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Social Perception Training: Improving social competence by reducing cognitive distortions

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Social Perception Training (SPT) is a program focused on changing the perceptual and cognitive processes involved in suboptimal social interactions. It is administered with whole class of pupils over ten weeks. No previous studies have evaluated its efficacy. The present study investigated the outcome benefit of the program in 18 primary and secondary classes in a Norwegian municipality (aggregated N = 332), using multi-informant instruments administered in a pre-post research design. Pupils reported on cognitive distortions and the learning environment, parents on social skills and problem behaviour, and teachers on classroom performance. Results indicate overall positive differences, especially for pupils' cognitive distortions. Increased social skills and reduced problem behaviours were also reported, as well as improved peer relations and perceived emotional support from teachers. Overall SPT appears to be a promising and cost-effective intervention program.

Keywords: Social competence training, intervention, SPT, cognitive distortions

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Introduction

In recent years, a considerable number of Social and Emotional Learning (SEL) programs have been introduced. They are designed to promote social and emotional competencies, and decrease behaviour problems, in children and adolescents (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Sklad, Diekstra, de Ritter, & Ben, 2012; Wilson, Lipsey, & Derzon, 2003). In schools, great efforts have been made to improve the psychosocial climate and enhance the learning environment. For example, the universal PALS program (School-Wide Positive Behavior Support; Arnesen, Ogden, & Sørlie, 2006) is widely implemented in Norway, and has been shown to be effective in reducing problem behaviour and increasing the quality of the learning environment (Sørlie & Ogden, 2007). Individual-level interventions, such as Aggression

Replacement Training (ART) (Goldstein, Glick, & Gibbs, 1998), have been found to be effective in improving social skills and reducing problem behaviour (Barnoski & Aos, 2004; Gundersen & Svartdal, 2006).

Despite desirable outcomes (Sklad et al., 2012), most individual-level programs are trainer-intensive, and hence expensive and challenging to implement. Such programs are limited to the individuals selected to participate, at the risk of pupils being stigmatized, and may lack the support needed for generalization of training effects (Goldstein & Martens, 2000).

These considerations indicate that universal, preventive programs have practical and cost advantages over focused, corrective and individual-level programs, as they target all children and are relatively inexpensive to implement (Greenberg, Domitrovich, Weissberg, & Durlak, 2017). However, SEL interventions vary significantly in application and mission, making it difficult to compare interventions due to differences in student groups and outcomes measured using different metrics over different time horizons (Belfield et al., 2015). Still, Belfield and colleagues found, when examining the economic value of six different SEL programs, that all interventions demonstrated benefits that exceed the costs running them, often by considerable amounts.

Universal programs are framed positively and provided independently of individual risk status, minimizing their potential to stigmatize participants. As a result, they may be more readily accepted and adopted (Domitrovich et al., 2010). This allows for the prevention of problems that otherwise would go unnoticed and untreated, such as internalizing problems, and may help to reduce the number of pupils who ultimately end up with higher levels of need.

The current study evaluated one such program – called Social Perception Training (SPT; Gundersen, Strømgren, & Moynahan, 2013). SPT is implemented as a ten-session program in a whole-class setting, with regular teachers as facilitators, and is based on principles similar to the ART program (Goldstein et al., 1998). To our knowledge, no prior studies have evaluated SPT. Because SPT relies heavily on the roles of social perception and cognitive distortions in creating and sustaining behavioural problems, we first examine these topics in relation to the aims and purposes of SPT.

Social competence and social perception

Social competence is seen as the general capacity to integrate cognition, affect, and behaviour in order to succeed with specific social tasks and to achieve positive developmental outcomes (Elliott, Busse, & Gresham, 1993). Socially competent individuals possess several interrelated sets of cognitive, affective, and behavioural competencies. It has been suggested that there are five core competency clusters: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Greenberg et al., 2017). Being socially and emotionally competent is important in its own right, and has also been found to predict and be related to many other elements in positive developmental outcomes. These include children's ability to forge friendships and their lifelong mental well-being, higher levels of self-worth and academic achievement, and lower levels of loneliness, bullying, aggression, depression (Durlak et al., 2011; Sklad et al., 2012).

SPT heavily relies on principles of social perception, how individuals integrate available social information with prior expectations and cognitions to form impressions of social situations and other people, how we classify and explain social events, and how these processes, in turn, affect behaviour (Fiske & Taylor, 2013). For example, "misunderstanding" and "wrong reaction" are often produced by inappropriate encoding of cues and biased interpretations of social signals (Camodeca & Goossens, 2005). Behavioural adjustment in children is associated with two broadband factors, internalizing behaviours (e.g., withdrawal, depression, shyness, and anxiety) and externalizing behaviours (e.g., aggression and delinquent behaviour) (Barriga, Hawkins, & Camelia, 2008). Although conceptually separate, it is well established that these forms of behaviour problems co-vary and co-develop in individuals over time (Bornstein, Hahn, & Haynes, 2010). Theories that aim to explain the origin, development, and maintenance of antisocial behaviour have often underlined the importance of self-serving distortions in social cognition (Bandura, 2002; Crick & Dodge, 1996). Cognitive distortions, also named thinking errors, are inaccurate ways of attending to, or conferring meaning on, experience and thus may contribute to responses that are emotionally and behaviourally problematic (Barriga, Gibbs, Potter, & Liau, 2001).

Gibbs, Potter, and Goldstein (1995) introduced a four-category typology of self-serving cognitive distortions linked to the way children adjust. (1) *Self-centeredness* which is the primary distortion, and three secondary distortions rooted in this primary distortion, namely (2) *minimizing/mislabelling* the severity and the consequences of the behaviour, or referring to others using belittling or dehumanizing labels; (3) *assuming the worst*, that is, attributing hostile intentions to others and considering a worst-case scenario for a social situation; and (4) *blaming others*, which is the attribution of blame to people and factors outside oneself.

Barriga and colleagues (2008) suggest that cognitive distortions facilitate both internalizing and externalizing behaviour, but differentially. Cognitive distortions of internalizing individuals inaccurately debase the self in direct or indirect ways, and may contribute to self-harm (Bornstein et al., 2010; Quiggle, Garber, Panak, & Dodge, 1992), whereas cognitive distortions of externalizing individuals have been described mainly as biased processing tendencies, such as attributing hostile intent to others (Crick & Dodge, 1994). Children with behavioural problems (unlike pro-social peers) focus more on negative elements in ambiguous situations while largely ignoring the emotional expressions, intentions or content of the other person's actions. For example, a compliment can be seen as an attempt to manipulate, help can be interpreted as an attempt to demean, and a gift can be seen as a bribe.

The social information processing (SIP) model (Crick & Dodge, 1994) is an important element in theoretical accounts of the development of social behaviour. The five-step model proposes that, in order to respond appropriately to social situations, social information must be processed in an orderly fashion, namely, encoding of internal and external cues, interpretation of cues, goal selection, response access or construction, and response decision. It has been hypothesized that during the first two steps, children arrive to a mental representation of the social situation confronting them (Crick & Dodge, 1994). They focus on particular cues in the situation, encode those cues, and interpret them. Relevant knowledge, as in schemata or scripts, is recalled from memory and used as a guide for interpreting and understanding the present social situation. Interpretation of cues may also involve causal inferences, e.g., attributions of intent of others. Hence, children

often do not respond aggressively to consequences, but to their perceptions of the intent of other people (Arsenio & Lemerise, 2004). Although bullies and victims behave differently due to differences in reputation, values, and self-confidence, their social perception is more similar than usually thought. Both interpret ambiguous situations as hostile (Camodeca & Goossens, 2005). Furthermore, aggressive and depressed young people appear to agree to some extent that others are out there to harm them. Nonetheless, they mirror one another regarding attribution of blame (blaming others versus personalizing) and appraisals of the impact they assign to their negative behaviours (minimizing versus catastrophing) (Barriga et al., 2008). Thus, to prevent difficulties and to promote positive development, interpretative abilities may be appropriate targets for prevention or intervention efforts.

Social Perception Training

SPT is a universal classroom-based intervention for grades 1-10, intended to last for approximately ten weeks, with one session per week, and is delivered by regular teachers. Throughout the intervention, pupils are encouraged to take an active part in learning activities, such as role-play, games, and interpreting visual illusions. The principles of SPT are built on Aggression Replacement Training (Goldstein et al., 1998; Gundersen, Olsen, Finne, Strømgren, & Daleflod, 2015). Given that cognitive distortions in social interactions may be detrimental, SPT aims at training pupils to acquire a better understanding of different aspects of social perception and cognition to prevent or reduce the occurrence of cognitive distortions. By introducing nine different topics, the program seeks to increase the pupils' ability to receive and interpret social information. Furthermore, the program introduces terminology to facilitate a common understanding and use of concepts in everyday life at school. It is likely that enhanced social awareness (e.g., taking the perspectives of and empathizing with others from diverse backgrounds and cultures) have a positive impact on pupils' tolerance of diversity and difference.

The SPT manual secures adherence to the program by using a fixed structure, illustrating social situations by role-playing, games and active participation, and presents the ten sessions constituting the program and its sequence (see Table I). Pictures, discussions and role-play are used to clarify how these different subjects and factors affect our selves and others in social interaction. Using a variety of situations may lead to better understanding and generalization, and may gradually provide a capacity to think before judging and acting (Gundersen et al., 2013).

The current study

The present study investigated the outcome effect of a ten-session SPT universal intervention program (Gundersen et al., 2013) on pupils (N = 332) in 6^{th} and 9^{th} grade participating in a in a whole-class setting led by regular teachers. To assess change associated with the intervention, four translated and validated instruments measuring cognitive distortions, social skills, problem behaviour, classroom performance, and learning environment were administered, using multiple informants (pupils, parents, and teachers).

Table I. The ten sessions of Social Perception Training

1. The first session provides for program overview and group formation, and introduces the ideas of perception and optical illusions.
2. The second session presents emotional awareness, with the ability to communicate based on emotions, as a key to social adjustment. Emotional awareness includes the ability to interpret the feeling of others as well as to identify and express one's own basic feelings.
3. The third session presents open and hidden rules. Hidden rules, norms, and codes may vary across cultures and settings and are often challenging to identify, since they are the unspoken clues that individuals use to indicate membership of a group.
4. The related topic of cultural differences is introduced in the fourth session. A primary aim of this session is to increase pupils' awareness of cultural differences as a function of ethnicity, geography, gender, age, etc. This may challenge the stereotyping and overgeneralization of such differences and instead promote tolerance of diversity and difference.
5. In the fifth session, setting events – background variables that indirectly alter an interaction – are discussed. Environmental (e.g., crowded conditions, noise, heat), social (e.g., previous negative social interaction, losing a game), and physical setting events (e.g., pain, hunger) arouse sensitivity in positive or negative ways, even if they are not directly connected to the situation.
6. Session six provides knowledge of the complex interaction between thoughts, feelings, body signals and actions. For instance, aggressive behaviour is hypothesized to be elicited by an aversive "trigger" stimulus that is followed by both physiological arousal and distorted cognitive responses, which result in the emotional experience of anger (Goldstein et al., 1998).
7. The seventh session introduces interpretation of others' intent. Children tend to respond with aggression or withdrawal if they regard the peer as acting with hostile intent, but they will be more likely to act prosocially or assertively if they perceive the peer to be acting with a benign intent or accidentally. 8. Session eight helps pupils to identify cognitive distortions. This topic is important in SPT because such errors are inaccurate ways of attending to or conferring meaning on experience and may contribute to responses that are emotionally and behaviourally problematic (Bandura 2002; Gibbs et al., 1995).
9. The topic of session nine is timing. To apply social skills to real-life situations, children should be sensitive to social norms, situations, and interpersonal cues regarding appropriate behaviour.
10. Finally, the last session is about consequences, or if-then relations. The aim is to increase participants' understanding of alternative choices and the consequences of those choices.

The study was designed as a pre-post study, with nine classes receiving the SPT intervention in the autumn semester, and nine other classes in the spring semester. All scales were administered before the autumn intervention (pre-test), then within two weeks after the autumn intervention (midway), and finally within two weeks after the spring intervention (post-test). This design allowed for group comparisons halfway through the intervention when some classes had completed the intervention whereas others had not, as well as comparison of developments in classes over the three probes. As is well known, however, the midway group comparison may be problematic as this comparison is vulnerable to diffusion and secondary diffusion effects (e.g., Gundersen & Svartdal, 2010). All classes at all schools (except for one school) were from the same class levels, sharing teachers (primary diffusion) as well as interacting outside classes (secondary diffusion). For this reason, we expected that the overall changes observed in the autumn intervention groups would to some extent also appear in classes not receiving the intervention, making a meaningful group comparison at

this stage problematic. Hence, the primary analyses of the present project focused on pre-test post-test differences.

As the SPT intervention focuses on cognitive distortions and social adjustment, pre-test post-test differences should be particularly salient in measures addressing those domains. Such differences would potentially be informative of intervention efficacy, as research demonstrates that cognitive distortions tend to increase until they peak some time in the teenage years and then decrease into adulthood (Barriga et al., 2001; Nas, Brugman, & Koops, 2008; Obermann, 2013; Paciello, Fida, Tramontano, Lupinetti, & Caprara, 2008; Plante et al., 2012). Participants in the present study should, therefore, deviate from this pattern if the SPT intervention worked as intended by demonstrating no increase or even a decrease in cognitive distortions.

Intervention efficacy should also be reflected in pupils' perceptions of their relationships with the teacher. The teachers' relationship with their pupils is important for both social-emotional and academic development (Sakiz, Pape, & Hoy, 2012). Research has consistently demonstrated a decrease in pupils' perception of teacher emotional support during the school years (Anderman, 2003; Bru, Stornes, Munthe, & Thuen, 2010; Ertesvåg, 2009; Reddy, Rhodes, & Mulhall, 2003). Hence, an increase or even a status quo in perceived teacher support would be indicative of an intervention effect.

Although the internal validity of a test-retest design is vulnerable to threats from a number of factors such as history, regression to the mean, and maturation (e.g., Kazdin, 2003), positive changes on the measures in primary focus in the SPT intervention would still represent convincing evidence of intervention efficacy. Studies have suggested that younger children benefit more than older ones from social-competence interventions (Langeveld, Gundersen, & Svartdal, 2012; Wilson et al., 2003), and that girls demonstrate a higher level of social competence and a lower level of behavioural problems than boys (e.g., Gresham & Elliott, 1990; Ogden, 2003). Hence, the roles of gender and age (6^{th} vs. 9^{th} grade) were assessed in the present study.

Method

Participants. Participants were in 6^{th} and 9^{th} grade classes, and recruited from all regular schools in a Norwegian municipality, in total 399 pupils. Of these, 199 pupils from 6^{th} grade (age 11), were from nine classes in four primary schools, and 200 pupils from 9^{th} grade (age 14) from nine classes in two secondary schools. Since the intervention was defined as pedagogical, all pupils were recipients, but pupils and their parents were free to participate in data collection. In total, 359 parents (90%) gave informed consent for their child, as did pupils, to participate in the study. The attrition rate between pre- and post-tests was 7.5%. We found no tendency for attrition to be related to levels of prosocial behaviour or gender. However, it was somewhat higher among 9^{th} graders. The sample included in the evaluation comprised 332 pupils, 49.5% girls and 54.8% boys from 6^{th} grade.

Procedures and ethics: Prior to implementation, local school teachers were given two days of face-to-face-training to deliver SPT based on the program manual (Gundersen et al., 2013). Also, guidance from the local program coordinator was provided during the period of intervention.

Parents, teachers, and pupils received extensive written and oral information about the SPT program and the investigation. Information letters, consent forms, and questionnaires to parents and pupils were circulated before program implementation. A local project coordinator, together with teachers and the principal from each school, gave information at parent meetings at each school and in each class before pre-test and intervention. The teachers collected consent forms, and subsequently questionnaires from the parents whose children participated in the study. Before pre-test, classes were randomly assigned to intervention in autumn 2014 or spring 2015. The 6th and 9th grade classes were distributed equally to receive SPT either in the autumn or the spring. All informants filled out questionnaires in September (pre-test), December (mid-test), and May (post-test). Parents filled out the questionnaire for pre-test at the school meeting, while the mid-test and post-test questionnaires were filled out at home within two weeks after intervention and delivered to their respective teacher. Pupils filled out their questionnaires at school, supervised by their main teacher.

The Norwegian Centre for Research Data approved the project (NSD ref. #39271). Participants received no economic compensation for participating in the study.

Instruments

Self-reported Cognitive Distortions. How I Think (HIT) (Gibbs, Barriga, & Potter, 2001) is a 54-item self-report questionnaire designed to measure self-serving cognitive distortions. Participants respond on a 6-point Likert-type scale (*disagree strongly* to *agree strongly*), with higher scores reflecting higher levels of cognitive distortions. Most of the HIT items (39) measure different types of cognitive distortions: (1) self-centered (nine items; e.g., 'Getting what you want is the only important thing'); (2) blaming others (10 items; e.g., 'If someone leaves a car unlocked, they are asking to have it stolen'); (3) minimizing/ mislabeling (nine items; e.g., 'Everybody lies. It's no big deal'); (4) and assuming the worst (11 items; e.g., 'You should hurt people first before they hurt you'). Of the remaining 15 items, eight address anomalous responding (AR) (e.g., 'Sometimes I get bored') and seven are positive fillers (e.g., "When friends need you, you should be there for them"). The positive-filler items are not scored but are used to counterbalance the negative content of the distortion items. The HIT has been evaluated to exhibit good validity (Barriga et al., 2001; Nas et al., 2008; Plante et al., 2012), even in Norwegian (Finne & Svartdal, in preparation). Furthermore, HIT demonstrates high test-retest reliability, good internal consistency and acceptable construct validity (Barriga & Gibbs, 1996). In the present study, Cronbach's alphas (pre-test) ranged from .59 to -.75 for the HIT subscales, and was .89 for the complete scale.

Self-reported learning environment. Self-reported learning environment was assessed by slightly modified versions of scales developed and previously documented at the Norwegian Centre of Learning Environment (Bru, Boyesen, Munthe, & Roland, 1998; Thuen & Bru, 2000). The scales were constructed to assess pupils' perceptions of *relationships between classmates* (4 items, e.g., "My classmates like to be with me"), *teachers' emotional support* (5 items, e.g., "I feel that the teachers care about me"), *well-being and safety at school* (5 items e.g., "I feel safe at school"). The items had a four-step scoring format; 'Disagree strongly,' 'Disagree a little,' 'Agree a little,' and 'Agree very much,' scored as 0-3. Reliability coefficients for the three subscales at pre-test were $\alpha = .84$, .80, and .82, respectively.

Parents reported social skills and problem behaviour. The Social Skills Rating System (SSRS) (Gresham & Elliott, 1990) is a standardized norm-referenced scale. The validity of the SSRS has been demonstrated in several studies (e.g., Gresham & Elliott, 1990, Demaray et al., 1995; Gamst-Klaussen, Rasmussen, Svartdal, & Strømgren, 2016; Ogden, 2003). The parent questionnaire measures children's and adolescents' social skills and problem behaviours, using one version for parents of pupils in primary school (1-7 grade) and one for secondary school (8-10 grade). The SSRS items group into six subscales, namely co-operation, assertion, self-control, responsibility, and internalized and externalized behaviours. The rating scale for each item was originally a 3-point scale, but Ogden (2003) increased this to four (1 = never, 2 = sometimes, 3 = often, 4 = very often), also used in the present study. At pre-test, the internal reliability was α = .87 and .87 for the 6th grade, and .88 and .82 for the 9th grade, for social skills and problem behaviour, respectively.

Teacher-reported classroom performance. Social Skills Improvement System-Rating Scales (*SSIS-RS)* (Gresham & Elliott, 2008) is a revised version of the SSRS. We used the class-wide version for teachers, consisting of 4 items (*Pro-social behaviour, learning motivation, math skills* and *reading skills)* on 5-point scales (1-5, where 5 describes higher ability). This instrument is translated into and validated in Norwegian (Gamst-Klaussen et al., 2016).

Statistical analyses

In the statistical analyses, we first performed overall ANOVAs with repeated measures (pre-test, mid-test, post-test), with the factors age (6th vs. 9th grade) and gender as predictors. Bonferroni-corrected contrast analyses then tested the predicted pre-test vs. post-test differences. The effect size partial eta squared, η^2, was computed for all measures. A general guideline for interpreting the value of η^2 in a repeated measures design is that a η^2 of .02 is small, while .13 is moderate, and .26 is large (Läkens, 2013).

Results

The mean overall HIT score decreased from 2.13 (pre-test) to 1.96 (mid-test), and 1.90 (post-test), $F(2, 492) = 30.68$, $p < .0001$, $\eta^2 = .11$, indicating an overall positive reduction in cognitive distortions. The effect of age was not significant, $F(1, 246) = 2.06$, $p = .15$, but the effect of gender was, $F(1, 246) = 7.69$, $p < .01$, with boys demonstrated overall higher HIT scores than girls. None of the interaction effects was significant. As seen in Table II, all HIT subscales demonstrated significant pre-post changes in accordance with the overall HIT scores, with small to moderate effect sizes. Overall, these results demonstrate a reliable reduction in the self-reported HIT measure.

The ANOVA of the 'Learning environment' scale demonstrated positive change, from 2.53 (pre-test), 2.53 (mid-test) to 2.59 (post-test), $F(2, 488) = 4.62$, $p = .010$, $\eta^2 = .02$. The overall effect of gender was significant, $F(1, 244) = 4.05$, $p = .045$, with boys rating the learning environment as slightly better than girls. The effect of age was also significant, $F(2, 488) = 27.32$, $p < .0001$, reflecting the fact that 6th graders perceived their learning environment as significantly better than did 9th graders. Only the 'Relationships between classmates' subscale showed a significant positive change (see Table II). Although the 'Emotional

support from teachers' subscale did not show a main effect, it interacted significantly with age ($F(1, 244) = 2.82$, $p < .01$), reflecting an increase among 9th graders but not among 6th graders. Overall, these results demonstrate a significant but small effect on overall learning environment, and an age-dependent positive change in emotional support from teachers.

The ANOVA indicated no significant changes in the way teachers experience pupils in their class prior to and after the intervention. No effect of age emerged, but the girls received higher overall scores ($F(1, 277) = 9.39$, $p < .005$), indicating that girls received better evaluations from their teachers than did boys. None of the interactions were significant.

The parents' data indicated a significant enhancement in pupils' social skills in the expected direction, ($F(2, 656) = 26.76$, $p < .0001$, $\eta^2 = .08$). All subscales demonstrated significant pre-post changes, with small to moderate effect sizes. There was a significant reduction on the problem behaviour scale ($F(2, 656) = 30.46$, $p < .0001$, $\eta^2 = .09$), with a somewhat larger change for the externalized compared to the internalized subscale. Parents did not report significant differences due to gender or age. None of the interactions were significant.

Discussion

The primary finding of this study is that SPT is associated with a significant positive difference from pre- to post-test, with a decrease in cognitive distortions and problem behaviour, and increase in social skills and perceived learning environment. Effect sizes were small to moderate for most scales. The positive differences were marked in self-report measures and parents' ratings, but not in teachers' ratings. Notably, reliable and positive differences were observed in the measures addressing the core message of the SPT intervention, that is, cognitive distortions, regardless of the pupils' age. Cognitive distortions have been found to increase until they peak somewhere in teenage and then decrease into adulthood (Barriga et al., 2001; Nas et al., 2008; Obermann, 2013; Paciello et al., 2008; Plante et al., 2012). However, the marked reductions observed in the present study indicate an opposite development, and hence seem to reflect a beneficial effect of the intervention. Because cognitive distortions are egocentric, a reduction may imply greater prosocial perception, facilitating tolerance of diversity and difference.

Motivation research consistently connects teachers' emotional support with pupils' motivation, engagement and behaviour, which in turn are related to greater academic effort (Sakiz et al., 2012). Hence, the difference in pupils' perception of teachers' emotional support in the present study may be important. Consistent with international research (Anderman, 2003; Reddy et al., 2003), representative Norwegian samples indicate that pupils' perceptions of teacher support decrease with age, year after year (Bru et al., 2010; Ertesvåg, 2009). Importantly, we did not observe such a decrease in the present data. If anything, the present results tend to demonstrate a reversed trend.

Even though the intervention was carried out at school, positive effects also appeared in the home setting, as evaluated by parents. Generalizations of changes to settings beyond the intervention context is a primary goal of SEL programs, and role-play, discussion and reflection on real-life situations are likely to enhance such generalization. Children are more likely to generalize behaviour when receiving reinforcement

for employing new skills outside the training context (Goldstein & Martens, 2000), and the present results indicate good generalization to the home setting even without a parent-focused initiative.

Table II. Results from analyses of variance (ANOVAs) for overall scales and subscales (all measures).

	Pre-test	Post-test	Pre-post changes		
	M (SD)	*M (SD)*	d*f*	*F*	η^2
Pupil-reported					
HIT overall	2.13 (.52)	1.90 (.60)	1/246	43.16 **	.15
Assuming the worst	2.04 (.63)	1.81 (.69)	1/246	26.54 **	.10
Self-centered	2.07 (.60)	1.85 (.65)	1/246	25.20 **	.10
Minimizing/mislabeling	2.13 (.61)	1.83 (.66)	1/246	48.54 **	.17
Blaming others	2.05 (.60)	1.80 (.72)	1/246	25.52 **	.09
Learning environment	2.53 (.43)	2.59 (.39)	1/244	6.55*	.03
Relationships between classmates	2.52 (.51)	2.63 (.47)	1/244	15.82**	.06
Emotional support from teachers	2.47 (.51)	2.50 (.51)	1/244	1.63	.01
Well-being and safety at school	2.59 (.48)	2.62 (.46)	1/244	1.14	.01
Teacher-reported					
Prosocial	4.18 (.82)	4.19 (.83)	1/277	.00	-
Motivation	4.04 (.92)	4.11 (.93)	1/277	2.19	-
Reading	3.90 (.93)	3.91 (.92)	1/277	.01	-
Math	3.88 (.96)	3.88 (1.01)	1/277	.00	-
Parent-reported					
SSRS skills	2.91 (.31)	3.01 (.32)	1/328	46.53**	.12
Cooperation	2.61 (.42)	2.74 (.45)	1/328	46.54**	.12
Assertion	3.00 (.46)	3.05 (.42)	1/328	5.86*	.02
Self-control	2.88 (.40)	3.02 (.40)	1/328	47.55**	.13
Responsibility	3.14 (.37)	3.23 (.40)	1/328	23.71**	.07
SSRS-problem behaviour	1.66 (.35)	1.55 (.33)	1/328	53.29**	.14
Externalized behaviour	1.57 (.39)	1.46 (.36)	1/328	49.43**	.13
Internalized behaviour	1.74 (.42)	1.64 (.40)	1/328	27.14**	.08

It is noteworthy that the positive intervention outcome was achieved despite the fact that teachers with limited experience led the sessions, and that the intervention lasted only 10 hours. Programs implemented by teachers often demonstrate less effect than those introduced by researchers or supervised students (Wilson et al., 2003). Further, it is axiomatic that pupils must receive a sufficient dosage for an intervention to achieve an effect (Durlak et al., 2011). However, the crucial variable here may not be the number of sessions taught per se, but rather how well acquisition of cognitive and social skills are maintained throughout everyday life at school.

Limitations.

Since the present results were based on pre-post within-subjects comparisons, the conclusions must be regarded with some caution. In pre-post comparisons, and particularly in comparisons over rather long time-intervals, other factors may serve as alternative explanations. In the present case, maturation and history are likely candidates (Kazdin, 2003). Maturation is of particular interest. As children grow older, their social knowledge is likely to change as a function of experience, both quantitatively and qualitatively (Crick & Dodge, 1994). Maturation during the school year is, therefore, a possible explanation for at least part of the positive difference observed in the present study. However, given the well-documented finding that cognitive distortions normally increase as children and youths get older (Barriga et al., 2001; Nas et al., 2008; Obermann, 2013; Paciello et al., 2008; Plante et al., 2012), it is noteworthy that the HIT data demonstrated a reduction in cognitive distortions regardless of age. Hence, we suggest that the expected maturation increase in cognitive distortions was more than counter-balanced by the reduction associated with the intervention. It is also noteworthy that the most salient pre-post changes were observed in measures directly related to the core contents of the SPT intervention. Repeated testing may in itself constitute a form of intervention, creating beneficial effects through increased awareness of topics and problems conveyed by item contents information. We believe that the latter explanation is unlikely, not only because of the high test-retest reliability for both the HIT (Barriga & Gibbs, 1996) and SSRS (Gresham & Elliott, 1990), but also because the scales used in this study are so comprehensive and diverse that it is difficult to extract any particular information for the respondent.

Two additional limitations are worth mentioning. First, program implementation was not strictly controlled. Proper implementation control is important, and especially so when interventions are carried out by leaders with limited experience. Second, given that the sample was taken from schools in one municipality only, and further that the sample size was rather small, generalizability of the results must be undertaken with caution.

Conclusion

This study investigated whether SPT, a universal social competence program implemented in whole-class settings, has beneficial effects for pupils and their learning environment. Our findings indicate that SPT decreases cognitive distortions and problem behaviour, and increases social skills and the quality of peer relations. This suggests that SPT can foster social competence by targeting cognitive distortions providing a

relatively limited whole-class intervention over ten weeks. Further studies should be conducted under more controlled implementation conditions, and preferably apply a randomized controlled design with separate control schools, and with a focus on how different facets of SPT can affect different outcomes. As knowledge in this area accumulates, it will be possible to develop a clearer understanding of the strengths and weaknesses of the current SPT program, and hence how it can be improved.

References

Anderman, L. H. (2003). Academic and social perceptions as predictors of change in middle school students' sense of school belonging. *The Journal of Experimental Education, 72*(1), 5-22.

Arsenio, W. F., & Lemerise, E. A. (2004). Aggression and moral development: Integrating social information processing and moral domain models. *Child Development, 75*(4), 987-1002.

Arnesen, A., Sørlie, M. A., & Ogden, T. (2006). *Positiv atferd og støttende læringsmiljø i skolen*. Oslo, Universitetsforlaget.

Bandura, A. (2002). Selective moral disengagement in the exercise of moral agency. *Journal of Moral Education, 31*(2), 101-119. Doi: 10.1080/0305724022014322.

Barnoski, R., & Aos, S. (2004). *Outcome evaluation of Washington State's research-based programs for juvenile offenders*. Olympia, WA: Washington State Institute for Public Policy.

Barriga, A. Q., & Gibbs, J. C. (1996). Measuring cognitive distortion in antisocial youth: Development and preliminary validation of the "How I Think" questionnaire. *Aggressive Behavior, 22*, 333–343.

Barriga, A. Q., Gibbs, J. C., Potter, G. B., & Liau, A. (2001). *How I Think (HIT) questionnaire manual*. Champaign: IL: Research Press.

Barriga, A. Q., Hawkins, M. A., & Camelia, C. R. (2008). Specificity of cognitive distortions to antisocial behaviours. *Criminal Behaviour and Mental Health, 18*(2), 104-116.

Belfield, C., Bowden, A., Klapp, A., Levin, H., Shand, R., & Zander, S. (2015). The Economic Value of Social and Emotional Learning. *Journal of Benefit-Cost Analysis, 6*(3), 508-544.

Bornstein, M. H., Hahn, C. S., & Haynes, O. M. (2010). Social competence, externalizing, and internalizing behavioral adjustment from early childhood through early adolescence: Developmental cascades. *Development and Psychopathology, 22*(4), 717-735.

Bru, E., Boyesen, M., Munthe, E., & Roland, E. (1998). Perceived social support at school and emotional and musculoskeletal complaints among Norwegian 8th grade students. *Scandinavian Journal of Educational Research, 42*(4), 339-356. Doi: 10.1080/0031383980420402.

Bru, E., Stornes, T., Munthe, E., & Thuen, E. (2010). Students' Perceptions of Teacher Support Across the Transition from Primary to Secondary School. *Scandinavian Journal of Educational Research , 54*(6), 519-533.

Camodeca, M., & Goossens, F. A. (2005). Aggression, social cognitions, anger and sadness in bullies and victims. *Journal of Child Psychology and Psychiatry, 46*(2), 186-197.

Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Development, 67*(3), 993-1002. Doi: 10.1111/j.1467-8624.1996.tb01778.x.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*(1), 74. Doi: 10.1037/0033-2909.115.1.74.

Demaray, M. K., Ruffalo, S. L., Carlson, J., Busse, B. T., Olson, A. E., McManus, S. M., & Leventhai, A. (1995). Social skills assessment: A comparative evaluation of six published rating scales. *School Psychology Review, 24*, 648-671.

Domitrovich, C. E., Bradshaw, C. P., Greenberg, M. T., Embry, D., Poduska, J. M., & Ialongo, N. S. (2010). Integrated models of school-based prevention: Logic and theory. *Psychology in the Schools, 47*(1), 71-88.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405-432. Doi: 10.1111/j.1467-8624.2010.01564.x.

Elliott, S. N., Busse, R. T., & Gresham, F. M. (1993). Behavior rating scales: Issues of use and development. *School Psychology Review, 2*, 313-321.

Ertesvåg, S. K. (2009). Classroom leadership: The effect of a school development programme. *Educational Psychology, 29*(5), 515-539.

Finne, J. & Svartdal, F. (in preparation). *The How I Think (HIT) Questionnaire: Measuring cognitive distortions in children and adolescents.*

Fiske, S. T., & Taylor, S. E. (2013). *Social cognition: From brains to culture*. London: Sage.

Gibbs, J. C., Barriga, A.Q., & Potter, G.B. (2001). *How I Think (HIT) questionnaire*. Champaign IL: Research Press.

Gibbs, J. C., Potter, G. B., & Goldstein, A. P. (1995). *The EQUIP program: Teaching youth to think and act responsibly through a peer-helping approach*. Champaign, IL: Research Press.

Gamst-Klaussen, T., Rasmussen, L. M. P., Svartdal, F., & Strømgren, B. (2016). Comparability of the social skills improvement system to the social skills rating system: A Norwegian study. *Scandinavian Journal of Educational Research, 60*(1), 20-31.

Goldstein, A. P., Glick, B. & Gibbs, J. C. (1998). *Aggression Replacement Training: A comprehensive intervention for aggressive youth*. Champaign, IL: Research Press.

Goldstein, A. P., & Martens, B. K. (2000). *Lasting change: Methods for enhancing generalization of gain*. Champaign, IL: Research Press.

Greenberg, M., Domitrovich, C., Weissberg, R., & Durlak, J. (2017). Social and Emotional Learning as a Public Health Approach to Education. *The Future of Children, 27*(1), 13-32.

Gresham, F. M., & Elliott, S. N. (2008). *Social Skills Improvement System Rating Scales manual*. Minneapolis, MN: NCS Pearson.

Gresham, F. M., & Elliott, S. N. (1990). *Social Skills Rating System*. Circle Pines, MN: American Guidance Service.

Gundersen, K. Olsen, T. M., Finne, J., Strømgren, B., & Daleflod, B. (2015). *AART. En metode for trening i sosial kompetanse*. Oslo: Universitetsforlaget.

Gundersen, K., Stromgren, B., & Moynahan, L. (2013). *Social Perception Training*. Champaign, IL: Research Press.

Gundersen, K., & Svartdal, F. (2006). Aggression replacement training in Norway: Outcome evaluation of 11 Norwegian student projects. *Scandinavian Journal of Educational Research, 50*(1), 63-81.

Gundersen, K., & Svartdal, F. (2010). Diffusion of treatment interventions: exploration of 'secondary' treatment diffusion. *Psychology, Crime & Law, 16*(3), 233-249. Doi: 10.1080/10683160802612924.

Kazdin, A. (2003). *Research design in clinical psychology (4th ed.).* Boston, MA: Allyn and Bacon.

Langeveld, J. H., Gundersen, K. K., & Svartdal, F. (2012). Social competence as a mediating factor in reduction of behavioral problems. *Scandinavian Journal of Educational Research, 56*(4), 381-399.

Nas, C. N., Brugman, D., & Koops, W. (2008). Measuring Self-Serving Cognitive Distortions with the "How I Think" Questionnaire. *European Journal of Psychological Assessment, 24*(3), 181-189.

Obermann, M. L. (2013). Temporal aspects of moral disengagement in school bullying: crystallization or escalation? *Journal of School Violence, 12*(2), 193-210.

Ogden, T. (2003). The validity of teacher ratings of adolescents`social skills. *Scandinavian Journal of Educational Research, 47*, 63–75. Doi: 10.1080/00313830308605.

Paciello, M., Fida, R., Tramontano, C., Lupinetti, C., & Caprara, G. V. (2008). Stability and change of moral disengagement and its impact on aggression and violence in late adolescence. *Child Development, 79*(5), 1288-1309. Doi: 10.1111/j.1467-8624.2008.01189.x.

Plante, N., Daigle, M. S., Gaumont, C., Charbonneau, L., Gibbs, J., & Barriga, A. (2012). Validation of the 'How I Think Questionnaire' in a Population of French-speaking Adolescents with Externalizing Behaviors. *Behavioral Sciences & the Law, 30*(2), 196-210. Doi: 10.1002/bsl.2001.

Quiggle, N. L., Garber, J., Panak, W. F., & Dodge, K. A. (1992). Social information processing in aggressive and depressed children. *Child Development, 63*(6), 1305-1320.

Reddy, R., Rhodes, J. E., & Mulhall, P. (2003). The influence of teacher support on student adjustment in the middle school years: A latent growth curve study. *Development and Psychopathology, 15*(01), 119-138. Doi: 10.1017/S0954579403000075.

Sakiz, G., Pape, S. J., & Hoy, A. W. (2012). Does perceived teacher affective support matter for middle school students in mathematics classrooms? *Journal of School Psychology, 50*(2), 235-255. Doi: 10.1016/j.jsp.2011.10.005.

Sklad, M., Diekstra, R., Ritter, M. D., Ben, J., & Gravesteijn, C. (2012). Effectiveness of school-based universal social, emotional, and behavioral programs: Do they enhance students' development in the area of skill, behavior, and adjustment? *Psychology in the Schools, 49*(9), 892-909.

Sørlie, M. A., & Ogden, T. (2007). Immediate Impacts of PALS: A school-wide multi-level programme targeting behaviour problems in elementary school. *Scandinavian Journal of Educational Research, 51*(5), 471-492. Doi: 10.1080/00313830701576581.

Thuen, E., & Bru, E. (2000). Learning environment, meaningfulness of schoolwork and on-task-orientation among Norwegian 9th grade students. *School Psychology International, 21*(4), 393-413. Doi: 10.1177/0143034300214004.

Wilson, S. J., Lipsey, M. W., & Derzon, J. H. (2003). The effects of school-based intervention programs on aggressive behavior: a meta-analysis. *Journal of Consulting and Clinical Psychology*, *71*(1), 136.