitive appraisals and to understand pupils' behaviours in light of these factors. As a result of this understanding, these teachers are likely to be skilled in classroom management and in facilitating enthusiasm and enjoyment in learning by being proactive, which make the teacher's work more enjoyable. They also understand the dynamics of conflicts in the classroom and are better able to respond to this behaviour effectively. Furthermore, socially and emotionally competent teachers serve as role models of social interaction skills. Without consciously teaching such skills, pupils learn from their teachers' example, for instance, how to recognise and manage emotions and needs, how to promote relationships and how to make responsible decisions in respectful ways (Durlak et al., 2011; Jennings & Greenberg, 2009).

Teachers' social and emotional learning facilitates not only the pupils' but also the teachers' learning and professional development. In fact, it appears that many current theories of learning include the idea of benefitting from collaboration and providing feedback (Mezirow, 1990; Engeström, 2001; Lonka & Ahola, 1995; Lonka & Ketonen, 2012). Thus, in all of these models, social interaction skills are needed for negotiations with members of the community in order to move on to the next phase of one's professional development.

As mentioned before, social interaction skills inspire motivation and autonomy and, thus, the well-being of pupils (Leroy et al., 2007). In addition, the teachers' psychological well-being seems to also be promoted through the learning of social interaction skills. Grayson and Alvarez (2008) found that teachers who were able to maintain positive relationships with their pupils were more likely to remain motivated and enthusiastic and to enjoy their work. Additionally, teachers' emotional exhaustion was closely associated with the climate of relationships with parents and/or the community and student–peer relationships. Interventions, such as training on social interaction skills, which promote trust, respect, value and collaboration, significantly impact the quality of the learning environment and specifically the well-being of both pupils and staff (Roffey, 2012). When job satisfaction increases, negative emotional reactions as a product of the climate within the school are less likely to occur.

The concept of social and emotional learning (SEL) can be used to understand the above-mentioned learning process. SEL is defined as a comprehensive approach to reduce the risk factors associated with and to foster the protective mechanisms for positive life development. SEL includes the skills that are needed to regulate one's self and one's human relationships (Durlak et al., 2011) The proximal goals of SEL programmes are to foster the development of five components, namely, self-awareness, self-management, social awareness, relationship skills and responsible decision-making (Collaborative for academic, social and emotional learning, 2014; Zins & Elias, 2006). Figure 1 shows how the SEL competencies can be linked to social interaction skills. With the help of the skills mentioned (i.e. listening skills), which are the core skills of Gordon's theory of social interaction (2003), SEL was fostered in the research summarised in the present piece of work.
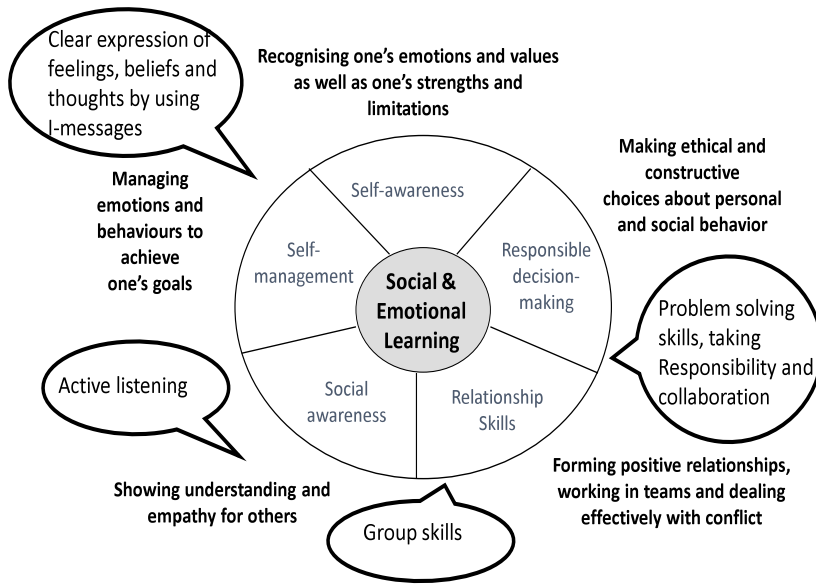
Figure 1. Core competencies of social and emotional learning (Collaborative for academic, social, and emotional learning, 2014) appear in the centre, and the corresponding skills from Gordon's (2003) theory appear in the speech balloons (Lintunen & Gould, 2014).

It is necessary to begin the analysis by looking at the grounds upon which the intervention is based. Next, the intervention programme of the present study, Gordon's Teacher Effectiveness Training (TET) (Gordon training international, 2014), will be presented both from the theoretical and practical viewpoints.

Teacher Effectiveness Training (TET) is a training programme that offers teachers communication and conflict resolution skills based on an approach developed by Thomas Gordon (Gordon & Burch, 1974; Gordon, 2003). According to the Gordon Training International website (Gordon training international, 2014), TET is available in 26 countries worldwide. With the interpersonal skills taught in TET, the core components of SEL—namely, self-awareness, self-management, social awareness, relationship skills and responsible decision-making (Elias et al., 1997)—can be addressed and developed. The relationships between the components of SEL, TET skills and examples of teachers' ways of addressing them can be seen in Table 1.

Table 1. The relationships between the components of SEL, TET skills and examples of teachers' ways of addressing them

Components of SEL	TET skills	How can teachers address them?	Typical example
Self-awareness	Defining values, needs, desires, feelings and wishes	Teachers recognise their values, needs, desires, feelings and wishes.	Self-reflection: 'How do I feel?' 'What do I need?' 'What would I like to have?'
Self-management	I-messages Avoiding road blocks	Teachers take responsibility for their own values, needs, desires, wishes and feelings, and express them clearly.	'I feel sad.' 'I would like to go to the gym tonight.' 'I respect nature.'
Social awareness	Active listening Avoiding road blocks	Teachers show respect and understanding for others by actively listening. By actively listening, teachers also help their pupils to recognise their own values, needs, desires, wishes and feelings.	'I heard you saying that you value…' 'You mentioned that you would like to…' 'You said that you feel…'
Relationship skills	Positive I-messages Confrontational I-messages Avoiding road blocks	Teachers give feedback by using I-messages. Teachers help their pupils by actively listening.	'I enjoy working with you.' 'I feel disappointed that I was not informed about the change.'
Responsible decision-making	Problem-solving methods Avoiding road blocks	Teachers make decisions together with others using Gordon's (2003) problem-solving methods.	'What are the needs of both sides?' 'What could foster meeting all of those needs?'

The behavioural window (Figure 2) is a graphic model used to connect another person's behaviour to the skills studied in TET. It is divided into four areas: the pupil has a problem, the teacher experiences a problem, the teacher and the pupil have a problem and no problem area or the teaching and learning area. When a problem occurs in the teacher–pupil relationship, it is necessary for the teacher to recognise in what area the problem lies so that the teacher can use the appropriate communications skills to solve it. Thus, the behavioural window tells the teacher what skills should be used in each situation. However, teachers do not attribute the pupil's behaviour in the sense of it providing the reason for their behaviour as Weiner (1986) suggested; but, rather, they determine if the behaviour is completely unproblematic, if it is problematic for the teacher or if a pupil's behaviour such as crying provides a hint that a pupil is experiencing a problem. The goal of TET is to increase the 'no problem' area, because it is the area of the relationship where teaching and learning can be most effective (Gordon, 2003). If a teacher has a problem, I-messages should be used. These are statements that describe the feelings and the experiences of the sender of the message. Since I-messages only express the inner reality of the sender, they do not contain evaluations, judgments or interpretations by others (Adams, 1989). Positive and confrontational I-messages

are special types of I-messages, which have three similar components: a description of the student's behaviour, a feeling towards the teacher caused by this behaviour and the tangible effect on the teacher of that feeling (Gordon, 2003) (see the example in Table 1).

If a pupil expresses a problem, listening skills should be used. Active listening is a special listening skill in which the listener reflects back to the speaker his or her understanding of what the person has said. This is meant to confirm that the listener has understood the message and to allow the speaker a chance to correct the listener if necessary (Ivey, Bradford Ivey, & Zalaquett, 2009). If both the teacher and the pupil encounter a problem, teachers are encouraged to use the appropriate tools presented by Gordon (2003) in order to solve it together.

Acceptable behaviour	Pupil has a problem	Active listening
	No problem area/ Teaching/ Learning area	Positive I-messages
Unacceptable behaviour	Teacher has a problem	Confrontational I-messages
	Pupil and teacher have a problem	Problem solving methods

Figure 2. Behavioural window (adapted from Adams et al., 2006)

Messages which should be avoided and that can damage productive interactions, such as judging, praising or mockery, are called road blocks. These can be either ineffective confrontational messages where a teacher owns the problem or ineffective counselling messages where a student owns the problem (Gordon, 2003).

In the TET instructor guide (Adams et al., 2006), the course methodology is described as a balance of instructor presentations, group discussions, individual sharing and skills-building activities. Accordingly, the TET instructor delivers short lectures about the theory and course content, and provides directions for ex-

ercises and models for various skills. During structured activities, the instructor acts primarily as a facilitator and the participants are actively engaged through role plays, group discussions or other learning activities. Group sharing allows participants the opportunity to share their feelings about using the skills. In addition, the course includes a workbook for between-session assignments where participants are able to explore their work through exercises related to the theoretical study. The instructor is advised to facilitate the expression of needs, concerns and in-class experiences among course participants and, at the same time, to create a safe learning environment. The learner-centred approach is stressed when describing the instructor's role in the TET instructor guide (Adams et al., 2006). Although the instructors serve as models and course managers, they are also facilitators and consultants who remain in the background and allow participants to act.

Implementing the intervention in a school context may be challenging, since teachers are often overloaded by multiple new initiatives and a lack of time. According to Lendrum and Humphrey (2012), interventions are thus rarely implemented as designed. They therefore suggested that 'the ultimate aim should be to develop an intervention that is not only able to achieve outcomes theoretically, but which can be feasibly and effectively implemented in real-world settings so that outcomes may be achieved in practice' (Lendrun & Humphrey, 2012, p. 648). TET appears to meet these conditions by delivering a robust training programme to instructors. In TET, instructor training includes an extensive four-day and five ECTS-credit course. In addition, the trainers of the TET instructor course complete a master-trainer process that provides extensive hands-on experience in conducting TET. Furthermore, in Finland, all TET master-trainers are teachers or headmasters themselves with much experience in the school context. From this perspective, it seems that the conditions for implementing TET in the Finnish context have been taken into consideration.

TET is primarily an educational course (Adams et al., 2006). The idea behind TET is that participants empower themselves by developing new practical skills which help them to promote interactions in school and to solve their own problems. The course design includes group discussions, assignments and memory recall exercises which connect one's concepts, experiences and memories to his/her present life. Since reflection is defined as giving meaning and instigating further action (Stroobants, Chambers, & Clarke, 2007), these exercises lead participants to reflect upon their own life and raise their awareness and understanding about their inner reality.

TET can also be analysed using the taxonomy of SEL (see Humphrey, 2013, pp. 4–8). First, TET is a universal intervention developed for all teachers at all levels. The second dimension includes the structural composition of the intervention, including the curriculum taught, the school environment and parents. TET can be considered a broad programme because the intention is to improve relationships with pupils, other school members and pupils' parents through the development of teachers' competence in creating and supporting rewarding interpersonal relationships. The third dimension in the SEL taxonomy is its prescriptiveness (Humphrey, 2013). TET does not provide a series of teacher-led lessons, although the TET course material provides some hints for teachers, for example, setting up the rules

for the classroom together with pupils. Because the focus of TET is primarily on the development of teachers' social and emotional competence, we may conclude that TET is flexible and emphasises the teacher's choice and goodness of fit with the local context (Humphrey , 2013).

In the next section, research on the training of teachers' social and emotional skills will be described. Then, the effect of the interventions on teachers' social and emotional skills will be presented.

2 Research on teacher training on social and emotional learning

Teachers' social interactions have typically been explored through direct observations or by videotaping classrooms. Classroom observation has a long tradition in education, whereby teacher professional qualifications are evaluated using this method (Allwright, 2000). This method is suitable for small numbers of participants, but rather laborious if the target group is large. The purpose of the current study was to develop a new method for analysing teacher social interactions suitable for a large number of participants and, therefore, observational studies are beyond the scope of this thesis.

Much research exists on how *children's* emotional regulatory skills, social cognition skills and positive communication behaviours can be facilitated (Brock, Nishida, Chiong, Grimm, & Rimm-Kaufman, 2008; Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004; Durlak & Wells, 1997; Greenberg et al., 2003; Rimm-Kaufman, Fan, Chiu, & You, 2007; Wells, Barlow, & Stewart-Brown, 2003; Zins, Weissberg, Wang, & Walberg, 2004). Presumably, the social competence of a child is the product of the multiple influences of the family and school environment (Brophy-Herb et al., 2007). In addition, it is known that pupils who have a pro-social attitude and who possess social and emotional skills score better academically than their peers (Durlak et al., 2011; Jiménez Morales & López Zafra, 2013).

However, less attention has been focused on *teachers'* own social and emotional learning despite evidence that teachers make important contributions towards desirable classroom and student outcomes (Jennings & Greenberg, 2009). In addition, surprisingly little internationally reported research exists in education on how teachers can study, develop and improve social interactions despite the emphasis placed on these skills in modern learning psychology as key tools in a learning community. To date and to my knowledge, only Barton–Arwood, Morrow, Lane and Jolivette (2005), Elliot, Stemler, Sternberg, Grigorenko and Hoffman (2011) and Swinson and Harrop (2005) have conducted such studies. Barton–Arwood et al. (2005) explored the outcomes of a one-day social skills training course for teachers. The participants were asked to evaluate their learning and define the central concepts and strategies of the course. Data were collected using the participants' self-evaluations and a questionnaire. The results indicated a significant improvement in all of the areas measured such as perceived and actual knowledge, perceived confidence and perceived usefulness. Elliot et al. (2011) investigated whether the capacity to identify good or bad responses in an interaction between a teacher and a pupil was related to the amount of experience a teacher had. It was found that experienced teachers could identify harmful responses in an interaction better than inexperienced teachers. However, no differences were found in identifying good or fruitful answers between experienced and novice teachers. This study showed that, with experience, teachers may learn to identify and become aware of the nature of interactions in the school setting. Swinson and Harrop (2005) reported on a study which examined the effects of training on altering teachers' verbal feed-

back. In-service teachers (n = 19) participated in a short training seminar and were observed before and after the training. After the training, the teachers showed increased levels of approval contingent upon the required behaviour of a student, for example, by providing more positive feedback and by acknowledging more pupils when they are doing what is required.

The lack of research on teacher learning of social interaction skills has been explained in terms of the general assumption that teachers automatically adopt the necessary social interaction skills as part of their role (Jennings & Greenberg, 2009). Elliot et al. (2011) provide an alternative explanation. They stated that the development of teachers' skills is part of the tacit knowledge of the teaching profession and that current approaches to teacher training in many countries suggest that professional pedagogical knowledge such as interaction skills is often best learned as part of a teacher's job or when in the teaching practice. Hence, such knowledge may not be easily transmitted.

In general, research on whether social interaction skills can be improved within the context of professional development is scarce. Research on this topic mainly exists in the fields of health sciences and medicine. According to reviews of work carried out in these fields (Aspegren, 1999; Brown & Bylund, 2008), communications skills such as listening can be taught, but are easily forgotten if they are not maintained in everyday practice. Basic skills can be learnt within a short period of training. The teaching method should be experiential, since it has been shown conclusively that instructional trainer-centred methods do not yield the desired results. Those with the lowest pre-course scores gain the most from such training (Aspegren, 1999; Brown & Bylund, 2008). However, very little information is usually provided in these articles about which skills are taught and little effort has been given to provide an overarching framework for organising these skills.

To conclude, the teaching of social interaction skills in teacher training has rarely been systematic nor has regular continuing education in this area been available for teachers. In addition, studies on the teaching and learning of social and emotional skills are scarce (Lintunen, 2006).

Measuring the phenomenon of teachers' social and emotional skills in the field is quite complicated. Typically, the only source used in assessing the outcomes of training is the feedback received from the participants, because it is usually an easy way to collect and analyse data. While participant feedback provides valuable information on the training, it does not, however, reveal much about learning itself. A common and rather advanced method for measuring interactions related to the learning of social and emotional skills is to analyse videotapes or observe participants in classroom situations (Rubie-Davies, 2007). As mentioned above, these methods are important; yet, they are not always feasible when the target group is large. In addition, it is difficult to capture the exact right moment when the behaviour of interest occurs. Furthermore, there is a substantial variety with regards to challenging interaction situations in everyday teaching practice. The professional practice of teachers extends well beyond the classroom. Communications skills are required in encounters with parents, colleagues, school administration and the surrounding society.

In addition, Lipponen and Kumpulainen (2011) suggested that agency—the capacity to foster purposeful action which implies autonomy, freedom and choice—cannot be studied by focusing only on the individual, but, rather, by focusing on socially distributed action among participants of the learning community. Furthermore, measuring social interaction skills is not carried out simply to impart the technical and individual skills used in interpersonal communication, but to inculcate a holistic attitude towards interactions. Checklists do not capture increasing levels of expertise. By providing clear information about the exact type of overall rating criteria, researchers will be able to draw more valid conclusions compared to results from checklists alone (Hodges, Regehr, McNaughton, Tiberius, & Hanson, 1999; Hodges & McIlroy, 2003; Regehr, MacRae, Reznick, & Szalay, 1998). Therefore, an overall rating for a holistic classification may be valuable in the evaluation of social interaction skills. In medicine, for example, measurements from objective checklist were found to reward thoroughness, but may not allow for the recognition of alternative approaches. Hence, in order to analyse the quality of interactions, a holistic approach is needed.

Because of the above-mentioned complexity in measuring teachers' SEL, it was important to investigate in this study the composition of existing measurement instruments and how various challenges have been taken into account. Therefore, a systematic literature review of the ERIC, EBSCO and PsycINFO databases was performed to inventory existing methods and instruments. The keywords for the search included the following: interaction skill(s), relationship skill(s), social and emotional skill(s), socio-emotional skill(s), social skill(s), emotional skill(s), interpersonal skill(s), teacher(s), instruct(or), educator(s), instrument(s) measure(s), measuring, scale(s), psychometric, meter and indicator. In the ERIC and EBSCO database searches, articles with the keywords disability, disabilities, special education, educator or autism, autist, asthma and ADHD were left out. In addition, the limits chosen from the list of PsycINFO databases included the following: tests and measures, human, English language and non-disordered populations. The publication year of the articles was limited to those falling between 1985 and 2010 in the databases.

Altogether 169 references were found. Adults were the subject of study in only 14 papers, of which 6 were from the educational sector (De Juanas Oliva et al., 2009; Lee & Powell, 2006; Hamann, Lineburgh, & Paul, 1998; Gaudart & Penaflorida, 1996; Hanif & Pervez, 2004; Barton-Arwood, Morrow, Lane, & Jolivette, 2005) and the rest were from medicine (Greco, Brownlea, McGovern, & Cavanagh, 2000; O'Sullivan, Chao, Russell, Levine, & Fabiny, 2008; Simmons, Roberge, Kendrick, & Richards, 1995), social work (Bisno & Cox, 1997; Hill & Fouts, 2005), the university sector (Maree & Eiselen, 2004; Valli & Johnson, 2007) and the corporate sector (Daftuar & Nair, 2005). Rating was used as a measurement instrument in eight papers, in which four papers relied on self-rating. The observation method was used in four papers and both observations and self-rating were used in one paper to collect data. Feedback from clients was collected in one study in order to measure social and emotional skills. In addition, in one study, social work education was evaluated instead of personal social and emotional skills. This was in parallel with the recent summary of five key methods by which children's

and young people's social and emotional functioning was assessed (Humphrey, 2013, pp. 69–77). These methods include direct behavioural observation, rating scales, interviewing techniques, sociometric techniques, and projective-expressive assessment techniques. A distinction is also made between measures of typical and maximal behaviour in rating scales. Measuring typical behaviour through rating scales is more common and evaluates, for example, what the respondent feels. Measurement of maximal behaviour, however, requires respondents to complete a task that taps the actual or underlying construct and is considered a more direct measure of social and emotional competence (Humphrey 2013, pp. 72–23). All of the above-mentioned eight papers that used rating scales as a measurement instrument evaluated typical behaviour.

In addition to the search described above focusing on the evaluation of the training of in-service teachers' interaction skills, only one relevant article was found. In a previously mentioned study by Barton–Arwood et al. (2005), educators (n = 22) received training on foundational strategies and concepts related to effective social skills. The participants completed pre- and post-workshop surveys that evaluated their perceived knowledge, confidence and usefulness and actual knowledge for 12 applied behavioural analytical concepts and strategies taught during the workshop. Teachers' self-ratings were based on a four-point Likert-type scale. In addition, participants were asked to define each of the 12 concepts and strategies. Participant definitions were scored independently by the first and third authors for accuracy by using a similar Likert-type scale as described above. Immediately following the workshop, participants completed the post-workshop survey by using the same four-point Likert-type scales to rate perceived knowledge, confidence and use as well as to again provide definitions of actual knowledge of the 12 concepts and strategies. The results indicated significant improvements in all of the areas measured (Barton-Arwood et al., 2005).

Based on the literature review, research between 1985 and 2010 on measurements for and of teachers' interaction skills was scarce. According to Lintunen (2006), the lack of measurement instruments might explain why little scientific evidence about the effectiveness of teacher training on SEL exists. This was also noted by Jennings and Greenberg (2009), who recommended a design for the investigation of teacher SEL. They suggested that, when interventions to improve teachers' social and emotional competence are developed, they should be tested to determine if the programmes result in improvements in teacher–student relationships, classroom management, SEL programme implementation quality and classroom climate. Jennings and Greenberg (2009) further endorsed using a study protocol that includes the recruitment and assessment of teachers before participating in the training; after the training, they should be assessed again to analyse any possible changes in the variables of interest. Furthermore, they recommended a control condition. However, the suggested procedure does not consider the time it takes for teachers to practice SEL skills before they can effectively implement them in their teaching (Lintunen, 2009).

Hence, it appears that very few measurement instruments on teacher SEL or studies of its effectiveness exist. The focus of this piece of work was to explore

social interactions in the type of challenging situations that teachers encounter, not only in the classroom but also with colleagues, school administrators and parents.

3 Study context

In the current study, teacher SEL was fostered through a training intervention. The Teacher Effectiveness Training (TET) (Gordon, 2003) was used because the taught skills cover SEL and its components. TET was organised for staff members at two schools in Finland in the form of in-house training in 2007 and 2008, and included 24 instruction hours.

Investigating the development of teachers' SEL in Finland is particularly interesting. Finnish teacher education is quite unique compared to that in other European countries (Toom et al., 2010). The shift towards academic teacher education took place in 1979. Both elementary and secondary school teachers earn a Master's degree in Finland. The educational sciences are the primary subject of education for a classroom teacher who works in an elementary school, whereas a teacher of secondary school normally studies an academic subject, i.e. mathematics or languages, as the major subject of study. Finnish teacher education is primarily organised around a research-based approach. Thus, developing the rational characteristics of pedagogical thinking and argumentation are integrated with teaching and research on teaching. The aim is to educate reflective teachers who produce and consume scientific knowledge (Jyrhämä et al., 2008). The idea is to provide pre-service teachers with the skills and knowledge necessary to complete their own studies, observe their pupils and analyse their thinking. Subsequently, as in-service teachers, they should be able to base their pedagogical decision-making on a theoretical foundation and reflect upon their own work (Toom et al., 2010).

It is also interesting that, even though Finnish students have recently reaped rewards in several international comparisons of school achievements (i.e. Mullis, Martin, Foy, & Drucker, 2012; Mullis, Martin, Foy, & Arora, 2012; OECD, 2010), pupils' relationships and enjoyment in school measure considerably lower than that among students from other countries. Risk-taking behaviour among Finnish students is also higher based on several international comparisons of school attainment (Mullis et al., 2012; Mullis et al., 2012; Samdal, Dur, & Freeman, 2004). Accordingly, teachers in Finland who are highly educated facilitate academically well-performing pupils but, unfortunately, are not always able to foster their pupils' well-being. This somewhat contradicts existing findings (Durlak et al., 2011) revealing that pupils' academic performance and their well-being normally go hand-in-hand. Teacher training in Finland has traditionally placed more emphasis on developing teachers' ability to deliver content on a particular subject than SEL. It follows that teaching content may matter more and that pupils learn the content studied; but, their well-being and SEL are not equally supported because teachers do not find it as relevant or do not have the necessary skills to support it. There may also be a tradition among Finnish pupils to be critical and to express not liking school no matter what the environment is like. However, no research or evidence exists regarding the difference among Finnish pupils compared with their peers in other countries.

Hence, it can be concluded that studying teachers' SEL in Finland is interesting because the circumstances are quite different from many other countries. On the other hand, the phenomenon studied is universal and the findings from the unique context in this piece of work may also prove valuable elsewhere.

4 Research questions

It has been stated that teachers' SEL is a complicated phenomenon to study. This complexity might explain why only a few measurement instruments on teachers' SEL were found. This lack of measurement instruments, in turn, may explain why research on the development of teachers' SEL is also scarce. Consequently, an evaluation method suitable for the study of SEL competencies and their possible development was developed in the present study.

For both designing the instrument and measuring the effectiveness of teachers' SEL, Kirkpatrick and Kirkpatrick's model (2006) was utilised. They suggested that it is important to look at various aspects of the outcomes of the intervention, including the participants' reactions, knowledge, the application of knowledge (skills) and overall well-being. Teachers' learning of social interaction skills and any change in their perceived well-being during the TET intervention were measured by collecting data from a pre- and post-test. Rather than studying only teachers' reflections and perceptions, the change in teachers' knowledge and descriptions of their own ways of promoting the desired interactions were explored. Furthermore, instead of individual teachers, interactions between teachers and other members of the learning community were investigated. In addition, it was important to investigate if the possible changes in teachers' competencies due to TET were sustainable.

Accordingly, the overall aim was to develop a measurement instrument (DCI) to evaluate teachers' social and emotional skills and to investigate if TET is a useful and effective tool for developing these skills. The aim was approached through the following research questions:

a) Is the dealing with challenging interactions (DCI) tool a valid and reliable method for measuring teachers' social interaction skills (*Study I*)?

b) Do teachers participating in the Teacher Effectiveness Training (TET) learn social interaction skills (*Study II*)?

c) How do teachers' social interaction skills develop during TET (*Study III*)?

d) Are there indications for any long-lasting effects of TET on teachers' perceptions of their own social interaction skills (*Study IV*)?

5 Methods

The purpose of this study was to investigate teachers' social and emotional learning (SEL) and the development of their social interaction skills related to various scenarios using Gordon's Teacher Effectiveness Training (Gordon training international, 2014; Gordon, 2003). A mixed-method approach (Creswell & Plano Clark, 2007) was used, which combined the collection of different kinds of data and both qualitative and quantitative methods of data analysis. This was necessary since the studied phenomenon is multidimensional and in order to allow a thorough examination using both quantitative and qualitative approaches. Since I was one of the trainers for the present TET intervention, the current research can be defined as a real-world and practice-oriented quasi-experimental field study (Creswell & Plano Clark, 2007).

5.1 Procedures

The present research was conducted in Finland between 2007 and 2008 as a part of the so-called School Well-Being Project, which included TET as an intervention. The project was organised by *Nuorten Keskus* [the Evangelical Lutheran Association for Youth in Finland]. Schools were informed about the content of TET and the overall project through the publication of an advertisement in the teacher union magazine *Opettaja* [Teacher]. Those communities which were willing to take part in the project were asked to apply. Altogether, 13 schools submitted an application describing their pedagogical goals and challenges. In addition, they were asked to provide the reasons why they should be accepted as participants in the project. Two schools were chosen by the project's board through an assessment of the possible benefits to the school resulting from the School Well-Being Project. A comparison school that did not receive TET but which participated in the evaluation was also chosen from the list of applicants.

    TET was organised in the form of an in-house training at both schools. The four-day training course was organised in two parts, each part lasting two days. In both schools, the first part of the training was conducted in the autumn term at the beginning of the school year, and the second part was conducted during the spring term. Data were collected within a six-month period before and after TET. Data from the comparison group were collected at approximately the same time. In addition, the sustainability of the studied skills was explored by analysing data collected about nine months after completion of TET (Figure 3).
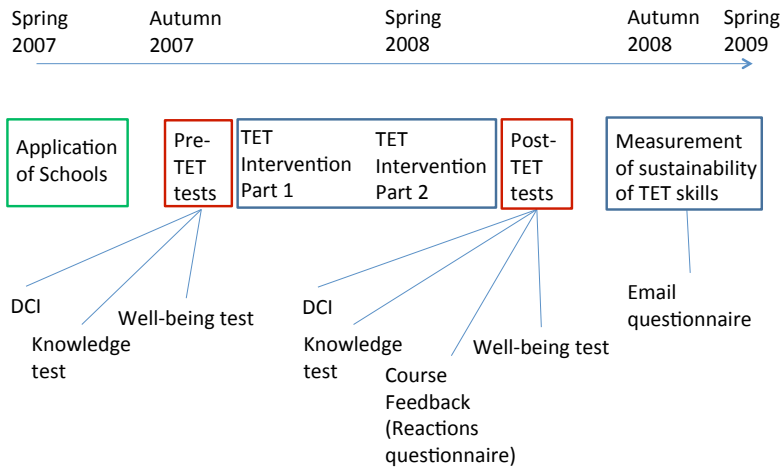
Figure 3. Data collection during the study period

5.2 Participants

The participants of *Study I* included 70 teachers (56 female and 14 male) from one primary school and two secondary schools from different parts of Finland. The classroom teachers (n = 21) from the primary school and the subject-matter teachers from the secondary school (n = 23) participated in a TET course. The subject-matter teachers from the other secondary school (n = 26) received no TET instruction. However, it may be surmised that all of the schools were in principle willing to participate in TET because all of the schools submitted applications to participate in the School Well-Being Project. Overall, the participants were a heterogeneous group of teachers according to their training and experience in SEL skills and their teaching experience; hence, they were ideal for the development of a specific method (Kerlinger & Lee, 2000). Furthermore, the schools participating in this study represented typical Finnish semi-rural comprehensive schools according to statistics for school size in Finland (Kumpulainen, 2009). The characteristics of the participants are presented in Table 2.

Table 2. Characteristics of the participants of the intervention and comparison groups

	Comparison group		Intervention group				Total	
	Subject-matter teachers		Subject-matter teachers		Classroom teachers			
Gender	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Female	21	80.8	16	69.6	19	90.5	56	80.0
Male	5	19.2	7	30.4	2	9.5	14	20.0
Work experience								
> 10 years	18	69.2	16	69.6	13	61.9	47	67.1
5–10 years	6	23.1	3	13.0	3	14.3	12	17.1
< 5 years	2	7.7	4	17.4	5	23.8	11	15.7
Years worked in the same school								
> 5 years	20	76.9	17	73.9	11	52.4	48	68.6
1–5 years	3	11.5	4	17.4	6	28.6	13	18.6
< 1 year	3	11.5	2	8.7	4	19.0	9	12.9
Type of job								
Permanent job	23	88.5	20	87.0	15	71.4	58	82.9
Temporary job	3	11.5	3	13.0	6	28.6	12	17.1
Status								
Full-time	26	100.0	22	95.7	20	95.2	68	97.1
Part-time	0	0.0	1	4.3	1	4.8	2	2.9

The participants of *Study II* were almost identical to the participants of *Study I*. One classroom teacher was dropped because of incomplete data from the post-TET test. Participants of *Study III* included only those teachers who attended TET (n = 44).

Participants of *Study IV* included teachers who participated in TET and who nine months after completing the TET course accepted a request for participation in a follow-up study. Altogether, 31 out of 44 (73%) teachers who completed the TET participated in the follow-up measurement. Among participants, 26 teachers were female and 5 teachers were male. Approximately two-thirds (n = 20) had worked in the same school for more than 5 years, whereas one-fourth (n = 7) had worked in the same school for 1–5 years. Four teachers were newcomers who had work experience in a specific school for no more than 1 year. Over three-fourths (n = 24) of the participants had worked as a teacher for more than 5 years and approximately one-third (n = 6) had 1–5 years of work experience as a teacher. Only one participant had worked less than 1 year as a teacher. Almost all of the teachers (n = 29) had a full-time job and nearly three-fourths (n = 23) of the participants had a permanent job.

5.3 Materials

5.3.1 Studies I, II and III

For each of the four levels of Kirkpatrick and Kirkpatrick's (2006) evaluation model, a measurement instrument was developed. Using a *course feedback questionnaire* (Appendix 1), participants' reactions to TET were collected. The *knowledge test* (Appendix 2) evaluated the teachers' knowledge of interactions. To in-

vestigate the teachers' ability to apply the knowledge, the *dealing with challenging interactions instrument (DCI)* (Appendix 3), which evaluates the teachers' descriptions of their behaviour in challenging interactions at school, was developed. Finally, teachers' overall well-being before and after the intervention was measured by adapting the school well-being profile (Konu, Lintonen, & Autio, 2002; Konu, 2005; Konu & Lintonen, 2006; Konu & Rimpelä, 2002) for the purposes of the present study. Figure 3 shows the data collection process during the study.

With the use of the *course feedback* questionnaire, reactions to the TET course were measured, which included evaluations of the applicability of the course or how it was managed. It included 10 items that were assessed using a five-point Likert scale with response options ranging from completely disagree to fully agree. Statements such as 'The course fulfilled my expectations' and 'I can apply the skills studied at work' allowed participants to evaluate the content and goals of the course. Opinions regarding the management of the course were collected using statements such as 'The procedure for the course was clear' and 'The trainer was professionally skilled'. In addition, participants were asked to rate their own energy level and the course as a whole (Appendix 1). Data consisted of the responses given by the respondents who attended TET and were collected only after TET was completed. The means and standard deviations for the sum variables for the responses were calculated.

In the *knowledge test*, participants were asked to define in their own words the central concepts of the interaction skills studied during TET. There were eight questions altogether: for example, participants were asked to define active listening and to list the components of a positive I-message and to explain what the so-called both win method of resolving conflicts—a special technique for making responsible decisions—entails (Gordon, 2003) (Appendix 2). The knowledge test determined if participants learned how to define the SEL terminology taught as a part of the TET course. The responses to the knowledge test were quantified from each answer by assigning values ranging from 0 to 2 or 3 points. By using the responses' sum variables, the means and standard deviations were calculated.

The *dealing with challenging interactions (DCI) instrument,* a case-based evaluation method, was developed in order to evaluate the ability of individuals to apply the knowledge gained during the TET course. Seven typical interaction situations common in the workplace were developed which comprise the DCI questionnaire. Each task consists of a description of a common event at school and the respondent is asked to describe in a few sentences how they would react to that event. For example, in an event that involves confronting the behaviour of a student, the teacher was asked to describe what s/he would do or say to a student who is sending text messages during a lesson, which is against the rules in their school. In Appendix 3, the seven questions with typical responses from the DCI categories are given.

Quantitative content analysis (Frey, Botan, Friedman, & Kreps, 1992; Weber, 1990) was used to create the classification for the DCI instrument. A single idea, notion, viewpoint or opinion given by the participant was considered as a single unit of analysis. Thus, one answer could include several units. Altogether, 9800 units (70 participants, 7 cases, 2 tests, 10 categories) were divided into 16 initial

categories and, then, into a further 10 more refined categories. The data were quantified so that an analysis of the incidence of different units was possible. In most categories, the possible numerical value of a unit is 0 or 1, which shows the existence of that category in the unit. However, in the categories for confrontational I-messages, positive I-messages and overall rating, the numerical value can be 0, 1 or 2 according to the quality of the unit or response.

Teachers' *overall well-being* was measured by modifying the school well-being profile, which aims to produce information about their well-being in school (Konu et al., 2002; Konu, 2005; Konu & Lintonen, 2006; Konu & Rimpelä, 2002). In the questionnaire adapted to the present study, questions fall into four categories: social relationships, relationships with parents, self-fulfilment and well-being. The social relationships category consists of questions related to teachers' relationships with their students and colleagues. Questions about relationships with parents assess the quality of the relationships between teachers and their students' parents. The self-fulfilment category consists of questions assessing a teacher's ability to work according to his or her own capabilities and abilities. In the categories for overall well-being, the mean values and standard deviations were calculated from the responses' sum variables.

5.3.2 Study IV

Teachers who were willing to participate in this part of the research project received an email in which they were asked to answer three questions that were developed by the authors of *Study IV*. The questions were as follows:

- Describe a situation where you have utilised or tried to utilise the skills or facts studied in TET.
- In your opinion, how well can you use the skills you studied now?
- Let us imagine that one of your colleagues is thinking of participating in TET. What would you tell him/her?

5.4 Statistical methods

The aim of *Study I* was to develop an instrument to measure teachers' SEL skills in school situations and to study the reliability and validity of that, the so-called DCI instrument. In order to explore the discriminant validity of DCI, participants were grouped using latent class analysis (McCutcheon, 1987; Muthén & Muthén, 2009) into three clusters according to their responses to the DCI questionnaire. A principal components analysis with promax rotation and regression-estimated factor scores was used to condense and use the data from the DCI categories, the knowledge test and the course feedback. Finally, a Pearson's correlation, an analysis of variance (ANOVA) and cross-classification with a chi-square test were all used to estimate the relationship between the component variables. Three statistical programmes were used: SPSS for Windows version 18, Mplus version 6 and Survo MM version 3 (Mustonen, 1992).

In *Study II*, possible changes in the participants' knowledge and skills (the application of knowledge) in SEL during the intervention were studied by using data from the knowledge test and investigating changes in six DCI categories, namely,

listening, positive I-messages, confrontational I-messages, messages supporting autonomy and overall rating which represented those categories related to the desired ways of interacting and road blocks representing undesirable interaction messages. In addition, teachers' reactions to TET based on data from the course feedback surveys were explored. Furthermore, possible changes in the participants' experiences in terms of their social relationships and in their well-being during TET were investigated. Both the statistical differences in the post-test scores between groups (two intervention and one comparison groups) and the statistical differences between the scores of the pre-TET and the post-TET tests were examined with a dependent sample one-way ANOVA. Pearson correlations were calculated to determine the relationships between the measurement scales. SPSS version 20 was used in the analyses.

The aim of *Study III* was to analyse any changes that might have occurred during TET based on the qualitative descriptions found in teachers' responses as measured by a questionnaire. In addition, some quantitative changes in the frequencies of different responses were analysed. Four of the DCI categories—namely listening, positive I-messages, supporting autonomy and confrontational I-messages—fell within the scope of *Study III*. The categories were described by analysing the content of the categories' typical analytical units. The data were quantified by using numerical values 0 and 1 to show the existence of the category in the unit and the quality of the answer. Subsequently, the frequencies (and percentages) of the categories before and after TET were calculated. A McNemar–Bowker test was used to estimate the significance of the before–after change in percentages.

In *Study IV*, open-ended questions on the participants' perceptions of what was studied in TET were analysed using a strategy that was partially driven by Gordon's (2003) theory. Three categories were established to condense the information related to the skills used after TET: I-messages, listening and road blocks. In addition, four data-driven categories were created to condense the information about with whom the skills were used: with pupils, with parents, with colleagues and with someone else. In this study, clusters of teachers' skilfulness constructed in *Study I* as a background variable were calculated. The Kruska–Wallis test was performed to analyse the possible relationships between the clusters according to teachers' skilfulness and the categories formed from the participants' statements about specific skills. In addition, the above-mentioned test and Mann-Whitney test were used to analyse the relationships between other background variables and the skills mentioned by participants.

To protect the anonymity of the teachers and their schools, all participants' real names were removed from the data and each participant was assigned a unique code. In addition, all identifying information was masked in the text. The participating teachers were also informed about the possibility of withdrawing their data from this study at any time without advance warning or explanation. None of the participants withdrew their responses. An overview of the study procedures is presented in Table 3.

Table 3. Overview of the study procedure

	Goal	Participants	Instrument	Analysis
Study I	To develop a tool (DCI) to measure teachers' SEL (research question 1)	- Intervention group: 21 classroom teachers and 23 subject-matter teachers - Comparison group: 26 subject-matter teachers	- Course feedback questionnaire (Appendix 1) - Knowledge test questionnaire (Appendix 2) - DCI method (Appendix 3)	- Quantitative content analysis - Latent class analysis - One-way analysis of variance (ANOVA)
Study II	To analyse the quantitative change in teachers' SEL skills (research question 2)	- Intervention group: 20 classroom teachers and 23 subject-matter teachers - Comparison group: 26 subject-matter teachers	- Course feedback questionnaire (Appendix 1) - Knowledge test questionnaire (Appendix 2) - DCI method (Appendix 3) - Overall well-being questionnaire	- Chi-square test - Dependent samples one-way ANOVA - Pearson correlation - Cronbach's alpha
Study III	To analyse the qualitative shift in teachers' SEL skills (research question 3)	- 21 classroom teachers and 23 subject-matter teachers	- DCI method (Appendix 3)	- Qualitative abductive content analysis - McNemar–Bowker test
Study IV	To analyse the sustainability of the SEL skills studied (research question 4)	- 19 classroom teachers and 12 subject-matter teachers	- Survey of three questions	- Qualitative abductive content analysis - Kruskal–Wallis test - Mann–Whitney test

6 Results

6.1 Study I

To examine the construct validity of all of the measurement instruments used in *Studies I, II and III*, principal components analyses were conducted. Three course feedback (reactions questionnaire) components, two knowledge components and three DCI components were found (Table 4). Cronbach's alphas were also calculated to determine the internal consistencies for the other measurements. Course feedback (reactions questionnaire) showed a good consistency resulting in a value of 0.89 for the measurement instrument. The internal consistency for the knowledge test was 0.66, showing a moderate consistency for the measurement. The results reported are based on the summed scores from the post-TET test (Table 4).

However, two factors from the DCI instrument were dropped because of a low internal consistency ($\alpha < 0.50$). Finally, the alpha reliability varied from 0.52–0.78, demonstrating a passable to moderate internal consistency for the produced components.

Table 4. Reliability of the instruments' components and questions for the components

	Cronbach's alpha	Reliability of Tark-konen–Vehkalahti	Eigenvalue	Questions / sub-categories
Dealing with challenging interactions (DCI)				
TET skills	0.77	0.92	3.34	1, 3, 4, 5, 9,[1] 10
Friendly feedback	0.18	0.76	1.30	2, 8[1]
Orders and conditions	0.20	0.72	1.17	6, 7[1]
Knowledge test				
Theoretical knowledge	0.63	0.82	1.81	1, 2, 3, 8
Applied knowledge	0.70	0.83	2.24	4, 5, 6, 7
Course feedback (Reactions questionnaire)				
General feedback	0.78	0.89	2.87	1, 4, 8, 9, 10
Applicability	0.52	0.83	1.73	2, 3
Course management	0.64	0.91	1.96	6, 7
[1] Revised				

Preliminary content analysis produced 16 categories, of which 8 were data-driven. Another 8 categories were based on the theory of TET (Gordon, 2003). Next, two researchers independently rated half of the data—or 4900 units—in order to analyse the inter-rater agreement by calculating the Cohen's kappa. After these parallel analyses, the criteria for messages reflecting the autonomy category were rechecked because the degree of agreement only reached 0.40. In addition, because the degree of agreement for the evaluation messages category only reached 0.45, it was consolidated with the solution messages and the indirect messages categories in order to form the road block category. The degree of agreement reached 0.77 on

messages supporting autonomy using the new criteria and 0.57 using the new road blocks category. Finally, categories with values under 0.55 were dropped from the analysis because of their poor reliability. As a result of these changes, a final categorisation which included 10 categories with a good inter-rater reliability was established. Five categories—listening, positive I-messages, messages supporting autonomy, other I-messages and confrontational I-messages—represented the desired messages for interactions based on the course goals. Road blocks represented the only category of undesired messages for interactions. Three categories—'I do not compare', orders and conditions and encouraging or predicting—were data-driven and neutral from the perspective of the course goals. Finally, the tenth category—overall rating—was created as a holistic classification. The degree of inter-rater agreement for these categories varied from 0.57 to 1.00, showing a passable to excellent reliability for the measurement instruments (Table 5).

Table 5. Reliability in final categories with examples of typical answers

Final categories	Examples of typical responses	Cohen's kappa
Desired ways of interacting		
1. Listening*	I shift to listening. In other words, I let him/her tell me what worries him/her.	0.71
2. Positive I–messages*	I am satisfied with working together with this group, because you are on time, you are active and study for the exams so that I do not have to worry about your learning.	0.81
3. Messages supporting autonomy	I would listen to the explanations from both of them and encourage them to resolve the situation.	0.77
4. Other I–messages*	I will tell them that I have too much work with other groups and because of my own well-being, I have to refuse involvement in this group.	0.79
5. Confrontational I-messages*	I am annoyed about others borrowing my CD player because I cannot start my lesson on time.	0.86
Neutral ways of interacting		
6. I do not compare messages	I handle every teaching group confidentially; I do not compare them to others.	1.00
7. Orders and conditions	I will repeat the rules of the class.	0.66
8. Encouraging or predicting messages	You will manage well in your life because you have taken school seriously.	0.64
Undesired ways of interacting		
9. Road blocks*	I will say strictly that cell phones need to disappear at once or I'll confiscate them. They can then be fetched at 15.00.	0.57
Holistic value		
10. Overall rating*	A holistic evaluation of a communication style based on the entire answer.	0.71

* Based on Gordon's (2003) theory

6.1.1 Clustering teachers into groups

In order to explore the discriminant validity of the DCI instrument, participants were grouped into three clusters using latent class analysis according to their responses to the DCI questionnaire. The clusters were named TET ideal (n = 22), TET moderate (n = 14) and TET ignorant (n = 34). The differences between the clusters were significant (p < .001) for all of the categories which included the desired ways of interacting with the exception of the other I-messages category and in both the road block and overall rating categories. For the neutral interaction categories, there was no significant difference between clusters in any category (Figure 4). In the TET ideal cluster, the mean values were higher than in other clusters in the overall rating category and in all of the desired ways of interacting categories with the exception of the positive I-messages category. In the TET ideal cluster, the mean value for the road blocks category was lower than that for any other cluster. In the TET ignorant cluster, the mean values were lower for the overall rating category and for all of the desired ways of interacting categories than in any other cluster, with the exception of the confrontational I-messages category. The mean value for the road blocks category was highest for participants in this cluster. The mean values in the TET moderate cluster (n = 13) fell generally in between those of the other clusters. However, the mean values were highest for the positive I-messages and I do not compare categories. Figure 4 shows the mean values for the DCI variables in each cluster.
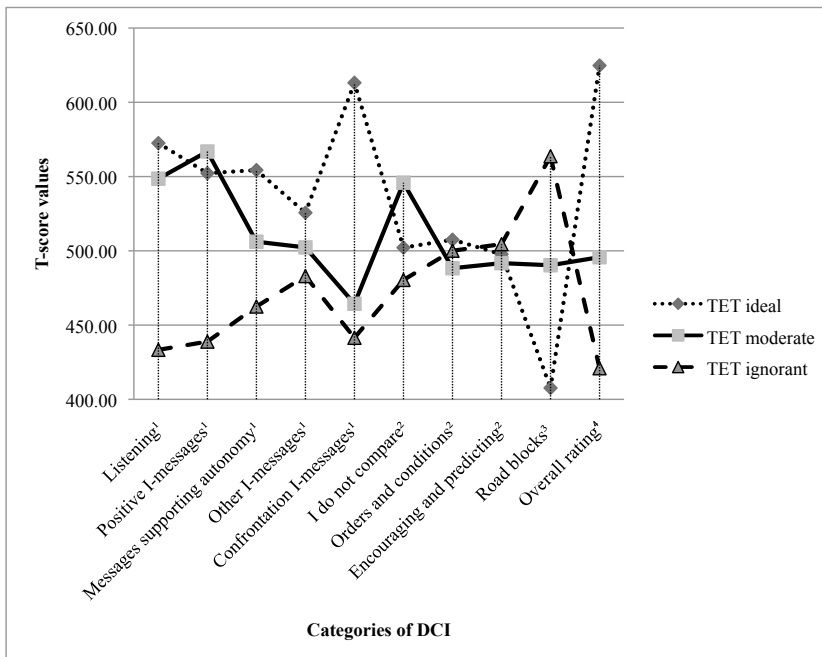

Figure 4. Mean values for DCI variables in each cluster expressed as a standardised score (M = 500, SD = 100).

[1] Desired ways of interacting; [2] Neutral ways of interacting; [3] Undesired ways of interacting; [4] Holistic value. (*Study I*: Talvio, M., Lonka, K., Komulainen, E., Kuusela, M., and Lintunen, T. (2012). The development of the

Dealing with Challenging Interactions (DCI) method to evaluate teachers' social interaction skills. *Procedia: Social and Behavioral Sciences 69*, 621–630.)

The differences between the clusters in each component were analysed using the one-way analysis of variance (ANOVA). Table 6 shows that, for the component from the DCI instrument and in both components for the knowledge instrument, the difference between clusters was highly significant ($p < .001$), but no difference was found for any component from the reactions instrument.

Table 6. Difference between clusters for components from the course feedback (reactions questionnaire), knowledge and dealing with challenging interactions (DCI) instruments expressed as standardised scores (M = 500; SD = 100).

Instrument Component	Clusters							F (df1, df2)	p	Eta squared
	TET ideal		TET moderate		TET ignorant					
	n	M (SD)	n	M (SD)	n	M (SD)				
Course feedback (Reactions questionnaire)										
General feedback	22	507 (97)	14	506 (122)	8	469 (63)	0.44 (2, 41)[b]	.65	.02
Applicability	22	507 (104)	14	511 (98)	8	461 (96)	0.74 (2, 41)[b]	.49	.04
Course management	22	513 (99)	14	506 (103)	8	454 (97)	1.07 (2, 41)[b]	.35	.05
Knowledge questionnaire										
Theoretical knowledge	22	566 (51)	14	549 (71)	34	443 (98)	18.32 (2, 67)	<.001	.36
Applied knowledge	22	563 (112)	14	522 (84)	34	458 (70)	9.97 (2, 67)	<.001	.23
DCI method (behavioural level)										
TET skills	22	617 (56)	14	519 (50)	34	416 (38)	124.57 (2, 67)	<.001	.79[a]

[a] Latent classes were based on DCI categories; [b] Reactions were collected from participants attending TET.

6.1.2 Relationships between clusters and characteristics

Relationships between clusters and characteristics were only found between schools and clusters where the relationship was highly significant ($p < .001$). The reason for this was that all of the teachers from the comparison group belonged to the TET ignorant cluster (n = 26). By contrast, only one teacher from the elementary school where teachers received TET belonged to this ignorant cluster. All of the other participants from the TET intervention group belonged either to the TET ideal or the TET moderate groups.

The difference between the two schools participating in TET was also significant. The biggest cluster (n = 15) among the elementary school teachers was the TET ideal cluster, whereas the biggest cluster (n = 9) among the secondary school teachers was the TET moderate cluster.

6.2 Study II

6.2.1 Teachers' reactions to TET

In *Study II*, the quantitative change during the intervention among TET participants was measured. The average feedback score for the TET course, which was measured using a Likert scale with values ranging from 1 to 5, was M (SD) = 4.06 (0.33) among subject-matter teachers and M (SD) = 4.20 (0.42) among classroom teachers, thus revealing positive reactions to the course. While classroom teachers had more positive feedback than subject-matter teachers, no significant differences between the two groups participating in TET were found.

6.2.2 Changes (and interrelationships) in knowledge and skills related to SEL during the course

The level of knowledge on SEL was similar in each group before TET and no significant differences were found between groups (Figure 5). After TET, the scores were significantly different (F (2, 69) = 33.98, p < .001) between groups, with the two intervention groups scoring significantly better than the comparison group. Furthermore, post-hoc tests showed that there was a significant difference between the comparison group and the intervention groups, but not between the intervention groups.
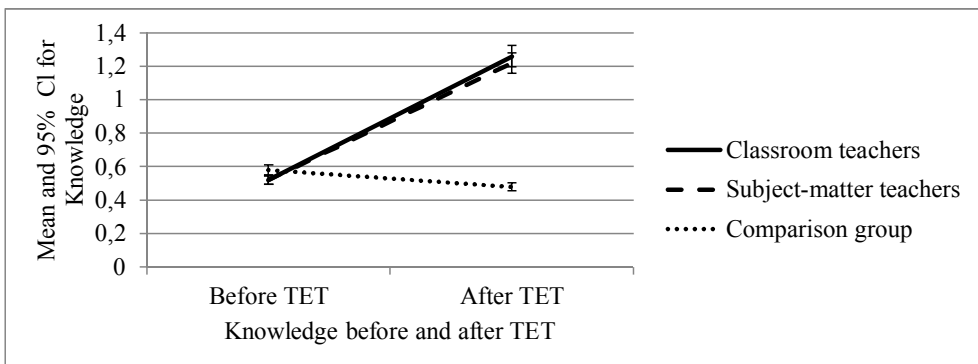
Figure 5. Changes in knowledge between groups during TET.

The application of knowledge (skills) was similar in each group before TET and no significant differences were found in the pre-TET scores between groups (Figure 6). The post-TET test scores between groups significantly differed (F (2, 68) = 67.93, p < .001) from each other, with the lowest scores found in the comparison group and classroom teachers exhibiting the highest scores. All pairwise post-hoc tests were also highly significant. Table 7 shows the changes in DCI variables in more detail. Overall, among teachers participating in TET, the scores for the various desirable ways of interacting increased.
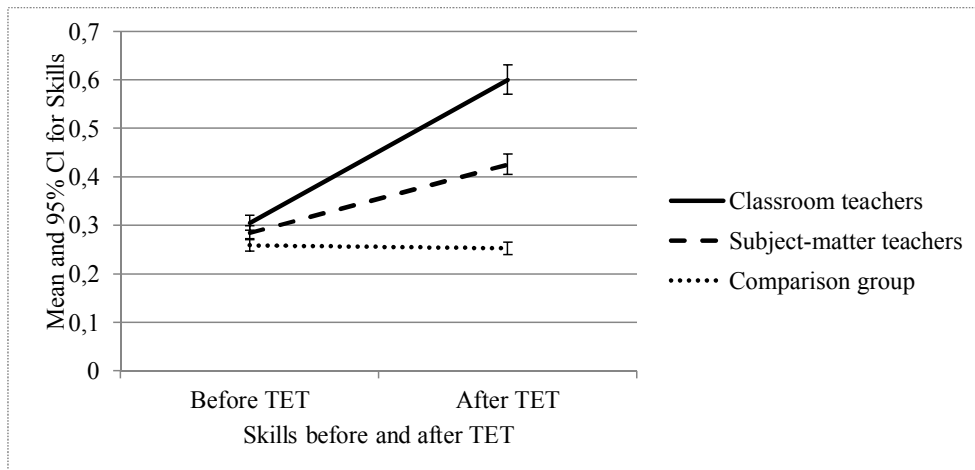
Figure 6. Changes in the application of knowledge (skills) between groups during TET.

A significant and moderately high positive correlation was found between the knowledge test and the application of knowledge (skills) ($r = 0.67$, $p < .01$). Thus, those teachers who knew the theory well were also successful in applying it to specific situations. In addition, relationships with parents were moderately correlated with self-fulfilment ($r = 0.46$, $p < .001$) and course feedback ($r = 0.47$, $p < .001$). Accordingly, teachers who felt that their relationships with parents were good experienced stronger self-fulfilment at work and gave more positive feedback about the TET course. After the intervention, mild correlations were also found between social relationships and self-fulfilment ($r = 0.32$, $p < .05$) and social relationship and well-being ($r = 0.33$, $p < .01$), respectively. No other significant relationships were found after TET.

6.2.3 Changes in the participants' experiences of well-being

Between the pre-TET and post-TET measurements of overall well-being, a negative significant change was detected among subject-matter teachers in their responses concerning relationships with parents ($t(21) = -3.49$, $p < .01$) and a positive significant change was found among classroom teachers in their responses concerning self-fulfilment ($t(15) = 2.22$, $p < .05$). No other significant changes were found.

Table 7. Summary of Means, Standard Deviations, Levels of Significance and Effect Sizes for DCI Categories during TET

DCI cat.	Comparison group				Intervention group							
	M(SD)				TET 1				TET 2			
					M(SD)				M(SD)			
	pre	post	t (25)	d^1	pre	post	t (19)	d^1	pre	post	t (22)	d^1
LIS	0.02(0.05)	0.01(0.03)	-1.00	-0.24	0.03(0.07)	0.21(0.12)	5.66***	1.83	0.02(0.05)	0.09(0.10)	3.76**	0.89
PIM	0.07(0.08)	0.07(0.08)	-0.33	0.00	0.20(0.14)	0.23(0.13)	0.78	0.22	0.09(0.10)	0.18(0.12)	3.07**	0.81
CIM	0.24(0.14)	0.21(0.17)	-0.76	-0.19	0.20(0.13)	0.66(0.24)	10.35***	2.38	0.22(0.16)	0.43(0.27)	3.89**	0.95
MSA	0.06(0.07)	0.06(0.09)	0.44	0.00	0.09(0.11)	0.15(0.08)	2.34*	0.62	0.06(0.09)	0.13(0.09)	3.19**	0.78
RB	0.60(0.20)	0.57(0.19)	-0.57	-0.15	0.49(0.22)	0.22(0.16)	-4.75***	-1.40	0.53(0.13)	0.46(0.20)	1.53	0.42
OR	0.77(0.22)	0.74(0.20)	-0.55	-0.14	0.80(0.18)	1.56(0.24)	13.27***	3.58	0.84(0.23)	1.18(0.34)	3.73**	1.17

Notes: LIS = Listening, PIM = Positive I-messages, CIM = Confrontational I-messages, MSA = Messages supporting autonomy, RB = Road blocks, OR = Overall rating. TET 1 = Classroom teachers, TET 2 = Subject-matter teachers. d^1 = Cohen's d. *$p < .05$. **$p < .01$. ***$p < .001$.

6.3 Study III

In *Study III*, a teacher's desired ways of interacting were measured according to the goals of TET using four categories—listening, positive I-messages, supporting autonomy and confrontational I-messages. In addition, the change in the frequencies of these categories was analysed for all relevant scenarios (seven, in total) presented to the participants. The development of the teachers' use of these categories is demonstrated by describing the teachers' expressions before and after the TET course.

Before the intervention, only two per cent of the responses indicated *listening* across all seven scenarios. After the intervention, teachers discussed listening more frequently (15%). This change was significant according to a McNemar–Bowker test. Before the training, the typical response to this scenario was a direct answer to the question and a general lecture about working and learning. Most teachers wanted to provide a solution to the problem, some by determining which topics are worth revising. Some teachers wanted to provide advice on how to handle student concerns. Another popular way of supporting a pupil was to stress that evaluation is a long and diverse process.

After the TET course, the teachers proved that they had learned the skills required given that they recognised that a pupil's question was a sign for the teacher to shift to listening. They also restrained themselves from only giving advice, sympathising or reassuring pupils since these approaches are considered road blocks which prevent a pupil from opening up. Teachers in the secondary school, however, did not give up using road blocks even though they had participated in the TET course. Instead, they often combined listening and road blocks in the same response. In conclusion, during TET, teachers developed their skills in receiving pupils' messages by actively listening and by avoiding responses that might indicate that the teacher was taking control of the conversation.

Overall, before TET, *confrontational I-messages* were quite rare (16%). After TET, they were more common (31%), increasing significantly. Before TET, even though they wanted to show empathy and understanding, teachers were more likely to lead conversations. However, teachers rarely said anything about themselves in these situations. Before TET, so-called road blocks such as commanding or warning pupils were common. When interacting with their colleagues, teachers tried to find a way to confront their colleagues in a polite way. However, they typically used road blocks such as offering a solution to deal with a problem.

After TET, teachers talked about their feelings more. Some teachers told parents that they were saddened or concerned by a pupil's behaviour. In addition, they mentioned listening to parents. Thus, teachers had learned that, after using confrontational I-messages, it is important to shift from confrontation back to active listening.

Some teachers (10%) already relied on *positive I-messages*, Gordon's alternative to praise, although they had not participated in TET. After the TET course, however, this message became more popular (13%) among participants, although the increase was not significant. Teachers learned to talk to pupils about their feelings regarding the class and the recognised the positive effect of such feelings.

Generally, before the TET course, teachers wanted to express their satisfaction in the form of praise sometimes combined with encouragement or predictions about the future. Rewarding good behaviour was common, especially among elementary school teachers.

Thus, after TET, teachers shifted how they gave positive feedback from making a general comment or using road blocks to providing a detailed comment that included descriptions of the pupils' behaviours and the emotions and effects experienced by the teacher as a result of those behaviours.

Before TET, messages which *supported autonomy* were quite rare (7%) across all seven scenarios. After TET, suggestions about letting pupils work on their own or encouraging pupils to find their own solutions increased significantly and became more common (15%). The responses before TET generally included a more teacher-centred orientation even though the above-mentioned methods were employed. Yet, giving the floor to both antagonists was emphasised in many responses regardless of TET experience. In addition, in various responses before TET, the teacher's goal of getting the pupils to apologise and shake hands was mentioned.

To conclude, the shift between teachers' responses before and after TET can be seen in the way teachers participate in pupil conflicts. After TET, the teachers were willing to withdraw from the role of leader and allow pupils more involvement in solving their own problems. Defining needs was mentioned in many responses, suggesting that the final decision should be based on the defined needs of both sides, after which a satisfying solution can be found.

6.4 Study IV

Nine months after the intervention, only one-fifth (n = 6) of the participants did not mention explicitly any of the skills studied (Gordon, 2003) at all. One skill was mentioned by one-third (n = 10) of the participants and over one-third of the participants (n = 12) mentioned two skills. The remaining participants (n = 3) mentioned three skills. Two-thirds of the participants (n = 20) mentioned in their answers that they had used I-messages in their interactions. Teachers reported that they had used I-messages to confront a pupil; but, more commonly, teachers mentioned I-messages as a means of providing positive feedback. Listening was also mentioned by almost two-thirds (n = 19) of the participants. Typically, listening was mentioned in interactions with pupils and with parents. Active listening was also mentioned as a method to help colleagues to rethink what they had said.

In addition, one-fifth (n = 6) of the participants felt that they were good or quite good at using the skills studied in TET. Only one participant, however, said that he was weak in using those skills. Two-thirds (n = 20) perceived their skills to be moderate or indicated that they applied some skills well and some skills poorly. The participants expressed using the skills studied in TET mostly (n = 25) with their pupils. Almost all of the participants (n = 27) would recommend TET to their colleagues. Participants perceived the studied skills and topics as professionally important. Some teachers felt that the course gave them the possibility to reflect upon their own interaction skills and, for some teachers, having fun or gaining strength were important.

A Kruskal–Wallis test was used to analyse the possible relationships between the clusters according to teachers' skilfulness and the above-mentioned categories created from the participants' mentions of specific skills. No statistical relationships were found in the answers between their skilfulness and any individual mention of a skill. In addition, according to a Mann–Whitney test, no statistical differences were found based on gender, years as a teacher in the same school, work experience, permanent employment or workload (full-time/part-time).

7 Discussion

7.1 Main results

The aim of the present study was to explore teachers' social and emotional learning (SEL) through an analysis of the development of their social interaction skills during Teacher Effectiveness Training (TET). The most important findings were as follows:

1. The dealing with challenging interactions (DCI) method which was developed to measure the social interaction skills of teacher study groups appeared to be a reliable and valid tool for measuring teachers' social interaction skills.

    – A cluster analysis differentiating between skilful and less skilful teachers supported the discriminant validity.
    – The results using the supplementary instrument were equivalent to the cluster analysis supporting the criterion-oriented validity of the method developed *(Study I)*.

2. Multi-phase quantitative analyses showed that teachers benefitted from TET.
    – Among those who participated in TET, both knowledge and the application of knowledge (skills) improved significantly. In the comparison group, no differences between the pre- and post-test measurements were found.
    – The teachers' reactions towards TET were positive.
    – The overall well-being of the teachers measured at the end of the intervention showed minor positive changes *(Study II)*.

3. A qualitative change took place among teachers participating in TET. Analyses showed that, from the perspective of the TET course's goals, teachers learned to use TET skills in their responses and improved their readiness to support their pupils' autonomy.

    – After participating in TET, teachers expressed themselves in more detail by describing their perceived behaviour and expressing their feelings about the tangible consequences of behaviours instead of using labelling and related interpretations.
    – By giving room to pupils, for example, by emphasising their listening skills or by asking pupils to participate actively in a problem-solving process, they were also more likely to support their pupils' actions, which reinforced autonomy and agency.
    – In some descriptions, however, teachers used those skills only partially *(Study III)*.

4. Nine months after TET, participants still remembered the central skills studied during TET and were able to reflect TET skills in their own behaviour.

   – Almost all of the participants said that they would recommend TET to their colleagues.
   – Participants were quite realistic in their self-assessments given how difficult it is to learn how to deal with challenging interactions both inside and beyond the classroom *(Study IV)*.

7.2 General methodological reflections

Using both qualitative and quantitative methods for analyses in this study yielded a comprehensive picture of teachers' learning during TET. If the participants had only been evaluated using quantitative analyses, the qualitative change in how teachers approached challenging interactions would have remained unclear. As Wager (2002) stated, in qualitative studies, the researcher looks at the investigated phenomenon from far and wide in order to find the specific details, but also in order to picture the coherent whole. Hence, the richness and the complexity of the teachers' answers could be captured through qualitative analyses. Conversely, if only qualitative analyses had been carried out, the quantity of the change in teachers' learning would have remained unclear. The present study describes the amount and the character of teacher learning during TET. It was also important to explore whether the skills learned were still active nine to twelve months after completion of the TET course. Overall, because of the complexity of the phenomenon studied, multi-phased mixed-method analyses were needed.

Reliability and validity are the cornerstones of any scientific study. Validity refers to the success one has in measuring the phenomenon as intended and reliability refers to the possibility and degree to which the study can be replicated (Hunter & Brewer, 2003). Traditionally, in qualitative research, validity has been understood as credibility and as internal validity in quantitative research. However, given that mixed methods are more commonly used in the analysis of data, it has been argued that traditional concepts do not adequately evaluate the quality of a particular study. Therefore, Teddlie and Tashakkori (2003) put forth the concept of *inference quality*, which consists of *design quality* and *interpretive rigour*. Furthermore, in order to evaluate the generalizability of a study—an important aspect of scientific research as well—they recommend determining the *inference transferability,* which includes the external validity common in quantitative research and *transferability* which is typical for qualitative research. Hence, the validity of the present mixed-method study will next be examined from the perspectives of the above-mentioned components from Teddlie and Tashakkori (2003).

When the *design quality* of this research is considered, a wider range of participants from different backgrounds would have been important to recruit in order to develop the measurement for more extensive use or to make generalisations about the results to a broader population. In this study, the participants were from

three schools and they volunteered to participate in the training on social interactions. In addition, even though this is a quasi-experimental study that includes a comparison group (Shadish, Cook, & Campbell, 2002), the comparison group consisted only of subject-matter teachers. In addition, the sample was not randomised. Thus, the comparison group did not fully correspond with the intervention group which consisted of classroom teachers and subject-matter teachers. The group of classroom teachers could have been dropped, but comparing learning among classroom teachers and subject-matter teachers was an interesting research question in itself, because of the distinction in their pedagogical and psychological studies. In this case, it could be concluded that those classroom teachers who participated in this study learned the studied skills better than the subject-matter teachers who majored in the subjects they teach.

Through the process of classification and redefining the categories for responses, the research's *interpretive rigour* was enhanced through the use of a parallel analysis carried out by other researchers (Miles & Huberman, 1994). This was intended to achieve consensual validation, thereby increasing the credibility of the analysis and the interpretation of the results. I consulted with other authors and doctoral students regularly to discuss any difficulties that arose during the analysis or to obtain an additional perspective on the appropriateness of the classification for specific units of the formulation of individual categories and subcategories. When our perspectives differed during peer debriefings, discussion was used until consensus was achieved.

Finally, with regards to *inference transferability*, it is important to note that only researchers with a solid understanding of TET theory can classify the DCI responses. Hence, DCI cannot be used without any knowledge of social interaction skills. However, trainers and other experts in SEL skills are able to utilise the DCI instrument or a modified version of it in various contexts. In addition, the skills tested through DCI can be learned. Thus, the necessary expertise can be acquired relatively quickly. Since challenging situations which teachers must deal with are quite similar across schools and since the TET course can be delivered in more than 20 countries, it is likely that the conclusions of the present study can quite easily be applied to other teachers in many other countries. Hence, transferring the conclusions of this study to other contexts is possible.

Furthermore, with regards to validity, it is important to remind readers that the measurement of the present study is based on teachers' expressions and did not measure how teachers act in the field. However, observing or videotaping in a classroom would have been problematic since challenging situations often occur beyond the classroom setting, occurring instead in the school yard, on the phone with parents or at staff meetings in the teachers' room. In addition, challenging situations hopefully happen quite infrequently. Hence, it may have been quite difficult to capture just the right moment on video or through observation. However, a change in teachers' thinking, which is a prequisite to a change in their behaviour, can be revealed.

Finally, with regards to internal validity, it is not absolutely clear whether the TET course was responsible for the positive results described in this study. The comparison group, however, did not show improvements in their performance dur-

ing the time of the training. Instead, they remained at about the same level, whereas both intervention groups scored better on almost every aspect measured. Hence, it is unlikely that all of the teachers who improved their responses on the post-test would have learned the measured skills elsewhere.

7.3   Specific methodological reflections

One of the main objectives of this research was to develop a tool to measure basic interaction skills in typical but often challenging situations with students, parents and colleagues. The *dealing with challenging interactions (DCI)* method was found to be a reliable and valid tool for investigating the change in teachers' social interaction skills as well as SEL. Although the sample size was small and the tool could be used only by researchers with a solid understanding of SEL, DCI may be a practical tool in capturing changes in the learning of social interaction skills and SEL. A strength of the current study is that DCI is a measure of maximal behaviour (see Humphrey, 2013, 72–73), which requires to complete a task that taps the social or emotional skill in question. DCI is broad in scope and covers the whole spectrum of social and emotional skills presented in Figure 1.

With the help of the DCI method, the SEL process is approached from new viewpoints. Indeed, few people would be happy if the assessment of pupils in school were based solely on their reactions to the subjects taught. However, when it is a question of SEL, the outcomes of training courses are typically only measured by asking for feedback from participants. This feedback is not invaluable, since it is normally given by all participants and since it can be analysed immediately following the course. In addition, if something problematic occurs—for example, the facilities are inadequate—reactions can be quite quick. Thus, it is relevant to assess initial reactions since they may explain any weak learning outcomes (Kirkpatrick & Kirkpatrick, 2006). However, only collecting feedback immediately after a course does not provide much information about participants' learning. Therefore, a set of evaluation instruments was developed in this research in order to understand more thoroughly the skills gained by participants who attended TET. In this case, it can be concluded that the positive reactions to the course did not predict the learning of social interaction skills. In general, all of the teachers were happy with the course, although their knowledge acquisition and the application of that knowledge varied. Accordingly, similar to the learning experienced by pupils in schools, the outcomes of training on SEL should be evaluated from various perspectives by, for example, using the measurement instruments developed in this study.

There are also some additional advantages to DCI. Giving participants a chance to formulate descriptions of their possible reactions to challenging situations may help them to reflect on real-life situations. Hence, self-assessment may foster learning (Biggs, 1999). In addition, the pre- and post-test design of the DCI method allows participants the opportunity to reflect upon their own learning. Furthermore, through the use of an observation method, for instance, researchers seldom get feedback about the moments under study that they observed, or the participants' intentions and thoughts may remain unclear. Using the DCI method,

feedback can be collected on the scenarios developed for inclusion in the questionnaire.

Perhaps the biggest advantage to the DCI method is, however, that it is a practical evaluation tool in cases where the target group under investigation is large or where the intention is to investigate the effectiveness of the training materials among every member of the group. It is quite typical that social interaction skills are studied through courses where the participants come from various workplaces. It might be difficult to follow all of the participants from a training seminar at their workplaces in order to videotape or observe them. In addition, the variety of challenging interactions in the teaching practice is quite extensive. The professional practice of teachers extends way beyond the classroom. Communication skills are required in encounters with parents, colleagues, the administration and the surrounding society. Mere classroom observation, while useful and valuable in itself, may be too narrow of a method for evaluation purposes. The DCI method captures the various aspects of interaction situations and is flexible allowing for modification to different contexts.

As mentioned above, teacher development and learning were explored from various perspectives in this research. Typically, participants' feedback is the only way to evaluate the benefits of the course. Analysing teachers' feedback and changes in their knowledge, the application of knowledge (skills) and overall well-being improved our comprehensive understanding of the TET learning process. In addition, asking about their experiences and perceptions of the course content almost a year after the training was received yielded important information about teachers' learning of SEL. Without careful investigations, the benefits to pupils through the acquisition of skills such as supporting autonomy would have remained hidden.

7.4 Theoretical implications

The theory and skills provided by TET are sometimes considered simply a body of classroom management techniques. However, according to our findings, the effects may be broader. TET came into use in the 1970s. As a representative of individualistic humanistic psychology and a student and colleague of Carl Rogers, Thomas Gordon focused on the potential resources of the individual. I suggest that supporting autonomy is a collaborative act. By enabling pupils' autonomy, showing respect and leaving the responsibility for learning to pupils, teachers give them a chance to develop their agency. Accordingly, the general aim of TET is to improve constructive communication and to support participation, decision-making and autonomy among both pupils and teachers (Gordon & Burch, 1974; Gordon, 2003; Rogers, 1970).

Humanistic psychology and positive psychology are often viewed as quite close to each other as scientific movements emphasising the existing strengths and resources of human beings. Few studies, however, have approached the product of human psychology by applying the theories of modern educational psychology, including concepts from positive psychology such as self-determination theory (Ryan & Deci, 2000). Moreover, despite recommendations to support the autonomy, relatedness and competencies of human beings, little information is available demonstrating how these components of self-determination may be strength-

ened. In this piece of work, teachers' SEL and the social interaction skills studied could be proven useful in supporting self-determination. For example, avoiding road blocks and using listening skills seem to help pupils to become more aware of their personal needs, wishes and desires and, as a result, empowers them to determine of their own lives. Likewise, specific feedback from teachers rather than simple praise helps students to recognise their own competencies. Accordingly, in the present study, theories of modern educational psychology may explain and define more precisely the benefits of training on social interaction skills for teachers and their pupils (Deci et al., 2001; Deci & Ryan, 2008; Gordon, 2003; Leroy et al., 2007; Rogers, 1970).

7.5 Educational implications

Typically, teachers benefit from training on skills to improve interactions with their pupils. One of the teacher's duties is undoubtedly to address their pupils' feelings which do not promote learning. Sometimes, a teacher needs to resolve conflicts between pupils or between a teacher and a student. In any case, by using their social interaction skills, teachers ease their pupils' emotions which might hinder their learning. In addition, teachers should be able to express themselves in such a way that their pupils can utilise the knowledge and skills learned, and, of course, to learn new information as well. Feedback, for example, which previously was highlighted as central to many learning theories, can be given in many ways. Instead of using road blocks which might decrease a pupil's sense of autonomy, agency and even learning, teachers need to know how to provide supportive 'feed forward' which promotes engagement in learning and psychological well-being (see Murtagh & Baker, 2009).

Teachers' skilful actions in the classroom affect the learning environment as well. According to Lintunen, Rovio, Salmi and Gould (2005), the use of basic counselling skills, such as active listening, clearly expressing one's feelings, beliefs and thoughts, problem-solving skills, taking responsibility and collaboration, are guiding principles for creating a psychologically safe environment for a team or a group. If it is perceived as a safe enough place for the expression of one's thoughts and emotions and if different opinions are accepted, participants may be more likely to trust the group and place their creativity at the disposal of the group.

Cooperation between schools and homes has been enacted through Finnish legislation. Hence, teachers need interactive skills which focus on parents as well. In discussions about raising children and youth, either teachers or parents typically feel the need to defend themselves since this is a highly sensitive topic. It is also possible that either the parents or teachers may feel that they are being treated disrespectfully or in a casual manner. By using their interactive skills, however, teachers are able to recognise this underlying difficulty by carefully validating their arguments showing assertiveness while also demonstrating their understanding and helping parents to express themselves. This research has shown that even well-educated teachers who are capable of fostering their pupils' academic performance benefit from training on social interaction skills. Such skills help them to deal well

with challenging situations and, as a result, allow them to create a better atmosphere and foster well-being in the classroom.

A great deal of a teacher's time goes towards interacting with their colleagues and other professionals who work with pupils. In the classroom, a teacher might work together with specialised teachers and school assistants. Clear communication, such as using I-messages helps all adults working in the same classroom to collaborate with one another. Beyond the classroom, teachers gather together and plan shared lessons or events or they may work in teams to write the school's curriculum together. Teachers are sometimes asked to take part in meetings concerning a pupil's family situation or another issue. Hence, during a school day, teachers might interact with hundreds of people with whom interactions need to work well, go smoothly and include a high level of respect for all participants.

In the first place, teachers participate in courses on social interaction skills in order to improve their interactions with others such as pupils, parents and colleagues. Thus, the aim is to support teachers' *external prerequisites* in order to succeed in their work. By using their social interaction skills with pupils, teachers foster reciprocal acts that lead to collaboration and relational agency in the classroom (Edwards, 2005). With parents and colleagues, the use of one's social interaction skills increases respect during the interaction and, thus, helps teachers to maintain fruitful networks with other adults. In addition, teachers' *internal prerequisites* including their own learning within the community of practice to maintain professional development and well-being, will be supported by studying social interaction skills. Peer discussions may promote the expansion of viewpoints leading to reflective considerations (Vanhalakka-Ruoho & Ruponen, 2013). This reflection also reveals how members communicate with their peers, which may lead to the empowerment of the entire workplace community (Wager, 2006). Accordingly, if the entire community learns the skills at the same time, it helps them reflect together about the use of such skills and recall later what was learned. A change in the culture surrounding interpersonal communications in schools might be difficult to achieve if the entire community of practice is not involved. To conclude, in order to actively use and get benefits from the skills studied, conscious involvement is needed in order to regularly reflect upon one's own skills and behaviour whether external or internal perquisites.

According to the Collaborative for Academic, Social and Emotional Learning (2014), there are quite a few courses available for teachers on social interaction skills and SEL. In Finland, at least Lions Quest (2014), Second Step (2014) and Aggression Replacement Training (2014) are available, in addition to Teacher Effectiveness Training (2014). In addition, KiVa (2014), an international anti-bullying programme, provides training for teachers. Despite the available courses, there seems to be room for improving teachers' social interaction skills. Although training on human relations and social interaction skills has increased in teacher education in 2001–2005, there is still a reported need for training on conflict resolution skills, instructional skills and workplace community skills (Final report of the teacher training development programme, 2006). As Humphrey (2013) suggests, both the 'will' and 'skill' are important aspects that affect teachers' willingness to implement the SEL skills. If it is a lack of 'will' including attitudes, values

and beliefs, it might be difficult to shift teachers' behaviour by organising courses for them. Instead, a thorough debate about the basic task of school in society is then needed.

The TET course appears to be an effective way for teachers to improve their knowledge of SEL and their ability to apply it. This piece of work also demonstrated the various benefits that social interaction skills and SEL generate in relationships between teachers and their professional networks including with their pupils and pupils' parents as well as the teachers' colleagues. Since challenges in schools and the efficiency of the teachers' course of action in the classroom are constant topics of public debate, it is important for teachers and teacher training institutes to consider the tools that training on SEL provide in order to achieve and maintain solid learning results. This study also showed that, by studying social interaction skills, teachers learned to promote pupil autonomy, agency and affiliation in a pleasant way. At the same time, they learned to act assertively in the classroom in order to achieve the goals of the studied subject.

7.6 Future studies

In the present research, the possible real-life changes due to the development of teachers' SEL were not investigated. Qualitative research based on video material for a few participants would provide interesting information about how teachers participating in TET have applied the skills thus obtained to their interactions in real life with pupils, parents and other colleagues. Interviewing participants or collecting participants' learning diaries, for example, two years after the training course would also yield valuable information regarding the process of transferring social interaction skills. It would also be possible to compare those pupils whose teachers have participated in the training on interaction skills with pupils whose teachers did not attend any SEL training. Potential research questions could include topics such as the atmosphere of and interpersonal respect within the classroom, bullying and the affiliation of a teacher. According to the preliminary results from a promising study on Lions Quest, it seems that pupils whose teachers have participated in training on SEL have also benefitted from the training (see Matischek-Jauk & Reicher, in press).

All of the workplace communities from the present study applied to take part in the TET training; thus, those teachers participating in this study had some motivation at the community level at least to study social interaction skills. However, their motivation, beliefs, readiness to change and other personal characteristics usually affect learning. It would be important to explore if the outcomes of SEL are affected by the participants' predispositions, attitudes and thinking. Obviously, those who are motivated and keen on SEL and social interaction skills learn more easily than those who are forced to participate in a training.

It would also be important to study SEL beyond the school setting by using the modified version of DCI. Thomas Gordon developed trainings on social interaction skills, for example, for parents, business leaders and physicians as well (Gordon training international, 2014). Exploring the outcomes of leaders' social interaction training would widen the perspective from education to new domains

(Lonka, Talvio, Ketonen, & Marttinen, 2014). A greater number of interpersonal skills are increasingly important in one's work life due to globalisation and wider networks of collaboration. Accordingly, the need for research on the effectiveness of trainings which focus on better collaboration and interactions will presumably grow in future.

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Appendix 1: Course feedback (reactions questionnaire)

Name:　　_____

Date:　　_____

Choose the score which best describes your opinion

The TET course met my expectations
Totally disagree　1　2　3　4　5　　Totally agree

The skills studied during TET can be applied at work.
Totally disagree　1　2　3　4　5　　Totally agree

The skills studied during TET can be applied outside work.
Totally disagree　1　2　3　4　5　　Totally agree

The procedures for the course were clear.
Totally disagree　1　2　3　4　5　　Totally agree

The pace of the course was good (not too slow, not too fast).
Totally disagree　1　2　3　4　5　　Totally agree

The instructors were professional.
Totally disagree　1　2　3　4　5　　Totally agree

Various methods were used during the TET course.
Totally disagree　1　2　3　4　5　　Totally agree

The course materials supported my learning.
Totally disagree　1　2　3　4　5　　Totally agree

Overall score.
Poor　　　1　2　3　4　5　　Excellent

My energy level during TET
Weak　　　1　2　3　4　5　　Excellent

What was the central objective of the TET course?

_____

_____

_____

_____

_____

What was especially good about TET?

_____

_____

_____

_____

_____

How could TET be improved?

_____

_____

_____

_____

_____

Finally, I would like to say…

_____

_____

_____

_____

_____

Appendix 2: Knowledge test

What do you know about social interaction skills?

Name: _____

Date: _____

How would you show a speaker that you were really listening to him/her?

_____
_____
_____
_____
_____

Define active listening.

_____
_____
_____
_____
_____

What are the components of positive feedback?

_____
_____
_____
_____
_____

How is the ice berg theory related to emotions?

_____
_____
_____
_____
_____

What is the both win method?

_____
_____
_____
_____
_____

What is important to remember during the brainstorming phase?

_____

_____

_____

_____

_____

When should you 'shift listening'?

_____

_____

_____

_____

_____

How does a good advisor act?

_____

_____

_____

_____

_____

Thank you! All of the answers will be analysed and kept strictly confidential.

Appendix 3. The dealing with challenging interactions (DCI) questionnaire with typical responses from DCI categories

What would you say or do? – Questionnaire for teachers

WHAT WOULD YOU SAY OR DO IN THE FOLLOWING SITUATIONS?

Thanking the class
One of your teaching groups is different from the other groups. This group is always on time, they have done their homework and they actively take part in the lesson. The marks for this group are better than average.

What would you say to them?
Positive I-message: I am satisfied with teaching this group because you are on time in the classroom, you are active and you study hard. I do not have to worry about your learning.
Encouraging and predicting: I will encourage them to continue in the same way, because it will help them to go far.
I do not compare: I do not compare them to the other groups.

Contacting home
One of your students has been late three times this week. You also heard him/her call you a '****ing idiot' as you took away his/her mp3 player. You have decided to call his/her parents.

What would you say to them?
Confrontation I-message: I am worried about your child's language and that s/he has been late so often. This inappropriate behaviour causes trouble for the class and for me and s/he cannot follow the teaching if s/he is late so often.

Conflict resolving
Two of your students argued during the break and also attacked one another. This is not the first time. You have decided to intervene in the conflict now since you have time to do so.

What would you say or do in this situation?
Messages providing agency: I would ask the students for their solutions.

Listening to the worries of your student
One of your students is coming to you after a lesson to ask you if the upcoming test will be difficult.

What answer will you give to your student?
Listening: I would listen to their concerns and possible fear related to the upcoming test.
Road block: The difficulty of the test depends on your knowledge of the subject matter.

Distracting behaviour of a student
One of your students is always text messaging. The school has a rule that mobile phones
may not be used at school.

What will you say or do?
Orders and conditions: I will tell him/her the school rule as a fact.

Distracting behaviour of a colleague
Your colleague has borrowed your DVD player from your classroom without asking per-
mission. The start of your lesson will be delayed because you have to find a DVD player
from somewhere else. You have decided to discuss this with your colleague.

What will you say?
Confrontational I-message: It annoys me that you borrowed the DVD player from my class-
room without asking permission first. I was late for my lesson because I had to fetch a
DVD player from somewhere else.

Setting limits
The headmaster asks you to participate in a group which focuses on improving cooperation
between the school and homes. However, you are involved in many other groups already.

What will you say to him/her?
Other I-messages: I feel I do not have time to participate in this group because I am already
involved with other groups.

Original publications