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The Faculty of Health Sciences
The Regional Centre for Child and Youth Mental Health and Child Welfare

# Young children with problem behaviour in school settings:

Evaluation of the Incredible Years Teacher Classroom Management program in a Norwegian regular school setting

**Merete Aasheim**

*A dissertation for the degree of Philosophiae Doctor – April 2019*

UNIVERSITY OF TROMSØ

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*Tromsø, April 2019*

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## Abstract

Children's early problematic behaviours in school may be developmental precursors of a wide range of negative outcomes, including academic problems, school dropout, crime, mental health problems, future unemployment, and general social exclusion (Ford et al., 2018; Odgers et al., 2008). In Norway, as many as 3.5 – 4.0% of children in early school age exhibit severe externalizing behaviour consistent with a diagnosis (Reneflot et al., 2018). There is a growing policy focus on children's mental health and the health promoting role schools may have (Arrhenius et al., 2015). Children spend many hours per day in school; hence, the school is an optimal setting to promote social skills and emotional self-regulation in children and may serve to counteract risk factors associated with the development of problem behaviour. The school environment and teachers' classroom management skills may therefore play a crucial role in this process by altering early trajectories of behaviour problems and thus contributing to lowering the risk of future behavioural and emotional problems in children (Hamre & Pianta, 2005). The Incredible Years Teacher Classroom Management (IY-TCM) program may present an opportunity to prevent problem behaviour by reducing classroom aggression and non-cooperation with peers and teachers, as well as to improve social and emotional skills in students. The effectiveness of the IY-TCM program implemented as a full-scale universal preventive intervention in regular school settings has not been previously examined. The main aim of this thesis was to evaluate the effectiveness of the IY-TCM program when delivered as universal preventive intervention to all teachers and students at the lower primary school level in Norway. Using a quasi-experimental pre-post comparison group design, the IY-TCM was implemented over an eight- to nine-months period in 21 schools. Reports from teachers, participating in six full-day workshops (42 hours) were compared with reports from teachers in 22 comparison schools. A total of 302 teachers and 1,518 students (6 to 8 years old) took part in the trial. The linear mixed model analyses showed small effects in terms of differences in changes between groups in student's social skills and problem behaviours ($d_w$ = 0.08 to $d_w$ = 0.20), and small to moderate effects in teacher-student relationship and teachers' perceptions about parent's involvement in school ($d_w$ = 0.15 to $d_w$ = 0.40). No main effects with regard to change in teacher's behaviour management practice, teacher's efficacy, teachers' report of problem behaviours in classroom and school environment and classroom climate at the 0.05 level were detected. This evaluation gives new knowledge of the impact of the IY-TCM program when given as a full-scale universal preventive intervention in regular school settings. For future research, long-term follow-up assessments, identification of barriers against implementation and key features

of successful implementation in regular school settings are recommended. Overall, the findings in the present study suggest potential preventive effects of the IY-TCM program, and gives implications for future school practice with regard to improving the teacher-student-parent relationship and lowering the risk of future behavioural and social problems in schools.

## List of papers

I. Aasheim, M., Reedtz, C., Handegård, B. H., Martinussen, M., & Mørch, W.-T. (2018). Evaluation of the Incredible Years Teacher Classroom Management program in a regular Norwegian school setting. *Scandinavian Journal of Educational Research*, 1-14. https://doi.org/10.1080/00313831.2018.1466357

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# 1 INTRODUCTION

## 1.1 Background of the study

Schools' unique possibility to reach most children make them a favourable setting in which to implement ideas that promote children's wellbeing and counteract potential developmental difficulties (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Weare & Nind, 2011). Research shows that school-based universal preventive intervention programmes can promote positive mental health and create resilience, providing children with the resources to thrive and, in adverse conditions, to cope by buffering the effects of negative stressors (Hosman, Jané-Llopis, & Saxena, 2004; Sancassiani et al., 2015). Originally, the Incredible Years Teacher Classroom Management (IY-TCM) programme was developed to address children with clinical and pre-clinical problem behaviour, suggesting that it was meant for high-risk children. In Norway, the Norwegian Directorate of Health and the Norwegian Directorate for Education and Training recommended the implementation of the IY-TCM programme, provided that it was rolled out as a universal preventive intervention and evaluated in a regular school setting. The program's effectiveness among teachers and children in regular school settings, where the number of high-risk children is low and children are described with few negative demographic indicators, has not been examined previously. The research project described in this thesis was commissioned by the Norwegian Directorate of Health in 2009, and assigned to the Regional Centre for Child and Youth Mental Health and Child Welfare - North (RKBU-North) at UiT the Arctic University of Norway. Hence, the RKBU-North was given the responsibility of implementing the IY-TCM programme in all municipalities in Norway. The Norwegian Directorate of Health funds the implementation of IY programmes in Norway and covers the programmes' administrative and national implementation expenses, including the costs related to the organisation of the programme, and the training, supervision, and certification of IY group leaders. In order to facilitate independence between the implementation of the programme and the corresponding research, the Norwegian Directorate of Health wanted boundaries between these aspects. Therefore, during the research project described in this thesis, the research team, including the PhD candidate, did not participate in the implementation of the IY-TCM programme, nor in the training, supervision, or certification of IY group leaders.

## 1.2 Development of problem behaviour

Moffitt, Caspi, Harrington, and Milne (2002) identified how individual risk factors such as neuropsychological variations in temperament, hyperactivity; cognitive deficits that manifest early in a child's life; and environmental factors such as parental neglect and inconsistent, harsh discipline, may be prerequisites for life-course-persistent antisocial behaviour. Temperamental negative affectivity may also play a causal role in the development of oppositional defiant disorder (ODD) and attention deficit hyperactive disorder (ADHD) (Wichstrøm, Penelo, Viddal, de la Osa, & Ezpeleta, 2017). When childhood biological dispositions (e.g., pre- and postnatal complications and genes) interact over time with contextual strains, such as parental conflict, depression, economic conditions, and high negative maternal stress, these processes may explain the development of antisocial behaviour in children (Snyder & Stoolmiller, 2002). Furthermore, the understanding of how the impact of individual and environmental risk factors mediate the nature of infant-caregiver exchanges and child outcomes, and how these factors may influence the development of problem behaviour indirectly through parenting, is derived from Patterson's Social Interaction Learning (SIL) model (Patterson, 1982). The SIL model describes how family dynamics underlie the development of early-onset problem behaviour and is a transactional model that views individuals and social contexts as dynamic systems that change over time. These dynamic systems initiate coercive interactions between family members by disturbing parenting skills, thereby leading to early-onset behaviour problems in the child (Patterson, Reid, & Dishion, 1992; Sameroff & Mackenzie, 2003). Hence, the SIL model emphasises the importance of relationships and interactions between family members, and how the quality of these interactions may explain the development of behaviour problems and emotional problems in the child. A core concept in the SIL model is coercion or coercive interactions, which refers to the contingent use of reciprocal exchanges of adverse (negative) behaviours between child and parents. This idea of contingency also lies at the core of Patterson's Coercion Theory. Coercion 'training' requires frequent interaction between child and parents who consistently (1) have a high rate of adverse interactions, and (2) have a reliable disposition to withdraw once the other counterattacks. As a result, "the initiator trains the other to use reactions that terminate the unpleasant intrusion" (Patterson et al., 1992, p. 42). This is explained as a process of mutual negative reinforcement, in which the caregivers inadvertently reinforce children's aggressive and difficult behaviours, eliciting caregiver

negativity, and so on, until the interaction is discontinued when one of the participants 'wins'. For example, a child who does not get permission to use the IPad before breakfast reacts with anger or resistance (i.e., an adverse incident or a coercive act) to the caregiver's directive and initiates a temper tantrum. This, in turn, evokes anger and hostility from the caregiver, which is often intensified as the coercive cycle escalates and continues until either the parents or the child resigns. If the parents resigns and lets the child use the IPad (escape conditioning), the child learns that acting out is functional. Parents contribute by resigning, and the child contributes by acting out (e.g., yelling and hitting). As such, parents inadvertently strengthen their child's aversive behaviour by their cyclical reactions of withdrawal and giving in. Both the parents and the child learn that aggressive and coercive behaviours are effective strategies to 'win' conflicts (Patterson, 1982; Smith et al., 2014). Over time, bidirectional coercive interactions in parent-child dyads become habitual; the child learns that negative behaviours 'pay off', whereas socially competent behaviours do not. When coercive interactions dominate within the family, problem behaviour may develop and stabilise throughout the child's development (Kjøbli, 2009). The patterns children learn and use to relate to caregivers and siblings may extend to their relationships with people outside the family, such as teachers and peers in the school environment. Coercive parent-child interactions within the family are often the precursor to problem behaviour at school, and they may represent a pathway to oppositional behaviours or serious antisocial behaviour and academic failure during school age (Smith et al., 2014). Just as in the family, early, minor externalising behaviour in school may develop into more serious behaviour problems due to the reinforcement of negative behaviours during coercive interactions over time between the child and teachers, as well as between the child and his/her peers. The only difference between the home and school setting is the participants in the interactions.

Parent training courses have shown to be effective interventions to improve difficulties at home (Leijten et al., 2018), however, they rarely improve school-based problem behaviour (Scott et al., 2010). Children in schools, who struggle behaviourally, socially, or emotionally, are less likely to benefit from academic instruction. The transition to school may represent a crucial opportunity to interrupt the cascade of problem behaviour and negative social outcomes for these children (Patterson et al., 1992), who often need additional support to adapt to the student role. In order to help these children and meet these challenges in their classroom, teachers must be provided with effective classroom management skills. Effective

school-based interventions that supports teachers could potentially optimise every children's mental health and behaviour as well as among children currently experiencing severe behaviour difficulties.

## 1.3 Prevalence of problem behaviour

In a recent report by the Norwegian Institute of Public Health (Reneflot et al., 2018), around 7% of pre-school and school-aged children showed symptoms consistent with a mental health disorder. Of these, 4% were diagnosed with early-onset developmental disturbances, such as ADHD, autism spectrum disorders, Tourette's syndrome, and behavioural disorders (Reneflot et al., 2018). Based on population studies in Norway, the prevalence of CD is 0.7% and ODD is 1.8% (3-month estimate) among 4-year-olds and 0.47% and 2.45% among 7-year-olds (point estimation) (Heiervang et al., 2007; Wichstrøm et al., 2012). The corresponding prevalence's were 0.59% and 2.65% (point estimation), respectively, among children aged 5-7 years in a British population study (Ford, Goodman, & Meltzer, 2003), whereas the prevalence of CD was 1.5% (12-months estimate) among children aged 8-11 years in the United States (Merikangas et al., 2010). The incidence of ADHD in Norway was 1.9% among 4-year-olds, and 1.74% among children aged 5-9 years (Heiervang et al., 2007; Wichstrøm et al., 2012), compared to an incidence of 9.9% among children aged 8-11 years in the United States (Merikangas et al., 2010). When it comes to gender differences in Norway, the boy-girl ratio is 3-7:1 for CD, 2:1 for ODD and 3:1 for ADHD (Reneflot et al., 2018). Taken together, the prevalence of problem behaviour in Norwegian children at the lower primary school level seems to be lower than that in children of the same age in Europe and the United States (Heiervang et al., 2007; Kroes et al., 2001; Merikangas et al., 2010; Reneflot et al., 2018; Wichstrøm et al., 2012).

Students included in the research project described in this thesis were screened for the frequency and severity of various student behaviours using the Sutter-Eyberg Student Behaviour Inventory-Revised (SESBI-R) (Eyberg & Pincus, 1999). Only 6% had a SESBI-R Intensity score that was at or above the 90th percentile, which is equivalent to the clinical range (Kirkhaug, Drugli, Mørch, & Handegård, 2012). Hence, the pre-assessment scores on problem behaviour were within the typical normative range of Norwegian children (Kirkhaug et al., 2012). However, our mean pre-assessment scores on problem behaviour seemed to be more favourable (Aasheim, Reedtz, Handegård, Martinussen, & Mørch, 2018) than

Norwegian norms of relevant psychometric measures of problem behaviour reported in previous studies (Kirkhaug et al., 2012; Larsson & Drugli, 2011). It is worth mentioning that, for each child who meets the diagnostic criteria for severe problem behaviour, there are probably three or four others with early-onset problem behaviour or poor mental health (Goodman & Goodman, 2011; Reneflot et al., 2018).

## 1.4 Schools as a universal preventive arena

Population estimates in the United States indicate that 54% of youths have used mental health services at some time during their lives, and that the education sector was the most common point of entry and provider of services across all age groups (Farmer, Burns, Phillips, Angold, & Costello, 2003). In Norway, mental health problems among children and youth often appear at the primary and lower secondary school level (Heiervang et al., 2007; Wichstrøm et al., 2012).

Transactional coercive development processes that may lead to problem behaviour in children often have their roots in negative family interactions (Patterson, 1982; Sameroff & Mackenzie, 2003). Outside the family context, the child may enter into similar cycles of negative reinforcement processes with teachers and peers; over time, these processes serve to maintain and amplify the child's problem behaviour. If oppositional and defiant behaviours in students are ignored by teachers or maintained by reinforcement processes at school, such behaviours may continue to increase, and thus contribute to an increased risk of school failure, antisocial behaviours, and mental health problems in the future (Jennings & Greenberg, 2009; Webster-Stratton, Reid, & Hammond, 2001).

Because most children spend a large portion of their time in school, it is a setting where the largest numbers of children can be reached. Students' behaviour, their relationships with teacher and peers, and behavioural and social-emotional processes may affect how and what they learn. In order to create optimal learning conditions for all students, schools must effectively address these aspects of the educational process. Hence, in addition to nurturing children's academic and cognitive development, schools have an important function in nurturing children's behavioural and social-emotional development (Barry & Jenkins, 2007).

Interventions may differ in their target populations, objectives, content, and processes, but they may share many core components from common, underlying theoretical constructs (e.g., the different IY programmes). Preventive interventions are often viewed within a

broader mental health intervention framework that distinguishes between prevention and treatment; such interventions are generally categorised as universal, selective, or indicated (Barry & Jenkins, 2007; Greenberg & Abenavoli, 2017). Universal interventions are directed towards all children with varying degrees of risk in a general population, such as all children in a school or class. These interventions aim to reduce a variety of risk factors and promote a broad range of protective factors in the population. Selective interventions target specific-risk and high-risk groups of children, and indicated preventive interventions address individual children with detectable signs or symptoms of a mental health problem (Greenberg & Abenavoli, 2017). In education, the Response to Intervention framework makes similar distinctions between high-quality instruction delivered to all children at the universal level (Tier 1), targeted interventions provided to students who are not making adequate progress at the selective level (Tier 2), and intensive individualised interventions and consideration for special education services at the indicated level (Tier 3) (Arnesen, Meek-Hansen, Ogden, & Sørlie, 2014; Sørlie & Ogden, 2015). Universal interventions may have different effects, e.g., they may improve (treatment) problem behaviour and prevent early-onset problem behaviour from developing further; or they may promote social and emotional skills that enhance or build resilience, which may prevent problem behaviour (Greenberg & Abenavoli, 2017). One potential disadvantage of universal interventions is that, if used in contexts with a low prevalence of a particular behavioural, educational or public health problem, substantial effort will be spent on children who may not develop negative outcomes. Nevertheless, universal preventive interventions generally have relatively low per-person costs compared to other levels of intervention; in addition, they are positively framed, given independent risk statuses, and have the potential to prevent multiple types of problem behaviour that are predicted by common risk factors (Greenberg & Abenavoli, 2017).

Teachers who are constantly exposed to emotionally provocative situations due to students' problem behaviour may also experience distracting negative emotions that can adversely affect their teaching. Experiencing frequent negative emotions may reduce teachers' intrinsic motivation and feelings of self-efficacy, thus leading to burnout (Jennings & Greenberg, 2009). When teachers are provided with effective classroom management strategies, they can learn to respond to early, minor coercive behaviour in a consistent, predictable, non-harsh manner, which can reduce problem behaviour and prevent these processes from amplifying (Sameroff & Mackenzie, 2003). Improvements in classroom

climate – which directly contributes to students' social, emotional, and academic success – may also reinforce a teacher's enjoyment of teaching, as well as their efficacy and commitment to the profession, thereby creating a positive feedback loop that may prevent teacher burnout (Jennings & Greenberg, 2009). It is of significance that school-based interventions encompass strategies that cultivate optimal learning conditions that may benefit all students. "Interventions that supports teachers to optimise children's mental health and behaviour might benefit every child subsequently taught by that teacher as well as the teacher themselves, and might be substantially more cost-effective than direct work with successive cohorts of children" (Ford et al., 2018, p. 2). In this way, the school environment can play a protective role in a child's life and serve to counteract risk factors associated with problem behaviour.

## 1.5 The Norwegian school context

In Norway, the school is mandatory for all children aged 6-16 years. Schools are public and free-of-charge, and as such represent an optimal setting for universal preventive interventions aimed to alter important social behaviour outcomes in children. Schools are divided into the categories small (<200 students), medium (201-350 students), and large (351-780 students) (Nygård, 2014). Each grade follows a single, national curriculum, which is based on the concept of equality, inclusion, and adapted education for all. In total, about 633 029 students are enrolled at the lower (grades 1-4, ages 6-10 years) and upper (grades 5-7, ages 10-12) primary school level. The average ratio of students to teachers at the primary and lower secondary school level is about 16:1, although 32% of schools have an average ratio higher than this. At the time of this research project, about 84% of teachers at the primary and lower secondary school level fulfilled teacher qualification requirements (i.e. lower degree university or college with teacher training) and about 4% had higher degree university or college with teacher/education science (Nygård, 2014). The lower primary school level was the population of interest in this research project. About 447 355 students were enrolled at this level, 8% of whom were non-Norwegian and had a different first language. These students received special Norwegian language classes in parallel to their ordinary education. About 8% of all lower primary school students (68% boys) received special educational assistance (39% as part of ordinary classes; not in segregated settings).

As mentioned, only 6% ($n$ = 83) of students had scores equal to the clinical range, (SESBI-R Intensity score > 144). This is in contrast to prior evaluations of the IY-TCM programme, in which the majority of students examined came from adverse backgrounds, e.g., high-poverty schools in urban areas or schools with a high proportion of students with clearly identified severe problem behaviour (Baker-Henningham, Scott, Jones, & Walker, 2012; Hickey et al., 2017; Hutchings, Martin-Forbes, Daley, & Williams, 2013; Leckey et al., 2016; McGilloway et al., 2010; Webster-Stratton, Reid, & Stoolmiller, 2008). Additionally, these prior evaluations addressed only a limited group of teachers, classes, or students. It is currently not known whether the IY-TCM programme can provide comparable benefits when implemented as a full-scale universal preventive intervention to a student population at low risk of problem behaviour.

## 1.6 Student, teacher and school risk factors

Student factors associated with increased social, emotional, and behavioural difficulties in school may be related to social-cognitive, emotional regulation, language, and developmental delays that contribute to disruptive behaviours in school (Dodge, 2008). Between 30 and 40% of young children with ADHD are comorbid with CD or ODD (Loeber & Farrington, 2000; Reneflot et al., 2018). These children may also experience depression, but their emotional problems often manifest as disruptive behaviour due to their lack of emotional language (Webster-Stratton & Herman, 2008). Children who enter school with poor school-readiness skills, such as difficulties controlling their negative emotions, paying attention, and following teacher directions, are more likely to develop problem behaviour and social-emotional difficulties, as well as learning problems. They are also more likely to be rejected by their classmates and receive less positive feedback from teachers, which in turn, leads to more off-task behaviour and less learning time (Buhs, Ladd, & Herald, 2006; Webster-Stratton, 2012). When children exhibit negative behaviours in school, most contact between teachers and parents is related to these behaviours. After some time, these parents may feel reluctant to stay in contact with the teacher or even try to avoid contact. Indeed, parents of students with problem behaviour often show poor parent involvement with schools and with their children's learning goals, which may perpetuate problem behaviour (Webster-Stratton et al., 2008).

Students with problem behaviour are at higher risk of developing negative relationships with their teachers (Drugli, 2013; Mejia & Hoglund, 2016; Silver, Measelle, Armstrong, & Essex, 2005; Zee & Koomen, 2017). Distrust, discordance, a high level of conflict, and a low level of closeness often characterise negative student-teacher relationships, which, over time, may lead to the escalation of problem behaviour and academic difficulties (Hamre & Pianta, 2001; Roorda, Verschueren, Vancraeyveldt, Van Craeyevelt, & Colpin, 2014). Low rates of praise and harsh discipline, negative teacher-student interactions, failure to focus on the social-emotional curriculum, and low emphasis on collaboration between school and home have been linked to increased risk for poor academic performance, aggression, and problem behaviour in students (Reinke & Herman, 2002; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Furthermore, Pianta and Stuhlman (2004) found that a poor teacher-student relationship was associated with externalising and internalising behaviour problems, school disengagement, drop-out, and poor learning (Pianta & Stuhlman, 2004).

Teachers are in one of the best positions to address children's behavioural and mental health needs on a daily basis. However, they may lack the resources and knowledge on how to do so (Reinke, Stormont, Herman, Puri, & Goel, 2011). Negative teacher-student interactions are more likely to occur in poorly managed classrooms (Conroy, Sutherland, Haydon, Stormont, & Harmon, 2009; Reinke & Herman, 2002), and these classroom environments contribute to the risk of developing problem behaviour (Webster-Stratton, Reid, & Hammond, 2004). In a poorly managed classroom, teachers faced with students displaying significant behavioural, social, and emotional difficulties may not have the adequate support to manage these problems. Teacher education programmes may fail to equip future educators with effective classroom management and behaviour management strategies, or with social learning theories and theories about child development (Evertson & Weinstein, 2006). Surveys indicate that few teachers have been trained to deliver evidence-based social and emotional skills curricula, and that many schools do not use an evidence-based social and emotional curriculum (Gottfredson & Gottfredson, 2002). Teachers may frequently use reactive strategies (e.g., imposing classroom rules), perhaps due to a lack of knowledge about the effectiveness of preventive strategies (e.g., negotiation of classroom rules) or by a lack of belief in their effectiveness (Korpershoek, Harms, de Boer, van Kuijk, & Doolaard, 2016).

## 1.7 The Incredible Years Teacher Classroom Management programme

The IY-TCM programme was originally developed in the United States by Carolyn Webster-Stratton. It is part of a comprehensive series of interventions including parent, child, and teacher training components that were designed to promote emotional, social, and academic competence, and to prevent, reduce, and treat behavioural and emotional problems. The IY-TCM programme focuses on strengthening teachers' classroom management strategies, such as the use of proactive strategies before reactive strategies. The programme also focuses on how to strengthen relationships with students and parent involvement. Other important components of the programme include improving students' prosocial behaviour, emotional self-regulation, and school readiness, as well as preventing and reducing problem behaviour, aggression, and non-cooperation with peers and teachers (Webster-Stratton, 2019).

The different IY programmes, including the IY-TCM programme, are derived from theories on how coercive cycles of interaction between the child and others in the environment may reinforce the development of problem behaviour. In addition to the strong emphasis on Patterson's Coercive Theory (Patterson, 1982), the main components of the IY-TCM programme are based on Bowlby's and Ainsworth's theories of attachment and the importance of positive relationships between child and caregiver (Ainsworth, 1974; Bowlby, 1980). As these theories emphasise the significance of emotions, affective processes, and the quality of relationships, the relational approach is seen as the fundamental component of the IY-TCM programme. Furthermore, the use of child-directed play and coaching strategies are emphasised in order to influence affective and relational aspects (Webster-Stratton & Reid, 2010). A key assumption of the IY programmes is that children's behaviours are learned through interactions with significant people, particularly parents, teachers, and peers (Webster-Stratton & Reid, 2010). Based on the Social Learning Theory (Bandura, 1977), the importance of modelling and the fact that children learn a behaviour not only by experiencing its direct consequences but also by observing similar behaviour and its consequences, is also emphasised. The Social Learning Theory also posits that a significant contributor to early childhood externalising symptoms is negative or coercive encounters within a harsh social environment (Bandura, 1986; Webster-Stratton, 2012). It is also important that the programme's content is adapted to the child's age, and psychological and cognitive development, in accordance with Piaget's learning approach (Piaget & Inhelder, 1962). Taken

together, the logical assumption regarding the process of behavioural change in children is that the environment in which the child develops must first be systematically altered. The same core components described in the SIL model and Patterson's Coercive Theory (Patterson, 1982; Patterson et al., 1992) that maintain deviant behaviours (e.g., conditioning and reinforcement), may also contribute to the alteration of deviant behaviour to more prosocial behaviour (Patterson, Reid, & Eddy, 2002).

In accordance with the policy provided by IY Norway and the Norwegian authorities, the IY-TCM programme was implemented as a full-scale universal preventive intervention at the lower primary school level. Two experienced, qualified group leaders conducted six, full-day workshops (42 hours in total) over an 8-9-month period, starting in the fall and ending in the spring of the following year, with about 5-6 weeks between each workshop. Teachers were trained in groups of 15-20. The following six topics are covered in the IY-TCM programme, with one workshop for each topic, in which each workshop builds upon the content of the previous one: (1) building positive relationships with students and preventing problem behaviour - the proactive teacher; (2) the importance of teacher attention, coaching, and praise; (3) motivating students through incentives; (4) reducing inappropriate behaviour - ignoring and redirecting; (5) reducing inappropriate behaviour - follow-through with consequences; (6) emotional regulation, social skills, and problem solving. Workshops 1 to 3 emphasise a positive relationship between teachers and students, between teachers/parents and students, and between peers. The significance of positive relationships constitutes the foundation of the IY-TCM programme. Positive relationships are promoted through the teachers' use of proactive teacher classroom management strategies, such as the focusing attention on student's positive behaviours, the use of encouragement and praise, as well as coaching of prosocial behaviour, emotional regulation, and problem solving. These components are significant strategies that must precede before strategies aimed at reducing inappropriate behaviour, such as the use of ignoring, redirecting and follow through with consequences. In general, teachers' attention to students' positive behaviour should occur far more frequently than attention to negative behaviours as illustrated at the bottom of the IY-TCM Teaching Pyramid (see Figure 1).

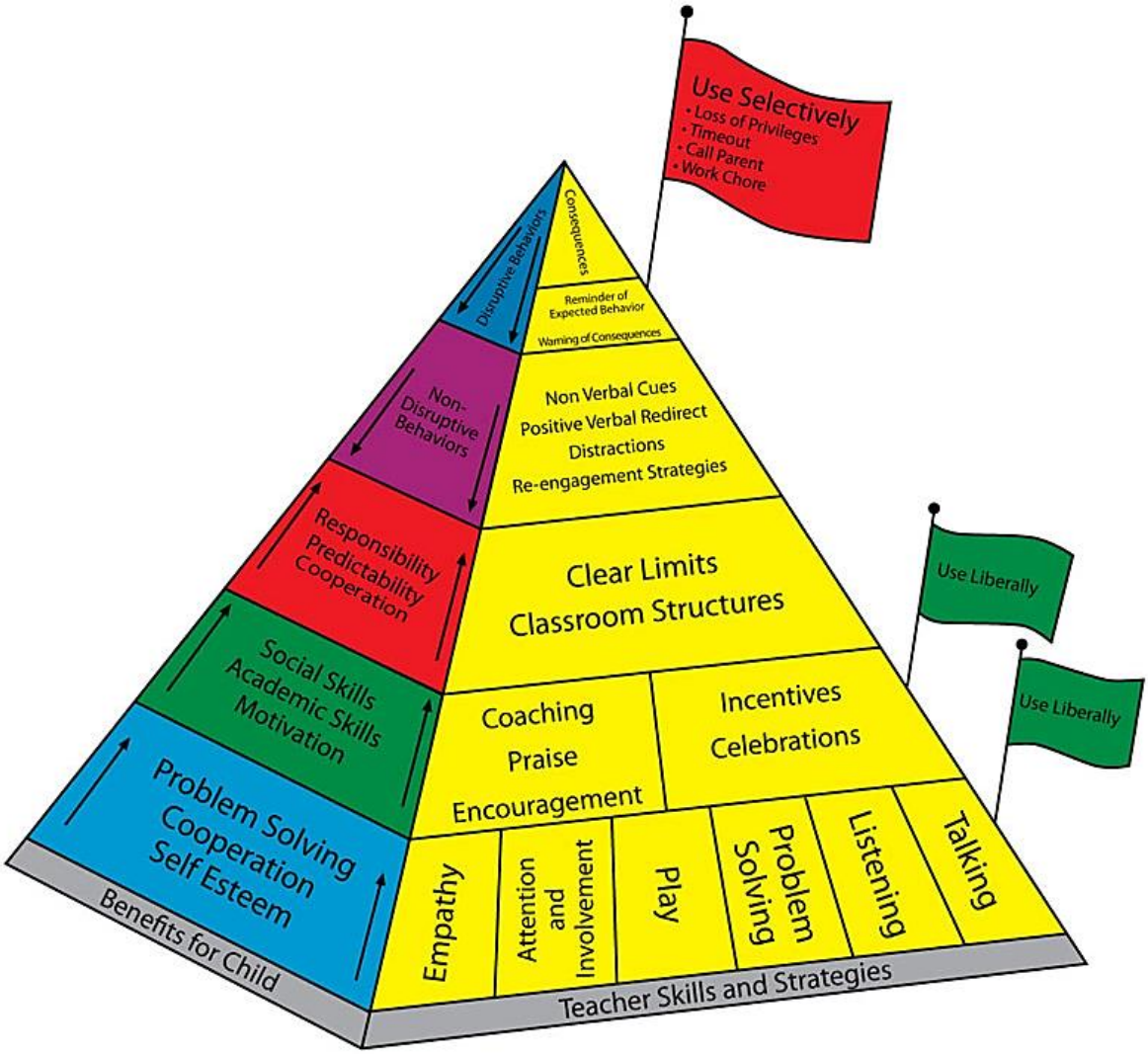


Figure 1. ©The IY TCM Teaching Pyramid®

Teachers were instructed to practice their new skills between workshops, and to report back on their experiences at the start of the following workshop. During the workshops, a variety of training strategies, methods, and techniques are introduced (e.g., the use of role-play, film-vignettes, group discussion, reflection, and practice) (see Figure 2). The textbook, *How to Promote Social and Emotional Competence in Young Children* (Webster-Stratton & Okstad, 2005), was provided to teachers, and they were asked to read sections for each workshop as recommended by the IY-TCM programme manual. Between workshops, teachers were asked to reflect on their current practice and to set goals for implementing specific strategies in their classrooms. Between workshops, teachers were also offered in-class consultation and coaching by the group leaders. The group leaders were offered regular supervision and consultation from certified IY mentors and trainers, during which group leaders were asked to bring film recordings of their workshops. The agenda for these supervisions was fixed, and included how to get the most out of the programme's film-vignettes and how to direct an effective role-play, as well as discussing issues related to programme delivery. To ensure evidence-based implementation of the programme and fidelity in training, teachers and group leaders were asked to complete teacher and group leader fidelity measures, such as the IY Workshop Evaluation form, the Teacher Workshop Checklist, and the Teacher Satisfaction Questionnaire (Webster-Stratton, 2018). The IY-TCM Programme Logic Model (see Figure 2) outlines the programme components and goals, programme modalities, targeted risk and protective factors, as well as the programme's short-term and hypothesised long-term outcomes. The programme goals are listed in the left column and suggest that the programme targets teachers rather than students, which reflects the logical assumption that change in student behaviour may result from changes in teacher behaviour.

Figure 2. ©The IY-TCM Programme Logic Model ®

# The Incredible Years Teacher Program

Program developed by Carolyn Webster-Stratton, Professor and Director of the Parenting Clinic at the University of Washington.

The Incredible Years Parents, teachers, and children training series

Logic Model created by the Evidence-based Prevention and Intervention Support Center (EPISCenter) at Penn State University and Carolyn Webster-Stratton, Professor, University of Washington

## Teacher Program Components & Goals

**Component:**
IY Teacher Classroom Management Program

**Goals:**
- Enhance teacher classroom management skills, proactive discipline, positive teacher-student relationships
- Effective behavior plans & teaching regarding social & emotional regulation skills
- Positive teacher-parent partnerships

## Program Modalities

**Specific strategies, methods, and techniques are used to accomplish the program goals.**

- Goal Setting & Self-Reflective Learning
- Video Modeling
- Role Play & Behavioral Practice
- Group Support, Discussion & Problem Solving
- Cognitive & Emotional Self-Regulation Training
- Classroom Assignments & Individualized Behavior Plan
- Teacher Plans Parent Home Activities to Enhance Child's Learning Involvement in Home Activities
- Peer Teacher Coaching

## Targeted Risk and Protective Factors

### School Risk Factors:
- Poor teacher classroom management skills
- Lack of social and emotional curriculum or focus
- Teacher stress & lack of support
- Number of children in classroom with conduct problems & deviant peer groups
- Poor parent involvement with schools and with children's learning goals

### School Protective Factors:
- Positive classroom management strategies
- Focus on student social and emotional learning and problem solving
- Predictable proactive discipline hierarchies
- Positive teacher-student relationships
- Positive teacher-parent partnerships
- Support for teachers

## Proximal (Short-term) Outcomes

**Targeted outcomes that the program is designed to impact *immediately following* program completion.**

### Improved Teacher Classroom Management:
- Proactive classroom management strategies
- Positive teacher relationships with students and parents
- Successfully implemented and tailored behavior plans
- Focus on social, emotional and persistence coaching and teaching
- Reduced teacher stress and more support
- Home parent activities to enhance child's classroom learning

### Improved Student Behaviors:
- Increased social and emotional competence with peers in classroom
- Increased child problem solving skills
- Reductions in behavior problems
- Increased academic readiness, on task, focused behaviors and cooperation with teachers and peers

## Hypothesized Distal (Long-term) Outcomes

**Outcomes impacted by the program *years following* program completion that are hypothesized but follow-up data are not yet available.**

### Hypothesized – Reduced Youth Antisocial Behavior:
- Less aggressive & destructive behavior & conduct problems
- Less likely to become involved with deviant peer groups
- Reduce special education referrals
- Less likely to drop out of school
- Greater academic achievement
- Less likely to engage in criminal activities
- Less use of drug and alcohol

### 1.7.1 Supporting evidence for the Incredible Years Teacher Classroom Management programme

Outcomes in earlier evaluations of the IY-TCM programme varied; some studies measured both teacher and student outcomes, while others focused on only teacher or only student outcomes. Studies conducted by the IY programme developer examined combinations of teacher, parent, and child programmes and documented significant changes in children's behaviour problems at school and reductions in teachers' negative classroom behaviours (Webster-Stratton et al., 2001, 2004; Webster-Stratton et al., 2008). An important aim of the IY-TCM programme is to reduce the number of commands given by teachers and, in turn, increase child compliance (Webster-Stratton, 2012). In an independent evaluation of the IY-TCM programme, a significant main effect on child compliance to teacher commands was found, and significant reductions was observed in child negative behaviour towards the teacher, as well as child "off-task behaviour" for targeted children (Hutchings et al., 2013). In the McGilloway et al. (2010) study, an increase in students' social-emotional development, such as improved self-regulation and cooperation skills, was found. Furthermore, in the Baker-Henningham et al. (2012) study, a reduction in students' problem behaviour and an increase in their social skills reported by teachers were found, as well as a reduction in parent-reported behaviour difficulties (Baker-Henningham et al., 2012). In more recent studies, students with initial elevated problem behaviour scores and low social competence scores showed significant improvements in social skills after the IY-TCM programme, when compared to peers with similar scores in control classrooms (Fossum, Handegård, & Drugli, 2017; Reinke, Herman, & Dong, 2018; Seabra-Santos et al., 2018). In the sub-sample of high-risk students with elevated intensity scores on problem behaviour from the present study, Kirkhaug et al. (2016) reported positive effects of the IY-TCM programme on teacher-student conflict and academic performance. Conversely, for this sub-sample, the study revealed no main effect of the programme on students' problem behaviour or social competence (Kirkhaug et al., 2016). In a younger kindergarten cohort within the same study population as ours, reduction in the intensity of problem behaviour, aggression, internalising, and attention problems, as well as an improvement in social skills, were found after the IY-TCM programme was implemented as a universal preventive intervention (Fossum et al., 2017). In contrast to these findings, a recent study by Murray, Rabiner, Kuhn, Pan, and Sabet (2018) reported no main effects on student outcomes, although a priori moderator analyses indicated

that students with elevated social-behavioural difficulties benefitted with regard to prosocial behaviour and inattention. Finally, in a recent study of the effectiveness and cost-effectiveness of the IY-TCM programme as a universal intervention in primary school children, a small significant main effect for improvement in teacher-reported child mental health was found (Ford et al., 2018). At 9-month follow-up, the Strengths and Difficulties Questionnaire (SDQ) Total Difficulties score changed by 1.0 point (95% confidence interval [CI] 0.1-1.9; p = 0.03), but at 18- and 30-month follow-up, these changes were no longer significant. Significant secondary findings were confirmed for reduced disruptive behaviour and inattention/over-activity; reduced percentage of children classified as struggling, and reduced peer relationship problems, as well as an improvement in prosocial behaviour. The observed better outcomes after the IY-TCM programme (improvement in SDQ scores) and the cost-effectiveness analysis suggest that IY-TCM programme may be cost-effective when compared with the control (Ford et al., 2018).

Teacher outcomes after the IY-TCM programme were evaluated using both observational and self-report measures, and several studied found a significant reduction in harsh/critical teacher behaviours and an increase in warm/responsive teacher behaviours (Baker-Henningham & Walker, 2018; Hickey et al., 2017; Leckey et al., 2016; McGilloway et al., 2010). The McGilloway et al. (2010) study reported significant changes in teacher-reported frequency of use, and perceived usefulness of positive classroom management strategies, as well as a significant decrease in the use of inappropriate strategies for managing misbehaviour. Using both psychometric and observational measures, Hickey et al. (2017) and Leckey et al. (2016) reported positive changes in teacher-reported use of positive classroom management strategies and negative classroom management strategies, as well as higher levels of teacher self-efficacy. Further, a reduction in negative teacher behaviour towards targeted children was found in the Hutchings et al. (2013) study. In the Murray et al. (2018) study, teachers in the IY-TCM group rated their classroom climate significantly more positively than did control teachers at post-intervention. Improvements in teachers' assumptions about parent involvement in school and their knowledge of strategies to improve such parent involvement were also found after the IY-TCM programme (Herman & Reinke, 2017).

Previous meta-analyses of school-based universal interventions looked at the magnitude of intervention effects on student outcomes and reported a mean magnitude *g* of

0.22 (Durlak et al., 2011; Korpershoek et al., 2016). A recent mixed-methods systematic review on the effectiveness and experiences of the IY-TCM programme included 22 articles on 9 studies. Quantitative findings showed a moderate effect of the programme on conduct problems ($g$ = –0.35), a small effect on child behaviour difficulties ($g$ = –0.11) among high-risk children, and a small effect on child behaviour difficulties among all children ($g$ = –0.11) (Nye, Melendez-Torres, & Gardner, 2018). A moderate effect on teachers' use of negative classroom management strategies ($g$ = –0.49) was also found, whereas teachers' use of positive classroom management strategies was not significant (Nye et al., 2018).

Previous research has mainly been conducted in disadvantageous or high-risk school settings or has addressed a limited group of teachers, classes, or students. This research project described in this thesis expands the research on the IY-TCM programme by addressing the entire student population with varying degrees of behavioural risk in general school settings. Hence, this thesis may add new findings to the existing knowledge about the IY-TCM programme. However, when interventions are examined in disadvantageous school settings, the effects are often greater than those observed in universal school settings (Durlak et al., 2011; Weare & Nind, 2011). Therefore, as the IY-TCM programme was implemented as a universal preventive intervention in a regular school setting, large effects were not expected in the present research project.

Most teachers are not trained to identify and use evidence-based practices, partly due to differences of opinion about what constitutes evidence. The failure to train teachers to identify and use effective, evidence-based practice may be due to the strong resistance educators have to testing, measurement, and behaviour management practices (Evertson & Weinstein, 2006). Indeed, the behavioural perspective on teaching and classroom management practices has not traditionally been highly regarded among the Norwegian education community (Fyhn, 2017). Furthermore, qualitative findings have shown that critiques of the IY-TCM programme mostly refer to its manualised nature, specific learning techniques (e.g., the use of time-out and ignoring), fidelity, and adaptation. For example, the limited degree of flexibility in delivering manualised training and the limited applicability of film-vignettes to non-American educational contexts (Fyhn, 2017; Nye et al., 2018).

### 1.7.2 Implementation of the Incredible Years Teacher Classroom Management programme in the Norwegian context

As the Norwegian Directorate of Health in Norway funds the IY programmes, the authorities have given recommendations on how to implement the programme in different municipalities and schools in Norway. The programme developer has also provided guidelines related to the programme's infrastructure, fidelity, and implementation components; and how to facilitate organisational processes and resources, which the municipalities and schools are requested to follow. In Norway, the municipalities own the schools; hence, the municipality was mainly responsible for correctly implementing the IY-TCM programme in their schools. Given its comprehensive implementation policy, municipalities that wanted to implement the programme in their schools had to submit an application form, which includes an Agency Readiness Questionnaire for programme implementation, to IY Norway. A corresponding application form also had to be completed by the individual schools. If the application was approved, up to three municipal employees, usually from the educational-psychological service, participated in a 21-hour mandatory IY-TCM group leader training course provided by IY Norway. To be eligible to become group leaders, these employees had to have a bachelor's or master's degree in teaching, special education, psychology, health, or social studies, as well as suitable personal characteristics. In addition, the municipality had to agree to provide sufficient time for the group leaders to deliver the basic IY-TCM workshops (42 hour) and carry out subsequent supervision (e.g., in class consultation and coaching) between workshops, which implied dedicating 30-50% of the group leaders full-time position (depending on the number of schools in the municipality) to the programme. The group leaders were trained and supervised by the same two IY-TCM mentors (certified in both the Parenting and the TCM programme by the programme developer), throughout the data-acquisition period. The municipalities and schools were offered continuous implementation support from IY Norway, both during programme start-up and following programme delivery.

# 2 THESIS AIMS

The main aim of this thesis was to evaluate the effectiveness of the IY-TCM programme when delivered as a universal preventive intervention to all teachers and students in regular school settings at the lower primary school level in Norway. All outcomes were reported by teachers. The main outcomes examined were change in student behaviours and teacher-student-parent relationships, change in teacher behaviours (teachers' behaviour management practice and self- and collective efficacy), problem behaviour in the classroom and the school environment, and classroom climate.

**Paper I** evaluated whether training teachers in the IY-TCM programme would lead to changes in problem behaviour and social skills in students from pre- to post-assessment. Group differences in pre-post changes in problem behaviour and socials skills in favour of students in the IY-TCM group were expected.

**Paper II** evaluated whether training teachers in the IY-TCM programme would change teacher-student relationships (i.e., reduce conflict and increase closeness) and teacher-parent involvement (i.e., increase involvement and bonding with parents) from pre- to post-assessment. Group differences in pre-post changes in teacher-student relationships and teacher-parent involvement in favour of the IY-TCM group were expected.

**Paper III** evaluated whether training teachers in the IY-TCM programme would change teacher-reported behaviour management practices (e.g., use of positive behaviour support strategies and behavioural correction strategies), problem behaviour in the classroom and the school environment, teachers' self- and collective efficacy, as well as classroom climate from pre- to post-assessment. Group differences in pre-post changes in teacher-reported behaviours, problem behaviour in classroom and the school environment, as well as classroom climate in favour of teachers in the IY-TCM group were anticipated.

# 3 METHODS – PAPER I, II AND III

The study was conducted as an effectiveness study using a quasi-experimental pre-post comparison group design. The data in the three papers that make up this thesis are derived from the same study cohort. Data on teacher-reported individual student's behaviour are included in Paper I; data on teacher-reported relationships with individual students and parent involvement are included in Paper II; and data on changes in teacher behaviours, problem behaviour in the classroom and the school environment, as well as classroom climate reported by teachers are included in Paper III.

## 3.1 Sample and recruitment

From the fall of 2009 to the fall of 2013, IY Norway invited schools from 17 different municipalities located in the southern, western, eastern and northern parts of Norway to be part of the research project (see Figure 3). Intervention schools were recruited from municipalities that had already implemented the IY Parenting programme, and hence, already had potential IY group leaders who also could be trained in the TCM programme. In order to be included in the research project, intervention schools had to agree to full-scale implementation of the IY-TCM programme in first to third grade, and programme implementation had to be approved by at least 80% of the school's staff. Schools that wanted to implement the IY-TCM programme and participate in the research project had to first apply to IY Norway. Of the 25 schools that applied, 21 met the inclusion criteria, and were finally allocated to the intervention group (IY-TCM group). The other four schools did not meet the inclusion criteria for organisational reasons (e.g., did not find time to receive six, full-day workshops for all teachers at the lower primary school level), and thus they accepted to be allocated to the comparison group. They were the only four schools in the comparison group recruited from a municipality with IY implementation (see Figure 3, the Verdal municipality).

To minimise programme contamination, IY Norway contacted the educational-psychological service in strategically selected municipalities without any IY implementation in relation to location and school size and invited schools in these municipalities to participate as part of the comparison group. Of 32 invited schools, 19 accepted to participate, but one withdrew before pre-assessment. Therefore, the final study sample consisted 43 schools: 21 in the IY-TCM group and 22 in the comparison group. As the implementation of the IY-TCM programme in Norway was funded by the Norwegian Directorate of Health, the schools in the

IY-TCM group received the intervention for free; hence, the expenditures in connection with programme implementation were low. Schools in the comparison group were offered a modest financial compensation for not receiving the IY-TCM training immediately. Provided the schools in the comparison group wanted the IY-TCM training after the study, they were given support from IY Norway to this. None of the 43 remaining schools was actively attending or had attended any other evidence-based school intervention programme during the previous year.

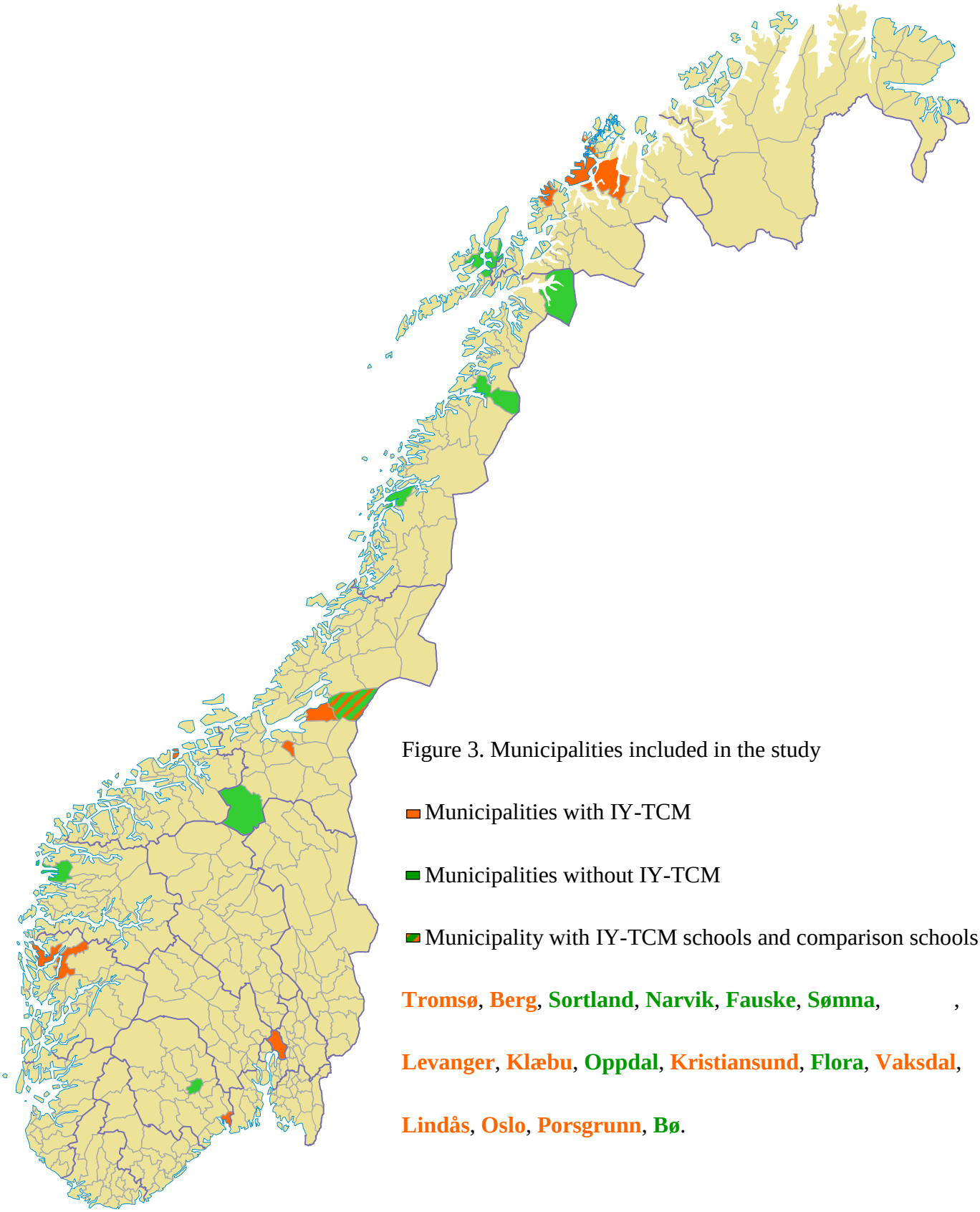

Figure 3. Municipalities included in the study

Municipalities with IY-TCM

Municipalities without IY-TCM

Municipality with IY-TCM schools and comparison schools

**Tromsø**, **Berg**, **Sortland**, **Narvik**, **Fauske**, **Sømna**, ,

**Levanger**, **Klæbu**, **Oppdal**, **Kristiansund**, **Flora**, **Vaksdal**,

**Lindås**, **Oslo**, **Porsgrunn**, **Bø**.

## 3.2 Participants

In this research project, participants consisted of teachers and students in first-to-third grade (students aged 6 to 8 years). The total number of teachers in participating schools was 567; however, only one teacher per class was invited to complete a questionnaire about student behaviour (Paper I) and the teacher-student relationship and parent involvement (Paper II). In total, 241 teachers (139 in the IY-TCM group and 102 in the comparison group) agreed to complete questionnaires. In Papers I and II, 227 teachers completed pre-assessment questionnaires and 212 completed post-assessment questionnaires (detailed flowcharts are included in Papers I and II). In Paper III, an additional 61 teachers completed questionnaires on teacher behaviours (teachers' behaviour management practices, problem behaviour in the classroom and the school environment, teacher self- and collective efficacy, and classroom climate) for a total of 302 teachers (163 in the IY-TCM group and 139 in the comparison group). Two hundred seventy-seven teachers completed pre-assessment questionnaires (151 in the IY-TCM and 126 in the comparison group), and 235 completed post-assessment questionnaires (121 in the IY-TCM and 114 in the comparison group) (detailed flowcharts are included in Paper III).

The total number of students in participating schools was 3331, but only seven students per class were randomly selected to participate in the study. A statistician in the project, who was blind to the characteristics of the schools, teachers, and students, was given the number of students in each class, and electronically generated a random number sequence list of the students in each class. Each class teacher matched the first seven random numbers from the list with the student's alphabetical order in class. This randomisation resulted in a total of 1518 students (829 in the IY-TCM and 689 in the comparison group). For Papers I and II, 1396 students participated at pre-assessment (744 in the IY-TCM and 652 in the comparison group), and 1214 students participated at post-assessment (577 in the IY-TCM and 637 in the comparison group) (detailed flowcharts are included in Papers I and II).

## 3.3 Procedure

In this research project, the intervention was implemented at the school level (the lower primary school level), so the relevant allocating units were schools rather than students. Hence, randomising classes or students was not a relevant option. Moreover, since the implementation of the IY-TCM programme depended on the presence of available, qualified

group leaders in the municipalities, a randomised controlled trial was difficult to accomplish (see the Discussion for further details). As previously mentioned, extensive predefined IY-TCM programme implementation criteria had to be met before a school could be included in the IY-TCM group. Schools were also informed in advance that the terms for programme implementation were that they would also be enrolled in the study if their application was approved by IY Norway. Information on the IY-TCM programme and data collection procedures was presented to teachers before they completed the pre-assessment questionnaire and at the first IY-TCM workshop. Pre-assessment questionnaires were completed in the fall, about 3 weeks before the first IY-TCM workshop. Post-assessment questionnaires were completed in the spring of the following year, about 3 weeks after the final IY-TCM workshop. The duration between the two assessments was typically 8-9 months. Parents of students in both groups were informed about the study, including the data collection procedures, through written information or verbal presentation during parent meetings, and were requested to consent to their child's participation. Schools, teachers, and students were anonymised using ID codes generated by a research coordinator. A research coordinator prepared lists of ID codes for students (based on the random number sequence list of the students) and teachers, written information, and questionnaires and consent forms, and distributed these materials to the schools. The headmaster forwarded the materials to teachers in first-to-third-grade. The class teacher matched the first seven random numbers from the list of ID codes with the student's alphabetical order in class and handed out written information and consent forms to these students. Thereafter, the class teacher collected the consent forms from parents. If parental consent was received, the teacher filled out questionnaires about the student. The questionnaires were only available in Norwegian, so students with parents who did not speak Norwegian were excluded. Parents could withdraw their child from the study at any time without explanation. The questionnaires were returned in pre-paid envelopes or electronically through the Internet survey tool QuestBack.

## 3.4 Statistics

Analyses were conducted using the Statistical Package for Social Sciences (SPSS 24). Students and teachers from 21 intervention and 22 comparison schools constituted the study sample for the three papers. The power calculations for the study were based on the number of randomised students included, which was large ($n$ = 1518) (adjusting for the design effect,

which was students nested within teachers), hence, the power to detect relatively small effects in the student sample were considered to be sufficient. Two hundred forty-one teachers participated in Paper I and II and 302 in Paper III, which is in accordance with the number included in previous studies (Webster-Stratton et al., 2008).

The data structure in this study was hierarchical. In Papers I and II, the students were the unit, with students (level 1) nested within teachers (level 2). In Paper III, the teachers were the unit, with teachers (level 1) nested within schools (level 2). When planning the design of the study, the need to correct for the school level (e.g., in Papers I and II) was assessed based on the assumption that the student observations clustered within the teachers' were the most significant clustering (e.g., the variation between schools was low). Hence, it was concluded that a two-level model approach was sufficient to handle the hierarchical structure of the data in the present research project.

To account for the clustering of data, a multilevel approach was used. The dependency in the data was handled by linear mixed models analyses, which is a suitable method for analysing hierarchical data. One teacher per class completed questionnaires for up to seven students. Grouped data observations from the same class are generally more similar than observations from different classes, and this violates the assumption of independent observations (Hox, 2010). Clustering affects statistical power; hence when determining the sample size in a two-stage sample, clustering should be taken into account. The amount of dependency in the data can be expressed as the intra-class correlation coefficient (ICC), which addresses the true total variation in outcomes that could be attributed to differences between the clusters. The design effect is a number that indicates how much the sample size in the denominator (standard error = standard deviation [SD]/$\sqrt{\text{sample}}$ size), should be adjusted due of the sampling design used. The ICC is denoted as $p_r$ ($p_r$, = population variance between macro-units/total variance). The design effect of a two-stage sample with equal group size is given by the formula: Design effect = $1 + (n - 1)p_r$ (Snijders & Bosker, 2012, p. 23). When $p_r$ increases (clusters become more homogeneous) in two-stage sampling, and as the group size $n$ increases, the two-stage nature of the sampling design becomes stronger. In practice, $p_r$ is unknown. However, the total sample size can be derived using a two-stage sampling design based on the desired level of precision. Hence, the effect of this dependency is a linear function of the number of students per teacher (Snijders & Bosker, 2012, p. 24). ICCs were

calculated on both pre-assessment, post- assessment, and change scores to estimate the degree of dependency within teachers in Papers I and II, and within schools in Paper III.

Possible confounders related to the selection process were controlled for by including them in the multilevel analyses. In Papers I and II, the covariates student gender, grade, ethnicity, if the student received special education (yes/no), how well the teacher knew the student, number of hours per week the teachers taught the student, and number of students in each class, were statistically accounted for in the multilevel analyses. In Paper III, the covariates teachers' gender, teachers' education, whether teachers were qualified for special education (yes/no), and school size, were statistically accounted for.

In the main analyses, the change score (defined as pre-assessment score minus post-assessment score) was used as the dependent variable in Papers I-III. Multiple imputation was used to handle the missing data in Papers I and II, creating 20 complete sets of data. The imputation was performed on both on pre- and post-assessment student variables. The imputation model included demographic variables and all relevant student variables. When imputing missing pre- and post-assessment data, all other pre- and post-assessment student variables were used as predictors. Under the assumption that data were missing at random, multiple imputation is an appropriate and flexible way to handle missing data. Therefore, multiple imputation was done to ensure that the pre-post analyses reflected the full student sample participating in this study, using all the observed data (Stuart, Azur, Frangakis, & Leaf, 2009).

In Papers I and II, effect sizes ($d_w$) were computed as standardised group differences in pre-post mean change using the pooled within-cluster sample SD (Hedges, 2007). In Paper III, effect sizes ($d$) were calculated according to Feingold (2013) recommendations, where the standardised mean difference was calculated based on the unstandardised mean difference divided by the SD, where SD is the pooled, within-group SD of the raw outcome scores at pre-assessment.

## 3.5 Ethics

The Regional Committee for Medical and Health Research Ethics, Norway, approved the research project (2009/655/REK North). The research project was retrospectively registered as a trial on November 10th, 2016 (Clinical Trials. gov NCT02962843).

In this research project, the IY-TCM programme was delivered as a universal preventive intervention to all teachers at the lower primary school level in a regular school setting. The programme is meant to contribute to adaptive coping across classes, with the aim to prevent multiple types of problem behaviour that are predicted by common risk factors. The programme was positively framed, was provided independent of students risk status, and was non-stigmatising. Hence, the probability that the programme could cause adverse effects was small. The research project was presented to participating schools, teachers, and staff through informational meetings. Parents were informed about the research project and the data collection procedures either during parent meetings or in writing before they were requested to consent to their children's participation. Once parents provided consent, the class teacher could complete the questionnaires about the student. The statements in the informed consent form emphasised that participation was voluntary and refusal to participate would not result in any negative consequences. In addition to teachers, the parents of selected students were requested to complete questionnaires about their child's behaviour. The questionnaire was only available in Norwegian. Hence, if the parents of the selected student did not speak Norwegian, the student was excluded from the research project. About 8% of students at the primary level are non-Norwegian, and have a first language other than Norwegian. In this study, 5.5% of the study sample was non-Norwegian (4.6% in the IY-TCM and 0.9% in the comparison group). Therefore, we cannot know for sure if the behaviour of students excluded due to their parents' language barrier was different from that of students included.

Filling out questionnaires for seven students may be time-consuming. Therefore, each teacher respondent received a small financial compensation for the time they spent completing the questionnaires. Furthermore, schools in the IY-TCM group received the IY-TCM programme free of charge, whereas schools in the comparison group were offered a modest financial compensation instead of immediate implementation of the programme. This financial compensation may be considered minor compared to the actual cost of receiving the IY-TCM programme. However, it is possible that the financial compensation offered to the comparison schools affected teachers' motivation to complete the questionnaires. Payment may motive participation, particularly in projects that have difficulties recruiting participants (Stunkel & Grady, 2011); however, this does not necessarily make the data less reliable. The sum of the financial compensation given was in accordance with guidelines of the Norwegian National Research Ethics Committees.

# 4 SUMMARY OF RESULTS IN PAPERS I, II, AND III

## 4.1 Paper I

Aasheim, M., Reedtz, C., Handegård, B. H., Martinussen, M., & Mørch, W.-T. (2018). Evaluation of the Incredible Years Teacher Classroom Management program in a regular Norwegian school setting. *Scandinavian Journal of Educational Research,* 1-14. https://doi.org/10.1080/00313831.2018.1466357

### 4.1.1 Objectives

Prevalence rates indicate that 4% of school-aged children in Norway suffer from conduct and hyperkinetic difficulties at the clinical level (Reneflot et al., 2018). Behavioural disorders at the lower primary school level include severe aggressive and non-compliant behaviours beyond the normal range. However, these prevalence rates only consider students who meet diagnostic criteria for disorders; they do not account for students with pre-clinical problems in any of these domains, or those who are at risk for developing problem behaviour. The main objectives of this study were to examine group differences in pre-post changes in students' problem behaviour and social skills after implementation of the IY-TCM programme in a regular school setting at the lower primary school level.

### 4.1.2 Measures

Pre-post change in students' problem behaviour was measured with the 38-item SESBI-R (Eyberg & Pincus, 1999), which consists of an Intensity and a Problem scale. The Teacher Report Form (TRF) (Achenbach & Rescorla, 2001) (120 item) was also used; it includes subscales for Aggression and Attention Problems, as well as the Academic Performance scale. Pre-post change in student social skills was measured with the 30-item Social Skills Rating System (SSRS) scale (Gresham & Elliott, 1990), which includes the subscales Cooperation, Assertion, and Self-control.

### 4.1.3 Results

The average age of students in the study was 7.3 years. About 6% were non-Norwegian and received special Norwegian language classes in parallel to their ordinary education. Ten percent of the students received special educational assistance. Six percent of

students in the sample scored at or above the 90th percentile on the SESBI-R (> 144), which is equal to the clinical range. For the entire student sample, mean SEBI-R and TRF scores were within the normative range for Norwegian students on problem behaviour (Kirkhaug et al., 2012; Larsson & Drugli, 2011).

At pre-assessment, there were no significant differences in SESBI-R or TRF scores between the IY-TCM and the comparison group. The multilevel analyses revealed small, but significant effects for SESBI-R Intensity ($d_w$ = 0.08) and Problem ($d_w$ = 0.09) scores at post-intervention, as well as for the TRF Total score ($d_w$ = 0.09) and on the TRF subscale Attention Problem ($d_w$ = 0.08). Moderating effects of students' gender, grade, and level of problem behaviour (high/low) were examined. A significantly higher treatment effect was found for high-risk students with elevated SESBI-R Intensity scores at pre-assessment compared to others students, with a 9.9 point difference in pre-post change ($t$ = −2.13, $p$ = 0.03).

At pre-assessment, significant differences between the groups were found for the SSRS subscales Cooperation and Self-control ($p < 0.05$). The multilevel analyses showed significant main effects on the SSRS total score ($d_w$ = 0.19) and on the SSRS subscales Cooperation ($d_w$ = 0.17) and Self-control ($d_w$ = 0.20) at post-assessment. Moderating effects of students' gender, grade, and level of problem behaviour (high/low) were tested. A significant moderating effect of grade was found on SSRS total score, with a significantly larger treatment effect observed in 2nd grade compared to 3rd grade ($t$ = −2.55, $p$ = 0.01), while the treatment effects in 1st grade compared to 2nd and 3rd grades were not significant.

## 4.2 Paper II

Aasheim, M., Drugli, M. B., Reedtz, C., Handegård, B.-H., & Martinussen, M. (2018). Change in teacher–student relationships and parent involvement after implementation of the Incredible Years Teacher Classroom Management programme in a regular Norwegian school setting. *British Educational Research Journal, 44*, 1064-1083. https://doi.org/10.1002/berj.3479

### 4.2.1 Objectives

Interactions between teachers and students with behaviour difficulties may contain patterns of coercive processes similar to those expressed between parents and children with problem behaviour. Therefore, students at risk for problem behaviour may often develop poor

relationships with teachers and receive less support and instruction and more criticism in the classroom (Drugli, 2013; Mejia & Hoglund, 2016; Silver et al., 2005; Zee & Koomen, 2017). Teachers of students with problem behaviour often develop negative perceptions not only of the students, but also of their parents. Teachers' perception of parents is especially important because it may influence teachers' interactions with parents and their children (Herman & Reinke, 2017; Stormont, Herman, Reinke, David, & Goel, 2013). Hence, the main objectives of this study were to examine group differences in pre-post changes in teacher-student relationships and parent involvement reported by teachers after implementation of the IY-TCM programme in a regular school setting at the lower primary school level.

### 4.2.2 Measures

The teacher-student relationship was measured with the 15-item Student-Teacher Relationship Scale, short form, (STRS-SF) (Pianta, 1996), which includes the subscales Closeness (8 item) and Conflict (7 item). Parent involvement was measured with the 20-item Teacher Involvement Questionnaire (INVOLVE-T), which was adapted from the Oregon Social Learning Center and revised by (Webster-Stratton, 1998). The INVOLVE-T includes the subscale Parent Involvement in Education (6 items), Parent Involvement with School/Teacher (7 items), and Teacher Bonding with Parent (7 items). In the analyses, the subscales Parent Involvement in Education and Parent Involvement with School/Teacher were merged into one variable referred to as "parent involvement in school".

### 4.2.3 Results

At pre-assessment, there were no significant differences in STRS scores between the IY-TCM and the comparison group. The multilevel analyses showed significant effects on the STRS-SF scale Closeness ($d_w$ = 0.22) and Conflict ($d_w$ = 0.15) at post-assessment. Moderating effects of students' gender, grade, and level of problem behaviour (high/low) were examined. A significant moderating effect of grade was found for STRS-SF Closeness, where a significantly larger treatment effect was revealed in 2nd grade compared to 3rd grade ($t$ = 2.52, $p$ = 0.01). For high-risk students with elevated SESBI-R Intensity scores at pre-assessment, a significantly higher treatment was found for the subscale STRS-SF Conflict, with a 3.0 point difference in pre-post change when compared to other students ($t$ = −3.25, $p$ = 0.001).

At pre-assessment, significant differences in Parent Involvement in School ($p < 0.05$) and Teacher Bonding with Parent ($p < 0.001$) were found between groups. The multilevel analyses showed a moderate significant effect on Parent Involvement in School at post-assessment ($d_w = 0.40$), but the corresponding effect on Teacher Bonding with Parent was not significant. It is worth noting that the pre-post ICC was 0.48 for Parent Involvement in School and 0.47 for Teacher Bonding with Parent, suggesting a high within-teacher dependency for these scales.

## 4.3 Paper III

Aasheim, M., Fossum, S., Reedtz, C., Handegård, B. H., & Martinussen, M. (2018). Examining the Incredible Years Teacher Classroom Management program in a regular Norwegian school setting: Teacher-reported behaviour management practice, problem behaviour in classroom and school environment, teacher self- and collective efficacy, and classroom climate. Manuscript submitted for publication.

### 4.3.1 Objectives

Important relationships have been documented between teachers' behaviour management practices and their self- and collective efficacy perceptions and students' behaviour and learning (Zee & Koomen, 2017). Previous research has suggested that low levels of students' problem behaviour, proactive classroom management practices, and a positive classroom climate may support teachers' emotional wellbeing and their sense of efficacy, which in turn may facilitate students' social-emotional learning in school (Oliver, Wehby, & Reschly, 2011). The main objectives of this study was therefore to examine group differences in pre-post change in teacher-reported behaviour management practices, teacher-reported problem behaviour in the classroom and the school environment, and teacher-reported self- and collective efficacy and classroom climate after implementation of the IY-TCM programme in a regular school setting at the lower primary school level.

### 4.3.2 Measures

To assess teachers' behaviour management practices, a 32-item scale based on the Grey and Sime (1989) and Ogden (1998) measurements was applied. Based on exploratory factor analysis, subscales for Behaviour Correction Strategies" (15 items) and Positive

Behaviour Support Strategies (12 items) were revealed and used in the analyses. The scales Problem Behaviour in the Classroom (20 items) and Problem Behaviour in the School Environment (15 items) (Grey & Sime, 1989), were used to assess teacher-reported problem behaviour in the classroom and the school environment. To assess teachers' perception of self-efficacy, the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001) (16 items) was used. Teachers' perception of collective efficacy was assessed by the Collective Efficacy Scale (Goddard, 2002) (12 items). The 14-item Classroom Environment Scale was applied to assess the general learning climate in class (Moos & Trickett, 1974).

### 4.3.3 Results

At pre-assessment, except for the Classroom Environment Scale ($p < 0.05$), no further significant differences were found for the different measures in this study between the IY-TCM and the comparison group. The multilevel analyses revealed no statistically significant group differences in pre-post change in teacher-reported use of positive behaviour support and behaviour correction strategies, problem behaviour in the classroom and the school environment, self- and collective efficacy, or classroom climate. Compared to the comparison group, the IY-TCM group developed in a more favourable direction on Problem Behaviour in the Classroom scores ($d = 0.27$, $p = 0.71$), on the subscale Moderate Problem Behaviour in the Classroom ($d = 0.32$, $p = 0.53$), and on Classroom Climate ($d = 0.23$, $p = 0.80$); however, none of these outcome variables were statistically significant at the 0.05 level.

# 5 DISCUSSION & MAIN FINDINGS PAPERS I, II AND III

The primary aim of the research project described in the present thesis was to evaluate the effectiveness of the IY-TCM programme in Norway. Outcomes for students and teachers were examined after universal implementation of the programme at the lower primary school level in a regular Norwegian school setting. Based on reports from 241 teachers, Paper I presents findings for changes in problem behaviour and social skills for 1518 students. Paper II involves these same students and teachers, and presents findings regarding changes in teacher-student relationships and parent involvement. Paper III includes 302 respondent teachers, and shows findings for changes in teacher-reported behaviour management practices, problem behaviour in the classroom and the school environment, changes in teacher-reported self- and collective efficacy, and classroom climate.

## 5.1 Change in students' problem behaviour and social skills

To foster children's wellbeing and mental health, it is just as important to nurture their social and behavioural development as their cognitive and academic preparedness. However, many students who enter school lack the behavioural and social competencies necessary to reap the benefits of academic learning (Reinke et al., 2011; Webster-Stratton, 2012). Early-onset problem behaviour, marked by aggressive and oppositional behaviour, are key risk factors for severe problem behaviour and escalating academic problems and may predict subsequent school dropout, depression, antisocial behaviour and violence in adolescence (Moffitt & Caspi, 2001; Odgers et al., 2008). Hence, improving problem behaviour and social skills in school is valuable from a teacher's perspective and for the superior public health agenda in Norway (Arrhenius et al., 2015). The effectiveness of the IY-TCM programme was first examined in terms of its impact on students' problem behaviour and social skills. Changes in the intensity of problem behaviour, whether students' behaviour was a problem for the teacher, and total scores for behaviour difficulties and attention problems, were significantly in favour of the IY-TCM group. This was also true for change in students' social skills, where positive effects for change in students' cooperation and self-control were found in favour of the IY-TCM group. Overall, the programme's effects on change in students' problem behaviour and social skills were small.

The proactive teaching strategies taught in the IY-TCM programme (e.g., use of positive attention, praise, encouragement, and coaching strategies) are meant to provide

teachers with the skills to respond to early, minor problem behaviour in a less negative, more consistent, predictable, and non-harsh manner. The overall approach is that teachers' attention to positive student behaviour should occur far more frequently than attention to negative behaviour. Taken together, these strategies have been found to be effective in changing coercive transactional interactions between parent and child, in preventing minor problem behaviour from developing, and in helping moderate the intensity of problem behaviour (Patterson, 2002; Sameroff, 2009). A moderating analysis showed a significantly larger programme effect on changes in problem behaviour among high-risk students (i.e., those with elevated SESBI-R intensity scores at pre-assessment) than low-risk students (9.9 point pre-post change difference, $t = -2.13$, $p = 0.03$). Based on the findings from the student sample in the present research project, we may assume that teachers' use of proactive teaching strategies had beneficial impact on students' behaviours, and that this use was especially effective among the high-risk students in the sample. Previous studies have also reported that less favourable pre-assessment scores on problem behaviour may predict higher treatment effects (Hutchings et al., 2013; Reinke et al., 2018; Seabra-Santos et al., 2018). Overall, we may assume that high-risk students initially had more room for improvement than low-risk students; and hence, those findings may have been expected. However, disparities in demographic indicators in the present student sample were low. In addition, the number of high-risk students was low. When compared to selective student sample of economically disadvantaged children, the effect of the IY-TCM programme on problem behaviour ($g = 0.10$) (Seabra-Santos et al., 2018) was almost in accordance with that observed in our universal student sample ($d_w = 0.08$).

Changes in students' social skills (e.g., cooperation and self-regulation) were more evident than changes in their problem behaviour. When coercive interactions in dyads become habitual over time, the child learns that negative behaviours "pay off", whereas socially competent behaviours do not. In order to support students' social and emotional development, an important component of the IY-TCM programme is to scaffold students' learning interactions with coaching methods (e.g., descriptive commenting, modelling, prompting, and positive feedback). As a part of the IY-TCM workshops, teachers learn how to directly address desired social skills through coaching, in which teachers may provide descriptive commenting on individually-targeted social and behavioural skills. Teachers in the IY-TCM group reported that their students improved their self-regulation and cooperation more

favourably than did teachers in the comparison group. Social skills, such as self-regulation and cooperating with the teacher and other students, are a prerequisite for academic learning and may also be essential to success later in a student's school career and working life (Durlak et al., 2011; Korpershoek et al., 2016).

It is worth mentioning that the teachers in the IY-TCM group rated their students' cooperation and self-regulation lower than did teachers in the comparison group at pre-assessment. However, at post-assessment, the mean scores on social skills in both groups were almost equal. For these results, a statistical tendency of regression towards the mean may be considered. The slightly elevated pre-assessment scores in the IY-TCM group may indicate that the schools that requested programme implementation (self-recruitment) may have realised they had issues with student behaviour and thus could benefit from the IY-TCM programme. This self-recruitment may have led to a higher level of awareness in teachers in the IY-TCM group when they scored student behaviour at pre-assessment. However, even if significant differences in social skills scores were found between groups at pre-assessment, the sample size in the present study was large, which may have equalised this difference (Barnett, Van Der Pols, & Dobson, 2015).

Changes in students' social skills have also been found to be more evident in other recent evaluations of the IY-TCM programme (Fossum et al., 2017; Reinke et al., 2018; Seabra-Santos et al., 2018). The size of the effects on social skills found in the present, universal student sample are equal and even more favourable to those found in other evaluations of the IY-TCM programme (Reinke et al., 2018; Seabra-Santos et al., 2018). These studies were conducted in student populations with higher demographic diversity ($d$ = 0.13 to $d$ = 0.14) (Reinke et al., 2018) and among economically disadvantaged students ($g$ = 0.10 and $g$ = 0.21) (Seabra-Santos et al., 2018). The use of proactive strategies, such as praise and positive encouragement, in addition to social-emotional coaching, have also been identified by teachers as the most useful strategies taught in the IY-TCM programme (Murray et al., 2018). These preferences may suggest that teachers found these strategies easier to adopt and put into practice.

In summary, the overall effects on student outcomes in the present student sample may seem modest compared to outcomes found in selected and indicated school settings (Baker-Henningham & Walker, 2018; Hutchings et al., 2013; McGilloway et al., 2010; Seabra-Santos et al., 2018; Webster-Stratton et al., 2008). Furthermore, students lost between pre- and post-

assessment had significantly different scores on SESBI-R Intensity ($t = -3.36$, $p = 0.02$), SESBI-R Problem ($t = -2.24$, $p = 0.03$), and TRF Attention ($t = -3.02$, $p = 0.003$) at pre-assessment. This could result in reduced overall intervention effects, since students who appear to derive the greatest benefit are those with elevated SESBI-R Intensity scores at pre-assessment. As opposed to the significant effect on academic performance found for the high-risk sub-sample in the Kirkhaug et al. (2016) study, significant change in students' academic performance was not found for the entire student sample in this thesis. Our findings are in accordance with previous findings on change academic outcomes after the IY-TCM programme (Murray et al., 2018; Reinke et al., 2018). Overall, given that the IY-TCM programme was implemented as a universal preventive intervention to entire groups of students with varying degrees of risk in regular school settings, the impact we observed on student outcomes suggests that the programme could prevent early-onset problem behaviour from escalating and promote social skills in students.

## 5.2 Change in teacher-students relationships and parent involvement

Teachers interact with students every day and with parents several times each year. Promoting positive relationships with students and involving parents, are two important components of the IY-TCM programme. Children who enter school with behavioural difficulties due to developmental issues, such as attention problems, hyperactivity, impulsivity, or developmental or language delays may be more easily distracted and find it difficult to listen and follow directions (Webster-Stratton, 2012). Teachers with students that exhibit disruptive behaviour problems in their classroom find that coercive behaviours tend to dominate their interactions with these students, making teaching difficult (Shores et al., 1993). Improving teachers' skills in and awareness of promoting student relationships and parent involvement may foster positive student development more efficiently (Webster-Stratton, 2012). The strategies at the bottom of the IY-TCM Teaching Pyramid (see Figure 1) include teaching tools for how to build positive relationships with students, such as the use of positive involvement and attention, providing encouragement, praise, and special time with the student, as well as promoting positive partnerships with students' parents. These strategies are to be used liberally, as they form the foundation to nurture and scaffold students' learning. A positive teacher-student relationship, characterised by warmth, respect, caring, and positive

affect, may serve as an important protective factor and may scaffold the formation of important behavioural and social skills in children. A positive teacher-student relationship may be especially important for children who exhibit disruptive behaviours in the classroom and are at risk for development of severe problem behaviour (McGrath & Van Bergen, 2015; Sabol & Pianta, 2012). Furthermore, positive contact between teachers and parents has been found to predict positive social development and academic success among children with behaviour problems (Reid, Webster-Stratton, & Hammond, 2007).

In Paper II, teachers gave their perception of relationships with particular students, parents' involvement in their children's education, and teachers' bonding with parents. Teachers in the IY-TCM group rated both their closeness and conflict with students significantly more favourably than did teachers in the comparison group. A moderating analysis showed a significantly larger treatment effect on teacher-student conflict among high-risk students than low-risk students (3.0 points pre-post change difference, $t = -3.25$, $p = 0.001$). Teachers may find it difficult to build positive relationships with students who demand more attention than others, who are disruptive, aggressive, unmotivated, are frequently off-task, and don't listen. This finding is of special importance, as students at risk for development of behaviour problems also have a greater risk of developing a more negative relationship with their teachers (Drugli, Klökner, & Larsson, 2011; Hamre & Pianta, 2001; Mejia & Hoglund, 2016; Zee, de Jong, & Koomen, 2017). Taken together, findings from the moderating analyses in Papers I and II showed that high-risk students in the sample reduced both the intensity of their problem behaviour and their conflicts with teachers to a greater extent than did students who were not at risk of developing problem behaviour.

On average, boys seem to have a higher risk of behavioural maladjustment, conflict, and less close relationships with teachers compared to girls (Baker, 2006; Drugli & Undheim, 2012; Hamre & Pianta, 2001; Silver et al., 2005). In our student sample (84% boys), 6% scored at or above the clinical range on behaviour problems. For this high-risk sub-sample, a positive effect on teacher-student conflict was also found ($g = -0.65$) (Kirkhaug et al., 2016). However, no significant moderating effect for of student gender was found on teacher-student relationship for the entire student sample. Separate analyses by gender and grade on teacher-student conflict showed significant effects for boys ($d_w = 0.25$) and for first graders ($d_w = 0.29$). Boys may begin school with more aggression and less developmental maturity than girls (Baker, 2006). In addition, the teacher-student relationship is mainly formed during

the first months of the school year, and less during the second half of the year when interaction patterns are more firmly established (Roorda et al., 2014).

When children exhibit negative behaviours in school, most contact between teachers and parents is related to these negative behaviours. After some time, parents may feel reluctant to stay in contact with the teacher or may even avoid contact (Webster-Stratton et al., 2008). Teachers may be less comfortable with parents of high-need students because they often interpret students' misbehaviour as a reflection on the parent, and develop a negative perception of the parent as not taking an active role in their child's education (Stormont et al., 2013). In addition, parents with a low level of belief in their ability to help their child are likely to avoid contact with the school and are probably less willing to be actively involved in school or education (Hornby & Lafaele, 2011). Hence, teachers' beliefs about and attitudes toward parents likely affect their interactions with students. Altering these perceptions to be more favourable may be an important component to promote student learning and development (Herman & Reinke, 2017).

Using the INVOLVE-T questionnaire, teachers reported on their perceptions of parent involvement in their child's education, such as engagement, educational goals set by parents, and to what extent parents initiated contact with the teacher. Teachers also reported on their bonding with the parents, their perception of the quality of the parent-teacher relationship, and how often they initiated contact with parents. The results showed that teachers in the IY-TCM group rated their involvement with parents significantly more favourably than did teachers in the comparison group; however, this was not true for teachers' perceptions of their bonding with parents, which was not significant. Given the amount of focus devoted to building empathy and positive partnership both with students and parents in the IY-TCM programme, a tenable hypothesis is that the programme did alter teachers' knowledge of strategies to improve parent involvement and their perceptions of parent involvement, which became more positive. The Herman and Reinke (2017) study recently reported that training teachers in IY-TCM strategies altered their perceptions of parent involvement. Relationships where teachers reported that they did not have a lot of contact with parents, but still perceived their relationship with the parents favourably (e.g., as comfortable and having mutual educational goals), were associated with higher academic achievement and lower behaviour problems in students (Herman & Reinke, 2017; Stormont et al., 2013).

However, some important elements of the INVOLVE-T scores need to be addressed. The pre-to-post mean score for parent involvement changed 1.2 points in the IY-TCM group, and -0.3 points in the comparison group. Given that the Parental Involvement in School scale could theoretically vary from 13 to 65 (the total variation was approximately 5 points), a 1.20-point change may be considered small. The ICC for the INVOLVE-T scores indicated high within-teacher dependency (ICC = 0.48). The degree of teacher-reported parent involvement was almost the same for each student, hence the variability in teacher-reported involvement within classes and between classes were almost the same. The questions in the INVOLVE-T imply daily or weekly contact between teacher and parents, which was not the case for the present student sample. This is because the frequency of school-home contact (e.g., how often teachers invites parents to school meetings and parent conferences) is predefined by guidelines in the national curriculum in Norway. Hence, the low variability in teachers' responses may be due to the restricted range of the INVOLVE-T scores. Therefore, we have to question whether the INVOLVE-T questionnaire is appropriate for use in a Norwegian school context. The reliability of the INVOLVE-T Bonding with Parent scale was also found to be inadequate (alpha = 0.61) (Evers et al., 2013).

Positive effects on teacher-student closeness and conflict and parent involvement in school, in favour of the IY-TCM group, were confirmed in the present study sample. Provided that teachers adopted the IY-TCM strategies to build positive relationships with students and parents, we may assume that the strategies helped them to amend the difficulties they often have in forming positive relationships with students whose behaviour is problematic, as well as their parents. In a recent systematic review of the effectiveness and experiences of the IY-TCM programme, qualitative findings showed that teachers benefited from information about theories behind the positive strategies and knowledge about children's abilities and developmental needs, which resulted in a better understanding of why children act out in challenging ways. Consequently, according to teachers' own reports, they managed to respond more appropriately to children's actions (Nye et al., 2018). Overall, our results may suggest implications for future school practice with regard to improving teacher-student relationships and parent involvement in school.

## 5.3 Change in teachers behaviour management practices, reports of problem behaviour, teacher efficacy and classroom climate

Teachers are natural implementers who can significantly influence mental health outcomes in children through the use of evidence-based practice (Reinke et al., 2011). Numerous studies have shown that teacher behaviour may be a key mechanism for change in the classroom (Hattie, 2009). According to Evertson and Weinstein (2006), classroom management is a set of "actions teachers take to create an environment that supports and facilitates both academic and social-emotional learning" (Evertson & Weinstein, 2006). Classroom management procedures that structure the classroom environment by focusing on preventive rather than reactive procedures, encourage appropriate behaviour, and reduce the occurrence of inappropriate behaviour in students, have been found to be essential for effective classroom management (Oliver et al., 2011). The main aims in Paper III were to evaluate the IY-TCM programme's impact on the following teacher-reported variables: use of positive behaviour support and behaviour correction strategies, problem behaviour in the classroom and in the school environment, teacher self- and collective efficacy, and classroom climate. Results on teacher-reported use of positive behaviour support and behaviour correction strategies were not significant. The results suggested a positive trend in the total score of problem behaviour in the classroom ($d$ = 0.27), moderate problem behaviour in the classroom ($d$ = 0.32), and classroom climate ($d$ = 0.23) in favour of the IY-TCM group, but these findings were not significant. This was also true for the total score on problem behaviour in the school environment, the subscales on moderate and severe problem behaviour in the school environment, severe problem behaviour in the classroom, and teacher-reported self- and collective efficacy.

Individual students' problem behaviour may predict higher levels of teacher-perceived conflict with the student, which, in turn, may result in lower student-specific teacher self-efficacy (Zee et al., 2017). When teachers perceive a conflict with students, they may find it challenging to teach, engage with, and offer emotional support to students, and this may reduce their self-efficacy in relation to these students (Zee et al., 2017). Positive effects on individual students' problem behaviour and social skills were found in Paper I and on teacher-student closeness and conflict in Paper II. However, these changes did not significantly affect

how teachers perceived their overall self- and collective efficacy, their reports of problem behaviour in the classroom and the school environment, or the overall classroom climate. More specifically, although teachers in the IY-TCM group reported that individual students' problem behaviour changed significantly, this was not true for the whole class or the whole school environment. Scores from the Classroom Environment Scale in Paper III, which captures teacher-student and student-student relationships at the classroom level, were not in accordance with the significant changes in teachers' perceptions of their relationship to individual students in favour of the IY-TCM group that was reported in Paper II. We may question whether the effect of changes in teachers' efficacy and behaviour management practices, classroom climate, and the average level of problem behaviour in the classroom and school environment may require more than 8 to 9 months to develop. According to Fixsen, Naoom, Blase, Friedman, and Wallace (2005), the effects of evidence-based programmes may require 2 to 4 years to fully establish. Longer and more intense interventions implemented over time also appear to be more effective than brief interventions (Weare & Nind, 2011). Hence, to produce more convincing outcomes for change in teacher behaviour, the IY-TCM programme may need to be implemented more consistently and over a longer period of time than that provided in the present research project.

As mentioned in Paper III, the power calculations for this study were originally based on the number of randomised students included, not the number of teachers. Power calculations for a two-stage sample during study planning estimated that the number of teachers had to be around 100-200 in each group. Paper III included 99 and 109 teachers in the IY-TCM group and comparison group, respectively. It is possible that these numbers constitute a sample of the overall teacher population that is too restricted (restricted range of data). Restricting the range of data may cause less variation in the outcome variables, as the overall proportion of variation is reduced (Bland & Altman, 2011). Furthermore, more than 90% of included teachers in the present sample were educated as teachers and had an average of more than 12 years of work experience. This may explain why the mean scores on several of the teacher outcome variables, such as teachers' classroom management strategies and self- and collective efficacy, seemed to be high at pre-assessment, and seemed higher than those reported in other school-based intervention studies (Sørlie & Ogden, 2015). A ceiling effect may have occurred due to a measurement limitation that occurs when the highest possible score or close to the highest score on a test or measurement instrument is reached, thereby

decreasing the likelihood that the instrument has accurately measured the intended domain (Taylor, 2010). Therefore, when the upper limits of a measure are reached, discriminating between the behaviours of teachers within the upper range is difficult. In the Sørlie, Ogden, and Olseth (2016) study, mean baseline scores for collective efficacy ranged between 55.0 and 57.8, whereas mean scores at pre-assessment in the present study were 60.2 and 60.4 in the IY-TCM group and the comparison group, respectively. Overall mean scores on collective efficacy at pre-assessment are illustrated in Figure 4.

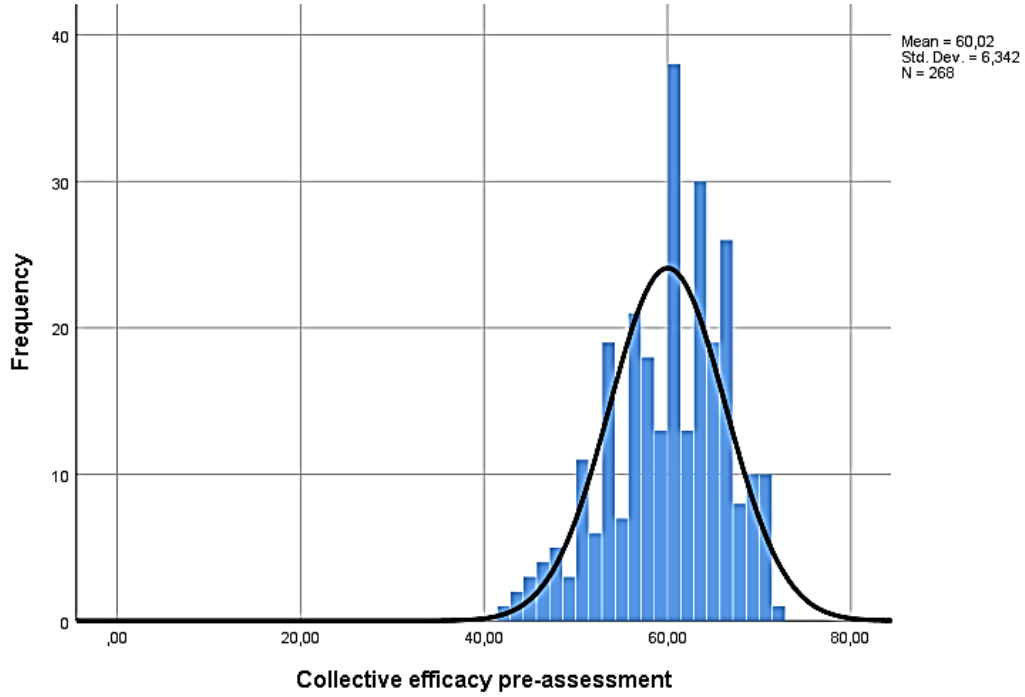


Figure 4. Mean scores on collective efficacy at pre-assessment

Future evaluations of teacher behaviour after the IY-TCM programme may be done using other measures that may demonstrate a larger degree of differentiation, e.g., measurements that target better teacher behaviour (discrimination for high performers) and that are more sensitive to change or growth induced by the IY-TCM programme.

School-based interventions that effectively support and facilitate behavioural and social-emotional student outcomes in primary education generally include improvements in teachers' classroom management practices, teacher-student relationships, and student behaviour and social-emotional development (Korpershoek et al., 2016). Based on findings in

Papers I and II, the IY-TCM programme seems like a promising option to improve teacher-student-parent relationships and student social skills at the individual level. However, changes in teachers' efficacy and classroom management practices, classroom climate, and problem behaviour at the classroom level and in the school environment were not confirmed in the present study. This may be explained by the fact that teachers were more experienced and more highly educated than teachers in previous studies, which showed more evident changes in teacher behaviour (Baker-Henningham & Walker, 2018; Baker-Henningham, Walker, Powell, & Gardner, 2009; Leckey et al., 2016). This suggests that contexts in which teachers have lower baseline levels of professional training present better opportunities for growth (Nye et al., 2018). The teacher reported changes for problem behaviour in classroom and classroom climate may suggest a trend favouring the IY-TCM group in compare to the comparison group. So far, the universal implementation of the IY-TCM programme over an 8-to-9-month period may be insufficient to change teachers' efficacy and classroom management practices, classroom climate, and problem behaviour in the classroom and the school environment.

### 5.3.1 Is the effect of social skills mediated by changes in teacher-student relationships

As the IY-TCM programme targets teachers rather than students, the logical assumption may be that the changes in student outcomes (e.g., students' social skills) found in Paper I arise from the changes in teacher behaviour (e.g., teacher-student relationship) reported in Paper II. Therefore, we tested whether the effect on students' social skills was mediated by the change in teacher-student relationships.

The IY-TCM programme components were provided to teachers successively. The programme component "how to build a positive relationship to students" preceded the programme component "about coaching student's social skills". The idea of mediation is that some of the effect of the predictor variable, the independent variable (IV), is transmitted to the dependent variable (DV) through the mediating variable (MV). In Figure 5, the arrows show the direction of the relationship between IV and MV, MV and DV, and IV and DV. The relationship between IV and DV that is not through MV is the direct effect of IV on DV. Assuming a mediation relation of IV to MV to DV, we suggested that our IV (the IY-TCM group variable) was related to the MV (change in teacher-student relationship), which in turn

was related to the DV (change in students' social skills) (Figure 5) (Bauer, Preacher, & Gil, 2006; MacKinnon, 2008).

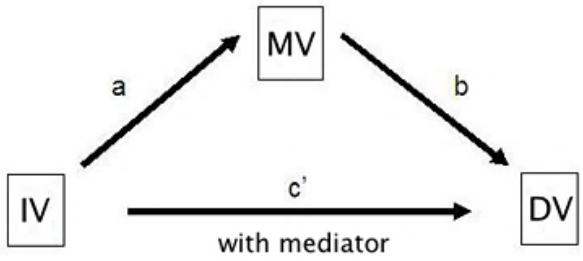


Figure 5. A mediation relation

The data were hierarchically organised in the present research project, with students as the unit (level 1) nested within teachers (level 2). According to Kenny, Korchmaros, and Bolger (2003), an upper-level mediation exists when the initial causal variable whose effect is mediated is an upper-level variable. Further, if the antecedent variable is measured at level 2, while the mediator and outcome are at level 1, the level 2 predictor influences a level 1 mediator, which then affects a level 1 outcome (2 → 1 → 1) (Zhang, Zyphur, & Preacher, 2009) (see Figure 6).

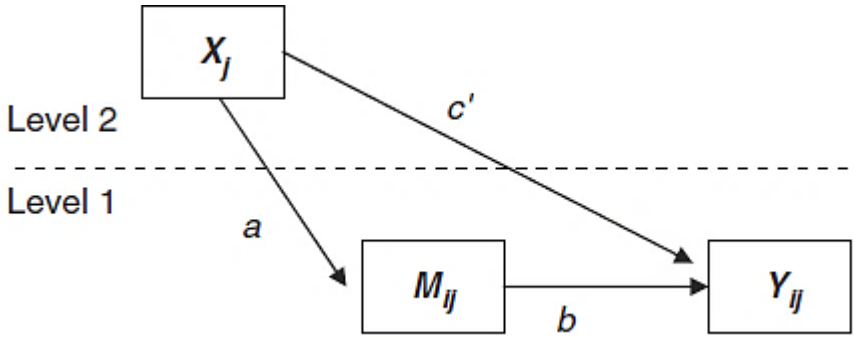


Figure 6. The 2 – 1 – 1 model

In Figure 6, the Y is the DV, X is the IV, and M is the mediating variable or mediator. In the present study, we applied a case in which X was assessed at level 2 and M and Y were assessed at level 1 in a 2-1-1 design (Zhang et al., 2009). Further, we assumed that the effect of the IY-TCM programme (level 2 predictor) was mediated through the change in teacher-

student relationships (STRS Closeness and Conflict) (level 1 mediator) to the change in students' social skills (SSRS total scores) (level 1 outcome). The change in the mediator must be shown to occur before the change in the dependent variable in order to claim true temporal precedence (Gaynor, 2017; Kendall et al., 2016). The assessment of change in the STRS Closeness and Conflict scores (the mediators) coincided with the assessment of change in the SSRS total scores in the present study; hence, temporal precedence of the mediators was not established.

In the upper-level meditation model for 2-1-1 data, a *multilevel structural equation modelling* (MSEM) framework for testing multilevel mediation is recommended (Preacher, Zyphur, & Zhang, 2010; Zhang et al., 2009). Further, the indirect effect of the IY-TCM programme (X) on students' social skills (Y) through the teacher-student relationship (M) may function only through the between-group variance in M and Y. The parameter $c'$ in Figure 6 relates X to Y adjusting for the effect mediator (a partial effect). The parameter *b* relates the mediator to Y adjusted for the effect of X, and the parameter *a* relating X to the mediator. Prior to the meditation analyses, the effect *a* (STRS Closeness $t = 2.38$, $p < 0.05$, Conflict $t = 2.38$, $p < 0.05$) and the effect *c* (SSRS Total $t = 2.80$, $p < 0.01$) were confirmed. The product of the *a* and *b* parameters, *ab*, is the mediated effect. The rationale behind the *ab* mediation quantity is that mediation depends on the extent to which the independent variable affects the mediator (*a*) and the extent to which the mediator affects the dependent variable (*b*). The *ab* quantity reflects how much a 1-unit change in X (the IY-TCM program) affects Y (SSRS Total) indirectly through M (STRS Closeness or Conflict) (MacKinnon, 2008). The *ab* estimates a unique mediation effect for a mediator (Zhang et al., 2009).

Using the MSEM framework, the product of the coefficients *ab*, as the mediation effect of STRS Closeness and Conflict (as multiple mediators) on the outcome variable SSRS total score, was tested in the mediation analysis. Results for these mediation analyses were not significant; the *z*-score for STRS Closeness was 1.83, $p > 0.05$ and 1.59, $p > 0.05$ for STRS Conflict. Given the mediation effect *ab* represented by the *z*-scores above, the assumption that the change in students' social skills was mediated by the change in teacher-student relationships was not confirmed in this thesis. Once again, as the temporal precedence of the mediators was not established in this research project, our ability to draw firm conclusions from this mediation analysis was also limited.

## 5.4 Methodological consideration

The findings presented in this thesis must be evaluated with the methodological challenges and practical decisions of a real-world context in mind. The study was conducted as an effectiveness study using a quasi-experimental, pre-post comparison design under naturalistic and real-life conditions. Attaining acceptable validity can be a major challenge when non-randomised designs are used in the evaluation of ordinary settings such as schools. Several efforts can be made to strengthen the validity by adding elements that reduce the most likely and severe threats to internal validity. The present study has several strengths: it was conducted as an effectiveness study under naturalistic, real-life conditions, the sample size of was quite large, and the power to detect relatively small effects was sufficient in the student sample.

### 5.4.1 The study design and sampling strategy

The randomised controlled trial is generally accepted as the best design to obtain unbiased effect estimates and to secure a high degree of internal validity (Shadish, Cook, & Campbell, 2002). In a randomised controlled trial with a successful randomisation procedure, the groups of participants are similar at pre-assessment and any outcome differences at post-assessment can be attributed to the intervention and not to initial group differences or other artefacts. Random assignment of schools is possible, and should be preferred to test the IY-TCM programme in an optimal way. However, random assignment to the groups in the present study was difficult due to the implementation policy of IY Norway and the Norwegian Directorate of Health. In the present study, the IY-TCM programme was implemented as a full-scale preventive intervention at the lower primary school level, so the relevant allocating units were schools rather than classes or students.

Recruitment of intervention schools was carried out in municipalities that had already implemented IY, and thus already had IY group leaders who could be trained in the TCM programme, whereas the recruitment of comparison schools was carried out in municipalities that had not implemented IY. This was done to minimise threats to validity such as diffusion, to avoid the inclusion of teachers from municipalities that had already learned about and adopted components of other IY interventions (e.g., the IY Parenting programme) in the comparison group. IY Norway contacted the educational-psychological service in strategically selected municipalities without IY implementation, and asked for

permission to carefully inform and invite schools in these municipalities to participate in the study as part of the comparison group. In contrast, schools in the IY-TCM group sent a request about programme implementation (self-recruitment) and may have realised they had issues in relation to teachers' classroom management practices and/or student behaviour and could benefit from implementing the IY-TCM programme. This may have led to slightly elevated pre-assessment scores on student behaviour in the IY-TCM group than in the comparison group. Due to the sampling strategy, we cannot rule out the possibility that selection bias may have occurred during recruitment. Significant group differences were identified for only a few observed variables at pre-assessment (SSRS Cooperation and Self-Control in Paper I, INVOLVE-T in Paper II, and Classroom Climate in Paper III). Although we adopted several measures to ensure that included schools were representative of all Norwegian schools, there may be undetected group differences on non-observed variables. To reduce threats to validity stemming from possible selection bias, the recruitment of comparison schools was carried out in strategically selected municipalities to match to the schools in the IY-TCM group. Twelve of 18 counties and 17 different municipalities in Norway were represented in the study; hence the geographical distribution of schools was acceptable (see Figure 3). The number of large schools was higher in the IY-TCM group and the number of small schools was higher in the comparison group, however, the number of high-risk students in each group were almost the same, 6.1% ($n$ = 45) in the IY-TCM group and 5.8% ($n$ = 38) in the comparison group. However, producing changes in large schools may seem more difficult than in small to medium schools, because "turning a large school around" is more challenging (Sørlie, Ogden, & Olseth, 2015). To make the two groups as similar as possible, school size and the number of students in each class was controlled for in the multilevel analyses, which may lower and threats to validity stemming from selection bias.

Alternative designs may have been a cluster-randomised trial (CRT) or a step-wedge trial (SWT). In a CRT, individuals are randomised in a group, and the group as a whole is randomised, not the individuals. This design is often used when individual randomisation is not possible. CRTs are complex to design, require more participants to obtain equivalent statistical power (the number of clusters and cluster size), and may require more complex analysis. Using a CRT may also be an effective way to avoid contamination, and this is one of the most common reasons for adopting this design (Hemming, Eldridge, Forbes, Weijer, &

Taljaard, 2017). However, applying a CRT in a full-scale implementation at the lower primary school level in several municipalities in Norway would have been problematic. Delivering the IY-TCM programme simultaneously to teachers in six, full-day workshops over an 8-9-month period required extensive preparation and planning. Municipalities and schools were informed about the predefined criteria for programme implementation and study inclusion before they sent an application for programme implementation. For ethical reasons, it would have been problematic to randomise the schools to clusters after they had done extensive preparation and planning to receive the programme.

A SWT design is a type of CRT, in which clusters are randomised to receive an intervention at different start times, but all clusters eventually receive it (Prost et al., 2015). One may start by identifying possible clusters and measuring baseline variables for all at time (T)1. Thereafter, the intervention is administered to randomly selected clusters at T2. At T3, another cluster is randomly selected and the intervention administered, and so on until all the clusters have received the intervention. The challenge of a SWT is that it requires extensive planning and coordination to achieve phased intervention implementation, such as organising intervention activities according to a randomised sequence and estimating time lags in implementation and effects during the trial period (Prost et al., 2015). The total burden was already high for the participating teachers and schools in the present study. An advantage of the SWT design is that control groups are certain to receive the intervention eventually. Having a temporary control group or delaying the intervention to the control group may seem more acceptable to participants than completely denying the intervention to the control group (Prost et al., 2015). Using a SWT in which the IY-TCM is rolled out to schools over multiple years may give opportunities to explore long-term outcomes, in addition to whole-school implementation and dosage effects. For the present research project, the use of a SWT would have placed an excessive burden on participating teachers and schools, and was therefore rejected. During the planning phase of the study, the implementation policy of IY Norway and the Directorate of Health in Norway was already in place, hence a quasi-experimental pre-post comparison group design was considered to be the most appropriate.

### 5.4.2 The multilevel approach

The structure in the present study sample was hierarchical (the first level was the students and the second level was the teachers in Papers I and II, and the first level was the

teachers and the second level was the schools in Paper III), therefore the assumption of independence was violated. For instance, students in the same class tend to be similar to each other because of the common experiences they share by being in the same class. The average correlation (expressed as the ICC) between variables among students from the same class tend to be different than the average correlation between variables among students from different classes (Hox, 2010). The general idea of multilevel analysis is that this hierarchy in data is taken into account in the analysis, or it takes into account the dependency of the observations (Twisk, 2006). For the present study, ICCs were calculated mainly on change scores to estimate the degree of dependency within teachers, who were the object of clustering in Papers I and II, and within schools, which were the object of clustering in Paper III. ICCs for the student outcomes in Paper I were based on change scores and varied from 0.06 to 0.40. In Paper II, the ICC calculations for the STRS scores varied from 0.19 to 0.36 based on change scores, whereas ICC calculations for INVOLVE-T scores were large: 0.48 for Parent Involvement in School and 0.47 for Teacher Bonding with Parent. For teacher-reported outcomes in Paper III, ICC calculations were small (ICC <0.22).

Change scores were used to test for group differences from pre- to post-assessment. The change score analyses focused on improvements from pre- to post- assessment for whole groups, and addressed group differences, comparing improvements between the IY-TCM group and the comparison group. The gain-score analysis answers the question of whether the two groups differed in terms of their mean change, i.e., whether we can reject the null hypothesis that the groups improved at the same rate (Fitzmaurice, Laird, & Ware, 2004). This approach is preferred before analysis of covariance. Analysis of covariance tests differences in covariate-adjusted scores and test whether the null hypothesis, those individuals who shared the same pre- assessment score improved at the same rate. This is only possible if individuals have the same baseline score, which may be the case in a randomised design (Fitzmaurice et al., 2004). In a non-equivalent group design, in which randomisation of groups is not possible and baseline differences between groups exists, as they do in the present study, the use of change scores have been strongly emphasised (Fitzmaurice et al., 2004; Oakes & Feldman, 2001). Because we used change score analyses, we were also able to use multiple imputation for the analyses to deal with missing data in Papers I and II. Multiple imputation under the assumption that data are missing at random is an appropriate and flexible way of handling missing data and was done to ensure that the pre-post-assessment

analyses reflected the entire student population in Papers I and II (Stuart et al., 2009). Using multiple imputation in Paper III was also considered, but the conclusion was that this approach would not change the results from the original data.

For Papers I and II, the effect sizes ($d_w$) were computed as standardised group differences in pre-post mean change using the pooled within-cluster sample standard deviation (Hedges, 2007). For Paper III, the effect sizes ($d$) were calculated according to Feingold (2013) recommendations, where the standardised mean difference was calculated based on the unstandardised mean difference (regression coefficient) divided by the pooled, within-group SD of the raw outcome scores at pre-assessment. As pointed out by Greenberg and Abenavoli (2017), the primary use of the standardised mean effect size to evaluate universal interventions may lead to undervaluing the importance of the universal approach, because standardised metrics of impact like Cohen's *d* are quite sensitive to the base rate of a given phenomenon in the population. This may be problematic, as the base rate of things like students' behaviour difficulties vary across high-risk populations targeted in selective and indicated interventions and universal populations targeted in preventive interventions. Hence, standardised mean effect size may be a poor metric for assessing outcomes of universal preventive interventions where a large percentage of the population has few baseline symptoms and is thus unlikely to change, at least in the short term (Durlak et al., 2011; Greenberg & Abenavoli, 2017).

### 5.4.3 Fidelity and implementation

Teacher- and group-leader reported fidelity information was given through different measures (e.g., the IY Workshop Evaluation form, the Teacher Workshop Checklist, and the Teacher Satisfaction Questionnaire) (Webster-Stratton, 2018). As the funder of this study (the Norwegian Directorate of Health) wanted boundaries between the implementation of the programme and the research project, the implementation process was mainly in the hands of the local municipalities involved. Hence, access to this fidelity information was problematic. Mainly as a consequence of this, no formal or objective information on programme fidelity, dosage, or quality of implementation was included in the present thesis.

An organisation's overall readiness for the implementation of any programme may be influenced by several factors, such as the need and readiness for change, the capacity to affect change, and the commitment to or engagement in the change process (Greenberg,

Domitrovich, Graczyk, & Zins, 2005). An assessment of readiness for implementation may predict the quality of programme implementation. An assessment of the student population and its needs, and the fit between what students need and what an intervention offers, are of significance. Determining whether the municipality and the school infrastructure are sufficient to handle the needs of the intervention, such as the availability of needed personnel and material resources, budgeting issues, and feasibility are of importance (Greenberg et al., 2005). Hence, as a part of the pre-planning of programme implementation, and in order to assess the organisation's overall readiness for implementation, leaders in participating municipalities and schools had to answer an Agency Readiness Questionnaire (62 questions). However, an organisation's capacity may be affected by important "implementation drivers" related to programme fidelity, dosage, and quality of implementation (Durlak & DuPre, 2008). This capacity may have varied between different municipalities and schools, and thus we have to question whether particular "implementation drivers" may have been influenced in the present study.

In the systematic review by Nye et al. (2018), questions about future recommendations for the implementation of the IY-TCM programme, as well as barriers to implementation and difficulties with the programme, were investigated. Qualitative findings (teachers' and group leaders' reports) showed that that there was greater variability within and across studies on whether participants experienced certain aspects of the programme as negative. A model in which the critiques of the implementation process are presented using a cyclical process of recruitment, delivery/content, outcomes, and scale-up, illustrate the difficulty of balancing competing aspects of programme delivery (see Figure 7) (Nye et al., 2018, p. 23).

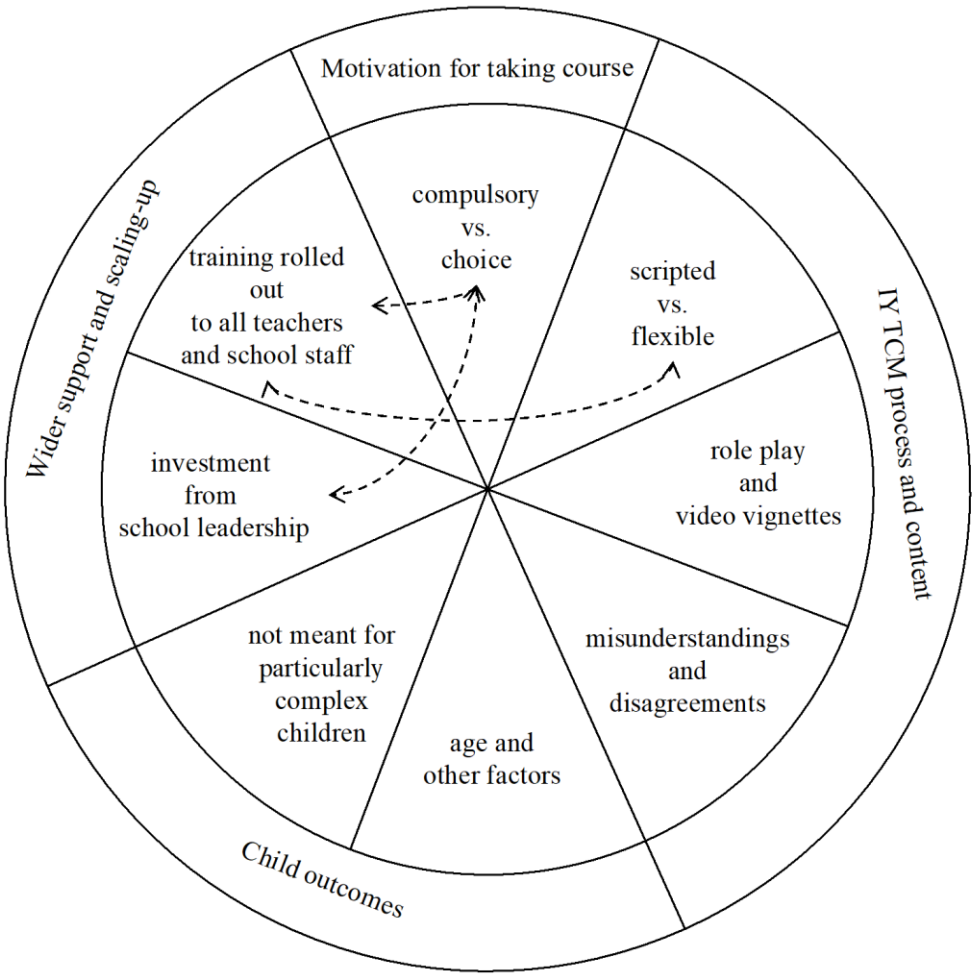


Figure 7. Qualitative meta-synthesis of experienced critiques of the IY-TCM programme[1]

*Motivation* – Motivation for participating in the IY-TCM programme was highlighted as an important factor with regard to whether teachers chose to participate, contrasted against compulsory participation (Baker-Henningham et al., 2012; Kennedy, 2016; Leckey et al., 2016; Marlow et al., 2015). In the present research project, we considered that teachers chose to participate in the IY-TCM training. This was because staff approval had to be at least 80% before schools were offered programme implementation. If 20% of the teachers did not approve, they may have been reluctant to attend the training, but felt obliged, whereas

[1] Adopted from the Nye et al. (2018).

teachers who approved participation (felt that they had a choice) may have been more open-minded to the content of the programme and more engaged in the training. We do not know for sure how programme approval was obtained from school staff.

*The IY-TCM process and content* – Previous research has addressed the main critiques of process related to the IY-TCM programme's manualised nature and specific learning techniques (Baker-Henningham et al., 2012). An intervention's process and content refer to the internal dynamics and operation of the quality of programme delivery (Greenberg et al., 2005). The IY-TCM programme has a step-by-step approach, by which specific learning techniques, such as the use of role-play, film-vignettes, group discussions, and self-reflection forms and checklists. The learning techniques that have been associated with the most challenges are the use of role-play and film-vignettes (Nye et al., 2018). Factors that may have moderated these aspects include the group leader's skills or level of experience and the teachers' level of education and experience. Before the group leaders could carry out the training for teachers in this study, they had to deliver the training programme at least once or twice (or in one or two schools, depending on school size) per year on average. During the group leader's regular supervision and consultation by IY mentors and trainers, typical agendas contained a fixed set of topics, such as how to get the most out of the programme's film-vignettes, how to direct an effective role-play, as well as other issues related to programme delivery. Therefore, we may assume that the group leaders in this research project had adequate skills to carry out the programme, and adequate knowledge about the programme's theoretical basis and its contribution to the educational setting, and hence, that they were committed to the programme's goals. As mention in Paper III, included teachers also had high levels of professional training and experience. A high level of professional training combined with different cultural beliefs and values may have influenced the teachers' susceptibility to and acceptability of the programme, which may have resulted in disagreement with strategies advocated by the programme. The programme's core components are clearly set out in the programme manual, and programme delivery itself is guided by a set of principles. Using these principles as a basis may have helped keep the programme more flexible and easier to adapt to different cultural beliefs and values, variations in teacher skill levels, and student development (Hutchings et al., 2013).

*Child outcomes* – The IY-TCM programme was originally designed to address high-risk groups of students with severe problem behaviours in schools. The benefits of the

IY-TCM programme for other groups of students, such as older students or identified subgroups of students with greater need, have been questioned (Ford et al., 2018; McGilloway et al., 2010; Nye et al., 2018). In this research project, the IY-TCM programme was implemented as a full-scale preventive intervention at the lower primary school level targeting the entire student population aged 6 to 8 years. Main outcomes for this entire student population, rather than outcomes for subgroups of students, were therefore of primary interest. In the present student sample, about 6% of students scored at or above the clinical range on the SESBI-R Intensity scale. These students were included in the overall analyses conducted on the entire student population. However, moderating analyses suggested that the IY-TCM programme had a larger programme effect on problem behaviour and teacher-student conflict for students with elevated SESBI-R Intensity scores at pre-assessment. When the sub-sample of high-risk students from the student sample was evaluated isolated, results showed that the IY-TCM programme implemented as universal preventive intervention may not be sufficient to change behaviour difficulties in this student population (Kirkhaug et al., 2016). These findings suggest that when the IY-TCM programme is given as a universal preventive intervention, high-risk students may require more comprehensive and tailored interventions in addition to the IY-TCM programme.

*Wider support and scaling-up* – As a part of the critiques against delivery of the IY-TCM programme, stakeholders expressed the need for wider support of training and scaling-up the IY TCM implementation. (Nye et al., 2018). In this research project, the IY-TCM programme was offered to all first to third grade teachers and students simultaneously, instead of to a limited group of teachers, classes, or students. This approach provided an opportunity to influence all students effectively, including students initially most at risk for developing problem behaviour. Previous research have shown that a further comprehensive school-wide implementation from first to seventh grade may produce more convincing outcomes with regard to changes in problem behaviours in the entire school environment and in teacher's behaviour management practices (Sørlie & Ogden, 2015; Sørlie et al., 2015). In the present research project, the IY group leaders were offered regular supervision and IY consultations by IY mentors during programme delivery. The facilitation on supporting the training and scaling-up the program, are implementation aspects that to some extent was performed in the present research project.

*Investment from leadership* – Investment from the leadership in the educational-psychological service may refer to their willingness to give IY-TCM group leaders enough time to offer in-class consultation (i.e. to coach teachers between workshops), and participate in full-day supervisions/consultations (about 6 to 8 times a year) during the research period. From the school leadership level, investment from leadership may also refer to the extent of administrative support (e.g. facilitation of the process) given to teachers to receive in-class consultation and coaching between workshops, as well as enough time do their home assignments and to put into practise new strategies in classroom. The extent of investment at the leadership level (at both the municipality- and school level) may be an important implementation aspect that may moderate the programme's effectiveness. However, this aspect have not been addressed in previous evaluations of the IY-TCM programme (Nye et al., 2018), and was neither addressed in the present research project.

The quality of implementation is essentially the degree to which an intervention is conducted as it was originally intended. Implementation data may be crucial to interpreting outcomes that strengthen the conclusions of the intervention (Sørlie & Ogden, 2015; Sørlie et al., 2015). In the absence of implementation information, it is difficult to know precisely what took place during an intervention trial, and one may incorrectly conclude that a programme is ineffective when, in fact, poor outcomes may be the result of service delivery shortcomings, not shortcomings of the programme itself (Greenberg et al., 2005). Implementation information may have been useful to explain variations in outcomes in the present research project, e.g., why some students and teachers improved after exposure to the IY-TCM programme and others did not. Although no formal or objective information on programme fidelity and implementation quality was collected in the present research project, IY mentors and group leaders did not report any serious deviations in the way the programme was delivered. Problems detected during the time of the study were rather insignificant; they were easily solved and followed up on later.

## 5.5 Future directions

When universal preventive interventions are delivered to entire populations with varying degrees of risk (e.g., few children in a whole population have, or are at-risk for, a disorder), it is important to assess potential outcomes over a period of time sufficient for a preventive effect to occur (Greenberg & Abenavoli, 2017). Furthermore, behavioural changes realised through preventive classroom interventions in regular school settings may take longer to develop than those achieved in disadvantageous- or at-risk settings. According to Greenberg and Abenavoli (2017), treatment or promotion effects, such as a reduction in individual students' problem behaviour and improved social skills, might be evident immediately following a universal intervention. However, universal preventive effects at the classroom level and in the school environment may take longer to consolidate and emerge. Students in the IY-TCM group were exposed to IY-TCM strategies for a relatively short duration. In order to produce more convincing outcomes both in student and teacher behaviours, the IY-TCM programme given as a universal preventive intervention may need to be implemented more consistently over a longer period of time. Our understanding of how sustainable post-intervention outcomes of the IY-TCM programme may or may not be is limited. Significant improvement in children's mental health was reported by teachers 9 months after the IY-TCM programme in a recent study; however, this finding did not persist at 18 or 30 months (Ford et al., 2018). To capture the impact of the IY-TCM programme more fully, knowledge on how to strengthen programme maintenance and sustainability is needed. It is critical that future research use multiple assessment points within a long-term follow-up study.

There has been convincing support for changes in children's problem behaviours at school, as well as in teachers' negative behaviours towards children after the IY-TCM programme has been implemented in combination with other IY interventions, such as the IY Parent and Child programmes (Webster-Stratton et al., 2001, 2004; Webster-Stratton et al., 2008). High-risk students (i.e., those who are at risk of, or already exhibit problem behaviour) may require other interventions in addition to the IY-TCM programme given as a universal prevention intervention (Kirkhaug et al., 2016). Dysfunctional patterns of family interaction often translate into problems at school, which may underline the need to target students' problem behaviour not only at school but also in home settings. Parent training has been found to be a powerful tool to reduce risk factors related to the development of childhood

social-emotional and behaviour problems, to change harsh parenting and child behaviour problems, and to enhance positive parenting (Leijten et al., 2018). When evaluating the IY Attentive Parenting Program implemented as a universal preventive intervention, a significant reduction in harsh parenting and an increase in positive parenting were found (Reedtz, Handegård, & Mørch, 2011). The IY-TCM programme implemented in combination with the IY Attentive Parenting programme, and the IY-TCM programme implemented in combination with the IY Dina Dinosaur Social Skills and the Problem Solving Curriculum to children, have been carried out in regular kindergarten and school settings in Norway. We recommend that the evaluation of these combinations of IY programmes in Norway be included in future research on the IY-TCM programme.

Teachers in our IY-TCM group were the primary implementers of the IY-TCM programme; they were responsible for implementing the programme with fidelity and for answering the questionnaires. Teachers were the only informants, thus a positive response bias or an allegiance effect may have occurred. However, teachers' assessments are important in the context of school-based interventions, and they provide a valuable normative perspective both on student and teacher behaviours. Due to the extended periods of time they spend with students in different situations, teachers are considered reliable informants on student behaviour (Major, Seabra-Santos, & Martin, 2015; Ogden, 2003; Reinke et al., 2018). Using a multi-informant approach may reduce the risk of mono-informant bias. Classroom observations, such as the Teacher–Pupil Observational Tool (Martin et al., 2010) and the standardised observational instrument, the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre, 2008), have been successfully used in other trials of the IY-TCM programme (Leckey et al., 2016; Murray et al., 2018). In addition to the use of quantitative measurements during programme implementation, using of classroom observations (e.g., of teacher-student interactions) would obviously have improved the findings and the robustness of this research. Integrating quantitative and qualitative knowledge and experience in future research (Nye et al., 2018) is strongly recommended.

Previous research has shown that fidelity and implementation quality may moderate the effects of school-based interventions (Sørlie & Ogden, 2015; Sørlie et al., 2015). Fidelity and implementation information may refer to how much of the original programme was delivered, and how well different programme components were conducted (Durlak & DuPre, 2008). This refers to knowledge about the quality of the delivery of the IY-TCM training to

teachers (the group leader level), and how thoroughly teachers managed to apply IY-TCM strategies in their classrooms. At the classroom level, the use of in-class consultation and coaching between workshops is recommended as part of the implementation of the IY-TCM programme in Norway. Guidelines on frequency and content for this implementation component are specified, possible additive benefits of this implementation component should be examined in future research. Furthermore, the extent to which the leadership in thee educational-psychological service and the school leadership invested in and supported the delivery of the IY-TCM programme may have been an important moderator that influenced the programme delivery. This is an implementation aspect that should be examined in future research.

# 6 CONCLUSION

The main aim of the present thesis was to evaluate the effectiveness of the IY-TCM programme in Norway with regard to changing students' problem behaviour and social skills. The IY-TCM programme was offered as a preventive intervention to all teachers at the lower primary school level, targeting all students aged 6 to 8 years. Around 7% of pre-school and school-aged children showed symptoms consistent with a mental health disorder, including children with behaviour difficulties (Reneflot et al., 2018). In school setting, a large number of children can be reached at the same time, and teachers are important and natural implementers who have the potential to influence mental health outcomes in students. School readiness, may be conceptualised as three components including emotional self-regulation, social competence, and parent/school involvement, as well as absence of problem behaviours, and these factors play a key role in children's future interpersonal adjustment and academic success (Webster-Stratton et al., 2008). Through the use of evidence-based behavioural and social-emotional practices in the classroom, teachers get the chance to alter early-onset problem behaviour and social skills in students. The findings in this thesis give evidence that the IY-TCM programme implemented as a universal preventive intervention in regular school settings may be able to alter student behaviour for the better, also students who were initially identified by the teacher as high-risk for behaviour problems. Overall, the effects were in the small range. However, small effects from universal interventions are common and expected (Greenberg & Abenavoli, 2017). The observed changes in problem behaviour and social skills may be considered modest. When considering these findings combined with the effects on teacher-student-parent relationships, the overall findings may be considered promising. The benefits to each individual on average may considered low. However, if one can shift the overall mean of problem behaviour in the entire student population, then the percentage of students requiring the high-risk strategy may also decline in the long run. Considering the findings in a population-focused approach, the cumulative consequences for the population as a whole, with regard to promoting mental health and positive educational outcomes, might be of significance (Rose, 1985). The population influence of universal school-based interventions may be differentiated across subgroups, with the same intervention acting to promote health for some students, while preventing deterioration or actively treating others. Hence, although the effects found for the entire student sample at the lower primary school level in the present research project were small, this does not necessarily demonstrate a lack

of programme effectiveness (Ford et al., 2018; Greenberg & Abenavoli, 2017). Findings in this thesis add new knowledge on the effectiveness of the IY-TCM programme when offered as a universal preventive intervention. We may conclude that the IY-TCM programme has the potential to improve behaviours in most students, and as well, as prevent problem behaviours from developing in students who are at risk for such problems within regular school settings.

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# Paper 1

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# Evaluation of the Incredible Years Teacher Classroom Management Program in a Regular Norwegian School Setting

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**ABSTRACT**

This study examined whether the Incredible Years (IY) Teacher Classroom Management (TCM) program implemented as a school-wide preventive intervention at 1st to 3rd grade in a regular school setting reduces the development of problem behavior and improves social competence. Using a quasi-experimental pre-post design, the IYTCM was implemented in 21 schools and compared with 22 matched schools that did not receive the program. A total of 241 1st to 3rd grade teachers and 1518 students aged 6 to 8 years took part in the trial. Mixed-model analyses found small positive effects on changes in students' social competence ($d_w = 0.19$), while effects on change in students problem behavior were less than small ($d_w < 0.20$). When the program is implemented as school-wide universal preventive intervention, results suggest a small preventive impact of the IYTCM program in regular school settings for some of the outcomes measured in the study.

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Problem behavior; social competence; school-wide; prevention

Behavioral problems in school are associated with educational and social disadvantages and are one of the most prevalent, severe, and persistent problems that inhibit the realization of students' abilities. Such problems may have both immediate and long-term consequences for the student, such as academic underachievement, mental health problems, school dropout, future unemployment, and general social exclusion (Ford et al., 2012; Scott, Knapp, Henderson, & Maughan, 2001). There are huge costs to the public sector associated with behavioral problems, particularly in the education system (Snell et al., 2013). Measures aimed at preventing and reducing problem behavior and coping issues are central to ensuring that all students experience optimal development and positive learning outcomes at school. Preventive interventions in school settings can be of great importance as public health interventions (Ford et al., 2012). Dysfunctional patterns of family interaction often translate into problems at school, underlining the need to target behavioral problems not only at home but also in day-care and school settings (Drugli & Larsson, 2006; Fossum, Handegård, Martinussen, & Mørch, 2008; Ramsey, Patterson, & Walker, 1990). Students who exhibit problem behavior frequently go off-task, display aggression towards others, or refuse to cooperate, all of which adversely affects their own learning potential as well as that of the students around them (Bartlett, Holditch-Davis, Belyea, Halpern, & Beeber, 2006; Efrati-Virtzer & Margalit, 2009; Moffitt & Scott, 2009). Students' oppositional and negative behavior may be reinforced by teachers' ineffective classroom behavior management practices, where the teacher is trapped into coercive exchanges with the

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student because of compliance to students' demands (Patterson, Reid, & Dishion, 1992; Webster-Stratton, Reid, & Hammond, 2001; Webster-Stratton, Reid, & Stoolmiller, 2008).

Social competence, emotional self-regulation, and absence of problem behavior are important components of the foundations of interpersonal adjustment and academic success (Drugli, Klökner, & Larsson, 2011; Snyder et al., 2011; Webster-Stratton et al., 2008). In addition to their educational benefits, an essential developmental task for students is to learn how to interact in socially appropriate ways. Social skills are invaluable in almost every interaction that a student encounters in the school environment, and are a prerequisite for academic learning since they involve self-regulation, the ability to give and receive help, and the skills of working with, listening to, and communicating with others. Students who lack these skills are likely to suffer socially, and to develop problem behaviors that impair their academic progress (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Classrooms provide excellent settings for targeting students' behavior, and teachers are natural implementers who can have a significant influence on their behavior (Greenwood, Kratochwill, & Clements, 2008; Reid, Webster-Stratton, & Beauchaine, 2001). However, the risk of developing behavioral problems may be increased in poorly managed classrooms (Conroy, Sutherland, Haydon, Stormont, & Harmon, 2009; Reid et al., 2001; Reinke, Herman, & Dong, 2016; Webster-Stratton et al., 2008).

The Incredible Years (IY) Teacher Classroom Management (TCM) program aims to strengthen teachers' use of evidence-based classroom management strategies in order to reduce early-onset problem behavior and promote students' social competence. The IYTCM program has been the subject of comprehensive empirical examinations in various combinations with the IY parent and IY child programs: for example, in Head Start centers with high-risk students, students from low socioeconomic backgrounds, and in schools that receive a higher level of support in terms of pupil-teacher ratios, special school grants and extra support for students. Previous studies that measured child outcomes have been linked to reductions in conduct problems, aggression, hyperactivity, and antisocial behavior, as well as improvements in on-task behavior, increased prosocial behaviors, and school readiness (Baker-Henningham, Scott, Jones, & Walker, 2012; Baker-Henningham, Walker, Powell, & Gardner, 2009; Reinke et al., 2016; Webster-Stratton et al., 2001; Webster-Stratton et al., 2008; Webster-Stratton, Reid, & Hammond, 2004). A few studies have also evaluated the impact of the IYTCM program as a stand-alone intervention aimed at changing student behavior. McGilloway et al. (2010) found that when teachers increased their use of positive IYTCM classroom management strategies in combination with reduced use of negative classroom management strategies, student behavior and socioemotional adjustment improved, particularly among those considered initially to be at most risk. In addition, Hutchings, Daley, Jones, Martin, and Gwyn (2007) and Hutchings, Martin-Forbes, Daley, and Williams (2013) found significant reductions in the total number of commands (e.g., negative instructions) given to children, which in turn led to an increase in the rate of compliance (e.g., children paid more attention and were more likely to cooperate with their teachers), after the IYTCM intervention.

### *The Norwegian School Context*

Norway has a mandatory school system for children aged 6 to 16. About 633,000 students are enrolled in primary and lower-secondary school (1–10). Of the 8% (68% boys) who receive special education, 39% receive it as part of ordinary classes, and not in segregated settings. About 7% of the students have a first language other than Norwegian and received special education in Norwegian in parallel with their ordinary education. The schools are divided into the categories small (< 200 students), medium (201–350 students) and large (351–780 students) (Statistics Norway, 2017). In primary school, the average ratio of students to teachers is 16:1. Schools are mostly public and free of charge, and the local authorities are responsible for primary and lower-secondary education. The stages are based on a single national curriculum, which is based on the concept of equality, inclusion, and adapted education for all.

### The Current Study

Convincing findings have been found for the IYTCM program in 3- to 8-year-old children in various disadvantageous school settings, both in combination with the IY child and/or the IY parent program, and as a stand-alone intervention (Baker-Henningham et al., 2009; Baker-Henningham et al., 2012; Hutchings et al., 2007; Hutchings et al., 2013; McGilloway et al., 2010; Reinke et al., 2016; Webster-Stratton et al., 2001, 2004; Webster-Stratton et al., 2008). This study is one of the first universal preventive evaluations of the IYTCM program implemented as a school-wide intervention in 1st to 3rd grade to students aged 6 to 8 years. The training was delivered simultaneously to the entire first- to third-grade teaching staff and to after-school service staff. We formulated the following hypotheses: the IYTCM program, when provided as a school-wide preventive intervention in a regular school setting would (1) reduce the development of problem behavior and (2) improve students' social competence. Group differences in the level of change in problem behavior and social competence that favored the students in the IYTCM group were anticipated.

## Methods

### Participants

In connection to this study, the municipalities that had previously implemented the IY parenting program were invited by IY Norway to participate in the study and to implement the IYTCM program. Employees in the education agencies were trained as IYTCM program group leaders, and informed the schools about the implementation and research study of the IYTCM program. Recruitment continued through five consecutive years, from fall 2009 to fall 2013. In all, 24 municipalities implemented the IYTCM program; 25 schools from these municipalities applied to IY Norway to implement the program and participate in the study. As a part of the study inclusion criteria, readiness for program implementation with approval from at least 80% of the school staff, as well as agreement with school-wide implementation in the 1st to 3rd grades, needed to be met and 21 of the 25 schools that applied satisfied the inclusion criteria. The IYTCM training was provided free of charge. Four schools that did not met the predefined inclusion criteria and were allocated to the comparison group, were offered IYTCM implementation immediately the year after participation. In order to minimize contamination of the program, 19 schools were recruited to the comparison group from municipalities that had not implemented IY. These schools were offered a modest financial compensation for not receiving the IYTCM training immediately. On request, the municipalities and schools were given implementation support from IY Norway after the study period ended. The comparison group was matched with the IYTCM group according to geographic location and school size. For the 43 schools included at pre-assessment, the mean class size was 19.7 (SD = 8.8). None of the 43 schools were actively attending or had attended any other evidence-based school behavior intervention programs during the previous year. The flow of participants through each stage of the study is illustrated in Figure 1.

The number of teachers in the 1st to 3rd grades was 567. One teacher per class who was in daily contact with the students was asked to participate as respondent. These resulted in 241 teachers; 139 in the intervention and 102 in the comparison group. The number of students in the 1st to 3rd grades was 3331. In order to reduce data dependency and to maximize the effective sample size, as well as to limit teacher burden, a statistician, who was blind to the characteristics of the schools (3rd author, BHH), randomly selected seven students per class for the assessment. For example, if a class consisted of 21 students, a random number sequence list from 1–21 was generated electronically. Thereafter each teacher matched the first seven random numbers from the list with the student's alphabetical order. This resulted in 829 randomly selected students in the intervention and 689 randomly selected students in the comparison group. Teachers who participated as respondents received a small financial compensation for the time they spent on completing the questionnaires. A sub-sample of 83 students (6%) scored equal to or above the

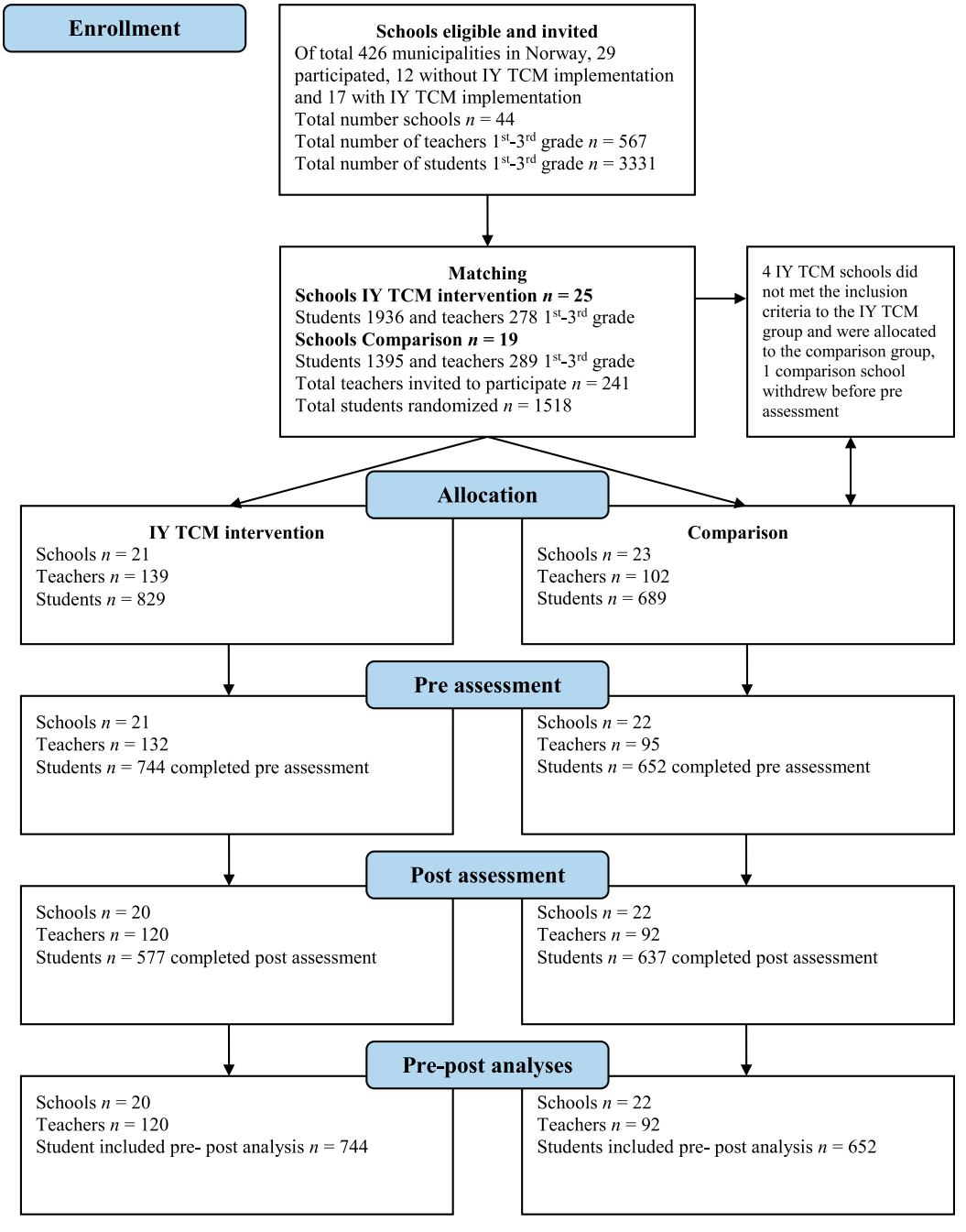


**Figure 1.** Flow diagram.

90th percentile on the Sutter-Eyberg Student Behavior Inventory-Revised (SESBI-R) scale (> 144), which is equal to the clinical range. The findings for the high-risk students are presented in Kirkhaug et al. (2016). Table 1 presents demographic information for the schools, teachers, and students in the study. Apart from one significant difference between groups in terms of student ethnicity ($p < .001$), none of the other demographical variables showed significant group differences at the .05 level.

**Table 1.** Demographic information for schools, teachers and students at baseline.

| | IYTCM | Comparison | Total |
|---|---|---|---|
| Schools (*n*) | 21 | 22 | 43 |
| School size large (351–780 students) | 4 | 2 | 6 |
| School size medium (201–350 students) | 6 | 4 | 10 |
| School size small (< 200 students) | 11 | 16 | 27 |
| Class size *M* (SD) | 20.82 (6.85) | 18.48 (10.55) | 19.74 (8.84) |
| Teacher responders (*n*) | 132 | 95 | 227 |
| Teacher's age in years *M* (SD) | 40.94 (11.86) | 45.19 (10.31) | 42.75 (11.26) |
| Work experience in year *M* (SD) | 11.73 (9.11) | 15.48 (8.68) | 13.37 (9.05) |
| Educated as teacher *n* (%) | 123 (93.2) | 87 (91.6) | 210 (92.5) |
| Female teacher *n* (%) | 115 (87.1) | 84 (88.4) | 199 (87.7) |
| Students (*n*) | 744 | 652 | 1396 |
| Girls *n* (%) | 355 (47.7) | 297 (45.6) | 652 (46.7) |
| Age *M* (SD) | 7.22 (0.86) | 7.30 (0.87) | 7.26 (0.87) |
| Non-Norwegian *n* (%)* | 64 (8.6) | 13 (2.0) | 77 (5.5) |
| Special education *n* (%) | 67 (9.0) | 72 (11.0) | 139 (10.0) |
| High-risk student's[a] *n* (%) | 45 (6.1) | 38 (5.8) | 83 (6.0) |

Note: IYTCM = Incredible Years Teacher Classroom Management.
[a]Score of 144 or higher on SESBI-R Intensity.
*$p < .05$.

## Procedure

This study had a quasi-experimental pre-post design with a continuous enrollment of intervention and comparison schools. Prior to the pre-assessment and the first IYTCM training, information about the IYTCM program and data collection procedures was presented to teachers and staff. Pre-assessment (Time 1) took place during the fall, one-to-three weeks ahead of the first IYTCM training, and post-assessment (Time 2) was carried out in the spring of the same academic year, one-to-three weeks after the final IYTCM training. The period between the two assessments was typically between eight and nine months. Parents were informed about the IYTCM program and the study, including the data collection procedures, through written information or verbally during parent meetings, and were requested to consent to their children's participation. Provided there was parental consent, the teacher filled out questionnaires about the student. The questionnaires were only available in Norwegian. Students whose parents did not speak Norwegian were excluded. The study population included 5.5% non-Norwegians. In order to ensure confidentiality, the names of the schools, teachers, and students were anonymized using ID-codes. Parents could withdraw their child from the study at any time without further explanation. The questionnaires were returned in pre-paid envelopes or completed using the Internet survey tool Quest Back.

The study was approved by the Regional Committee for Medical and Health Research Ethics, Norway (Approval/reference number: 200803705-7/MGA006/400).

## The Intervention

The IYTCM program was developed as a preventive intervention designed to strengthen teacher's classroom management strategies. This in order to reduce early-onset problem behavior, aggression, and non-cooperation in students and to promote students social competence and school-readiness. A basic premise of IYTCM training is that positive teacher-student interaction precedes effective teaching strategies, and that teachers' attention should be directed far more frequently to positive student behaviors in classroom environments than to negative behaviors (Webster-Stratton, 2012). Six topics are covered, with one workshop for each topic, in which each workshop builds upon the content of the previous one, and are delivered as follows: (1) building positive relationships between students and teacher; (2) teacher attention, coaching, encouragement, and praise; (3) motivating students through incentives; (4) reducing inappropriate behavior – ignoring and redirecting; (5) reducing inappropriate behavior – follow-through with consequences; and (6) emotional

regulation, social skills, and problem solving. Two experienced and qualified group leaders trained the teachers and staff simultaneously in groups (20 in each group), through six full-day workshops over an eight-tonine- month period (about one workshop per month), 42 hours in total. The training started in the fall and was completed during the following spring. Teachers were instructed to practice the principles of the program during the month following each training session and to report on their experiences at the start of the following session. The group leaders provided teachers and staff with guidance during the month after each workshop. As part of the training, the textbook *How to Promote Social and Emotional Competence in Young Children* (Webster-Stratton, 1999) was provided to teachers and staff. Fidelity in training was promoted by means of checklists completed by both group leader- and teacher, as instructed in the program manual, in order to ensure evidence-based implementation of the program (Webster-Stratton, 2011). Teachers also completed a user satisfaction questionnaire at the end of the training.

To become a qualified group leader, a 21-hour mandatory IYTCM training course provided by IY Norway had to be completed. A higher education qualification (bachelor's or master's degree) in teaching, special education, psychology, health, or social studies, in addition to suitable personal characteristics, were also required. To maintain approval as a qualified group leader, the group leaders had to deliver the training program at least once or twice (or in one or two schools, depending on school size) per year on average, which also was the requirement before they could complete the training for this study. All the group leaders were trained by the same two IYTCM mentors (certified in both the Parenting and the TCM program by the program originator) and supervised by the same two mentors through the data-acquisition period.

## Measures

The SESBI-R (Eyberg & Pincus, 1999) was used to evaluate the current frequency and severity of various student behaviors. The 38-item scale describes common behavior problems rated by teachers, such as "teases or provokes other students"; "has difficulty staying on task"; and "fails to listen to instructions." On the Intensity Scale, the frequency of behaviors is rated using a seven-point Likert scale: 1 = never, 2–3 = seldom, 4 = sometimes, 5–6 = often, and 7 = always. On the Problem scale, teachers assess whether or not the behavior is currently a problem for the teacher using a yes-no (1–0) scale. The scores were summed across all items on both the Intensity scale (ranging from 38 to 266) and the Problem scale (ranging from 0 to 38). Clinical cut-off values were as provided by Kirkhaug, Drugli, Mørch, and Handegård (2012). Cronbach's alphas for the baseline data were .97 for the Intensity scale and .95 for the Problem scale.

The Teacher Report Form (TRF: Achenbach & Rescorla, 2001) measures different behavioral difficulties, including the Aggression, Attention problem and Academic Performance subscales employed in this study. The TRF Academic Performance scale evaluates students' overall and current academic functioning, where teachers assess the student in six different academic subjects of the teacher's choosing, rating them on a scale from 1–5 (1 = far below average to 5 = far above average). The average of these scores constitutes the TRF Academic Performance score. In addition, teachers were asked to rate the degree of emotional and behavioral problems observed in students, either currently or during the past two months, using a 0–2 scale (0 = not true as far as you know; 1 = somewhat or sometimes true; 2 = very true or often true). For the TRF scores, Cronbach's alpha was calculated on the baseline data in this study. The alphas for the TRF Internalizing subscales in this study were 0.79 (Anxious/Depressed), 0.72 (Withdrawn/Depressed), and 0.53 (Somatic Complaints), while for the TRF Externalizing subscales, the alphas were 0.94 (Aggressive Behavior) and 0.83 (Rule-Breaking behavior). For the TRF Attention Problem, the alpha was 0.91, for Social Problems 0.73, and for Thought Problems 0.77. Mean test-retest reliability was 0.90 across all TRF scales for US samples by Achenbach and Rescorla (2001).

We used the Social Skills Rating System (SSRS: Gresham & Elliott, 1990) version for the elementary school teacher, which contains 30 items, including subscales for Cooperation, Assertion and Self-

Control. Cooperation comprises behaviors such as helping others, sharing, and complying with rules, whereas assertion includes initiating behaviors, such as asking others for information and responding to the actions of others. Behaviors that emerge in conflict situations, such as responding appropriately to teasing, and behaviors that arise during non-conflict situations, such as taking turns and compromising, are including in the Self-Control subscale. The teachers rated how often each social skill occurred using a 1–4 scale (1 = never to 4 = very often). The alphas were calculated using baseline data and were found to be .91 for the Cooperation subscale, .88 for the Assertion subscale, and .87 for the Self-Control subscale. The SSRS total score (ranging from 0–90) was computed across all items and used in the analysis. The SSRS is a well-validated assessment tool and the test-retest reliability of the SSRS has been found to be high (Elliott, Gresham, Freeman, & McCloskey, 1988; Ogden, 2003).

### *Statistics*

Before the main analysis was conducted, independent *t*-tests and Pearson's chi-squared tests were used to test for group differences on demographic variables. The data were hierarchically organized, with students (Level 1) nested within teachers (Level 2). Linear mixed model (LMM) analysis was used to test for group differences on baseline scores, and for group differences in change in student behavior from pre- to post-assessment, as this is a suitable method for analyzing hierarchical data. Intra-class correlations (ICCs) were calculated to estimate the degree of dependency within-teacher that this clustering causes. Intra-class correlation calculations were based on change scores, since change scores were used as dependent variables in the main analyses.

In order to deal with missing data, multiple imputation was used for the analyses, creating 20 complete sets of data. The imputation was performed on both pre- and post-assessment student variables. The imputation model included demographic variables and all relevant student variables. In the imputation of missing pre- and post-data, all other pre- and post-student variables were used as predictors. Under the assumption of data missing at random, performing multiple imputation of data is an appropriate and flexible way of handling missing data and was therefore done in order to ensure that the pre- and post-analyses reflected the entire student population that participated in this study (Stuart, Azur, Frangakis, & Leaf, 2009). Effect sizes ($d_w$) were computed as standardized group differences in pre–post mean change using the pooled within-cluster sample standard deviation (Hedges, 2007). A significance level of .05 was adopted for all tests.

## Results

### *Attrition*

At pre-assessment, 227 (94%) of 241 teachers participated as respondents and 1396 (92%) of 1518 possible students were included. Drop-out was due to lack of parental consent or delayed arrival of consent forms from parents, as well as insufficiently completed questionnaires, and amounted 7 teachers and 85 students in the intervention, and 7 and 37, respectively, in the comparison group. In both pre- and post-assessments, 212 (88%) teachers and 1214 (80%) students were included. A different dropout pattern at post-assessment was found between the conditions, in that, 167 students in the intervention and 15 students in the comparison group had missing data. Drop-out in the intervention group was due to withdrawal of one school, which included 7 teachers and 49 students, and teachers on leave of absence or changing their jobs, these last included 5 teachers and 28 students. Drop-outs were also due to missing replies, incomplete questionnaires, or protocol errors, which resulted in a further 90 students missing in the intervention group, and 3 teachers and 15 students in the comparison group (see Figure 1). When students who had missing data at post-assessment were compared with students who had both pre- and post-assessment data, students who had missing data at post-assessment differed significantly on SESBI-R Intensity ($t = -3.36$, $p = .02$), SESBI-R Problem ($t = -2.24$, $p = .03$), and TRF Attention ($t = -3.02$, $p = .003$) at pre-assessment. However, no

interaction effects between the intervention group and the dropout group on outcome variables at pre-assessment were found, indicating that pre-assessment differences in the dropout groups were similar in the intervention group and the control group.

### *Group effects in students' problem behavior measured with SESBI-R and TRF.*

There were no significant differences between the conditions at pre-assessment on SESBI-R scores. For group effects in student problem behavior measured with SESBI-R, significant group differences in pre–post change on SESBI-R Intensity and on SESBI-R Problem were found, although the effect sizes were small. Calculations of the ICCs suggested that 22% of the variance on SESBI-R Intensity and 14% of the variance on SESBI Problem might be due to clustering effects among teachers (see Table 2). When we tested for moderating effects of the level of behavior problems (high/low), a significant interaction between treatment group and high-risk status on SESBI-R Intensity was detected. Study of this interaction showed a significantly higher treatment effect for high-risk students compared to those not in the high-risk group (9.9 point pre–post change difference, $t = -2.13$, $p = .03$).

For TRF scores, there were no significant differences between the conditions at pre-assessment. For group effects in students' behavioral difficulties measured with TRF, there was a significant group difference in pre–post change on TRF Total. Examination of the TRF subscales revealed significant group differences in pre–post change on Attention Problems, but not in change on Aggressive Behavior or on Academic Performance. For the TRF scores, the effect sizes were small. The ICC calculations on the TRF change scores ranged from 0.6 to 0.14 (see Table 2). The change scores on the TRF Attention Problem also correlated highly with SESBI-R Intensity scores ($r = .65$).

### *Group effects on students' social competence measured with SSRS.*

There were significant differences between the conditions on the subscales SSRS Cooperation and Self-Control at pre-assessment (see Table 2). For group effects in social competence, a significant

**Table 2.** Descriptive statistics at pre- and post-test, and results of multilevel analyses examining group differences in pre-post change scores and effect sizes ($d_w$).

| | TCM intervention[a] | | Comparison[a] | | Baseline[b] | | Intervention effects[b] | |
|---|---|---|---|---|---|---|---|---|
| | Pre ($n$ = 557–722) | Post ($n$ = 442–577) | Pre ($n$ = 548–627) | Post ($n$ = 551–634) | Pre | | Pre-post | |
| | *M* (SD) | *M* (SD) | *M* (SD) | *M* (SD) | *t* | ICC | *t* | $d_w$ |
| SESBI-R | | | | | | | | |
| Intensity in behavior | 79.85 (34.89) | 78.83 (33.56) | 77.45 (33.20) | 79.47 (34.02) | −0.89 | 0.22 | −3.021** | 0.08 |
| Behavior is a problem | 3.29 (6.48) | 3.11 (6.39) | 2.75 (6.32) | 2.90 (6.60) | −0.96 | 0.14 | −2.047* | 0.09 |
| TRF | | | | | | | | |
| Aggressive behavior | 2.10 (4.91) | 2.16 (4.73) | 1.70 (4.26) | 1.80 (4.43) | −1.13 | 0.06 | −1.678 | 0.08 |
| Attention problems | 5.30 (7.78) | 5.15 (7.72) | 4.72 (7.37) | 5.04 (7.92) | −1.27 | 0.11 | −2.651** | 0.08 |
| Academic performance | 3.16 (0.50) | 3.22 (0.55) | 3.19 (0.53) | 3.18 (0.59) | 0.67 | 0.09 | 1.882 | 0.08 |
| Total problems | 10.54 (16.58) | 11.50 (16.41) | 9.44 (15.47) | 9.97 (16.32) | −1.40 | 0.14 | −2.137* | 0.09 |
| SSRS | | | | | | | | |
| Cooperation | 29.54 (5.90) | 30.46 (5.94) | 30.45 (7.04) | 30.30 (6.27) | 2.01* | 0.19 | 2.941** | 0.17 |
| Assertion | 25.95 (4.95) | 27.22 (4.85) | 26.40 (4.85) | 27.23 (4.73) | 0.74 | 0.40 | 0.960 | 0.11 |
| Self-control | 27.29 (4.80) | 28.39 (5.28) | 28.09 (5.10) | 28.43 (5.28) | 1.98* | 0.34 | 2.389* | 0.20 |
| Social skills total | 82.80 (13.03) | 86.00 (13.13) | 84.90 (13.80) | 85.95 (14.00) | 1.75 | 0.30 | 2.403* | 0.19 |

Note: TCM = Incredible Years Teacher Classroom Management, SESBI-R = Sutter-Eyberg Student Behavior Inventory-Revised, TRF = Teacher Report Form, SSRS = Social Skills Rating System, ICC = Intra-class correlations. *dw* = Effect sizes were computed using the pooled within-treatment groups' standard deviation of the cluster means (pre assessments scores).

All covariates gender, grade, ethnicity, special education, how well the teacher knew the student, number of hours the teachers taught the student each week, and number of students in each class were statistically accounted for in the different multilevel analyses.

[a]original data.

[b]imputed data.

*$p < .05$.

**$p < .01$.

group difference in pre–post change on SSRS Total was found. The SSRS subscale results showed significant group differences in change on SSRS Cooperation and SSRS Self-control. The preventive effect sizes on the SSRS scores were higher than the SESBI-R and the TRF scores, although, the effects were in the small range ($d_w$ = 0.11–0.20). Calculations of the ICCs on SSRS change scores varied from 0.19 to 0.40 (see Table 2). Testing for moderating effects of the level of behavior problems, as well as of grade and gender, revealed a significant interaction between treatment group and grade on the SSRS Total ($F = 3.26$, $p = .04$). While this interaction revealed a significantly larger treatment effect in 2nd grade compared to 3rd grade ($t = -2.55$, $p = .01$), the treatment effects in 1st grade compared to the 2nd and 3rd grades were not significant. For further details about group differences in pre–post changes, and the sizes of the effect, see Table 2.

## Discussion

The aim of this quasi-experimental pre–post control group study was to evaluate the universal preventive impact of the IYTCM program. The program was implemented as a universal school-wide preventive intervention in 21 schools, with the aim of reducing the development of problem behavior and improving social competence in students. Our first hypothesis, that the IYTCM program would reduce the development of problem behavior, was to some extent supported. There was a significant group difference in favor of the IYTCM group on the intensity of problem behavior, and a moderation analysis indicated that the program had a larger effect on students with elevated intensity scores at pre-assessment than on students with lower scores at pre-test. The total score for change in social, emotional, and behavioral problems, including the scores for the subscale TRF Attention Problem, was significant, in favor of the IY TCM group. The SESBI-R is a general measure of behavior problems, although Kirkhaug et al. (2012) suggested that the SESBI-R has two separate, measurable factors, of which the first reflects oppositional behavior and the second attentional difficulties. Hence, the finding for TRF Total corresponds with the findings for the SESBI-R Intensity scores.

The second hypothesis, that training teachers in the IY TCM program would improve student social competence, was also partially supported. However, the pre-assessment scores on SSRS Cooperation and Self-Control were less favorable in the IYTCM group than the comparison group, while the scores for both groups were almost equal at post-assessment. The significance of the effects of the IYTCM on SSRS Cooperation and SSRS Self-Control might be questioned. The fact that the IYTCM schools applied for implementation in the program and participation in the study may explain this finding. The self-recruitment may be due to a need to address existing but general issues, and this may have led to a higher level of awareness when their students' behavior at pre-assessment was being evaluated. Whether the difference in change for SSRS Total is due to an actual effect of the program on social skills for students in the IYTCM group or to a regression towards the mean, may therefore be a matter of interpretation (Barnett, Van Der Pols, & Dobson, 2015; Shadish, Cook, & Campbell, 2002).

However, when the intensity of problem behavior is reduced among the high-risk group of students in a class, is seems fair to suggest that the whole class may have profited from a reduction in problem behavior in some students. The treatment effect on the intensity of problem behavior in the high-risk group of students was about 10 points higher than among the rest of the students. These changes may have positively affected the high-risk group of students own potential to learn as well as that of the students around them. Collectively, the students who dropped out between pre- and post-assessment scored less favorably on SESBI-R intensity, SESBI Problem, and TRF Attention at pre-assessment. This could have reduced the overall effects of the intervention, since changes in the study were larger among students with elevated intensity scores at pre-assessment compared to those with lower scores at pre-test. Additionally, the main outcomes were more evident when the IYTCM program was evaluated in a younger kindergarten cohort within the same study as ours where the children's mean age was 4.4 (SD = 0.9) (Fossum, Handegård, & Drugli, 2017), as compare to the mean age for students in our study which was 7.3 (SD = 0.9). In the Fossum et al. (2017) study,

significant preventive effects on change in children's problem behavior, aggressive behavior, internalization, and attention problems, as well as improvement in social competence, were found.

Furthermore, unlike the IY Dina Dinosaur Social Skills and Problem Solving Curriculum, the IYTCM training covers the socioemotional curriculum in only one of the training days. The effects of the TCM program have been shown to be more explicit when the TCM training is carried out in combination with the Dina Dinosaur training, both in general, and especially for children who initially scored high on problem behavior and low on social competence (Baker-Henningham et al., 2009; Webster-Stratton et al., 2008). However, when interventions are examined in disadvantageous school settings, the effects are often greater than effectiveness trials that are carried out in normal school settings (Durlak et al., 2011; Weare & Nind, 2011). Most Norwegian students behave well (Nordahl, Mausethagen, & Kostøl, 2009), and students in this study scored within the typical range of Norwegian children on problem behavior. Mean scores in the Kirkhaug et al. (2012) study on SESBI-R Intensity ($M = 83.8$, SD = 38.6), and mean scores in Larsson and Drugli (2011) study on TRF Total ($M = 15.5$, SD = 19.0) were less favorable, than compared to the mean SESBI-R Intensity scores ($M = 78.7$, SD = 34.1) and the mean TRF Total scores ($M = 10.0$, SD = 16.0) in our study. The implementation of the program was also naturalistic and with restricted control regarding fidelity of the intervention. Large effect sizes were therefore not to be expected. Our effect sizes were in the range of 0.08 to 0.20, yet even small effects in statistical terms may lead to improvements in the ability of students to engage in positive relationships with their schools, which in itself is known to be a protective factor against long-term behavioral problems. Thus, these small effects may have practical importance for many students in the long run (Weare & Nind, 2011). Higher levels of fidelity and implementation monitoring may improve the findings, which could in turn strengthen the preventive effects of IYTCM in regular school settings in Norway (Durlak & DuPre, 2008; Greenberg & Abenavoli, 2017; Sørlie & Ogden, 2015).

### *Limitations*

This study has a number of limitations that need to be taken into consideration. First, the implementation of the IYTCM program was dependent on locally available and qualified group leaders. Since extensive predefined criteria for the implementation of the TCM program, as recommended by IY Norway, had to be fulfilled before study participation, schools needed to apply to IY Norway for program implementation. The recruitment of intervention schools was therefore based entirely on applications from individual schools. This meant that a truly randomized, controlled trial was difficult to achieve. In order to minimize threats to validity such as diffusion (contamination), recruitment of schools to the comparison group was carried out in municipalities that lacked IY implementation. The schools in the intervention group received the IYTCM program free, whereas the schools in the comparison group received a minor financial compensation instead of implementation of the program. The situation for the comparison schools was therefore different from that of the IYTCM schools. Slightly elevated pre-scores in the intervention group suggest that some of the schools that sent a request for implementation of the program (self-recruitment) may have realized that they had issues with student behavior and that they could benefit from implementing the IYTCM program. Hence, a potential selection threat due to the sampling strategy may have affected our results. An alternative design might have been a step-wedge design, but that was discarded because it would have resulted in an excessive burden for the participants.

Second, the implementation process was partly in the hands of the local authorities involved, and access to information about the fidelity was not accessible due to practical limitations. The Norwegian Directorate of Health funds the IY Norway, and the authorities meet expenses in connection with organizing curriculum, groups, and training of group leaders. At the time of the study, the fundraiser wished clear boundaries to exist between the implementation of IYTCM in Norway and its research projects, in order to facilitate the independence of research and implementation. This made

it difficult to collect valid data from the implementation process, and we cannot know for certain whether the program was delivered in a less than optimal manner than required by the manual.

Third, it is a significant limitation that teachers were the only source of reports of student behavior. Changes may therefore reflect teachers' perceptions rather than actual changes in behavior. However, teacher observations of students in the classroom or in the school environment may reveal difficulties that cannot be observed otherwise or elsewhere. Teachers are also able to compare their students with other students of the same age and developmental level, and are important informants regarding how well students function at school (Lurie, 2006). Nevertheless, observational data would have improved the robustness of the study and the findings.

Fourth, a different dropout pattern between the intervention and comparison conditions was found. However, interaction effects between the intervention group and the dropout group on outcome variables at pre-assessment were not confirmed. The situation of the comparison schools was different from that of the IYTCM schools, which may have encouraged more sustained participation at post-assessment. In order to compensate for the missing data, multiple imputation was used to ensure that the pre–post analyses reflected the whole of the student population that participated in this study. Analyses performed on imputed data are relatively stringent, and our tests confirmed the results of the LMM analyses of the original data, which improves the generalizability of the findings (Stuart et al., 2009).

Finally, there was no long-term follow-up in this study and, therefore, no evidence as to whether changes in student behavior would be sustained in the future. Furthermore, the short pre–post intervention period may have limited the opportunity for teachers to implement everything they had learned from the IYTCM training. Previous research suggests that behavioral changes realized through classroom interventions may take longer to develop than those achieved in clinical settings; thus, preventive school-wide interventions may need to be implemented consistently over time in order to produce more convincing outcomes (Sørlie & Ogden, 2015; Weare & Nind, 2011).

## Conclusion and Implications for School Practice

The findings from this study may provide important implications for promoting effective classroom environments in school. The IYTCM program was delivered as a school-wide universal preventive intervention simultaneously to the entire group of students with varying degrees of risk and within a limited period of time, hence, large effect sizes were not expected (Greenberg & Abenavoli, 2017). Differential effects from universal preventive school interventions may also be due to differences in implementation quality (Sørlie & Ogden, 2015), which may explain the lack of more robust findings in our study. To ensure positive program effects and sufficient implementation support, continuous monitoring of factors that contribute to sustained implementation quality, as well as strategies to develop effective partnerships between educational practitioners and local authorities (e.g., the local Educational and Psychological Counseling Service), are needed. Decisions by politicians and school administrators on issues regarding the implementation of evidence-based universal preventive interventions in schools are therefore an important issue. Findings in the present study may suggest that the IYTCM program delivered as a school-wide universal preventive intervention provides an opportunity to influence all students effectively, including students initially most at risk for developing problem behavior, compared to interventions that address only a limited group of teachers, classes, or students (Durlak et al., 2011; Greenberg & Abenavoli, 2017).

## Future Research

The quality of teacher-student relationships has been shown to have a significant influence on students' learning and to play an important role in their functioning, both academically and socially (Baker, 2006; Drugli et al., 2011). Moreover, teachers' involvement with parents and parents' ability to collaborate with teachers have also been shown to be important predictors of student functioning

and achievement at school (Desforges & Abouchaar, 2003; Webster-Stratton et al., 2008; Wyrick & Rudasill, 2009). The IYTCM training directly targets teachers rather than students; thus, our findings may reflect the reasonable assumption that changes in student behavior result from changes in teacher behavior. Whether training teachers in the IYTCM program led to change in teacher-student relationships and parent involvement as well as to changes in teacher behavior after implementation of the IYTCM program will be examined in future analyses. Prevention effects often emerge after some delay; clearly, long-term follow-up is required in future research in order to detect any sustained preventive impact of the program as well as whether enhanced implementation quality would improve effects of the program.

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# Paper 2

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# Change in teacher–student relationships and parent involvement after implementation of the Incredible Years Teacher Classroom Management programme in a regular Norwegian school setting

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This quasi-experimental pre–post comparison group design examined if the Incredible Years (IY) Teacher Classroom Management (TCM) programme implemented as a school-wide universal preventive intervention to students aged 6–8 years at the lower primary level in a regular school setting had an effect on teacher–student relationships and teacher–parent involvement. The IY-TCM training was delivered simultaneously to the entire group of school staff in first to third grade. Teacher reports in 21 intervention schools were compared to teacher reports in 23 control schools. A total of 241 teachers and 1,518 students took part in the trial. Linear mixed model analyses suggest modest positive effects on change in teacher–student closeness ($d_{zv}$ = 0.22) and conflict ($d_{zv}$ = 0.15), where a moderator analysis showed a significantly higher treatment effect for high-risk students on change in teacher–student conflict. A positive effect was found on change in teacher-reported parent involvement in school ($d_{zv}$ = 0.40), however, not on change in teacher-reported bonding with parents. Results suggest a potential preventive impact of the IY-TCM programme on change in teacher–student relationships and teacher–parent involvement when implemented as a universal preventive intervention in a regular school setting.

**Keywords:** universal preventive intervention; teacher–student relationships; parent involvement

## Introduction

Consistent behaviour problems across time represent a powerful predictor of poor long-term outcomes related to academic problems, school dropout, crime, substance abuse, unemployment and poor mental health (Odgers *et al.*, 2008). Disruptive and challenging behaviour in the classroom is a widely recognised problem. Negative teacher–student interactions are more likely to occur in poorly managed classrooms

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(Reinke & Herman, 2002; Conroy *et al.*, 2009), and these classroom environments contribute to the risk of students developing behaviour problems (Webster-Stratton *et al.*, 2004). Thus, optimising teachers' skills in managing disruptive behaviour and socio-emotional difficulties within the classroom could be an effective strategy to reduce problem behaviour and promote socio-emotional competence, as well as positive educational outcomes (Whear *et al.*, 2013). Student–teacher relationships influence several aspects of students' school experience and impact development in social, emotional, behavioural and academic domains (Hamre & Pianta, 2001; Murray & Zvoch, 2010; Roorda *et al.*, 2011). Children with behavioural problems are at larger risk of developing negative relationships with their teachers (Silver *et al.*, 2005; Drugli, 2013; Mejia & Hoglund, 2016; Zee & Koomen, 2017). Distrust, discordance, high conflict level and low level of closeness often characterise negative student–teacher relationships, which may escalate student behaviour problems and academic problems across time (Hamre & Pianta, 2001; Roorda *et al.*, 2014). Zee and Koomen (2017) found that externalising behaviours of individual students generally predicted higher levels of teacher-perceived conflict, which, in turn, resulted in lower student-specific teacher self-efficacy beliefs across teaching domains. Through their perceptions of conflict, teachers may see the task of teaching, engaging and offering emotional support to such students as challenging, and this may subsequently reduce their self-efficacy in relation to these students (Spilt *et al.*, 2011; Zee & Koomen, 2017). However, positive student–teacher relationships characterised by warmth, respect, caring and positive effect, especially towards children at risk, may serve as an important protective factor (Sabol & Pianta, 2012; McGrath & Van Bergen, 2015).

Parents' involvement in their children's development includes quality and frequency of contact between teachers and parents (Dearing *et al.*, 2006; Wyrick & Rudasill, 2009). Both parents and teachers can initiate parent involvement, but teachers have the main responsibility for establishing contact with parents and supporting parent involvement (Driessen *et al.*, 2005). However, some parents avoid contact because they feel demeaned by schools and teachers (Desforges & Abouchaar, 2003). Parents with a low level of belief in their ability to help their child are likely to avoid contact with the school and are probably less willing to be actively involved in school or education (Hornby & Lafaele, 2011). Parent involvement is associated with improved child behaviour, emotional adjustment and well-being at school, in addition to academic achievement (Hornby & Lafaele, 2011), and seems particularly important for the youngest children (Englund *et al.*, 2004). Furthermore, positive contact between parents and teachers seems to predict positive social development and academic success for children with behaviour problems (Reid *et al.*, 2007). However, for these children parent involvement seems to be both important and complicated (Henggeler *et al.*, 2009). When children exhibit negative behaviours in school, most contact between teachers and parents is related to these negative behaviours, and after some time, parents may feel reluctant to stay in contact with the teacher or may even try to avoid contact. Lack of positive contact between parents and teachers may perpetuate child behaviour problems (Webster-Stratton *et al.*, 2008).

A variety of intervention programmes to prevent behavioural problems among young children have been developed for use in school settings. One example is the

Incredible Years Teacher Classroom Management programme (IY-TCM), which is a universal school-based programme aimed at strengthening teachers' proactive classroom management strategies in order to promoting children's pro-social behaviour and school readiness. In addition, the programme aims at helping teachers to support parents' school involvement and promote consistency between home and school (Webster-Stratton, 2011). The first session of the IY-TCM programme includes two core components of the intervention: how to build positive relationships with students and how to involve parents (Webster-Stratton, 2011).

In high-risk samples in the USA, the IY-TCM programme has shown significant effects on change in both teacher and child behaviour, such as less use of harsh and critical teacher classroom strategies and a reduction in child conduct problems and levels of disengagement (Webster-Stratton *et al.*, 2001, 2004, 2008). Significant benefits in child and teacher behaviour based on observations, teacher and parents' reports were confirmed in cluster randomised controlled trials (RCTs) of the IY-TCM programme in 24 Jamaican preschools (Baker-Henningham *et al.*, 2009, 2012). Examinations of adapted versions of the IY-TCM programme using mental health consultations have reported improved teacher management practices and emotional climate in classrooms (Shernoff & Kratochwill, 2007; Raver *et al.*, 2008; Williford & Shelton, 2008). Furthermore, significant improvements in teachers' competencies and their management of disruptive behaviours in the classroom were found within the general school population in studies from Wales (Hutchings *et al.*, 2007, 2013) and Ireland (McGilloway *et al.*, 2010). Positive effects for change in problem behaviour and social competence have been found in studies in Norway as well (Fossum *et al.*, 2017; Aasheim *et al.*, 2018).

As far as we know, this is the first evaluation of the IY-TCM programme given as a school-wide universal preventive intervention to the entire group of school staff at the lower primary level, simultaneously, towards students aged 6–8 years. In addition, no studies have explored the effect of these core components of the IY-TCM programme in the general school population, hence, these components of the IY-TCM programme are the focus of the present study. Based on previous findings mentioned above, we hypothesised that training the teachers in the IY-TCM programme would (1) change teacher–student relationships (i.e. reduce conflict and increase closeness) and (2) change teacher–parent involvement (i.e. increase involvement and bonding with parents) in favour of the IY-TCM group.

## Method

### *Participants*

Incredible Years Norway selected and invited municipalities ($n$ = 17) that had previously implemented the IY parenting programme, and hence had IY group leaders who could be trained for the TCM programme, to implement the TCM programme and participate in the study. The group leaders informed the schools about the programme implementation and research study. Extensive predefined study inclusion criteria had to be met prior to study participation, which implied the acceptance of a school-wide implementation from first to third grade, and the approval of the

programme implementation from at least 80% of the entire school staff. Hence, the schools that wanted to implement the programme and participate in the study had to apply to IY Norway. Provided schools met the predefined inclusion criteria, they were enrolled in the study and allocated to the intervention group. From a total of 25 schools which applied for programme implementation, 21 met the predefined study inclusion criteria and were offered the IY-TCM training free of charge. Four schools did not manage to meet the predefined inclusion criteria for school-wide implementation from first to third grade. However, these four schools accepted being allocated to the comparison group, and were offered IY-TCM implementation the year immediately after study participation.

To minimise program contamination, IY Norway contacted education agencies in municipalities ($n$ = 12) without IY implementation, and invited schools to participate as comparisons in the study. These municipalities were strategically selected in order to match to the IY-TCM group on geographical location and school size; small (< 200 students), medium (201–350 students) and large (351–780 students) (Nygård, 2014). Of 32 invited schools, 19 schools responded to the invitation and accepted participating in the comparison group; they were offered a modest financial compensation for not receiving the IY-TCM training immediately. Provided they wanted the IY-TCM training, municipalities and schools were given implementation support from IY Norway after participation in the study ended. The mean school size for the 43 included schools was 179 students (range 22–652) and the total number of classes from first to third grade inclusive was 225 (124 in the intervention and 101 in the control). The mean class size was 19.7 (SD = 8.8). None of the 43 schools were actively attending or had attended any other evidence-based school intervention programmes during the previous year. The flow of participants through each stage of the study is illustrated in Figure 1.

The total number of teachers from first to third grade was 567. One teacher per class was asked to participate as respondent regarding his/her relationship with the student and the degree of teacher–parent involvement. This was normally the class teacher who was in daily interaction with the students, and who on a regular basis was in contact with the parents of students in the class. If the teacher was new to the class at pre-assessment, the teacher was instructed to wait to complete the questionnaires until she/he had known the students for at least 3–4 weeks. Teacher respondents included a total of 241 teachers (139 teachers in the intervention and 102 teachers in the comparison). The teachers received a small financial compensation for the time spent on completing the questionnaires.

The total number of students in first to third grade was 3,331. According to Snijders and Bosker (2012), high intra-class correlations may decrease the benefits of including whole classes in the sample. In order to maximise the effective sample size and reduce data dependency, as well as limit teacher burden, only seven students per class were randomised to participate in the study. A statistician who was blind to the characteristics of the schools, classes and students was given the number of students in each class, and subsequently composed a random number sequence list of students in each class. Thereafter, the class teacher matched the first seven random numbers from the list with the students' alphabetical order in class. This randomisation resulted in 829 students in the intervention and 689 students in the comparison

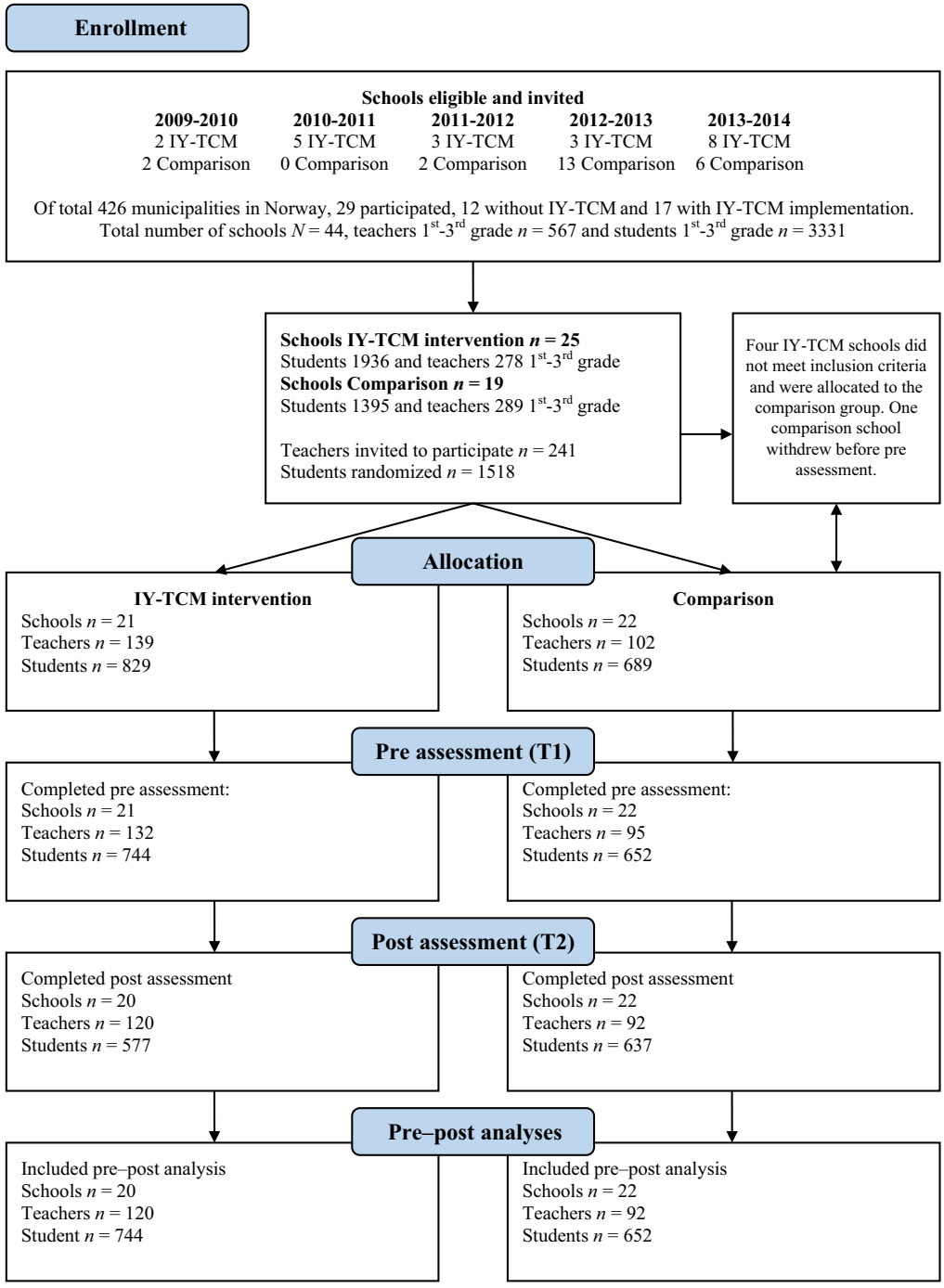


Figure 1. Flow-chart of schools, teachers and students in the study [Colour figure can be viewed at wileyonlinelibrary.com]

group. Only students aged 6–8 years in first to third grade participated. The students' mean age was 7.3 (SD = 0.87). The students were screened using the Sutter–Eyberg Student Behavior Inventory-Revised (SESBI-R) (Eyberg & Pincus, 1999). A

subsample of 83 students (6%) scored equal to or above the 90th percentile on the SESBI-R scale (> 144), which is considered to be in the clinical range (Kirkhaug *et al.*, 2012). Findings are presented in Kirkhaug *et al.* (2016). About 7% of students at the lower primary level in Norway have a first language other than Norwegian (Statistics Norway, 2017). In the present study, a significant difference in terms of students' ethnicity was found: 64 (8.6%) of 744 students in the intervention and 13 (2%) of 652 students in the comparison group were non-Norwegian. Apart from this significant difference, no significant group differences were found on other demographic variables. Demographic information for the schools, teachers and students included in the study is presented in Table 1.

*Procedure*

This study had a quasi-experimental pre–post design with a continuous enrolment of intervention and comparison schools through five consecutive years, from autumn 2009 to autumn 2013. In total, 24 municipalities implemented the IY-TCM programme and from 17 of these, 25 schools applied for programme implementation and study participation (see Figure 1). Before pre-assessment and the first IY-TCM session, information about the IY-TCM programme and data collection procedures was presented to teachers and staff. Pre-assessment (Time 1) took place during the autumn, about 3 weeks ahead of the first IY-TCM training, and post-assessment (Time 2) was carried out in spring the year after, about 3 weeks after the final IY-TCM training. The duration between the two assessments was typically 8–9 months. Parents were informed about the IY-TCM programme and the research study,

Table 1. Descriptive information for schools, teachers and students at baseline

| | IY-TCM | Comparison | Total |
|---|---|---|---|
| Schools, *N* | 21 | 22 | 43 |
| School size large (351–780 students) | 4 | 2 | 6 |
| School size medium (201–350 students) | 6 | 5 | 11 |
| School size small (< 200 students) | 11 | 16 | 27 |
| Class size, *M* (SD) | 20.82 (6.85) | 18.48 (10.55) | 19.74 (8.84) |
| Teachers, *N* | 132 | 95 | 227 |
| Teacher's age in years, *M* (SD) | 40.94 (11.86) | 44.19 (10.31) | 42.75 (11.26) |
| Work experience in years, *M* (SD) | 11.73 (9.11) | 15.48 (8.68) | 13.37 (9.05) |
| Educated as teacher, *n* (%) | 123 (93.2) | 87 (91.6) | 210 (92.5) |
| Female teacher, *n* (%) | 115 (87.1) | 84 (88.4) | 199 (87.7) |
| Students, *N* | 744 | 652 | 1396 |
| Girls, *n* (%) | 355 (47.7) | 297 (45.6) | 652 (46.7) |
| Age, *M* (SD) | 7.22 (0.86) | 7.30 (0.87) | 7.26 (0.87) |
| Non-Norwegian, *n* (%)⋆ | 64 (8.6) | 13 (2.0) | 77 (5.5) |
| Special education, *n* (%) | 67 (9.0) | 72 (11.0) | 139 (10.0) |
| High-risk students, *n* (%)[a] | 45 (6.1) | 38 (5.8) | 83 (6.0) |

Note: IY-TCM = Incredible Years Teacher Classroom Management.
[a]Score of 144 or higher on SESBI-R intensity.
⋆$p < 0.05$.

including the data collection procedures, through written information or verbal presentation during parents' meetings, and were requested to consent to their children's participation. Provided parental consent was given, the teacher filled out questionnaires about the student. The questionnaires were only available in Norwegian, so students whose parents did not speak Norwegian were excluded. Teachers and students were anonymised using ID codes. Parents could withdraw their child from the study without further explanation. The questionnaires were returned in prepaid envelopes or completed using the Internet survey tool, QuestBack.

The study was approved by the Regional Committee for Medical and Health Research Ethics, Norway. Approval/reference number: 2009/655/REK North.

*The intervention*

The IY-TCM is a universal classroom management programme for teachers in kindergarten up to third grade, used to strengthen teachers' classroom management strategies in order to reduce early-onset problem behaviour and promote social skills. One basic premise for the IY-TCM training is to establish solid relationships with students and parents, and these elements have to precede other teaching strategies. Another premise is that teachers' attention should be directed far more frequently to positive student behaviours than to negative ones (Webster-Stratton, 2012). Six topics are covered, with one workshop for each topic. Each workshop builds upon the content of the previous one, and they are delivered as follows: (1) building positive relationships between teacher and student, and between teacher and parents; (2) teacher attention, coaching, encouragement and praise; (3) motivating students through incentives; (4) decreasing inappropriate behaviour—ignoring and redirecting; (5) decreasing inappropriate behaviour—follow through with consequences; (6) emotional regulation, social skills and problem solving.

Two experienced and qualified group leaders trained the teachers and staff simultaneously in groups (20 in each group), through six full-day workshops, starting in autumn and ending in spring the year after, over an 8 to 9-month period (about one workshop per month), 42 hours in total. Teachers were instructed to practice the programme principles during the month following each session and to report on their experiences at the start of the following session; they were provided with guidance after each workshop. As part of the training, the textbook *How to promote social and emotional competence in young children* (Webster-Stratton & Okstad, 2005) was provided to teachers and staff. In order to ensure evidence-based implementation of the programme, fidelity in training was promoted by means of checklists completed by both group leader and teacher, as well as a user satisfaction questionnaire completed by teachers at the end of training (Webster-Stratton, 2011).

To become a qualified group leader, a 21-hour mandatory TCM training course provided by IY Norway had to be completed. A higher education qualification (Bachelor's or Master's degree) in teaching, special education, psychology, health or social studies was also required. Before the group leader could complete the training for this study, they had to deliver the training programme at least once or twice (or in one or two schools, depending on school size) per year on average. The group leaders were trained and supervised by the same two IY-TCM mentors (certified in both the

Parenting and the TCM programme by the programme originator), throughout the data acquisition period.

*Measures*

The *Student–Teacher Relationship Scale, short form* (STRS-SF; Pianta, 1996) was used to measure the teacher's perception of his/her relationship with a particular student. The STRS-SF has been tested in a regular national sample of Norwegian school-age children in first to seventh grade; hence, the measure has been adjusted for the Norwegian population and found to be valid for studies of Norwegian students (Drugli & Hjemdal, 2012). The STRS-SF consists of 15 items, and factor analyses have shown that the STRS-SF measures two latent characteristics of the teacher–student relationship (Drugli & Hjemdal, 2012). The closeness scale contains eight items (ranging from 8 to 40) and measures the degree of emotional support, warmth and open communication in the teacher–student relationship (e.g. '*This child openly shares his/her feelings and experience with me*'). The conflict scale contains seven items (ranging from 7 to 35) and measures the degree to which a teacher perceives his/her relationship with a particular student as negative and conflictual (e.g. '*Dealing with this child drains my energy*'). The responses are given on a five-point Likert-type scale (1 = does not apply at all, 5 = applies very well). For this study, Cronbach's alpha was 0.81 for the closeness scale and 0.84 for the conflict scale.

The *Teacher Involvement Questionnaire* (INVOLVE-T) was adapted from the Oregon Social Learning Center (OSLC) and revised by Webster-Stratton (1998) for use by teachers of young school children. The INVOLVE-T is a 20-item questionnaire in which teachers are asked to report on parents' involvement in their children's education and frequency of contact with teachers and the school. The questionnaire originally had three subscales (Webster-Stratton *et al.*, 2001). For the present study the subscale *Parent Involvement in Education* (six items: if parents have the same goals as teacher; if parents value education as important; and parents' engagement in school activities and homework) was merged with the subscale *Parent Involvement with School/Teacher* (seven items: the degree to which parents contacted the teacher or school during the last 6 months, e.g. if parents attended conferences, were present in the classroom and at school arrangements) to create one variable for the analysis (for further explanation, see the discussion section). Hence, the two subscales, *Parent Involvement in Education* and *Parent Involvement with School/Teacher*, will be referred to as 'Parent Involvement in School' in the following text. The teacher's responses are coded on item-specific five-point scales, where zero represents no involvement and four represents high involvement. In addition, the subscale *Teacher Bonding with Parent* (seven items) was used, referring to how often the teacher initiated contact with parents during the last 6 months (e.g. telephone contact, written note, invited parents to school, was comfortable meeting with parents). The responses are given on the same five-point Likert-type scale as the Parent Involvement in School scale, where zero represents no bonding and four represents high bonding. For this study, Cronbach's alpha was 0.61 for *Teacher Bonding with Parent*, 0.76 for *Parent Involvement in Education* and 0.79 for *Parent Involvement with School/Teacher*.

*Statistics*

All statistical analyses were conducted with SPSS 24. To test for group differences on demographic variables, independent sample *t*-tests and Pearson's chi-square tests were used before the main analysis was conducted. In the present study, the students are the unit, hence the data were hierarchically organised with students (level 1) nested within teachers (level 2). To test for group differences on baseline scores, as well as group differences on change in teacher–student relationships and teacher–parent involvement from pre- to post-assessment, linear mixed model (LMM) analysis was used. The dependency in data, which reduces the effective sample size, is ensured by the LMM analysis, and hence this is a suitable method for analysing hierarchical data. Intra-class correlations (ICCs) were calculated on pre-, post- and change scores to estimate the degree of dependency within teachers that this clustering causes. The change scores were used as dependent variables in the main analyses. To deal with missing data, multiple imputation was used for the analyses, creating 20 complete sets of data. Demographic variables and all relevant pre- and post-student variables were used as predictors in connection with imputation of both missing pre- and post-data in the imputation model. Performing multiple imputation of data under the assumption of MAR (data missing at random) is an appropriate and flexible way of handling missing data, and was therefore done in order to ensure that the pre- and post-analyses reflect the entire student population that participated in this study (Stuart *et al.*, 2009). Effect sizes ($d_w$) were computed as standardised group differences in pre–post mean change using the pooled within-cluster sample standard deviation (Hedges, 2007). Cronbach's alpha was used to examine internal consistency for all scales, and the values were evaluated according to the EFPA criteria (Evers *et al.*, 2013), whereby values below 0.70 were considered inadequate, 0.70–0.79 adequate, 0.80–0.89 good and values 0.90 or higher were regarded as excellent. A significance level of 0.05 was adopted for all tests.

## Results

*Attrition*

The number of participating teachers at pre-assessment was 227 (94%) from a total of 241 teachers invited, and the number of participating students was 1,396 (92%) from a total of 1,518 possible students. Dropout at pre-assessment was due to lack of parental consent or delayed arrival of consent forms from parents, as well as insufficiently completed questionnaires, and amounted to 7 teachers and 85 students in the intervention; 7 and 37, respectively, in the comparison group. The number of participants at both pre- and post-assessment was 212 (88%) teachers and 1,214 (80%) students. Dropout at post-assessment was different between intervention and comparison, in that 167 students in the intervention and 15 students in the comparison group had missing subject-level data. Missing data in the intervention group was due to withdrawal of one school (organisational causes); this included 7 teachers and 49 students. Dropout was also due to teachers on leave or changing their jobs; this included 5 teachers and 28 students. A further 90 students in the intervention group,

and 3 teachers and 15 students in the comparison group, had missing data (due to incomplete questionnaires or protocol errors). When students who had missing data at post-assessment were compared with students who had both pre- and post-assessment data, no significant differences were found.

*Group effects in teacher–student relationships measured with STRS Closeness.* There were no significant differences between the conditions on STRS scores at pre-assessment. Significant group differences were found in change on STRS Closeness ($t = 2.14$, $p = 0.03$) and on STRS Conflict ($t = -2.34$, $p = 0.02$). The corresponding effect sizes were small for STRS Closeness ($d_w = 0.22$) and STRS Conflict ($d_w = 0.15$). Based on the change score, calculations of the ICCs suggested that 36% of the variance in STRS Closeness and 19% of the variance in STRS Conflict may be due to clustering effects within teachers (see Table 2).

Testing for moderating effects of gender and grade, a significant interaction between intervention group and grade for STRS Closeness was found ($F = 3.25$, $p = 0.05$). Studying this interaction, the analysis showed a significantly larger treatment effect in second grade than in third grade ($t = -2.52$, $p = 0.01$), whereas the treatment effect in the first grade, compared to the second and third grade, was not significant. Testing for moderating effects of the level of behaviour problems (high/low), measured with SESBI-R intensity, revealed a significant interaction between treatment group and high-risk status on change in STRS Conflict. Examining this interaction, a significantly higher treatment effect was found for high-risk students on change in STRS Conflict than for those students not in the high-risk group (3.0 points pre–post change difference, $t = -3.25$, $p = 0.001$). The mean change in STRS Conflict for the high-risk students in the intervention group was $-3.02$ (SE = 0.93), whereas the mean change for the high-risk students in the comparison group was 0.49 (SE = 0.93). Testing for separate group differences in change on STRS Closeness by gender and grade, a significant group difference was found for second grade ($t = 2.11$, $p = 0.03$) ($d_w = 0.39$). For STRS Conflict by gender and grade, a significant group difference was found for boys ($t = -2.41$, $p = 0.02$) ($d_w = 0.25$) and first grade ($t = -2.66$, $p = 0.01$) ($d_w = 0.29$) (see Table 2).

*Group effects in teacher–parent involvement measured with INVOLVE-T.* At pre-assessment, significant differences between conditions were found on teacher-reported Parent Involvement in School and Teacher Bonding with Parent (see Table 2 for more details). A significant group difference was found in pre–post change on teacher-reported Parent Involvement in School ($t = -2.16$, $p = 0.031$). For teacher-reported group differences in pre–post change on Teacher Bonding with Parent, results were not significant at the 0.05 level ($t = 1.73$, $p = 0.083$). For Parent Involvement in School, the effect size was medium ($d_w = 0.40$). Based on the change score, the ICC was 0.48 for Parent Involvement in School and 0.47 for Teacher Bonding with Parent, suggesting quite high within-teacher dependency for these scales. Testing for separate group differences in change on teacher-reported Parent Involvement in School by gender and grade, a significant group difference was found for boys ($t = 2.29$, $p = 0.02$) ($d_w = 0.51$) and first grade ($t = 2.46$, $p = 0.01$) ($d_w = 0.77$) (see Table 2).

Table 2. Descriptive statistics at pre- and post-test, results of multilevel analyses examining group differences in pre/post change scores and effect sizes ($d_{av}$)

| | TCM intervention[a] | | | | Comparison[a] | | | | Baseline[b] | Effects[b] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pre | | Post | | Pre | | Post | | Pre | Pre/post | | |
| | *n* | *M* (SD) | *n* | *M* (SD) | *n* | *M* (SD) | *n* | *M* (SD) | *t* | Estimates | *t* | $d_{av}$ |
| STRS-SF | | | | | | | | | | | | |
| Closeness | 724 | 28.4 (4.5) | 577 | 29.7 (4.0) | 628 | 28.7 (4.2) | 635 | 29.4 (4.4) | 0.64 | 0.74 | 2.14* | 0.22 |
| Girls | 355 | 29.2 (4.4) | 288 | 30.6 (3.6) | 297 | 29.6 (3.8) | 297 | 30.3 (3.9) | 0.77 | 0.65 | 1.67 | 0.26 |
| Boys | 364 | 27.6 (4.4) | 284 | 28.9 (4.1) | 331 | 27.8 (4.4) | 338 | 28.6 (4.6) | 0.31 | 0.66 | 1.50 | 0.24 |
| 1st class | 241 | 27.2 (4.5) | 198 | 29.9 (3.7) | 216 | 27.6 (4.2) | 214 | 29.1 (4.2) | 0.24 | 1.07 | 1.69 | 0.44 |
| 2nd class | 227 | 29.3 (4.3) | 160 | 30.2 (3.8) | 212 | 29.9 (3.3) | 216 | 29.8 (3.8) | 1.17 | 1.20 | 2.11* | 0.39 |
| 3rd class | 256 | 28.7 (4.3) | 219 | 29.2 (4.3) | 197 | 28.4 (4.6) | 202 | 29.2 (5.1) | –0.16 | 0.39 | 0.07 | 0.07 |
| Conflict | 723 | 11.5 (4.9) | 576 | 11.1 (6.4) | 625 | 10.9 (4.5) | 633 | 11.1 (4.8) | –1.71 | –0.76 | –2.34* | 0.15 |
| Girls | 354 | 10.6 (4.1) | 287 | 10.1 (3.4) | 295 | 10.3 (3.8) | 297 | 10.3 (4.1) | –0.92 | –0.48 | –1.26 | 0.11 |
| Boys | 364 | 12.5 (5.5) | 284 | 12.0 (5.3) | 330 | 11.5 (5.0) | 336 | 11.7 (5.3) | –1.89 | –0.97 | –2.41* | 0.25 |
| 1st class | 240 | 11.7 (4.8) | 197 | 10.5 (4.3) | 215 | 11.2 (4.3) | 214 | 11.2 (4.9) | –0.63 | –1.52 | –2.66** | 0.29 |
| 2nd class | 227 | 11.0 (4.3) | 160 | 10.5 (3.6) | 210 | 10.1 (3.8) | 214 | 10.2 (3.5) | –1.76 | –0.18 | –0.34 | 0.19 |
| 3rd class | 256 | 11.8 (5.5) | 219 | 12.0 (5.3) | 197 | 11.5 (5.3) | 202 | 11.9 (5.6) | –0.60 | –0.45 | 0.87 | 0.07 |
| INVOLVE-Teacher | | | | | | | | | | | | |
| Parent involvement in school | 718 | 35.7 (5.4) | 574 | 36.9 (2.2) | 621 | 36.9 (4.5) | 633 | 36.6 (4.9) | 2.02* | 1.04 | 2.16* | 0.40 |
| Girls | 353 | 35.8 (5.5) | 286 | 36.8 (4.1) | 293 | 37.0 (4.4) | 297 | 36.7 (5.1) | 2.31* | 0.85 | 1.48 | 0.35 |
| Boys | 360 | 35.7 (5.4) | 283 | 37.0 (4.7) | 328 | 36.8 (4.6) | 336 | 36.4 (4.7) | 1.86 | 1.21 | 2.29* | 0.51 |
| 1st class | 239 | 34.8 (5.7) | 196 | 37.2 (4.4) | 215 | 37.0 (4.8) | 215 | 36.4 (5.1) | 2.30* | 2.35 | 2.46* | 0.77 |
| 2nd class | 226 | 36.7 (5.3) | 160 | 37.7 (4.4) | 211 | 37.1 (4.5) | 216 | 36.2 (5.0) | 0.42 | 0.80 | 1.08 | 0.49 |
| 3rd class | 253 | 35.8 (5.2) | 218 | 36.0 (4.4) | 192 | 36.5 (4.2) | 199 | 37.0 (4.6) | 0.73 | –0.45 | –0.67 | 0.06 |
| Teacher bonding with parent | 719 | 17.5 (1.4) | 576 | 18.0 (2.1) | 627 | 18.3 (2.9) | 634 | 18.4 (2.0) | 3.56*** | 0.40 | 1.73 | 0.16 |
| Girls | 354 | 17.4 (2.2) | 288 | 17.9 (1.9) | 297 | 18.4 (2.3) | 296 | 18.3 (2.1) | 3.99*** | 0.51 | 1.97* | 0.41 |
| Boys | 360 | 17.6 (2.4) | 283 | 18.1 (2.2) | 330 | 18.3 (2.2) | 338 | 18.4 (2.0) | 2.34* | 0.23 | 0.92 | 0.28 |
| 1st class | 240 | 16.8 (2.2) | 197 | 17.8 (2.0) | 215 | 18.2 (2.7) | 214 | 18.5 (2.4) | 3.25** | 0.76 | 1.84 | 0.45 |

Table 2. (Continued)

| | TCM intervention[a] | | | | Comparison[a] | | | | Baseline[b] | Effects[b] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pre | | Post | | Pre | | Post | | Pre | Pre/post | | |
| | *n* | *M* (SD) | *n* | *M* (SD) | *n* | *M* (SD) | *n* | *M* (SD) | *t* | Estimates | *t* | $d_w$ |
| 2nd class | 225 | 17.9 (2.4) | 160 | 18.3 (2.2) | 212 | 18.6 (2.0) | 215 | 18.2 (1.8) | 1.68 | 0.29 | 0.71 | 0.46 |
| 3rd class | 254 | 17.8 (2.2) | 219 | 18.0 (2.0) | 197 | 18.2 (2.1) | 202 | 18.4 (1.8) | 1.08 | –0.03 | –0.11 | 0.04 |

Note: TCM = Incredible Years Teacher Classroom Management; STRS-SF = Student–Teacher Relationship Scale, short form; INVOLVE-T = Teacher Involvement; Questionnaire, $d_w$ = effect sizes computed using the pooled within-treatment groups' standard deviation of the cluster means (pre-assessment scores).
ICC for STRS Closeness (pre = 0.45, post = 0.41, pre–post = 0.36), for STRS Conflict (pre = 0.20, post = 0.21, pre–post = 0.19), for INVOLVE-T Parent Involvement (pre = 0.48, post = 0.40, pre–post = 0.48), for INVOLVE-T Teacher Bonding (pre = 0.60, post = 0.60, pre–post = 0.47).
The covariates gender, grade, ethnicity, special education, how well the teacher knew the student, number of hours the teacher taught the student each week and number of students in each class were all statistically accounted for in the different multilevel analyses.
[a]Original data.
[b]Imputed data.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

As schools were recruited through five consecutive years, an interaction analysis was conducted to test for differences in the outcomes between the two groups during the years, both on original and imputed data. However, no interaction effects on outcome variables were found, either for original or imputed data. Overall, the results from analyses performed on imputed data were similar to the results of the analyses on the original data. For further details about group differences in pre–post changes and effect sizes, see Table 2.

## Discussion

In this study we examined whether the Incredible Years Teacher Classroom Management training, given as a school-wide universal preventive intervention simultaneously to the entire group of school staff in first to third grade, changed teacher–student relationships and teacher–parent involvement for students aged 6–8 years. It was hypothesised that teachers who received the IY-TCM training would show more favourable changes in their conflict and closeness with students, as well as in their involvement and bonding with parents, than teachers in the comparison group. The first hypothesis seems supported, as small preventive effects on change in teacher–student conflict and closeness were found. The second hypothesis was partially supported. A significant effect on teacher-reported parent involvement, such as parents' engagement in school activities and homework, and how often parents contacted the teacher or school, was found. However, for teacher-reported bonding with parents, such as how often the teacher initiated contact with parents, a significant effect was not found. The reliability for the INVOLVE-T teacher bonding with parents was below 0.70 and is, therefore, considered inadequate, which may explain the lack of findings (Evers *et al.*, 2013).

Teachers' self-efficacy beliefs for behaviour management may be associated with their experiences of conflict in relationships with externalising students' behaviour (Zee & Koomen, 2017). Hence, teachers of students with problem behaviour may have higher risk of developing conflictual relationships with their students (McGrath & Van Bergen, 2015). A moderation analysis showed that there was a larger programme effect on STRS Conflict for teachers of students with elevated problem behaviour intensity scores at pre-assessment. A positive relationship between teacher and student may protect students against further development of problem behaviour (Baker, 2006; Baker *et al.*, 2008; McGrath & Van Bergen, 2015). Therefore, especially for students with behavioural risk, this finding may be important. As teachers were provided with strategies to reflect on their own behaviour towards students' externalising behaviours, and their associated emotions and cognitions during daily interactions with these students, the intervention may have amended the difficulties teachers often have in forming positive relationships with students whose behaviour is problematic.

No significant moderation effect for gender on STRS scores was found in this study, however, previous research has shown that, on average, boys share less close and more conflicted relationships with their teachers than girls (Hamre & Pianta, 2001; Baker, 2006; Drugli & Undheim, 2012). Students with elevated problem behaviour at pre-assessment included several more boys than girls (84%) (Kirkhaug *et al.*,

2016). The number of female teachers in the intervention group was 87% in our study. Female teachers may give more attention to and warnings over boys' problem behaviour than girls' (Jones & Wheatley, 1990; McGrath & Van Bergen, 2015), and boys may begin school with more aggression and less developmental maturity than girls (Baker, 2006). Together, this may give explanation to the moderation effect on STRS Conflict for teachers of students with elevated problem behaviour intensity scores at pre-assessment, as well as the significant findings for class and gender on STRS Conflict in our study (see Table 2).

When interpreting the significant findings for change in parental involvement reported by teachers, several elements must be taken into consideration. First, the pre–post mean score for parent involvement in school changed by 1.2 points in the IY-TCM group, whereas the pre–post mean score changed by −0.3 points in the comparison group. The parental involvement scale can theoretically vary between 13 and 65 (the total variation is approximately five points), hence a 1.20-point change is not very much and may be considered small. There was little variation in the INVOLVE-T scores, which may indicate that the questionnaire was not optimal for use in a Norwegian school setting. In order to minimise possible cultural differences in relation to how and how often school–home interactions are carried out (Driessen *et al.*, 2005), the subscales Parent Involvement in Education and Parent Involvement with School/Teacher were merged into one variable for analysis. At pre-assessment, teachers in the intervention rated parents' involvement less favourably compared to teachers in the comparison. Moreover, the variation in the outcome variable was largely explained by the variability between classes. However, the variability within classes was low; hence, the intra-class correlation for the INVOLVE-T scores in this study was large (ICC $\geq$ 40). The effect size was computed using the within-cluster (class) standard deviation. Taken together, the standardised mean difference between the groups of 0.4 should be interpreted with caution.

Findings have shown that parental involvement rates increase significantly when teachers actively encourage parental involvement (e.g. by communication about a child's progress and ideas for helping the child) (Epstein, 2001; Wyrick & Rudasill, 2009). Teachers in this study were actively requested to make more effort to involve parents, as well as being provided with strategies to communicate effectively with parents through, for instance, newsletters and homework (Webster-Stratton, 2012). In Norway, the extent of school–home contact, such as teacher–parent conferences and meetings, is largely prescribed by the government through a national curriculum (The Norwegian Directorate for Education and Training, 2016). These predefined guidelines may have prevented teachers from enhancing their involvement and bonding further with parents.

### *Limitations and strengths*

The present study has some limitations that should be pointed out. First, an RCT would have been the preferred design of choice for the study. The implementation of the IY-TCM programme was dependent on qualified group leaders in the current municipalities. In addition, since extensive predefined criteria for programme implementation had to be fulfilled before study participation, schools had to apply to IY

Norway for programme implementation and study participation. Hence, recruitment of intervention schools had to be based on applications from schools in these municipalities. Hence, a true RCT was difficult to achieve. To minimise validity threats such as diffusion (contamination), recruitment to the comparison group was carried out in municipalities that lack IY implementation. The situation for the comparison schools may have been different from that for the IY-TCM schools. Slightly elevated pre-scores in the intervention group suggest that some of the schools which sent a request for implementation of the programme (self-recruitment) may have realised they had issues in relation to teacher classroom management strategies and/or student behaviours and that they could benefit from implementing the IY-TCM programme. Therefore, a potential selection threat due to the sampling strategy may have affected our results. To reduce validity threats stemming from selection bias, several comparison schools were recruited from the same county as the interventions, and schools in the comparison were matched to the interventions based on school size and geographical location. In addition, covariates that were potentially related to the selection process were added to the analyses. An alternative approach could have been a step-wedge design. This was discarded because it would have resulted in an excessive burden for the participants, and would have been problematic to use in a school-wide implementation in several municipalities in Norway.

Second, the Norwegian Directorate of Health funds IY Norway, and the authorities meet expenses in connection with organising curricula, groups and training of IY group leaders. At the time of conducting the study, the fundraiser wanted boundaries to exist between the implementation of IY-TCM in Norway and its research project, in order to facilitate independence between research and implementation. Hence, the implementation process was in the hands of the local authorities involved. Teacher-reported fidelity information was given through fidelity checklists, however, access to these assessments was problematic due to practical reasons (e.g. code of ethics). There is a lack of data on fidelity and implementation. Hence, we cannot know for certain whether the programme was delivered in a less than optimal manner as required by the manual. However, the mentors who supervised the group leaders did not detect any serious discrepancies in the way the programme was delivered.

Third, based on predefined guidelines for school–home contact provided by the government, the design of the INVOLVE-T questionnaire may not be sufficiently adapted to the Norwegian school environment. This may have resulted in little variation in the teachers' responses on the questionnaire.

Fourth, the findings in the study are predominantly based on teachers' reports. Teachers and staff in the IY-TCM schools were the implementers of the intervention, and hence a positive response bias may have occurred in their assessments of the outcomes. However, in a meta-analysis by Desimone *et al.* (2010), the results show that teachers' self-reports on teaching are highly reliable, showing strong correlations with both classroom observations and teachers' records. Use of additional respondents, as well as observational data, would have improved the robustness of the study and the findings.

Finally, a different dropout pattern between the intervention and comparison conditions was found. In order to compensate for the missing data, multiple imputation was used to ensure that the pre–post analyses reflected the whole of the student

population that participated in this study. Analyses performed on imputed data were stringent, and confirmed the results of the LMM analyses on the original data, which improves the generalisability of the findings (Stuart *et al.*, 2009).

### *Conclusions: Implications for school practice*

This study may have some weaknesses and the findings should be interpreted with caution. The findings may suggest that proactive teaching strategies taught in the IY-TCM programme, such as how to build positive relationships with students and involve parents, may be useful to teachers in order to improve their relationships with students, and facilitate their involvement with parents (Wyrick & Rudasill, 2009). The moderate effect found on teacher–student conflict for students with elevated externalising behaviour may be of importance, as positive teacher–student relationships may serve as a protective factor against further development of problem behaviour (Hamre & Pianta, 2001; Murray & Murray, 2004).

Further, the study was conducted as an effectiveness study under naturalistic and real-life conditions, the sample size was quite large and the power to detect relatively small effects was sufficient. But effect sizes may be a poor metric for assessing outcomes of universal interventions, given that they are delivered to entire populations with varying degrees of risk, and as in this study, over a short period of time. Thus, in this study it was less likely to expect large changes (Durlak *et al.*, 2011; Greenberg & Abenavoli, 2017). However, when the IY-TCM programme is provided as a school-wide universal preventive intervention, it gives an opportunity to influence all students, including students with behavioural risk. So far, preventive effects found in this study on teacher–student relationships and teacher–parent involvement after the IY-TCM programme, given as a universal intervention, are promising.

### *Future research*

Several potential outcomes of the IY-TCM programme, implemented as a universal preventive intervention, will be included in future analyses, such as effects on teachers self- and collective efficacy, behavior management practice, problem behavior in classroom and in the school environment and classroom climate. In addition, evaluation of programme fidelity (e.g. process evaluation to identify barriers to implementation and features of successful implementation), as well as long-term effects of the IY-TCM intervention, are important implications for future research.

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## Paper 3

Aasheim, M., Fossum, S., Reedtz, C., Handegård, B. H., & Martinussen, M. (2018). Examining the Incredible Years Teacher Classroom Management program in a regular Norwegian school setting: Teacher-reported behaviour management practice, problem behaviour in classroom and school environment, teacher self- and collective efficacy, and classroom climate. Manuscript submitted for publication.

# Examining the Incredible Years Teacher Classroom Management program in a regular Norwegian school setting: Teacher-reported behaviour management practice, problem behaviour in classroom and school environment, teacher self- and collective efficacy, and classroom climate


## Abstract

In the present study, the Incredible Years Teacher Classroom Management (IY-TCM) program were implemented as a universal preventive intervention in a regular, lower primary school setting. Outcomes for teacher's behaviour management practice, problem behaviour in the classroom and the school environment, teacher self- and collective efficacy, and classroom climate were examined. Using a quasi-experimental pre-post comparison group design, teacher-reported outcomes were compared between 163 teachers in 21 schools who participated in the IY-TCM program (6 full-day workshops over 8 to 9 months, 42 hours in total) and 139 teachers from 23 schools who did not participate in the program. No statistically significant main effects of the IY-TCM program on teacher-reported outcomes were revealed by linear mixed model analyses. Possible explanations for lack of findings are discussed, as are study limitations, strategies for future delivery of the IY-TCM program, and future research.


Key-words: IY-TCM, Universal, Preventive, Lower primary school level, Behaviour management practice, Problem behaviour, Teacher efficacy, Classroom climate

**Examining the Incredible Years Teacher Classroom Management program in a regular Norwegian school setting: Teacher-reported behaviour management practice, problem behaviour in classroom and school environment, teacher self- and collective efficacy, and classroom climate**

Problem behaviours displayed by students in primary school may be a powerful predictor of poor long-term outcomes, including academic problems, school dropout, maladjustment and crime, substance abuse, unemployment, and poor mental health (Odgers et al., 2008). Moreover, classrooms with high levels of disruptive and aggressive behaviour may result in a negative learning environment, which can place children at a higher risk for developing more serious academic, behavioural, social, and emotional problems. Children who exhibit problem behaviour in the classroom frequently go off-task, display aggression towards others, argue, refuse to cooperate, and talk loudly, are affecting both their own learning opportunities and those of the students around them (Moffitt & Scott, 2009). Teachers' attempts to control disruptive behaviour take time away from academic learning and inhibit positive relationships between students and teachers, and between peers, which in turn can negatively affect students' academic performance, school attachment, and social well-being (Conroy, Sutherland, Haydon, Stormont, & Harmon, 2009; Downer, Sabol, & Hamre, 2010; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Negative teacher-student interactions are more likely to occur in poorly managed classrooms, and these classroom environments contribute to students' risk of developing problem behaviour (Reinke & Herman, 2002; Webster-Stratton, Reid, & Hammond, 2004). It has been well-established that teachers' classroom management skills are important to support young children's behavioural, social, and emotional competence (Hamre & Pianta, 2005; Oliver, Wehby, & Reschly, 2011). Classroom management practices have been defined as the actions teachers implement to create an educational environment that supports and facilitates students' learning opportunities, both academically and socio-emotionally. These include non-academic

classroom procedures, such as teaching prosocial behaviour, and the use of proactive strategies to prevent and reduce disruptive classroom behaviour (Evertson & Weinstein, 2006). Effects of teacher's classroom management practices, i.e., monitoring student attention and performance, establishing behavioural expectations, and consistently implementing rules and procedures that prevent problem behaviours from occurring, have been shown to significantly decrease problem behaviour in the classroom (Oliver et al., 2011). Research has also demonstrated that teachers in well-managed classrooms who use proactive teaching strategies, including praise and encouragement for appropriate behaviours, and non-harsh discipline, may foster children's behavioural, social, and emotional adjustment, skills which are essential to academic learning (Murray, Rabiner, Kuhn, Pan, & Sabet, 2017; Reinke, Herman, & Dong, 2018; Webster-Stratton, Reid, & Stoolmiller, 2008).

Within the Social Cognitive Theory (Bandura, 1997; Bandura & Estes, 1977), self-efficacy is defined as teachers' beliefs in their own ability to plan, organize, and execute courses of action that are required to successfully accomplish a given educational goal or specific teaching task (Skaalvik & Skaalvik, 2010; Tschannen-Moran & Hoy, 2001). Furthermore, teachers who set more challenging goals for themselves, take more personal responsibility for student outcomes, and are more open to new teaching methods, are assumed to have a strong belief in their own efficacy (Tschannen-Moran & Hoy, 2001). The teacher may also have beliefs about a shared capability, or collective efficacy, the school possesses to execute actions required to produce given attainments. Perceived collective efficacy refers to teachers' judgement that the faculty as a whole can organize and execute the courses of action required to have a positive effect on students (Goddard, Hoy, & Hoy, 2004; Skaalvik & Skaalvik, 2010). Hence, it is of value to examine teachers' perceived efficacy at both the individual and collective level.

Classroom climate may also have an important impact on students' social and emotional, cognitive, and academic development (Hamre & Pianta, 2010). The quality of the emotional support and closeness that teachers offer to students, e.g., a teacher-student relationship characterized by warmth, respect, caring, and positive affect, have been recognized as a critical factor of classroom environment, especially for children at risk for developing behavioural problems (McGrath & Van Bergen, 2015; Sabol & Pianta, 2012). Furthermore, teacher behaviours like establishing behavioural guidelines in ways that promote student motivation, coaching students through conflict situations, encouraging cooperation among students, and acting as a role model for respectful communication and prosocial behaviour, are associated with optimal classroom climate and desired student outcomes (Jennings & Greenberg, 2009).

**The Incredible Years Teacher Classroom Management program**

The Incredible Years (IY) program series is a comprehensive series of interventions including parent, child, and teacher training components that were developed to prevent problem behaviour and promote social skills in young children (Webster-Stratton, 2012). The IY-Teacher Classroom Management (IY-TCM) program focuses on creating a positive classroom environment through preventive rather than reactive procedures, and on directing teachers' attention towards positive rather than negative student behaviours. In previous studies by the developer of the IY program series, other IY components were included in addition to the TCM program, such as the parenting program and the child curriculum. These studies found substantial evidence that child and teacher behaviour were positively affected by the IY programs (Webster-Stratton, Reid, & Hammond, 2001; Webster-Stratton et al., 2004; Webster-Stratton et al., 2008). Significant positive changes in teacher behaviour after the IY-TCM program, such as increased use of praise, encouragement, and incentives; and fewer harsh and critical statements, have also been demonstrated by other independent

investigators (Baker-Henningham & Walker, 2018; Baker-Henningham, Walker, Powell, & Gardner, 2009; Hickey et al., 2017; McGilloway et al., 2010). An evaluation by Leckey et al. (2016) showed significant improvements in teachers' classroom management strategies, as well as qualitative findings of proactive discipline strategies and higher levels of teacher self-efficacy. Further, Hutchings, Martin-Forbes, Daley, and Williams (2013) found significant reductions in the total number of commands (e.g., negative instructions) teachers gave to children after they completed the IY-TCM program, which in turn led to an increase in the rate of compliance in children, such as children showing more attention and willingness to cooperate with their teachers. In a recent study by Murray et al. (2017), the IY Teacher Satisfaction Questionnaire was used to determine teacher satisfaction after completing the program, and a high level of teacher satisfaction was observed. Moreover, a statistically significant effect on teacher-reported classroom climate was observed among teachers who had completed the program, but this effect was not maintained into the next school year. Prior qualitative research has also indicated that the strategies taught in the IY-TCM program were perceived to be useful by teachers (Carlson, Tiret, Bender, & Benson, 2011; McGilloway et al., 2010; Williford & Shelton, 2008).

**Purpose of the study**

The present study used a quasi-experimental pre-post comparison group design to examine the effects of the IY-TCM program, when implemented as a universal preventive intervention among all teachers of first-to-third grades in a regular school setting, on teacher-reported outcomes: behaviour management practice, problem behaviour in the classroom and the school environment, teacher self-efficacy and collective efficacy, and classroom climate. The studies cited above showed a promising effect of the IY-TCM program on teacher behaviour (Baker-Henningham & Walker, 2018; Baker-Henningham et al., 2009; Carlson et al., 2011; Hickey et al., 2017; Hutchings, Daley, Jones, Martin, & Gwyn, 2007; Hutchings et

al., 2013; Leckey et al., 2016; McGilloway et al., 2010; Murray et al., 2017; Webster-Stratton et al., 2001, 2004; Webster-Stratton et al., 2008; Williford & Shelton, 2008). However, the majority of these studies was carried out in "problem" schools, with children from adverse backgrounds or identified risk factors (e.g., Head Start centres, high poverty schools in urban areas, and schools that receive a higher level of support in terms of pupil-teacher ratios, special school grants and extra support for students). Therefore, it is not known whether the IY-TCM program can provide comparable benefits for teachers in regular school settings with no specific risk factors.

The following research questions were proposed. 1) Do teachers in a regular school setting who attend the IY-TCM program change their behaviour management practices, i.e., is their use of positive behaviour support and behavioural correction strategies more favourable when compared to other teachers? 2) Are the reports of problem behaviour and classroom climate more favourable among teachers who complete IY-TCM program compared to those who do not participate? 3) Do teachers who complete the IY-TCM program change their self- and collective efficacy in a more favourable manner than other teachers? Overall, a more favourable development in the intervention group was expected. However, as the IY-TCM program was implemented as a universal preventive intervention in a regular school setting with a low-risk student population, large effects were not expected.

## Methods

### Participants

IY Norway and invited municipalities that had already implemented the IY-Parenting program to implement the IY-TCM program using available IY group leaders, and to participate in the research. Extensive predefined study inclusion criteria for IY-TCM had to be met prior to study participation: participating schools had to agree to school-wide implementation of IY-TCM in first-to-third grade, and this implementation had to be

approved by at least 80% of the teaching staff. In addition, to examine the organization's readiness for program implementation, schools and municipalities had to fulfil an Agency Readiness Questionnaire Provided by IY Norway. If these criteria were met, the school was enrolled in the study and allocated to the IY-TCM group (the intervention group of the study). Of the 25 schools that applied, 21 met the inclusion criteria and were offered the IY-TCM program free of charge. The four schools that did not meet these criteria accepted to be allocated to the comparison group, and were offered IY-TCM program once the study had ended.

To minimize program contamination, IY Norway contacted education agencies in 12 municipalities that had not yet offered any IY programs, and invited schools to participate as part of the comparison group of the study. These municipalities were strategically selected so that their schools could be matched to schools in the IY-TCM group by geographical location and school size (small <200 students, medium 201-350 students, or large 351-780 students) (Nygård, 2014). Of the 32 schools invited to be part of the comparison group, 19 accepted. These schools were offered modest financial compensation, and if they wanted to implement the IY-TCM program after the study had ended, IY Norway offered them support to do so.

Therefore, in total, there were 21 schools allocated to the IY-TCM group and 23 schools allocated to the comparison group (4 who did not meet IY-TCM criteria and 19 mentioned above). The mean size for all 44 schools was 179 students (range 22-652); the total number of first-to-third grade classes was 225 (124 in the IY-TCM group and 101 in the comparison group). Mean class size was 19.5 (standard deviation [SD] = 9.1). None of the 44 schools were actively attending or had attended any other evidence-based school intervention programs during the previous year. The flow of participants through each stage of the study is illustrated in Figure 1.

<Insert Figure 1 here>

Three hundred two teachers (163 in the intervention group and 139 in the comparison group) who had daily contact with students were invited to complete questionnaires both prior to the IY-TCM program (pre-assessment) and following the completion of the IY-TCM program (post-assessment). These questionnaires were used to collect information on the investigated outcomes. Respondents received a small financial compensation for the time spent completing the questionnaires. Demographic information on the schools and teachers included in the study is presented in Table 1. None of the demographical variables showed significant group differences at the .05 level.

<Insert Table 1 here>

**Attrition**

Of 302 invited to complete questionnaires, 277 (92%) completed the pre-assessment, 151 (93%) in the IY-TCM group and 126 (91%) in the comparison group. The 25 teachers who did not complete the pre-assessment were excluded: 12 were from the IY-TCM group and 13 were from the comparison group. Eleven of the 25 participants were missing due to protocol errors (2 in the IY-TCM group and 9 in the comparison group), and 14 were due to missing replies and insufficiently completed questionnaires (10 in the IY-TCM group and four in the comparison group).

Two hundred thirty-five teachers completed the post-assessment, 121 (74%) in the IY-TCM group and 114 (82%) in the comparison group. Of the 42 teachers who did not complete the post-assessment, 31 were from the IY-TCM group and 11 were from the comparison group. Teachers did not complete the post-assessment for various reasons: one school in the IY-TCM group dropped out due to organizational issues (7 teachers); five teachers were lost due to leave or changing jobs (3 in the IY-TCM group and 2 in the comparison group); and 30 participants had missing replies or insufficiently completed questionnaires (21 in the IY-TCM group and 9 in the comparison group).

For the pre-post analysis, an additional 28 teachers were excluded: seven in the IY-TCM group and one in the comparison group who had participated in TCM training before pre-assessment; six in the IY-TCM group who did not participate in the TCM training at all, and 14 who completed the post-assessment only (10 in the IY-TCM group and 4 in the comparison group). After all these exclusion, 98 teachers from the IY-TCM group and 109 teachers from the comparison group were included in the pre-post analyses.

**Procedure**

This quasi-experimental pre-post study enrolled teachers across 5 consecutive years, from the fall of 2009 to the fall of 2013. Before pre-assessment and the beginning of the IY-TCM program, all teachers were informed about data collection procedures. Teachers in the IY-TCM group also received information about the program itself. Pre-assessment took place during the fall, about 3 weeks before the first IY-TCM workshop. Post-assessment was carried out in the spring of the following semester, about 3 weeks after the final IY-TCM workshop. The duration between the two assessments was typically 8 to 9 months. Schools and teachers were anonymized using ID codes. Pre- and post-assessments were either completed and returned by the participants in pre-paid envelopes or completed using the Internet survey tool Quest Back.

At the time of the study's implementation, the funder, the Norwegian Directorate of Health, wanted there to be clear barriers between the implementation of IY-TCM in Norway and the research project, in order to facilitate independence between research and implementation. This made it difficult to provide valid data from the implementation process. The study was approved by the Regional Committee for Medical and Health Research Ethics, Norway. Approval/reference number: 200803705-7/MGA006/400.

**The intervention**

The IY-TCM program addresses teacher management skills and classroom climate with six, full-day workshops, each dedicated to a specific topic: (1) building positive relationships between teacher and student, and between teacher and parents; (2) teacher attention, coaching, encouragement, and praise; (3) motivating students through incentives; (4) decreasing inappropriate behaviour - ignoring and redirecting; (5) decreasing inappropriate behaviour - follow through with consequences; and (6) emotional regulation, social skills, and problem solving (Webster-Stratton, 2012).

All IY-TCM group leaders had to have a bachelor's or master's degree in teaching, special education, psychology, health, or social studies, in addition to suitable personal characteristics, and they had to have completed a 21-hour mandatory TCM training course provided by IY Norway. To maintain their status as approval qualified group leaders, they had to deliver the IY-TCM program to teachers at least once per year on average (or in 1-2 schools depending on school size), which also was the requirement before they could run the IY-TCM workshops for this study. Group leaders were trained by two IY-TCM mentors (certified by the program originator in both the IY-Parenting and the IY-TCM program) and were supervised by these mentors throughout the data collection period.

In the present study, two group leaders trained groups of 15-20 teachers through six full-day workshops, over an 8- to 9-month period, 42 hours in total. The workshops include active learning training methods recommended for teachers (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009), such as video-modelling, behavioural rehearsal of key skills through role play, classroom practice assignments, and teacher goal-setting and self-monitoring. Teachers were encouraged to self-reflect on their current practices using program checklists, to set aims for implementing specific program strategies in their classroom, to practice the strategies during the month following each workshop, and to report

on their experiences at the start of the following workshop. Group leaders provided teachers with guidance after each workshop. As part of the training, teacher were given the IY-TCM program book; *How to Promote Social and Emotional Competence in Young Children* (Webster-Stratton & Okstad, 2005), and asked to read sections each month as recommended by the program protocol. To ensure evidence-based implementation of the program, fidelity in training was promoted by means of checklists completed by both group leaders and teachers, including user satisfaction questionnaires, which were completed at the end of each workshop (Webster-Stratton, Reinke, Herman, & Newcomer, 2011).

**Measures**

*Behaviour Management Practices.* Teachers' strategies to promote positive student behaviour and manage problem behaviour were assessed using a 32-item scale originally developed by Grey and Sime (1989). The items were later translated into Norwegian, and have already been used in a nationally representative study of problem behaviour in regular school settings (Ogden, 1998). Exploratory factor analysis on pre-assessment data revealed a two-factor structure, interpreted as "Positive Behaviour Support Strategies" (12 items, alpha = .78) and "Behaviour Correction Strategies" (15 items, alpha = .72). Teachers were asked how many times in the previous week they had used positive behavioural supportive strategies, such as "reasoning with a student in the classroom setting" and "praised positive student behaviour", and behavioural corrections strategies, such as "threaten with sending student to Principal's office" and "keeping a student in detention". Items were rated on a 4-point scale (1 = *never*, 4 = *often*).

*Problem behaviour in the classroom and the school environment.* The prevalence of problem behaviour was measured using two scales: "Problem Behaviour in the Classroom" (20 items) and "Problem Behaviour in the School Environment" (15 items), based on Grey Grey and Sime (1989) and Ogden (Ogden, 1998). Teachers and staff were asked how many

times in the previous week they had observed various types of problem behaviour in the classroom and in the school environment. Item examples include "talking out of turn and making unnecessary (non-verbal) noise", "physical aggression towards other students", and "running in corridors". A 5-point Likert scale was applied (1 = *not observed*, 5= *observed several times per day*). Satisfactory psychometric properties in prior Norwegian studies have been shown (Kjøbli & Sørlie, 2008; Sørlie & Ogden, 2007; Sørlie, Ogden, & Olseth, 2016). Based on frequency analysis, five items in the "Problem Behaviour in the Classroom" scale were excluded due to low variation. Further, exploratory factor analyses revealed underlying sub-factors for each scale: moderate and severe problem behaviour in the classroom (8 and 7 items); moderate and severe problem behaviour in the school environment (7 and 8 items). The sub-factors showed acceptable internal reliability for "Moderate Problem Behaviour in the Classroom" ($a$ = .87) and for "Moderate Problem Behaviour in the School Environment" ($a$ = .82). Acceptable internal reliability was not found for "Severe Problem Behaviour in the Classroom" ($a$ = .60) or for "Severe Problem Behaviour in the School Environment" ($a$ = .49), as values below .70 were considered inadequate (Evers et al., 2013), which is in line with results from a previous school-based intervention study (Sørlie, Ogden, & Olseth, 2015).

*Teacher self-efficacy and collective efficacy.* Teachers' perception of their level of self-efficacy was measured using the Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Hoy, 2001). Tschannen-Moran and Hoy (2001) developed two versions of this instrument: a long version with 24 items and a short version with 12 items. The present study used 16 items from the long version, in which teachers rated how competent they felt in managing students' behaviour on a 9-point scale. For example: "How well can you implement alternative strategies in your classroom?"; "How much can you control disruptive behaviour in the classroom?"; "How much can you do to motivate students who show low interest in schoolwork?" The Teachers' Sense of Efficacy Scale was translated into Norwegian by a

professional translator, two experienced language teachers, and two experienced researchers. To avoid errors, the Norwegian version was back-translated into English. A total score was calculated based on the 16 items used in this study. Cronbach's alpha for these 16 items was .95 for the pre-assessment data in the present study.

Teachers' collective efficacy was measured with the Collective Efficacy Scale (CES) developed by Goddard (2002), which is a revised short version of the CES (CES; Goddard, Hoy, & Hoy, 2000). The CES is a frequently used 12-item instrument that assesses the extent to which teachers believe in their mutual capability to influence students' learning and school outcomes positively. Responses were given on 6-point scale (1 = *totally disagree*, 6= *totally agree*), and the instrument consists of items such as "teachers here are confident that they will be able to motivate their students" and "teachers in this school are able to get through to difficult students". A total score was calculated based on the 12 CES items. Cronbach's alpha for these 12 items was .81 for the pre-assessment data.

*Classroom climate.* To assess the quality of the general learning climate in the classroom the Classroom Environment Scale, based on the instrument created by Moos and Trickett (1974), was used. The Classroom Environment Scale is a 14-item instrument that includes statements like "the students in this class are good friends" and "the students are active and interested during lessons". Responses are given on a 4-point scale (1 = *does not fit*, 4 = *fits completely*). A total score was calculated based on all the 12 items. The instrument was translated into Norwegian by Ogden (1998), and has been shown to have acceptable internal consistency in prior studies (Ogden, 1998; Sørlie & Ogden, 2007). Cronbach's alpha for the Classroom Environment Scale was .79 for pre-assessment data.

**Statistics**

Statistical analyses were conducted with SPSS 24. The independent sample t-test and the Pearson's chi-square test were used to test for group differences on demographic

variables. The data were hierarchically organized, with teachers (level 1) nested within schools (level 2). Linear mixed models were used to test for group differences in pre-assessment scores and between score at pre- and post-assessment. The dependency in data is handled by the linear mixed models, which is a suitable method for analysing hierarchical data. Effect sizes (*d*) were calculated according to Feingold (2013) recommendations, where the standardized mean difference was calculated based on the unstandardized mean difference (regression coefficient) divided by the pooled, within-group SD of the raw outcome scores at pre-assessment. The effects (*d*) are shown with a positive value when the IY-TCM group had a more favourable change than the comparison group. Intra-class correlations were calculated on outcome variables based on the change in scores to estimate the degree of dependency within schools that this clustering causes. Intra-class correlations ranged from 0.04 to 0.20. The mean (*M*) and standard error (*SE*) we report were obtained from the Estimated Marginal Means table output in SPSS. A significance level of .05 was used for all tests.

## Results

With the exception of classroom climate, no variables differed between the IY-TCM and comparison groups at pre-assessment (Table 2). Indeed, the scores on classroom climate were significantly higher in the comparison group ($t = 2.06$, p = .05).

### Change in teacher-reported outcomes from pre- to post-assessment

The difference in teacher-reported use of positive behaviour support strategies ($p = 0.50$) and behaviour correction strategies ($p = 0.66$) from pre to post-assessment was non-significant between the two groups (Table 2). This was also true for the difference in teacher-reported problem behaviour in the classroom ($p = 0.07$), for the sub-scores moderate ($p = 0.053$) and severe problem behaviour in the classroom ($p = 0.57$) (Table 2). Further, none of the group differences in teacher-reported problem behaviour in the school environment from pre- to post-assessment were significant; neither by total score or by sub-scores (see

Table 2). Furthermore, no significant effects of the IY-TCM were observed for teacher-reported self-efficacy ($p = 0.27$) or collective efficacy ($p = 0.46$) from pre- to post-assessment (see Table 2). When teachers with pre- and post-assessment data were compared with those with missing data at post-assessment, a significant interaction on self-efficacy emerged in the drop out group. The predicted mean score at pre-assessment for self-efficacy in drop-outs from the comparison group was significantly lower ($M = 105.00$, $SE = 4.01$) than that of teachers from the comparison group with complete data ($M = 114.49$, $SE = 1.73$), whereas the predicted mean score for self-efficacy in drop-outs from the IY-TCM group did not differ significantly ($M = 115.53$, $SE = 2.61$) from that of teachers with complete data ($M = 113.44$, $SE = 1.83$) at pre-assessment. Moreover, the group difference in pre-post change in teacher-reported classroom climate was not significant ($p = 0.80$) (Table 2). Although none of the effects of the IY-TCM program on teacher-reported outcomes were statistically significant, mean scores suggested that the intervention did improve teacher behaviour to some extent relative to pre-assessment; this was especially true for teacher-reported problem behaviour in the classroom, self-efficacy, and classroom climate.

Possible moderating effects of sex, age, education, work experience, school size, and class size on all outcome variables were examined; however, no significant moderators were found. For further details about descriptive statistics at pre- and post-assessment estimates, group differences in pre-post changes, and effect sizes, see Table 2.

<Insert Table 2 here>

## Discussion

The present study evaluated the impact of the IY-TCM program on teacher-reported behaviour management practice, problem behaviour, self- and collective-efficacy, and classroom climate, after all teachers of first-to-third grades in a regular school setting completed IY-TCM as a universal preventive intervention. Given than the IY-TCM program

has been examined primarily in disadvantageous or high-risk school settings, we aimed to determine the program's impact as a universal preventive intervention in general school settings. Specifically, we examined the effects on teacher-reported use of positive behaviour support and behaviour correction strategies in the classroom, teacher-reported problem behaviour in the classroom and in other school environments, teacher-reported perception of self- and collective efficacy, and of classroom climate. The changes were small, as indicated by effect sizes ranging from –0.06 to 0.32, and none of the outcome variables were statistically significant at the 0.05 level.

Teachers in the IY-TCM group did not change significantly from pre- to post-assessment in their use of positive and negative classroom management strategies, when compared to teachers in the comparison group. In order to explain these findings, issues of acceptability and appropriateness may need to be addressed when transferring the IY-TCM program to other countries. For instance, the standard American vignettes used in the IY-TCM program have been viewed as being at odds with non-American educational contexts, e.g., teachers have noted that the American classrooms portrayed in the vignettes are incongruent with their own (Nye, Melendez-Torres, & Gardner, 2018). This may affect how well the teachers adopted the strategies presented in the film vignettes.

In the Jamaica studies (Baker-Henningham & Walker, 2018; Baker-Henningham et al., 2009), where a significant increase in teachers' positive behaviour and a reduction in negative behaviour were found; the Jamaican teachers had lower professional qualifications (i.e., teaching assistants). The teachers in the Jamaica studies were experienced, but on average less than 10% of them were actually educated as teachers (Baker-Henningham & Walker, 2018). This in contrast to teachers in the present study, where 90% of the teachers in the IY-TCM group were educated as teachers and on average had more than 12 years' work experience ($M$ = 12.2 years, $SD$ = 9.4), and 97% of teachers in the comparison were educated

as teachers and on average had more than 14 years' work experience ($M$ = 14.4, $SD$ = 9.0) (see Table 1). Taken together, this suggested little room for improvement in teacher's behaviour in the present study. Effective classroom management may also depend on how well teachers command authority. Students tend to give authority to teachers who succeed in building positive relationships, establish a good learning environment, promote autonomy by encouraging the student participation in decisions about behaviour, and manage the challenges arising from student problem behaviour (Vaaland, 2016). An authoritative teacher is acknowledged as the most effective and preferable teacher in schools; hence this "teacher model" has served as a basis for other characteristics included in several evidence-based interventions offered to Norwegian schools during the last years (Ertesvåg, 2011). Different cultural or professional beliefs and values may also have affected the teacher's acceptability and receptiveness to the IY-TCM program, such as the specific learning techniques and the manualized nature of the program (Nye et al., 2018). Teachers' motivation for changing their behaviour management practices or their need for improvement may have been minor in this study.

Measures used in previous studies that showed significant effects on change in teacher behaviours have been shown to be more theoretically aligned with the IY-TCM intervention (Baker-Henningham et al., 2009; Hickey et al., 2017; Hutchings et al., 2013; Leckey et al., 2016; McGilloway et al., 2010; Webster-Stratton et al., 2008). One frequently used measurement is the Teacher Strategies Questionnaire (Webster-Stratton, 2018), which is used to collect self-reported frequency of teachers' use of positive and negative classroom management strategies, and the Teacher–Pupil Observation Tool (Martin et al., 2010), which is a classroom observation measure developed specifically for classroom observation to provide detailed insights into the nature of teacher-student interactions (e.g., commands, questions, warnings, and praise) in classroom settings (Martin et al., 2010; Webster-Stratton,

2018). On the other hand, the measures used in our study have not demonstrated sensitivity to the IY-TCM program before.

Positive effects of the IY-TCM program were not observed for teacher-reported problem behaviour in the classroom or in the school environment, nor when exploring the sub-scores of moderate and severe problem behaviour in the classroom and in the school environment. In agreement with our findings, no positive effects on problem behaviour in the classroom were found 1 or 3 years after the implementation of the School-Wide Positive Behaviour Support (SWPBS) model in Norway (Sørlie & Ogden, 2015; Sørlie et al., 2015). However, contrary to our findings, small to moderate effects on problem behaviour in the school environment were found after 1 year, including on moderate and severe problem behaviour (Sørlie et al., 2015), and after 3 years of SWPBS implementation (Sørlie & Ogden, 2015). The SWPBS model and the IY-TCM program were both presented to teachers as universal preventive interventions.

A possible reason for the different findings may be that the SWPBS model is directed more towards the whole school environment, whereas the IY-TCM program is directed towards the classroom environment and how each teacher manages the classroom. In general, the prevalence of problem behaviour at the lower primary school level (student age 6 to10 years) in Norway is low (Heiervang et al., 2007; Wichstrøm et al., 2012) compared to European countries or the US (Ford, Goodman, & Meltzer, 2003; Kroes et al., 2001; Merikangas et al., 2010). In a student sample within the same cohort as the present study, students scored more favourably than what is typical for Norwegian students at the lower primary level (grades 1 to 4) on the Sutter-Eyberg Student Behaviour Inventory-Revised Intensity Scale (Kirkhaug, Drugli, Mørch, & Handegård, 2012), and the Teacher Report Form total scale (Larsson & Drugli, 2011). This may suggest that students behaved well with teachers in the present sample. Also within the same study cohort as in the present study, a

positive effect on teacher-student conflict was found in a sub-sample of high-risk students ($g$ = –0.65) (Kirkhaug et al., 2016). Positive effects on teacher-student closeness ($d_w$ = 0.22) and conflict ($d_w$ = 0.15) were also found for the entire group of students with teachers in the IY-TCM group (Aasheim, Drugli, Reedtz, Handegård, & Martinussen, 2018). In addition, for this identical sample, positive effects on problem behaviour and social skills were demonstrated in favour of the IY-TCM intervention group ($d_w$ = 0.08 - 0.20) (Aasheim, Reedtz, Handegård, Martinussen, & Mørch, 2018). Given these effects on student outcomes and on teacher-student relationships, significant effects on teacher outcomes could have been anticipated, but those findings were not confirmed in the present study.

Similar to our findings on teacher-reported self- and collective efficacy, the SWPBS model in Norway failed to verify significant effects on the Teachers' Sense of Efficacy Scale or the Collective Efficacy Scale after 1 year of implementation (Sørlie et al., 2015, 2016). But small effects on self- and collective efficacy were confirmed after 3 years with the SWPBS model (Sørlie et al., 2016), which may suggest that the non-significant findings in our study could be explained by the need for more than 8 to 9 months to put the IY-TCM strategies into practice. Furthermore, the mean pre-assessment scores on teacher's efficacy were high in the present study, which suggest little room for improvement in teacher's efficacy. In the Sørlie et al. (2016) study, the mean pre-intervention scores for collective efficacy ranged between 55.0 and 57.8, whereas the mean pre-intervention scores in the present study were 60.2 and 60.4 in the IY-TCM and the comparison group, respectively. Given that the upper limits of the measure may have been are reached, a ceiling effect may have occurred, and discriminating between the behaviours of teachers within the upper range have been difficult (Taylor, 2010). For future evaluations of teacher's behaviour after the IY TCM program, an alternative would be to use other measures that may demonstrate a larger degree of differentiation in teacher

behaviours, e.g. measurements that target better teacher behaviour (discrimination for high performers) and that are more sensitive to change or growth from the IY TCM program.

No positive intervention effect was found on the Classroom Environment Scale in the present study. In a recent study by Murray et al. (2017), a positive effect on the classroom climate was found 1 year after the IY-TCM program ($d$ = 0.45). In the Murray study, the classroom climate was assessed using the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre, 2008), which classifies the quality of classroom interactions according to three overarching domains, e.g., emotional support, classroom organization, and instructional support (Westergård, Ertesvåg, & Rafaelsen, 2018). In contrast, the Classroom Environment Scale by Moos and Trickett (1974) assesses the quality of general learning conditions in the classroom. Hence, the two measurements may capture different elements of the classroom environment. As cited, in a teacher sample within the same study cohort as in the present study, positive effects on teacher-student conflict and closeness were revealed ($d_w$ = 0.15 - 0.22) (Aasheim, Drugli, et al., 2018). Taken together, these findings may suggest that teachers in the present study did in fact experience some advantageous changes in their classroom interactions with students.

**Strengths and limitations**

This study has some limitations that should be pointed out. First, a randomized controlled trial would have been the preferred design for the study. Due to practical obstacles related to the recruitment of schools, a quasi-experimental pre-post design with continuous enrolment of intervention and comparison schools was chosen. The study was dependent on the presence of qualified IY group leaders in municipalities with participating schools; therefore, recruitment to the intervention group had to be carried out in these municipalities. Further, since extensive predefined criteria for program implementation had to be fulfilled before study inclusion, the schools had to apply to IY Norway to prove they met these criteria

before program implementation, and to be included in the study. Thus, the intervention group may be self-selected, which may have affected our results. A strength of the study is that the implementation of the intervention was naturalistic, carried out under real-world conditions, and incorporated into routine educational practice by regular school teachers.

Second, as the Norwegian Directorate of Health covered the expenses of organizing curriculums, organizing groups, and training group leaders, the agency wanted clear boundaries between the implementation of IY-TCM in Norway and its research project. This was in order to facilitate independence between research and implementation. As a consequence, the implementation process was in the hands of the local municipalities involved. Teacher-reported fidelity information was given through fidelity checklists. Hence, access to these checklists or other valid data from the implementation process was problematic due for practical and ethical reasons. Because of the lack of data on fidelity and implementation, we cannot know for certain whether the IY-TCM program was delivered in a manner that was inferior to that required by the program manual. Regardless, the mentors who supervised the group leaders throughout the data collection period did not detect any serious discrepancies in the way the program was delivered.

Third, students and teachers from 21 intervention and 23 comparison schools constitute the entire study sample. The power calculations for this study were originally based on the number of randomized students included, not the number of teachers. The sample size for students was large ($n > 1500$), and thus the power to detect relatively small effects was sufficient. However, the sample size of included teachers was much smaller ($n < 210$). The variation in teacher-reported outcomes seems to be small, and therefore the power to detect group differences in pre-post changes on teacher-reported outcomes may be limited. Finally, the reliability of the sub-scales Severe Problem Behaviour in the Classroom and for Severe Problem Behaviour in the School Environment was inadequate. Collectively, the measures

used were not designed specifically to capture the core skills taught in the IY-TCM program and might have lacked sufficient sensitivity to capture changes in teachers' behaviour management practices.

**Implications for practice and research**

Our findings have implications for both current practice and future research. An 8 to 9 months implementation of the IY-TCM program given as a universal preventive intervention among all teachers of first- to third-grade, may so far seem insufficient to change teacher behaviour. Changes in teacher behaviour through interventions in regular school settings may take longer to foster than those achieved in disadvantageous or at-risk settings. Teachers in this study may therefore have needed more than 8 to 9 months to put IY-TCM strategies into practice. In order to produce more convincing outcomes in teacher behaviour, school-wide preventive interventions may need to be implemented more consistently over a longer period of time than provided in the present study (Weare & Nind, 2011). Findings in this study also suggests that teachers may have had strong classroom management skills prior to the intervention. This, taken together with the overall low level of problem behaviour in this student sample, may explain lack of main effects.

Some of the components taught in IY-TCM program have been assessed as more valuable by teachers, such as strategies to strengthen relationships with students (e.g., praise, encouragement, and positive attention), and coaching to promote students' social and emotional skills, as well as behaviour planning for students (Murray et al., 2017; Nye et al., 2018; Reinke et al., 2018). To determine whether these components also have been easier to adopt and put into practice, and hence, had a greater impact both on student and teacher behaviour, have been suggested as a recommended area for future research. Targeting these components and provide them as shorter in-service trainings to all teachers or to beginning

teachers in schools, could increase program feasibility and focus for schools wanting to target preventive areas of need within their school (Murray et al., 2017).

No long-term follow-up was completed in this study; hence, multiple assessment points within long-term follow-up may be critical to more fully capture the impact of the IY-TCM program implemented as a universal preventive intervention in regular school settings. Measures that are theoretically more adjusted to the IY-TCM program and have demonstrated sensitivity to the IY-TCM program in previous research, should be applied in future research. Another area for future research is to identify barriers to implementation and features of successful implementation, such as using process evaluation to identify moderating effects of implementation quality on intervention outcomes. In order to facilitate the acceptability and appropriateness of the IY-TCM program in the Norwegian culture, the IY-TCM program book Webster-Stratton and Sjøbu (2018), which are provided as a part of the IY-TCM training, has been recently updated. Information about program implementation that is more align to the Norwegian school context have been included in the book.

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**Conflicts of Interest**

No potential conflict of interest was reported by the authors.

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# Appendix

**Appendix I** Invitation to participate and information about the research project

UiT NORGES ARKTISKE UNIVERSITET

Til leder skolen/barnehagen høst 2013

**INVITASJON TIL Å DELTA I EVALUERINGSSTUDIEN AV**
***DE UTROLIGE ÅRENES* SKOLE- OG BARNEHAGEPROGRAM**

De Utrolige Årene (DUÅ) ønsker med dette å invitere din skole/barnehage til å delta i Evalueringsstudien av DUÅ Skole- og barnehageprogram. I dette brevet gir vi informasjon om programmet, etablering av programmet ved skolen/barnehagen og hva deltakelse i Evalueringsstudien innebærer. DUÅ Skole- og barnehageprogram er et forebyggings- og behandlingsprogram som retter seg mot barn i alderen 3 – 8 år. Programmet er et skole-/barnehageomfattende program, dvs. at hele ansatte gruppen i skolen/barnehagen mottar opplæring i programmet. Programmet er derfor et **universalforebyggende program**, men også et program der skolen/barnehagen også kvalifiseres til å redusere alvorlig atferdsproblemer. Programmet tilbys derfor i skolen til alle ansatte 1. – 3. klassetrinn og ansatte i SFO/AKS og til alle ansatte i barnehagen. Programmet kan utvides i skolen til å inkludere alle ansatte 1. – 7. klassetrinn med tilpasninger for 4. – 7. klassetrinn. Når man anvender programmet som universalforebyggende tiltak er målet å utvikle profesjonell klasse-/gruppeledelse og derved sette ansatte i skolen/barnehagen i stand til å skape positive relasjoner til barn, bringe barn i læringsposisjon, forebygge uro og atferdsproblemer og håndtere atferdsproblemer når de har oppstått. DUÅ Norge har derfor valgt å implementere programmet som et universalforebyggende tiltak som også er i tråd med helse- og utdanningsmyndighetenes signaler.

DUÅ Skole- og barnehageprogram er av Helsedirektoratet trukket frem og vurdert som program med internasjonal dokumentert effekt i forhold til å forebygge og redusere alvorlig problematferd hos barn i alderen 3 – 8 år og Helsedirektoratet anbefaler derfor en norsk evaluering av programmet. *Regionalt kunnskapssenter for barn og unge (RKBU Nord)* ved *Universitetet i Tromsø* gjennomfører i perioden 2009 – 2014 i samarbeid med *Regionalt kunnskapssenter for barn og unge (RKBU Midt-Norge)* ved *Norges teknisk-naturvitenskapelige universitet i Trondheim*, en Evalueringsstudie av programmet. Programmet viser allerede solid empiri fra originalmiljøet, men det er viktig å gjøre evalueringer i andre kulturer enn originalkulturen. Evalueringen vil bidra til ny kunnskap om barn og unges psykiske helse og trivsel i skoler og barnehager i Norge. Å delta i en slik evaluering er derfor viktig. Studien finansieres av Helsedirektoratet.

***Opplæring av DUÅ Skole- og barnehageprogram*** – alle skoler/barnehager som skal motta opplæring i programmet innenfor forskningsperioden forespørres om å delta i Evalueringsstudien. Opplæring i programmet medfører ingen kursavgift, men det kreves at skolen/barnehagen setter av tilstrekkelig med tid slik at opplæring av programmet kan skje på en vellykket måte. Grunnopplæring i programmet innebærer 6 hele kursdager/workshop a 7 timer med cirka 1 mnd. mellomrom mellom hver kursdag/workshop. Skoler/barnehager som skal motta opplæring fra og med høsten 2013 bør bruke våren 2013 til planlegging og forberedelser av kursdager. Opplæring i programmet tilbys av erfarne gruppeledere i programmet ansatt ved kommunal PPT, eventuelt ved annen kommunal instans. I forbindelse med opplæring får skolen/barnehagen dekket et klasse-/gruppesett (60 % av total ansatt gruppe) av *Carolyn Webster-Stratton: Hvordan fremme sosial og emosjonell kompetanse hos barn*. For å kvalitetssikre videreføring og vedlikehold av programmet ved skolen/barnehagen etter gjennomført grunnopplæring, skal skolen/barnehagen motta minimum 7 veiledninger i etterkant av gjennomført grunnopplæring. Når og hvordan disse veiledningene skal gjennomføres, utarbeides i tett samarbeid med lokale DUÅ gruppeledere som har gitt opplæringen ved skolen/barnehagen og eventuelt i samarbeid med DUÅ administrasjonen.

***Etablering av DUÅ Skole- og barnehageprogram*** – før skolen/barnehagen kan motta opplæring i programmet, må skole/barnehagen søke DUÅ om etablering av programmet. I søknad spørres det blant annet om motivasjon for å motta opplæring i programmet. Det er ikke ønskelig at opplæringen skal bidra til konflikt eller uro i ansatte gruppen. Det er derfor en forutsetning fra DUÅ at minst 80 % av de ansatte stiller seg positiv til opplæring i programmet ved skolen/barnehagen. Ved godkjent søknad inngås avtale om samarbeid mellom skolen/barnehagen og DUÅ. I avtalen ber vi ledelsen ved skolen/barnehagen bekrefte at nødvendige rammebetingelser for å etablere programmet ved skolen/barnehagen er til stede.

Søknadsskjema om etablering er vedlagt i samme e-post som denne invitasjonen til deltakelse i studien, eventuelt kan søknadsskjema lastes ned fra hjemmeside www.deutroligearene.no eller mottas ved henvendelse til DUÅ. Spørsmål angående søknad om etablering av DUÅ ved skolen/barnehagen kan rettes til førstekonsulent for implementering og drift DUÅ, Marita Jensen – telefon: 77 64 58 68 eller e-post: marita.jensen@uit.no.

***Deltakelse i Evalueringsstudien*** – deltakelse i Evalueringsstudien innebærer at ledelsen ved skolen/barnehagen forplikter seg til å legge til rette for at ansatte får anledning til å fylle ut spørreskjema på aktuelle tidspunkt, samt ansvar for å følge opp gjennomføringen av spørreskjemautfyllingen ved skolen/barnehagen. Forskningsdesignet innebærer både pre målinger (før opplæring) og post målinger (etter opplæring), samt bruk av kontrollgrupper. Dette innebærer at ansatte i skoler/barnehager som mottar opplæring i programmet fyller ut spørreskjema før og etter opplæring i programmet. Alle 6 kursdager i programmet gjennomføres mellom de to spørreskjemautfyllingsperiodene. Første spørreskjemautfyllingsperiode gjennomføres høsten 2013 **før første kursdag** i programmet og siste spørreskjemautfyllingsperiode gjennomføres **etter siste kursdag** i programmet våren etter (2014). Ansatte i skoler/ barnehager som er i **kontrollgruppe og *ikke* mottar opplæring i programmet** fyller ut samme spørreskjema på samme tidspunkt som øvrige skoler/barnehager. Utfylling av spørreskjema gjennomføres via elektroniske linker eller på papirversjon av spørreskjema.

***Spørreskjema, informasjonsskriv og samtykkeskjema*** – alle ansatte 1. – 3. klassetrinn + ansatte SFO/AKS i skolen fyller ut spørreskjema. Alle ansatte i barnehagen som arbeider med barn i alderen 3 – 6 år fyller ut spørreskjema. I tillegg vil kontaktlærere i skolen 1. – 3. klassetrinn og pedagogiske ledere i barnehagen som arbeider med barn i alderen 3 – 6 år bli bedt om å fylle ut spørreskjema for et lite utvalg av tilfeldige trukne barn (7 barn pr klasse 1. – 3. klassetrinn/7 barn pr avdeling 3 – 6 år). Hvilke barn det skal fylles ut spørreskjema om trekkes tilfeldig ved RKBU Nord på bakgrunn av mottatt informasjon fra skolen/barnehagen om antall barn pr klasse 1. – 3. klassetrinn og antall barn i barnehagen i alderen 3 – 6 år. Spørreskjema om barn kan bare fylles ut såfremt det mottas samtykke fra foresatte til tilfeldige trukne barn. Foresatte til tilfeldige trukne barn vil også bli spurt om utfylling av et spørreskjema. Kontaktlærere i skolen 1. – 3. klassetrinn og pedagogiske ledere i barnehagen som arbeider med barn i alderen 3 – 6 år vil bli bedt om å dele ut informasjonsskriv med samtykkeskjema og spørreskjema til foresatte. Informasjonsskriv med samtykkeskjema og spørreskjema til foresatte sendes til skolen/barnehagen fra RKBU Nord i ferdige sorterte bunker klare for utdeling.

***Honorar*** – leder ved skolen/barnehagen tildeles en kontaktpersonrolle i tilknytning til skolens/barnehagens deltakelse i Evalueringsstudien. Kontaktperson mottar en økonomisk godtgjørelse på kr 1000 pr spørreskjemautfyllingsperiode, som totalt utgjør kr 2000 for begge datainnsamlingsperiodene høst og vår. Kontaktlærere/pedagogiske ledere som fyller ut spørreskjema om et lite utvalg av tilfeldig trukne barn mottar kr 500 pr spørreskjemautfyllingsperiode, som utgjør totalt kr 1000 for begge datainnsamlingsperiodene høst og vår. Eventuelt kan utbetaling av honorar gis som en samlet sum til deltakende skoler og barnehager. Ansatte i skoler og barnehager som er i kontrollgruppe mottar tilsvarende honorarutbetaling som øvrigedeltakende skoler/barnehager.

***Informasjonsmøter*** – før skolen/barnehagen går i gang med første spørreskjemautfyllingsperiode (og opplæring i programmet) er det ønskelig at skolen/barnehagen stiller seg positivt til å gjennomføre et informasjonsmøte for ansatte 1. – 3. klassetrinn og ansatte SFO/AKS eller ansatte som arbeider med barn i alderen 3 – 6 år i barnehagen (og eventuelt foresatte til barn 1. – 3. klassetrinn/foresatte til barn på avdeling 3 – 6 år). Ved informasjonsmøtet vil RKBU Nord informerer om selve gjennomføring av spørreskjemautfylling ved skolen/barnehagen. Tidspunkt og sted for informasjonsmøter avtales nærmere pr telefon eller pr e-post med hver enkelt skole/barnehage. Spørsmål om Evalueringsstudien rettes til prosjektkoordinator Merete Aasheim, telefon 77 64 58 84, e-post: merete.aasheim@uit.no

**Evalueringsstudiens forskergruppe:**
Professor og leder Willy-Tore Mørch, RKBU Nord/ UiT
Professor May Britt Drugli, RKBU Midt-Norge/NTNU
Førsteamanuensis Sturla Fossum, RKBU Nord/UiT
Førsteamanuensis Charlotte Reedtz, RKBU Nord/UiT
Forsker Sihu Kleist, RKBU Nord/UiT
Forsker Joshua Patras, RKBU Nord/UiT

Med vennlig hilsen

Willy-Tore Mørch
Professor ved Regionalt kunnskapssenter for barn og unge (RKBU Nord)

**Appendix 2** Information to parents about the research project and request to consent

UiT NORGES ARKTISKE UNIVERSITET

NTNU
Regionalt kunnskapssenter for barn og unge – Psykisk helse og barnevern

**Til foresatte i skoler som skal delta i**
**Evalueringsstudien av De utrolige årenes (DUÅ) Skole- og barnehageprogram**

**ID-nummer:** Høst 2013

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**Informasjon Evalueringsstudien**
Dette er en forespørsel til deg/dere om å delta i en forskningsstudie for å evaluere DUÅ Skole- og barnehageprogram. Deltakelse i forskningsstudien innebærer at du/dere først må samtykke til deltakelse i studien. Samtykke til deltakelse i studien innebærer at ditt barns kontaktlærer kan fylle ut spørreskjema om ditt barn, samt at du/dere som foresatte også fyller ut vedlagt spørreskjema i papirversjon og returner dette i vedlagt svarkonvolutt. Ønsker du/dere å fylle ut spørreskjema via elektronisk link, kan du/dere skrive av elektronisk link som er oppgitt i dette infoskrivet (på side 2), eventuelt be om å få tilsendt pr e-post elektronisk link til spørreskjema fra ditt barns kontaktlærer.

**Bakgrunn og hensikt med å gjøre en evaluering av DUÅ Skole- og barnehageprogram**
Denne skolen har valgt å gi ansatte opplæring i De Utrolige Årenes (DUÅ) Skole- og barnehageprogram. Opplæring i programmet kan gis til ansatte 1. – 3. klassetrinn (6 – 8 år), eventuelt til alle ansatte 1. – 7. klassetrinn, med tilpasninger til 4. – 7. klassetrinn. Målet ved DUÅ Skole- og barnehageprogram er å styrke personalets kompetanse i forebygging og håndtering av atferdsproblemer, samt å styrke kompetansen i klasse/gruppeledelse inklusive ulike proaktive læringstilnærminger. Programmet er et skole-/barnehageomfattende program, dvs. at hele ansatte gruppen i skolen/barnehagen (eventuelt bare ansatte som arbeider med barn i alderen 3 – 8 år) mottar opplæring i programmet. Programmet er derfor et universalforebyggende program, men et program der skolen/barnehagen også kvalifiseres til å redusere alvorlig atferdsproblemer. Når man anvender programmet som universalforebyggende tiltak er målet å utvikle profesjonell klasse-/gruppeledelse og derved sette ansatte i skolen/barnehagen i stand til å skape positive relasjoner til barn, bringe barn i læringsposisjon, forebygge uro og atferdsproblemer og håndtere atferdsproblemer når de har oppstått. DUÅ Norge har derfor valgt å implementere programmet som et universalforebyggende tiltak som også er i tråd med helse- og utdanningsmyndighetenes signaler. Opplæring i DUÅ Skole- og barnehageprogram gjennomføres som 6 hele kursdager/workshop og gis av trenede gruppeledere i programmet.

I tillegg til at ansatte ved skolen skal motta opplæring programmet har også skolen sagt seg villig til å delta i forskningsstudien som skal evaluere programmet i Norge. DUÅ er utviklet i USA av Carolyn Webster-Stratton og i USA og Wales er det gjennomført studier som dokumenterer god effekt av programmet (Incredible Years: http://www.incredibleyears.com/ ). DUÅ Skole- og barnehageprogram er av Helsedirektoratet trukket frem og vurdert som program med internasjonal dokumentert effekt i forhold til å forebygge og redusere alvorlig problematferd hos barn i alderen 3 – 8 år og Helsedirektoratet anbefaler derfor en norsk evaluering av programmet. *Regionalt kunnskapssenter for barn og unge (RKBU Nord)* ved *Universitetet i Tromsø* gjennomfører i perioden 2009 – 2014 i samarbeid med *Regionalt kunnskapssenter for barn og unge (RKBU Midt-Norge)* ved *Norges teknisk-naturvitenskapelige universitet i Trondheim*, en evalueringsstudie av programmet. Selv om programmet allerede viser solid empiri fra originalmiljøet, er det viktig å gjøre evalueringer i andre kulturer enn originalkulturen. Evalueringen omfatter barnehager og skoler på ulike steder i hele landet og vil bidra til ny kunnskap om barn og unges psykiske helse og trivsel i barnehager og skoler i Norge. Å delta i en slik evaluering er derfor viktig. Studien er godkjent av regional etisk komité ved Universitetet i Tromsø og finansieres av Helsedirektoratet.

**Hva innebærer forskningsstudien?**
Deltakelse i Evalueringsstudien innebærer at alle ansatte 1. – 3. klassetrinn, SFO/AKS ansatte og assistenter som skal delta på opplæring i DUÅ Skole- og barnehageprogram skal gjennomføre utfylling spørreskjema. Det vil bli samlet inn informasjon/data via spørreskjema fra aktuelle ansatte og fra foresatte til noen tilfeldige utvalgte elever 1. – 3. klassetrinn **før** opplæring i programmet og **etter** gjennomført opplæring programmet. Dette betyr at det vil bli samlet inn informasjon/data på to tidspunkter. Tidspunkt for 1. datainnsamlingsperiode vil være i august/september 2013 og 2. datainnsamlingsperiode april/mai 2014. Det betyr at skolen skal gjennomføre en spørreskjemautfyllingsperiode høsten 2013 og en spørreskjemautfyllingsperiode våren 2014. Samme type spørreskjema fylles ut både høst 2013 og vår 2014.

**Forespørsel om samtykke og utfylling av spørreskjema**
Som foresatte til tilfeldig trukket barn mottar du/dere i tillegg til dette infoskrivet også en forespørsel om samtykke (siste side) til at ditt barn deltar i studien. Deltakelse i studien innebærer at kontaktlærer fyller ut et spørreskjema om tilfeldig trukket elev og du/dere som foresatt til tilfeldig trukket elev fyller ut et spørreskjema. Hvilke barn som skal delta i studien er trukket statistisk tilfeldig ut ved RKBU – Nord/UiT på bakgrunn av mottatt informasjon om antall elever i hver klasse 1. – 3. klassetrinn ved skolen. Som foresatte bes du/dere om å signere og levere samtykkeskjema snarest og innen en uke etter at du/dere mottok dette infoskriv m/ samtykkeskjema. Samtykker du til at ditt barn deltar i forskningsstudien returnerer du/dere signert samtykkeskjema til ditt barns kontaktlærer. Skolen oppbevarer samtykkeskjema ved skolen til studien er avsluttet. Når studien er avsluttet vil skolen få beskjed om å makulere samtykkeskjema.

**Alle foresatte til tilfeldige trukne elever forespørres også om å fylle ut spørreskjema "for foresatte". Spørreskjema omhandler barnets atferd hjemme og hvordan dere opplever samarbeidet med skolen. Foresatte kan ha andre oppfatninger om barnets atferd hjemme enn lærernes oppfatninger av barnets atferd på skolen og foresatte kan ha andre oppfatninger om samarbeid mellom skole og hjem enn ansatte ved skolen. Foresatte er derfor viktige informanter i studien!**

**Frivillig deltakelse**
Deltakelse i studien er frivillig. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta i studien. Dette vil ikke få konsekvenser for deg eller ditt barns forhold til skolen. Om du nå sier ja til å delta, kan du senere trekke ditt samtykke uten at det påvirker ditt barns tilbud ved skolen.

**Hva skjer med informasjonen om deg?**
Alle opplysninger vil bli behandlet uten navn eller andre direkte personidentifiserende opplysninger. Det er kun rektor/kontaktlærere som kan koble ID-nummer med navn. Forskeren har ikke adgang til navn eller andre personidentifiserende opplysninger og vil kun bruke ID-nummer. Det vil ikke være mulig å identifisere deg eller ditt barn i resultatene av studien når disse publiseres. Alle skoler og deres foresatte som har deltatt i studien vil få presentert resultatene av studien når disse foreligger.

For å ivareta krav om anonymitet til foresatte og barn, følger det med i dette infoskrivet et ID-nummer (*seks siffer påført på første side*). Ved utfylling av spørreskjema vil du bli bedt om å skrive inn dette ID-nummeret når det spørres om barnets ID-nummer.

Fyller du/dere ut spørreskjema på papirversjon som du har mottatt fra ditt barns kontaktlærer, returnerer pr post i konvolutt til adressen:
**UiT Norges arktiske universitetet, RKBU Nord**
**Evalueringsstudien/DUÅ**
**9037 TROMSØ**
Ønsker du å fylle ut spørreskjema via elektronisk link, skriv av link under, eventuelt be ditt barns kontaktlærer å sende elektronisk link til spørreskjema "for foresatte"pr e-post.

**Questback/elektroniske linker kan benyttes tom 17. november 2013.**
**Elektronisk link til spørreskjema:**
https://response.questback.com/rbupuit/skoleforesattehost2013/

*Da gjenstår det bare å takke for bidraget med å fremme ny kunnskap om barn og unges psykiske helse i skolen og lykke til med spørreskjemautfyllingen☺*

**Med vennlig hilsen**

Willy-Tore Mørch
Professor og prosjektleder for Evalueringsstudien DUÅ

**Kontaktperson for studien ved RKBU – Nord/UiT:**
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Prosjektkoordinator for Evalueringsstudien
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E-post merete.aasheim@uit.no
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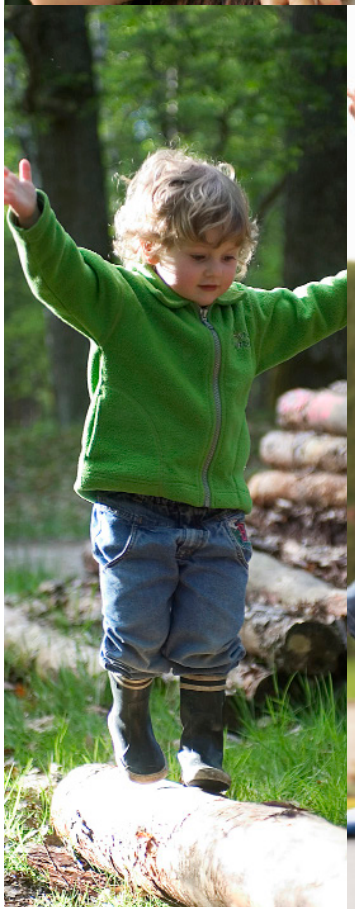
for barn og unge
– Psykisk helse og barnevern

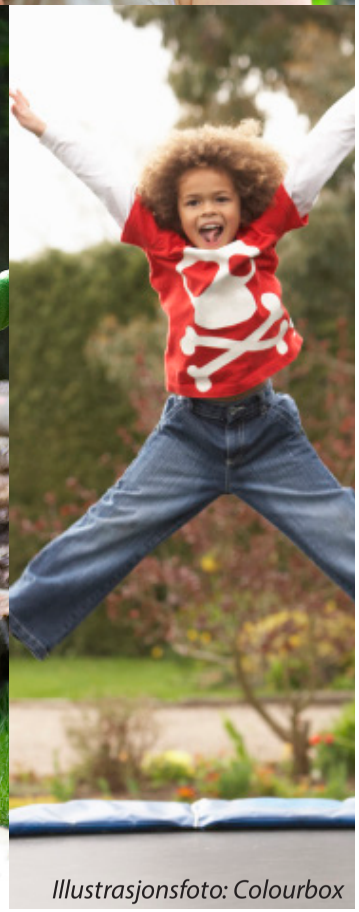
**Samtykke fra foresatte til deltakelse i Evalueringsstudien av**
**De Utrolige Årenes (DUÅ) Skole- og barnehageprogram høst 2013 – vår 2014:**

Jeg samtykker med dette til mitt barns deltakelse i Evalueringsstudien av
De Utrolige Årenes Skole- og barnehageprogram[1]

| |
|---|
| Dato: |
| Foresattes navn: |

[1] Samtykkeskjema returneres til ditt barns kontaktlærer og arkiveres ved skolen så lenge studien pågår. Skolen vil motta beskjed om å makulere samtykkeskjema ved avslutning av studien.





*Illustrasjonsfoto: Colourbox*

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DET HELSEVITENSKAPELIGE FAKULTET
REGIONALT KUNNSKAPSSENTER FOR BARN OG UNGE, NORD
*PSYKISK HELSE OG BARNEVERN* (RKBU NORD)

Nærmere informasjon om DUÅ Skole- og barnehageprogram eller Evalueringsstudien:
**Telefon:** 77 64 58 84/ 77 64 58
**E-post:** kontakt@deutroligearene.no
**Hjemmeside:**
www.deutroligearene.uit.no

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*PSYKISK HELSE OG BARNEVERN (RKBU NORD)*

# Foresatte og ansatte i skole og barnehage

Viktige informanter for å fremme ny kunnskap om virksomme tiltak som styrker barn og unges psykiske helse i skole og barnehage

Dinosaur puppet© Axtell Expressions, Inc

**Appendix 3** Information flyer on the research project

## De Utrolige Årenes (DUÅ)
## Skole og- barnehageprogram

DUÅs Skole- og barnehageprogram er et forebyggings- og behandlingsprogram mot atferds- og sosiale vansker for barn i alderen 3 – 8 år.

Programmet er universal*forebyggende* og tilbys til alle ansatte i skole og barnehage som arbeider med barn i alderen 3 – 8 år, samtidig som ansatte også kvalifiseres til å redusere alvorlige atferdsproblemer.

**Som universalforebyggende program er målet å:**

-fremme ansattes ferdigheter i klasse-/ gruppeledelse

-skape positive relasjoner til barn

-fremme barns sosiale og emosjonelle kompetanse

-forebygge uro og atferdsproblemer

-bringe barn i læringsposisjon

-fremme samarbeid mellom barnehage/ skole og hjem



## Ny kunnskap

DUÅ Skole- og barnehageprogram er et program med internasjonal dokumentert effekt i forhold til å forebygge og redusere alvorlig problematferd hos barn i alderen 3 – 8 år. Helsedirektoratet ønsker derfor å gjøre en norsk evaluering av programmet.

Ansatte i skole og barnehage som arbeider med barn i alderen 3 – 8 år og som mottar opplæring i programmet vil bli spurt om å fylle ut spørreskjema. Også ansatte i skoler og barnehager som *ikke* mottar opplæring i programmet (kontrollgrupper), vil bli spurt om å fylle ut spørreskjema.

Alle opplysninger behandles anonymt og studien er godkjent av REK Nord (Regional komite for medisinsk og helsefaglig forskning). Alle skoler og barnehager som har deltatt studien, samt deres foresatte vil få tilgang til et nyhetsbrev når resultatene fra studien foreligger. Evalueringsstudien er finansiert av Helsedirektoratet.



## Foresatte er viktige informanter

I tillegg til informasjon fra ansatte i skoler og barnehager trenger vi også informasjon fra foresatte til barn i alderen 3 – 8 år.

Foresatte til tilfeldige utvalgte barn i alderen 3 – 8 år i skoler og barnehager som mottar opplæring og i skoler og barnehager som er i kontrollgrupper (ikke mottar opplæring i programmet), vil bli spurt om å fylle ut spørreskjema.

Foresatte ved deltakende skoler og barnehager vil motta et informasjonsbrev om deltakelse i studien, samt en forespørsel om samtykke til deltakelse.

Foresattes oppfatninger om barns atferd kan være forskjellige fra ansattes oppfatninger om barns atferd i barnehage og skole. Ansatte i skole, barnehage og foresatte er viktige informanter for å fremme ny kunnskap om virksomme tiltak som styrker barn og unges psykiske helse i skole og barnehage. Å delta i en slik evaluering er derfor viktig.

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