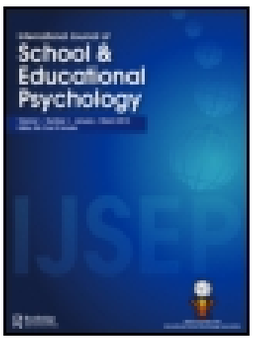

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Development of social skills during middle childhood: Growth trajectories and school-related predictors

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ABSTRACT

This study examined the development of social skills across five measurement points from 4th through 7th grade, and the influence of child gender and school-related factors on the level and growth of social skills, in a large sample of normally developing children in Norway (N = 2,076). On average, children's social skills scores increased slightly, girls received higher scores than boys, and individual order stability was fairly high over time. Growth mixture modeling (GMM) identified three distinct trajectory classes, one with stable average scores over time (72%), and two (14% each) with high initial and declining scores and low initial and increasing scores, respectively. The school-related factors (e.g., student–teacher relationships) predicted social skills development differently within the trajectory classes.

KEYWORDS

Elementary school; growth mixture modeling; longitudinal; social skills

Social skills are *life skills* (UNICEF, 2012) and therefore crucial for children to acquire. Children who cooperate and share with others, who are helpful and empathic, and who are able to regulate emotions in adaptive ways, are generally better off on most social arenas in life, including at school (e.g., Hamre & Pianta, 2001; Zsolnai, 2002). Social skills are observable indicators of the larger social competence construct. Social competence is a multidimensional construct, which refers to the ability to integrate cognition, affect, motivation, and behavior in order to succeed with social tasks and to achieve positive developmental outcomes (Ogden, 2015). Most definitions converge that social competence encompasses several related inter – and intrapersonal skills that can be organized into overt subdimensions, such as cooperation, assertion, self-control, empathy, and responsibility (Gresham & Elliott, 1990). Social skills are learned and affected by the characteristics of the context in which they develop. In this study, we examined the degree to which school-related factors influenced the initial level and growth of social skills in elementary school children, namely, student–student relationship, teacher–student relationship, level of problem behavior in class and teachers' collective efficacy.

Social skills are important in their own right but have also been found to relate to other important domains of development, such as mental health (Humphrey & Wigelsworth, 2012), coping (Bijstra & Jackson, 1998), and academic achievement (M. Welsh et al., 2001). Socially skilled children often have more positive attitudes toward school, adjust more smoothly to the student role, and have better grades than their less socially skilled peers (e.g., Hamre & Pianta, 2001; Zsolnai, 2002). Low social competence has been associated with an array of unfavorable outcomes, such as externalizing behavior, delinquency, depression, social anxiety, academic failure, and unemployment (e.g., Kokko et al., 2006; Malecki & Elliot, 2002; Masten et al., 2010; Obradović et al., 2010; Sørlie et al., 2008).

The acquisition of social skills is an essential developmental process by which children from infancy learn to act and respond appropriately in social interactions and to form and maintain healthy relationships with others (Ogden, 2015). As children grow and gradually expand their social environment, school becomes an important arena where children both learn and exercise social skills. At school, children's social skills are challenged and shaped in a variety of ways, both in dyads, small and large groups, and during interactions with peers and with teachers. Despite evidenced relations to critical child outcomes, and in contrast to academic skills, social skills are seldom systematically promoted in schools (OECD, 2015). For schools and teachers to be successful in supporting their students, knowledge of how social skills develop and how school may influence students' social development is essential. In this study, we examined the development of social skills in a large sample of children from 4th through 7th grade, and investigated whether a set of school-related factors affected children's different growth trajectories.

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Social skills development

According to the bioecological model (Bronfenbrenner & Morris, 2007), proximal processes (i.e., interactions between individuals in the microsystem such as family, school, and peers) are the primary engines of human social development. Viewed from a transactional perspective, there is a bidirectional interchange between children and their social contexts, in which both children themselves and the environment develop and change from the ongoing interactions. These transactional processes may positively or negatively reinforce children's social skills development, depending on the contribution from the children themselves and the environment (Sameroff & Mackenzie, 2003). In order to foster children's development of social skills, the proximal processes should be predominately positive, consistent, and supportive, and occur on a regular basis over time (Davis, 2003).

From theory, it can be expected that social skills gradually evolve through childhood and adolescence (Bandura, 1986; Beauchamp & Anderson, 2010). In middle childhood (6 to 12 years), establishing and maintaining close friendships with peers are critical developmental tasks, as are learning and adapting adequately to the rules of school and society (Eccles, 1999). Growth is dependent not only on the social learning opportunities afforded at home through modeling, reinforcement, and imitation (Bandura, 1997) but also on school-related factors such as relationships with peers and teachers (Ogden & Hagen, 2018). Hence, it is reasonable to expect that children's social skills, in general, will be refined with practice, from social interactions and reactions from the environment in various situations. Given these assumptions, one may expect that children with high scores on social skills measures at one time point will continue to score high on later measurement points (showing individual order stability), and that children on average would show increases in social skills during the elementary school years (showing a mean-level increase), rather than continuity (Bornstein et al., 2017).

Despite the rich theoretical basis for advances in children's social skills from toddlerhood to adolescence, the empirical evidence of such growth is inconsistent (e.g., Carlo et al., 2007). A review of relevant literature revealed nine longitudinal studies published since the turn of the century in which children's social skills development across middle childhood was reported. As can be seen from study characteristics and key results depicted in Table 1, results are diverging, and may stem partly from discrepancies in methods, which makes it difficult to draw conclusions from the literature.

Nevertheless, our review indicates that results from prior studies using well-validated and multidimensional measures of social skills (e.g., SSRS) report an increase during middle childhood (Berry & Connor, 2010; DiDonato, 2014), while results from studies using unidimensional measures (e.g., helpfulness) or different measurements at different waves, yield stable or decreasing social skills scores (Côté et al., 2002; Kokko et al., 2006; Nantel-Vivier et al., 2009; Obradović & Hipwell, 2010; Obradović et al., 2006; 2010; Sallquist et al., 2009). In the current study, we used SSRS (Gresham & Elliott, 1990) to measure children's social skills across five time points from 4th grade through 7th grade.

Different developmental trajectories

When studying the development of children's social skills, it is important to note that children vary with regard to individual characteristics (e.g., temperament, gender, cognitive abilities) and are differentially susceptible to environment characteristics (Belsky et al., 2007), including the school context. Some children may be more sensitive and responsive to environmental experiences than others, and some may be more easily influenced by peers than by teachers. Moreover, environments may vary with regard to how facilitative they are to such individual differences (Iarocci et al., 2007). Children hold different experiences from social interactions with parents, siblings, and others, which will influence how they interact with teachers and peers. The degree of parental support, encouragement, and guidance may explain some of the variation in school-aged children's social skills. Children with well-developed social skills may more readily enter into positive relationships with teachers and peers, which in turn reinforce their social skills. Conversely, children who act inappropriately or awkwardly toward others may more often experience confrontation or rejection and thus miss out on positive interpersonal experiences. From this, one might expect the initially more socially skilled children will advance their skills the most. On the other hand, children whose initial social skills are inadequately developed may have more room to grow and if they are provided with facilitating opportunities to interact with peers and teachers, these children may, in fact, exhibit greater growth.

Taken together, individual and contextual variability may through ongoing transactional processes contribute to differences in children's social skills development. It is reasonable to expect that groups of children may follow heterogeneous social skills trajectories and that these trajectories may be predicted by individual

Table 1. Study characteristics and key results from longitudinal studies (since 2000) of social skills development in children across middle childhood.

Study	Instrument	Subscales	Raters	Sample	Psychometrics	Longitudinal results
Berry and Connor (2010)	Social Skills Rating Scale (SSRS; Gresham & Elliott, 1990).	Total raw score of 30 items (e.g., sharing, initiate friendship, controlling temper).	Mothers	N = 1364 normative US sample from kindergarten through grade 6.	Cronbach's alphas range.87 to.91 across 6 time points.	Mean level growth. No report on rank order. Four trajectories based on ratings of internalizing and teacher-child relationships.
DiDonato (2014)	Interpersonal Skills scale from Social Rating Scale (SRS, adapted from SSRS Gresham & Elliott, 1990).	Mean score of five items (e.g., express themselves positive, show empathy, help or comfort peers).	Teachers	N = 6610 normative US sample from kindergarten through grade 5.	Cronbach's alphas range.88 to.89 across 5 time points.	Mean level growth. No report on rank order. Two trajectories, one higher level and one primarily stable, moderate level with a slight increase.
Côté et al. (2002)	SBQ (Social behavior questionnaire, Tremblay et al., 1991), Helpfulness scale.	Sum score of 10 items (e.g., helps hurt child; praises others; shows sympathy).	Teachers	N = 1865 representative Canadian sample from kindergarten through grade 6.	Cronbach's alphas range.89 to.91 across 7 time points.	Mean level and rank order stability within trajectory groups. Three trajectories, one high, one medium, and one low.
Nantel-Vivier et al. (2009)	Prosocial Behavior Scale (Caprara & Pastorelli, 1993).	Mean score of six items (e.g., spends time with friends; helps others; shares things with friends).	Teachers	N = 472 normative Italian sample from 10 to 14 years	Cronbach's alphas range.85 to.91 across 5 time points.	Mean level stability or decrease within trajectory groups. Rank order stability. Four trajectories (low/stable, moderate/declining, high/declining, increasing).
Kokko et al. (2006)	SBQ (Social behavior questionnaire, Tremblay et al., 1991), Prosocial Behavior Scale.	Sum score of 10 items (e.g., helps hurt child; praises others; shows sympathy).	Teachers	N = 1025 low SES Canadian boys from 6 to 12 years	Cronbach's alphas range.87 to.92 across 4 time points.	Mean level decrease, rank order instability. Two trajectories, one moderate and one low level with slight decline.
Sallquist et al. (2009)	Adapted version of Perceived Competence Scale for Children (Eisenberg et al., 1995).	Mean score of 4 items (e.g., this child is usually well behaved).	Teachers	N = 199 US middle class sample from kindergarten to early adolescence.	Cronbach's alphas range.68 to.92 across 4 time points.	Mean level decline and rank order stability.
Obradović and Hipwell (2010)	Perception of Peers and Self-Inventory (POPS; Rudolph et al., 1995).	Latent variable from 2 subscales (15 & 8 items) (e.g., friends help you when you are in trouble; kids like me because I am a good friend).	Self-report	N = 622 urban sample of US girls from 10 to 14 years	Cronbach's alphas range.67 to.78 across 4 time points.	Significant longitudinal stability between and across all annual assessment waves.
Obradović et al. (2006)	Latent measure of social competence; developmentally appropriate multi method indicators.	Modified indicators with age (e.g., peer relationship, social skills, social competence).	Multi informant	N = 191 at risk US sample from kindergarten through 16 years.	Cronbach's alphas range.87 to.92 across 4 time points (1st through 6th grade).	Mean level and rank order stability across middle childhood assessment waves.
Obradović et al. (2010)	Social competence measures from broad domain (i.e., peer acceptance, social skills, friendships).	Subtly different indicators at each time point (i.e., specific indices vary with age).	Multi informant	N = 205 normative US sample from 8 to 12 years.	All constructs show strong psychometric properties across 4 time points.	No report on mean level development. Rank order stability across assessment waves.

Out of space and comparison considerations, we focused on teacher reports when studies had multiple reporters for social skills. For the same reasons, when studies covered a longer time span, we focused on the middle childhood years (6–12) when possible.

and contextual factors in different ways. From the bioecological perspective, it also derives that a longitudinal person-context approach is warranted when studying the development of children's social skills.

Empirical reports support that groups of children may follow different trajectories in their social skills development (cf., Table 1). For example, Côté et al. (2002) observed from teacher-ratings of children's helpfulness (SBQ), three trajectory groups for both boys and girls (age 6 to 12): 1) a low trajectory group included children with the lowest helpfulness scores and was stable across ages, 2) a moderate trajectory group included most children (54.4% of 930 boys, 58.2% of 937 girls) and had a curvilinear slope in which helpfulness first increased and then slightly decreased from age nine, and 3) a high trajectory group comprised of children with the highest helpfulness scores which was stable across ages. More of the boys (43.8%) than of the girls (15.2%) were in the low trajectory group, while the reverse was true for the high trajectory group (1.8% of boys, 26.7% of girls). Nantel-Vivier et al. (2009) identified four trajectory groups from teacher-ratings of Italian children's social skills (age 10 to 14) using the Prosocial Behavior Scale (low-stable 8%, moderate-declining 48%, high-declining 37%, and increasing 7%). DiDonato (2014) found, based on teacher-ratings of social skills (SRS), two distinct trajectories for both girls and boys (kindergarten through grade 5): a higher-level trajectory with a marginally significant curvilinear shape and a stable moderate-level trajectory. The high trajectory group included most children (about 70%).

Results from these and other longitudinal studies indicate that the broad pattern of social skills development are similar for boys and girls. For example, in their longitudinal study of at-risk children, Obradović et al. (2006) found that social skills development appeared gender invariant, in terms of both structure and stability, from early childhood to middle adolescence. There is, however, the extensive evidence of gender differences in children's *level* of social skills. Boys frequently receive significantly lower mean scores than girls, apparently regardless of the informant (teacher, parent, self, peers), age, and cultural context (e.g., DiDonato, 2014; Mpofu et al., 2004; Sørlie et al., 2008).

In summary, results from prior research on the development of social skills during middle childhood are mixed. Nevertheless, findings support theory in that there are likely separate groups of children who follow different developmental trajectories. The number of trajectory groups that has been found to vary across studies (most often 2–4). The diverging findings warrant further research, including additional exploration of mean level continuity and individual order consistency in social skills across middle childhood (Carlo et al., 2007; Fraley & Roberts, 2005). Further research on the heterogeneity in children's social skills development is important from a preventive perspective (e.g., to make possible early identification of children at risk of social skills deficits, to guide the development and implementation of effective interventions to prevent social exclusion, to substantiate the need for a social skills curriculum in school). In light of the many negative impacts low social competence may have on children's functioning, early identification of students at risk of an unfortunate social skills development is important. Likewise, knowledge on how teachers best can support children on various social skills trajectories would be of practical significance. By reporting on the development of social skills in a large sample of typically developing children in Norway, the present longitudinal study aims to add to the existing knowledge base.

School-related factors that may influence the development of social skills

Because children's social functioning and development of social skills are affected by the context in which they develop, exploring the influence of factors related to the school context is essential. Prior research indicates that it is the *modifiable* aspects of the school context (e.g., student–teacher relationships, the policy and practice of the teachers as a group, extent of classroom disruption) rather than structural aspects (e.g., size, location, portion of males versus females) that affect students' academic and behavioral outcomes (e.g., Hattie, 2009; Sørlie & Torsheim, 2011; Welsh, 2003).

School-related factors, such as the psychosocial classroom environment may have differential effects on children's social skills trajectories. Classrooms characterized by positive relationships between fellow students likely create contexts more conducive to positive skills development. Spivak and Farran (2016) found that children in preschool classrooms with more positive and cooperative interactions between peers showed greater gains in positive social behavior in 1st grade. While positive peer relationships in the classroom likely are generally beneficial, they may nevertheless be more important to certain subgroups of children than to others. For example, positive classmate relationships may be of greater importance to children who show a declining social skills trajectory than to those who show an increasing or stable trajectory.

Furthermore, the level of classroom problem behavior likely also affects children's skills development differently. Kellam et al. (1998) found an interaction effect between disruptive classrooms and boys' aggression; the effects of disruptive classrooms were greater for boys who were more aggressive, compared to both the typical boy and aggressive boys who were placed in less disruptive classrooms. No similar classroom effect was found for girls. It may be that children on a stable social skills trajectory are less susceptible to classrooms marked by frequent problem behavior or schools where the teachers experience low collective efficacy than students on a less common trajectory. Thus, to the extent that children's social skills development follow different trajectories, it is likely that certain school-related predictors affect typical (majority growth curve) and atypical trajectories (growth curves with fewer students) differently.

Research concerned with school-related factors that may affect the development of social skills has been meager, especially during middle childhood (OECD, 2015). To be able to more effectively support *all* student's social development, teachers need explicit knowledge on how various school-related factors may influence the student's social skills. In this study, we explored whether and how student-student and student–teacher relationships, problem behavior in class and teachers' collective efficacy affected the students' social skills in 4th grade through 7th grade.

Student–teacher relationships

Evidence suggests that healthy student–teacher relationships predict children's later level of social skills (e.g., Berry & Connor, 2010; Hamre & Pianta, 2001; Pianta & Stuhlman, 2004). Children who experience close and conducive student–teacher relationships are likely to be more socially adaptive than classmates with less positive relationships with their teachers (Griggs et al., 2009; Pianta et al., 1995). Conversely, student–teacher relationships marked by dependency and conflict are associated with negative outcomes, such as poor academic performance, emotional insecurity, problem behavior, and negative school attitudes (e.g., Split et al., 2018).

Traditionally, studies investigating student–teacher relationships have relied primarily on teacher reports, although recent research has drawn attention to students' own assessments of their relationships with their teachers (Koomen & Jellesma, 2015). This raises some important issues. First, agreement between teacher-reports and student-reports is generally low, which may indicate differences in perception or an emphasis on different aspects of the relationship between students and teachers. For example, students may rate their relationship with their teacher high on closeness, whereas the teacher may view the same relationship as overly dependent on the part of the student. Second, the predictive value of student–teacher relationship likely also depends on the rater. Koomen and Jellesma (2015) found no correlation between student-rated closeness and teacher-rated prosocial behavior in their study of Dutch 4th to 6th graders. Finally, the student–teacher relationship may have differential effects on students' behavior depending on student characteristics. For example, Zee et al. (2013) found that teacher–student relationships were both closer and more conflictual among extroverted students. From theory and prior research, it follows that the quality of relationships between students and teachers is a highly relevant school-related factor with significant, but varying influence on students' social functioning. In the current study, we investigated whether student-rated student–teacher relationship quality predicted differential social skills trajectories.

Student–student relationships

From an early age, positive peer relationships and successful play interactions are associated with favorable social, behavioral and academic development, and adjustment (e.g., Wentzel et al., 2010). Conversely, conflictual peer interactions are associated with negative behavioral and emotional outcomes, including difficulties with school adjustment (e.g., Ladd et al., 1996). Despite the extensive literature on the importance and influence of young students' social relationships on their social functioning and academic achievements, surprisingly little is known about the predictive value of student–student relationships and whether they affect the growth of social skills over time. In the current study, we investigated whether student-rated student–student relationship quality predicted differential social skills trajectories.

Problem behavior in class

Safe and constructive classroom environments with a lower prevalence of problem behavior make it easier to both teach and reinforce positive skills for teachers and to exhibit and practice them for students (Ogden, 2015). Classrooms with higher levels of disruption may, on the other hand, form a more challenging context in which students can exercise a wide specter of social skills (negotiation, assertion, cooperation, self-control, etc.). It is, however, not clear how a classroom level variable such as the amount of problem behavior affects the growth of an individual level variable such as social skills. In this study, we investigated the association

between the prevalence of classroom problem behavior and children's level and growth in social skills as this has not been empirically investigated before.

Collective efficacy in school

Collective efficacy refers to the teachers' shared beliefs about their combined capability to organize and execute courses of actions required to produce student success (Goddard et al., 2004). Goddard et al. (2000) argue that the teachers' mutual beliefs of efficacy will shape the normative culture of a school and subsequently have modulating effects on the teachers' behaviors, and that this, in turn, affects student performance. Previous studies have demonstrated a positive association between teachers' collective efficacy and students' academic achievement (e.g., Goddard et al., 2004). Moreover, a strong inverse and reciprocal relation between teachers' collective efficacy and student problem behavior has been established (Sørlie & Torsheim, 2011). From social cognitive theory and prior research, one might expect that teachers' collective efficacy also influences students' social skills. However, due to a lack of research, we do not know. Thus, in the current study, we tested whether teacher collective efficacy is a predictor of children's social skills development.

In sum, few studies have investigated the predictive effects of school-related characteristics and students' social skills (OECD, 2015). The present study contributes to new knowledge by including the aforementioned school-related factors as potential predictors of children's level and growth of social skills during the latter part of elementary school. Building on theory and prior studies, we hypothesized that student-teacher and student–student relationships, problem behavior in the classroom and perceived collective efficacy in school predict students' social skills development over time, although we also expect that they will have different effects for children on various developmental trajectories.

Research questions

Based on repeated teacher assessments of social skills in 2,076 typically developing children in Norway and using a growth mixture model approach (GMM), we asked the following research questions:

Q1. Is there mean-level and rank-order stability in children's social skills scores from grade 4 through grade 7; that is, is the average social skills score for the children as a group stable across time, and do the children maintain their relative position within the group across time?

Q2. Do children's social skills follow the same overall developmental trajectory across time points, or will separate trajectory classes be meaningfully identified?

Q3. Do child gender and school-related factors (student-student relationship, student-teacher relationship, problem behavior in class, collective efficacy) predict intercept and slope?

Q4. Do the school-related predictors have differential effects on children's social skills in potentially different trajectory classes?

Method

Data were drawn from a multi-cohort effectiveness study in which students (grades 4–7) and school staff in 65 elementary schools across Norway completed questionnaires at six measurement points (T1-T6) across five successive school years. T1 assessments were collected in the spring of 3rd grade (2007), T2 assessments in the fall of 4th grade and the remaining assessments were collected each spring in 4th, 5th, 6th and 7th grade. To be able to follow the same group of students over a longer time period, the current analyses concentrate on the 4th graders of the original sample (n = 2,076 of 8,017, age 9 years) who were followed through 7th grade (age 12 years). The schools were implementing various programs to prevent student problem behavior or to improve the learning conditions (Sørlie & Ogden, 2015) and were randomly invited to participate as intervention or comparison schools. Those who volunteered were selected according to predefined exclusion and inclusion criteria (detailed description of the design, see Sørlie & Ogden, 2014). The aim of the current study was, however, not to examine intervention effects.

Head teachers rated the students' individual social skills at five time points (T2-T6, not at T1). Head teachers have the primary responsibility for the students and are typically the most knowledgeable about the students. Some students had a different teacher rating their social skills from 4th to 7th grade. Problem behavior in class and collective efficacy were rated by school staff 6 months prior (T1) to the first assessment of social skills. Student-rated student-student and student–teacher relationships were assessed parallel to the first assessment of social skills (T2). The standards of the Regional Committee for Medical and Health Research Ethics (REK South-East) and of the Norwegian Social Science Data Services were followed throughout the conduct of the study.

Participants and procedures

About 50% of the students were girls and 6.4% had immigrant background (i.e., students and/or parents originated from another country and cultural context), of which most were first or second-generation immigrants from Asian or African countries. Moreover, 3.9% had been referred to the school educational services and 1.5% had been referred to child welfare or mental health services during the baseline year (3rd grade). Also, 4.9% received ongoing special education. In Norway, special education is a statutory right for students who for various reasons have problems following the regular classroom instruction. Reasons typically include learning difficulties, developmental disabilities, behavioral problems, or visual or hearing impairments. Most teachers were females (80%), experienced (69% had worked at least 11 years in schools, range 2 – 20+ years) and 78.5% were aged between 25 and 55 years. The remaining teachers were 56 years of age or older. The mean school size was 297 students (range 77–780). Data on students' socio-economic status (SES) were not collected. However, the student sample was drawn from a diverse sample of Norwegian schools located in areas with population SES varying from relatively low to high.

Questionnaires were completed during ordinary class sessions (1–2 h). To standardize the assessment procedures, written instructions were given. Informed and written consent from parents was obtained beforehand. All parents received an informative consent letter (satchel-mail) in Norwegian or in four of the most frequently spoken foreign languages; English, Urdu, Somali, and Bosnia. The consent was signed and returned via the school. The consent letter included key information on the research study, privacy, and safe handling of information. The school staff agreed coincident with completing the questionnaires.

Measures

Social skills

The teacher version (elementary level) of the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) was used to assess the students' social skills (the later version, SSIS, the Social Skills Improvement System, was not available by the initiation of the study). This well-validated measure has been used with diverse samples, and studies have reported it to be a reliable, gender-invariant and valid measure, also in Norway (e.g., Elliott et al., 1988; Klasussen & Rasmussen, 2013; Ogden, 2003). Head teachers rated how often the students engaged in positive social behaviors described in 30 items on a 4-point (originally 3-point) scale (1 = *never* to 4 = *almost all the time*). The scale taps three underlying sub-dimensions: assertion (e.g., "The student initiates conversations with peers"), self-control (e.g., "The student receives criticism well") and cooperation (e.g., "The student attends to the teacher's instructions"). The sum score was used in the analyses (α = .95 at T2 – T6).

Student-teacher and student–student relationships

Students rated how they perceived the social relationships in class on the 22-item Classroom Climate Scale (CCS; Sørlie & Nordahl, 1998). The CCS measures the psychosocial learning conditions in class and consists of two significant sub-scales that were included in the analyses; a student–teacher relationship scale (STR; 10 items) and a student–student relationship scale (SSR; 12 items). Items are assessed on a 4-point scale ranging from 1 (*does not fit*) to 4 (*fits completely*). Item examples are: "The students in this class are good friends" and "The teacher encourages me if I strive with a task." The CCS composite and sub-scales have shown satisfactory psychometric properties in prior studies in terms of reliability alphas and distributional qualities (e.g., Sørlie & Nordahl, 1998). In the present study, the reliability alphas of the STR and SSR were α = .77 and .82, respectively.

Problem behavior

Incidences of moderate and serious problem behaviors in the classroom context were measured by school staff on the 20-item scale Problem Behavior in the Classroom Last Week (Grey & Sime, 1989). School staff reported on how many times they had observed negative behavior incidents in the classroom during a random week at T1. Item examples are; "Running in corridors" and "Physical attacks on students." School staff included both head teachers, special education teachers, teacher assistants, and after-school personnel. Response choices ranged from 1 = *not observed* to 5 = *observed several times per day*. The scale has shown satisfactory psychometric properties and validity in prior Norwegian studies (e.g., Kjøbli & Sørlie, 2008; Lindberg & Ogden, 2001; Ogden, 1998). In the current study, reliability alpha was .88.

Collective efficacy

Teachers' collective efficacy (TCE) was assessed by school staff on a 12-item revised version (Goddard, 2001) of the Collective Efficacy Scale (Goddard et al., 2000). The TCE assesses teachers' beliefs in their joint effort and competence in promoting student success. A recent validity analysis of the TCE supports its use (Hukkelberg & Sørlie, in review). Items were rated on a 5-point scale ranging from 1 (*never*) to 5 (*very often*)

with α = .82 at T1. Item examples are; "Teachers here are confident they will be able to motivate their students" and "Teachers in this school are able to get through to difficult students." Measures in English were independently translated and back-translated by two senior researchers at the Norwegian Center for Child Behavioral Development.

Attrition and missing data analyses

Two thousand and seventy-six children participated at one or more assessment points. At T2 2,026 (98%) children participated, at T3 1,845 (89%), at T4 1,799 (87%), at T5 1,724 (83%), and at T6 1,675 (81%). One-thousand four-hundred and sixty children (70%) participated at all assessment points. The main reasons for attrition were change of school, absence on assessment day, and that one school withdrew from the study prior to T2. All models were tested with the full sample and full information maximum likelihood (FIML) was used to estimate information for participants with missing data.

Compared to children who were retained at T6, children who were lost received significantly lower social skills scores at the first assessment (T2), were less likely to have Norwegian as the first language, had teachers who scored lower on collective efficacy and higher on classroom problem behavior. There were no significant differences between children who were retained at T6 and those who were not in terms of gender proportion, scores on the assessment of student–student relations, student–teacher relations, or school size. Analyses comparing children who participated at all time-points to those who participated at four or fewer time-points showed that children with partial data were less likely to have Norwegian as first language (9.4% versus 5.5%).

Analytic plan

To examine the longitudinal data for students' social skills from 4th through 7th grade, measured at five points, a series of mixture models were tested, as recommended by Jung and Wickrama (2008). Mixture models refer to a type of analyses in which group membership of individuals is not known but is rather probabilistically inferred and represented by categorical latent variables, known as trajectory classes (Muthén & Muthén, 2007). We built our models in the following steps: First, an unconditional single-class growth curve model was tested. At this step, we tested both linear and quadratic effects. Second, we specified latent class growth analysis (LCGA) models comparing one, two and more class solutions, where within-class variance was fixed to zero as an initial exploratory test. Determination of the best-fitting model (i.e., the number of classes) was based on assessments of BIC, SSA-BIC, entropy, parsimony, and theoretical considerations. Third, we tested a conditional LCGA model with the best-fitting model from step two, adding the hypothesized covariates. We then addressed model convergence issues by testing whether parameter estimates were replicated using the OPTSEED option in Mplus, which helps to rule out the possibility of ending up with local solutions. Fifth, we specified a conditional model in a growth mixture context (GMM), entering the covariates while also allowing for individual variation within latent trajectory classes to be freely estimated, represented by random effects. Finally, we tested whether the covariates had different effects on the intercept and slopes for the different classes, by comparing that model with a model in which the effects of the covariates were fixed to be equal across classes.

Results

Table 2 presents the means, standard deviations, and correlations between study variables. As can be inferred, the rank-order stability (inter-individual stability) of social skills across time for the child group as a whole, was relatively high at successive assessments, ranging from r = .58 to r = .76. With reference to the question of rank-order stability (Q1), this indicates that children generally maintain their position within the child-group from one time-point to the next. As can be expected, individual (rank) order stability was lower across the entire period, with r = .39 from T2 to T6. At every measurement point, teachers scored girls' social skills significantly higher than they did boys.' With reference to the question of mean-level stability (Q1), the results showed a slight increase in scores over the five measurement points (mean scores from 85.19 in 4th grade to 88.80 in 7th grade), suggesting that, in general, children received somewhat higher social skills scores over time.

Step 1: unconditional single-class linear and quadratic growth curve models

The unconditional linear growth model for social skills fits the data reasonably well $\chi 2$ (6) = 11.46, p = .08, RMSEA = .02 (90% confidence interval, CI, = 0.00–0.04) and CFI = .99. Both the latent intercept factor (α = 84.50, t = 278.59, p < .01) and latent slope factor (β = 0.21, t = 7.84, p < .01) were significantly different from 0, the latter indicating that the sample of students, on average, increased their social skills over time. Furthermore, the variances of both the intercept (σ_i 2 = 137, t = 16.46, p < .01) and slope (σ_s2 = .85,

Table 2. Means, standard deviations, and bivariate correlations for key variables.

	Gender % girls	SSRS-2	SSRS-3	SSRS-4	SSRS-5	SSRS-6	Problem Behavior in Class	Teacher collective efficacy	Student–Student Relationship	Student–teacher Relationship
Percent/Mean	50.2	85.19	85.51	86.57	87.13	88.80	34.37	55.92	40.32	34.32
(Std.dev)		(14.08)	(14.89)	(14.60)	(15.30)	(16.62)	(5.61)	(2.85)	(4.95)	(4.41)
Gender	-									
SSRS-2	.28	-								
SSRS-3	.29	.76	-							
SSRS-4	.24	.53	.58	-						
SSRS-5	.21	.43	.49	.65	-					
SSRS-6	.20	.39	.44	.58	.70	-				
Problem Behavior in Class	.03	−.03	.02	−.06	−.03	.01	-			
Teacher Collective Efficacy	−.02	.07	.10	.11	.09	.03	−.17	-		
Student-Student Relationship	.12	.23	.19	.19	.17	.18	−.11	.05	-	
Student-Teacher Relationship	.18	.22	.19	.20	.15	.20	−.02	.06	.57	-

SSRS-X = Teacher ratings of child social skills at waves 2, 3, 4, 5, and 6 (not measured at wave 1). Skewness and kurtosis values for all variables were within the −2 to 2 range (except the student–teacher relations assessment which was 3).

t = 11.62, $p < .01$) were significant. With reference to the first part of the research question Q2 ("Do children's social skills follow the same overall developmental trajectory across time points"), our results seem to indicate that there likely were subgroups of children following different trajectories. The intercept and slope factors correlated significantly $r = -0.34$, $p < .01$, indicating that the lower the students' social skills scores at baseline, the greater their growth in social skills over time. We then tested the same model, but with the addition of a third random effect, a quadratic slope factor. The addition of the quadratic slope factor produced a less well-fitting model $\chi2$ (2) = 6.46, $p = .04$, RMSEA = .03 (90% confidence interval, CI, = 0.01–0.06) and CFI = .99. A $\chi2$ difference test, comparing the linear and quadratic models, indicated that the linear model was preferable; the difference between the models was non-significant ($p < .05$, with 4 degrees of freedom), the linear model was simpler (parsimony), and achieved better $\chi2$-value and fit indices.

Step 2: comparing unconditional latent class models

Next, we tested unconditional latent class models with two and more classes to determine the optimal number of classes. A latent class growth analysis model assumes no within-class variances of individuals. Models were compared based on log-likelihood values, BIC-, SSA-BIC-, AIC-values, and entropy. In general, the higher the entropy value, the better. Lower BIC-values and higher log-likelihood values are also indicative of better fitting models. None of these should be used alone as an index of fit, rather the combination of all fit-indices together with parsimony and theoretical considerations guided our model selection. Based on these indices, the model with three classes was considered the best-fitting model. The Vuong-Lo-Mendell-Rubin likelihood-ratio test (LMR-LRT) and the Bootstrapped likelihood-ratio test (BLRT) for the k − 1 classes versus k classes (3 classes) were both significant at the $p < .001$ level, suggesting that the 3-class solution provided better fit to the data than the 2-class solution. Results thus seemed to affirm the second part of the research question Q2 ("will separate trajectory classes be meaningfully identified?").

Step 3: conditional latent class growth model

We then tested a 3-class (from step 2) conditional latent class model, entering the covariates: student–teacher relationship, student–student relationship, problem behavior in class, and teacher collective efficacy.

Child gender was entered as a predictor of class membership. The model tested in this step was still in the latent class growth analysis framework, which fixes the within-class variances to zero. This model produced a sample division of 18% in class 1, 55% in class 2, and 27% in class 3. All trajectory classes showed relatively flat curves for social skills over time but were different in their respective levels. All covariates were significantly predictive of the intercept, in the expected direction, with the exception of problem behavior in class, which was non-significant. Child gender was the only significant predictor of the slope factor, suggesting that boys were more likely to show increases in social skills over time, compared to girls. Results from the analyses in this third step answered research question Q3 ("Do child gender and school-related factors predict growth factors?"). When inspecting the graphics for the respective classes, however, it seemed reasonable to assume that at least two of the classes (classes 1 and 3) needed their own class-specific variances. Nevertheless, before we tested such models we wanted to ensure that our results were not the product of local solutions.

Step 4: addressing model convergence issues

Prior to comparing LCGA and GMM models (GMM models were tested in a step-wise fashion by progressively letting the variances of the growth factors to be freely estimated), we addressed convergence issues. Although all the models tested thus far converged successfully, we checked for the possibility of local solutions. We re-ran the conditional latent class model described above using the OPTSEED option in Mplus. We used the two best loglikelihood values from the output and re-ran the model with the respective seed values. If estimates are replicated in these two runs, the chances for ending up with local solutions are reduced. Results showed that class proportions remained the same and all estimates were replicated, suggesting that we did not end up with local solutions.

Step 5: conditional growth mixture model with three classes

Finally, we examined a 3-class conditional growth mixture model entering the predictors in the overall model (as was the case with the above conditional LCGM), allowing for within-class variances. We first specified a model in which the effects of all the predictors on the growth factors were fixed to be equal, with intercept freed and slope variance fixed at zero (GMM^a). A second model (GMM^b), also with the effects of predictors fixed to be equal, but with both intercept and slope freed, was tested next. Although the entropy value for this model was high, the remaining fit-indices were quite low. Next, we tested the same GMM 3-class model, but allowing the predictors to have different effects on the classes, and by successively freeing parameters of the models (GMM^c – GMM^g). As can be seen from Table 3, two models obtained better fit indices (e.g., BIC, entropy) than the remaining models, that are GMM^a and GMM^f. These two models were quite similar with regards to their respective fit indices and they are nested; one has the constraints of holding the covariates' effects equal within classes, whereas the others let the effects of the covariates be freely estimated within classes. We performed a likelihood-ratio difference test using their respective log-likelihood (LogL, H0) values. The more restrictive model (GMM^a) had a LogL value of −29,843.64 with 28 parameters, whereas the less restrictive model (GMM^f) had a LogL of −29,791.45 with 52 parameters. This Log-likelihood difference was multiplied with two, representing the value to which the chi-squared critical value is compared (difference of 24 degrees of freedom). The Log-likelihood difference value exceeded the critical value at $\alpha = .001$, suggesting that the model with less constraints, GMM^f, has the better fit and thus we proceed with interpreting the results from this model in the following. Figure 1 depicts the 3-class solution from GMM^f, for which the intercept was freed, the slope variance fixed at zero, and the effects of predictors were freed.

Results from GMM^f

A summary of the effects of the predictors on each of the trajectories' growth factors is presented in Table 4. Furthermore, Table 5 shows the class percentage and the estimated correlation between intercept and slope and explained variance of social skills within each class. The following presentation of results addresses research question Q4 ("Do the school-related predictors [and gender] have differential effects on children's social skills in […] different trajectory classes?").

The *High-Declining* (class 1) comprised about 14% of the sample and was characterized by high initial social skills scores (estimated mean = 97.92), followed by a steady decline over time (slope = −1.52). The estimated correlation between intercept and slope was −.37, suggesting that the higher the intercept score, the less of an increase in social skills scores over time. The model explained from 50% to 75% of the variances in the social skills measure at the various time-points and 39% of the intercept variance.

Table 3. Model comparison of LCGA and GMM models.

Model	Log-likelihood (*H0*)	Number of parameters	BIC	SSA-BIC	AIC	Entropy
LCGA	−30,243.23	25	60,672.85	60,593.43	60,536.47	.75
GMM[a]	−29,843.64	28	59,896.03	59,807.08	59,743.29	.74
(intercept freed, slope var. at zero, effects of predictors held equal)						
GMM[b]	−56,573.464	54	113,559.39	113,387.83	113,254.93	.95
(intercept and slope freed, effects of predictors held equal).						
GMM[c]	−29,807.72	48	59,973.28	59,820.79	59,711.43	.72
(intercept and slope held equal across classes, effects of predictors freed)						
GMM[d]	−29,807.34	50	59,987.45	59,828.61	59,714.69	.73
(intercept equal across classes, slope var. fixed at zero, predictors freed within each class)						
GMM[e]	−30,203.50	49	60,772.32	60,616.65	60,505.01	.76
(Intercept and slope var. fixed at zero, pre-dictors freed within class)						
GMM[f]	−29,791.45	52	59,970.57	59,805.37	59,686.89	.74
(intercept freed, slope var. fixed at zero, effects of predictors freed)						
GMM[g]	−29,717.21	56	59,851.93	59,674.02	59,546.43	.79
*(intercept and slope freed, effects of predictors freed)**						

LCGA = latent class growth analysis; GMM = general mixture modeling; BIC = Bayesian information criterion; SSA-BIC = sample size-adjusted Bayesian information criterion; AIC = Akaike information criterion; Var. = variance. * the best log-likelihood value was not replicated

For the students in this class, initial social skills scores (intercept) were positively associated with student–teacher relationship (.46, $p < .001$) and with being a girl (.33, $p < .001$). Conversely, the greater the scores on student–student relationship, the lower the intercept of social skills (−.31, $p < .01$), and the greater the scores on collective efficacy, the lower the initial scores on social skills (−.34, $p < .001$). The covariate problem behavior in class was unrelated to the intercept in this class. The only covariate that significantly predicted the slope factor in class 1 was student–student relationship. Greater student–student relationship scores were associated with less decline in social skills over time (1.03, $p < .001$).

The *Moderate-Stable* (class 2) comprised about 72% of the sample and was characterized by average initial scores on social skills (estimated mean = 84.18), followed by a rather flat slope over time (slope = .18). The estimated correlation coefficient between intercept and slope was −.18, suggesting that the greater the intercept score, the less growth over time. The model explained from 61% to 78% of the variances in social skills at the various time-points and 20% of the variance in the intercept.

All covariates predicted initial scores (intercept) in this class; the greater the scores on student–student relationship (.14, $p < .01$), student–teacher relationship (.14, $p < .001$), collective efficacy (.12, $p < .01$), problem behavior in class (.10, $p < .05$) and being a girl (.30, $p < .001$), the greater the intercept scores of social skills.

The greater the scores on collective efficacy (.49, $p < .05$) and the lower the scores on problem behavior in the class (−.49, $p < .05$), the greater increases were observed in social skills over time (slope). Greater scores on student–teacher relationship, however, were associated with less increases in social skills (−.43, $p < .05$). Gender also predicted slope in this class, being a boy was related to greater increases in social skills (−.49, $p < .01$). The covariate student–student relationship was unrelated to the slope factor in this class.

The *Low-Increasing* (class 3) comprised about 14% of the sample and was characterized by lower initial scores on social skills (estimated mean = 77.79), followed by an increase over time (slope = 1.90). The estimated correlation coefficient between intercept and slope was .06, suggesting that the intercept score was not associated with growth over time. The model explained from 50% to 66% of the variances in social skills measure at the various time-points and 37% of the intercept variance.

For the students in this class, higher intercepts were predicted by greater scores on student–student relationship (.27, $p < .01$) and with being a girl (.41, $p < .001$). The remaining covariates were unrelated to intercept scores in this class.

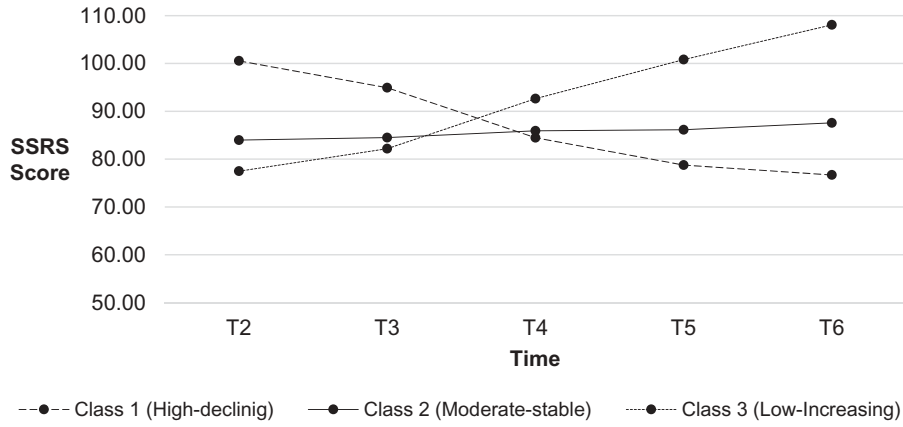

Figure 1. Estimated means across time for the three trajectory classes (GMM[f]).

Table 4. Parameter estimates of predictors on the different trajectories' growth factors.

	Trajectory class intercept			Trajectory class slope		
Predictor	High-declining (class 1)	Stable-medium (class 2)	Low-increasing (class 3)	High-declining (class 1)	Stable-Medium (class 2)	Low-Increasing (class 3)
Student-Teacher Relationship	.46**	.14**	n.s.	n.s.	−.43**	−.57**
Student-Student Relationship	−.31**	.14**	.27**	1.03**	n.s.	.49*
Problem Behavior in Class	n.s.	.10*	n.s.	n.s.	−.49**	−.74**
Collective Efficacy	−.34**	.12**	n.s.	n.s.	.49*	n.s.
Gender	.33**	.30**	.41**	n.s.	−.49*	−.21*

*Significant at the .05 level. **Significant at the .01 level. Gender is coded boys = 1, girls = 2. Parameter estimates are standardized.

Table 5. Percent of sample within each group, estimated correlation between intercept and slope, and explained variance.

	Trajectory class		
	High-declining (class 1)	Stable-medium (class 2)	Low-increasing (class 3)
Percent of sample	14%	72%	14%
Intercept and slope correlation	−.37	−.18	.06
Explained variance in social skills	50%–75%	61%–78%	50%–66%

Moreover, the greater the scores on student–student relationship, the greater the increases in social skills over time (.49, $p < .01$). Likewise, less problem behavior in class predicted increases in social skills (−.74, $p < .01$) as did being a boy (−.21, $p < .05$), while greater scores on student–teacher relationships were associated with less increase (−.57, $p < .01$). Teacher collective efficacy was unrelated to growth in social skills in this class.

Taken together, the results from the analyses in steps 1 to 5 indicated that children's social skills do not follow the same overall developmental trajectory across time (Q2). Rather, separate trajectory classes were meaningfully identified, in that subgroups of children seemed to follow different social skills trajectories over time (Q2). Moreover, the results indicated that both child gender and the school-related predictors affected the growth factors (intercept and/or slope, Q3) and these effects seemed to vary within trajectory classes (Q4).

Discussion

The current study examined the development of teacher-rated social skills in a large sample of elementary school children in Norway and the potential influences of child gender and school-related factors on the level and change in social skills. There was a slight mean-level growth in social skill scores from 4th through 7th grade, and in general, children maintained their rank within the group from one time-point to the next. Three trajectory groups with distinct developmental pathways were identified, one with high initial and declining scores, one with low initial and increasing scores, and one with average initial and fairly stable social skill scores. The school-related factors tested in this study predicted children's level and development of social skills differently within the respective trajectory groups.

General growth during middle childhood

The observed general growth in social skills across middle childhood is consistent with most theoretical models positing that social skills gradually increase through childhood and adolescence (e.g., Bandura, 1986; Beauchamp & Anderson, 2010). The increase also corresponds with findings from two earlier studies in the USA (Berry & Connor, 2010; DiDonato, 2014). The empirical basis of growth in social skills from toddlerhood and onward derived from the relative few studies that do exist, is, however inconsistent. Indeed, the lion's share of prior studies have reported either a slight decrease or general stability from the beginning of middle childhood to early adulthood (Côté et al., 2002; Kokko et al., 2006; Nantel-Vivier et al., 2009; Obradović et al., 2010; Obradović & Hipwell, 2010; Obradović et al., 2006; Sallquist et al., 2009).

Mixed findings may partly stem from differences in measures. Notably, few prior studies have used social skills measures that take into account the multidimensionality of the construct or have used well-established and validated measures. Mixed findings may also stem from sample differences; small sample sizes, US versus European samples (e.g., Sallquist et al., 2009), single-sex samples (e.g., Obradović & Hipwell, 2010) and samples with different socio-economic backgrounds (e.g., Kokko et al., 2006). Moreover, discrepancies may reflect variations in the raters' knowledge, observations, or relations to the child.

Social skills trajectories

Our longitudinal data suggest that there is heterogeneity among children in their social skills development and that children can be meaningfully grouped into distinct trajectory classes. A model comparison process revealed that a 3-class solution fits the data best. A closer examination of the finding that children's social skills generally seem to increase slightly over time revealed that, in fact, most children (72%) follow a Moderate-Stable trajectory (class 2). Perhaps more surprising and important for teachers and interventionists, we also found that some children (14%) follow a High-Declining trajectory (class 1), while an equally small group (14%) follows a Low-Increasing trajectory (class 3). The High-Declining group may be considered at high risk of social exclusion and other negative life outcomes.

Other studies have also found that there is heterogeneity in children's social skills development during the elementary school-years (e.g., Côté et al., 2002; DiDonato, 2014; Kokko et al., 2006; Nantel-Vivier et al., 2009). For example, as in the present study, both Côté et al. (2002) and Nantel-Vivier et al. (2009) found a low, medium, and a high score group. In other studies, a two-trajectory solution has fitted the data best (DiDonato, 2014; Kokko et al., 2006).

Trajectories and school-related predictors

Moderate-stable group

The vast majority of the children followed the Moderate-Stable trajectory of social skills development. As expected, for most children, higher social skills scores at the beginning of grade 4 were predicted by positive relationships with peers and teachers, and by being a student in a school where the staff experienced greater collective efficacy.

Perhaps more surprising was that higher rates of problem behavior in the classroom in 3rd grade also predicted these children's initial social skills scores in 4th grade (intercept). Prior research has shown that social skills and problem behavior are not mere opposites (e.g., Sørlie et al., 2008). Said differently, socially skilled students may also display some unruly behavior, and children who are less socially skilled can be quiet and reserved and thereby contribute to a more reticent classroom environment. Thus, the question becomes, why does an aggregated measure of problem behavior in the class predict greater initial social skills scores for the majority of children in this sample? One explanation may be that a few students only are responsible for disruptive behaviors and compared to them, most other students appear (and indeed probably are) more socially competent. Second, in classrooms with frequent problem behaviors, most children may learn more quickly to navigate socially and find ways to relate to the student role and classmates in adaptive ways. It may also be that in classrooms characterized by frequent incidents of disturbing behaviors, teachers soon realize a need for clear behavior expectations and proactive disciplinary practices in order to reduce disruption or to promote the students' social skills.

In line with expectations, higher teacher collective efficacy and low prevalence of classroom problem behavior predicted greater growth in social skills over time (slope) in this trajectory class. Thus, it seems that growth in social skills in the later grades of elementary school is more likely to occur in more orderly classrooms and in schools where the teachers report a greater common faith in their capacity to support students. Contrary to expectation, growth in social skills in this group also was negatively predicted by student-rated student–teacher relationship. This may reflect a tendency of teachers and students to place emphasis on different aspects of their relationship or

that students who early on feel close to their teachers have more trouble shifting their relationship-focus to peers and thus appear less socially skilled. The correlation between the slope and intercept was non-significant in this group.

High-declining group

A negative correlation between the intercept and slope indicated that students in High-Declining group with the highest social skills scores by grade 4 showed the greatest decline over time. Positive student–teacher relationships (student-rated) predicted greater social skills scores in grade 4 (intercept) in this trajectory group, while greater student–student relationship predicted lower initial scores. These results suggest that a child in this trajectory group who rate the relationship with the teacher as positive feels supported by and dependent on her teacher, and that she may seek the company of and support from teachers at the expense of cultivating friendships with classmates and peers. Although many teachers initially may perceive a child that frequently seeks adult acknowledgment and attention as socially competent, the negative trend in the social skills ratings over time suggests that they gradually change their minds. As these children move on to 5th, 6th and 7th grade, the teachers may come to see them as clingy or socially helpless rather than as socially competent. Another plausible explanation is that teachers gradually become aware of these children's lack of peer involvement and rate their social skills accordingly.

Lower teacher collective efficacy scores also predicted a higher level of initial social skills in this trajectory class. Perhaps in schools where there is little consensus about the teachers' joint capability to promote students' social functioning, teachers are less in a position to identify "warning sign" of unfortunate social skills development, such as a student's overly reliance on teachers.

The only factor that predicted the slope in the High-Declining group was student–student relationships. This finding suggests that the general downward slope in this trajectory class is somewhat less steep for children who score more positively on student–student relationships in 4th grade. Thus, it seems that if there is anything that can "save" these "teacher's pets" from becoming gradually less socially competent, it is getting along with their classmates early on.

Low-increasing group

There was a non-significant association between the slope and intercept in the Low-Increasing group. In accordance with the evidently positive trend in the teachers' socials skills ratings over time, this subgroup may alternatively be spoken of as "late bloomers" or "social survivors." The labels reflect that although they by grade 4 are perceived by their teachers as the socially less skilled, their social skills improve as they gradually experience social success, and the more socially skilled they become, the more positive reinforcement they get. In other words, gaining social competence is rewarding (Sørlie et al., 2008), and at the end of elementary school, the teachers see these students as highly socially skilled children who enjoy making friends and being socially active in class.

As for the Moderate-Stable group, more positively rated relationships with classmates predicted higher initial intercept scores in the Low-Increasing group. Moreover, positive peer relationships paired with a classroom climate with lower rates of problem behavior predicted greater growth (slope) in these students' social skills over time. On the other hand, a positive student–teacher relationship score was associated with less increase in social skills scores over time for this trajectory group as well.

These results suggest that for the children in both of these trajectory classes – and in accordance with our hypotheses on what went on in the High-Declining group, a relationship with the teachers which the children perceived as highly positive, seemed less conducive to growth in social skills over the latter part of the elementary school-years. This apparently contra-intuitive finding corresponds, however, with findings from some prior studies using a more fine-meshed measure of student–teacher relationships, indicating that when children are too dependent on their teachers, it is not beneficial to building their interpersonal skills (e.g., Berry & Connor, 2010; Hamre & Pianta, 2001; Pianta & Stuhlman, 2004).

Taken together, the school-related predictors tested in this study affected children's social skills in the three trajectory classes differently. The role of rater (student versus teacher) seems particularly important to consider in this regard. Our analyses revealed that student–student and student–teacher relationships as rated by the students themselves stood out as more influential than the level of problem behavior in class and teacher's perceived collective efficacy. While extensive empirical work and a widespread popular opinion place a high value on the student–teacher relationship, underlining its importance for students' learning and well-being (e.g., Hattie, 2009), our results suggest that one needs to look more carefully at both the positive and potentially negative impacts of student–teacher relationships on children's' social skills development. From the study results, it seems

that for most students, a proper and competent classroom management accompanied by rich opportunities for positive relationships with peers is more favorable to their social skills development than one-to-one interactions with teachers.

Gender differences

In line with evidence from numerous studies (e.g., DiDonato, 2014; Eiden et al., 2009; Sørlie et al., 2008), the current results showed that girls on average scored higher on social skills than did boys at all measurement points. The gender differences were, however, greater for the initially less socially skilled children (Low-Increasing) than for the initially more skilled children (High-Decreasing). Thus, socially skilled boys and girls appear more alike, whereas socially unskilled boys and girls seem more different, with boys scoring considerably lower than girls.

Such gender differences have been tentatively explained by teachers' biased gender expectations regarding socially competent behavior. That is, teachers may anticipate boys to show less adaptive behavior and girls to behave more compliant (Parks & Kennedy, 2007). However, this explanation seems inadequate since boys generally receive significantly lower scores than girls regardless of informants or context (e.g., DiDonato, 2014; Eiden et al., 2009; Ogden, 2003; Sørlie et al., 2008). It may be the case, as others have suggested, that girls' higher social skills ratings reflect earlier maturity, greater self-regulation, and social adaptability compared to boys (e.g., Westiling et al., 2012).

Few prior studies have examined whether the generally observed difference in the level of social skills favoring girls decrease, increase, or is stable across years. Côté et al. (2002) found no gender differences in the development of helpfulness skills during elementary school. A multiple group analysis by Westiling et al. (2012) showed that girls had a higher mean intercept and slope of social skills than boys across grades 6 to 8. Interestingly, in two of the latent trajectory classes in the current study (Moderate-Stable and Low-Increasing) being a boy was associated with a steeper upward slope, perhaps indicating that boys may "catch-up" over time.

Strengths, limitations, and future directions

Few studies have explored predictive relationships between school-related characteristics and the development of students' social skills (OECD, 2015). The present study adds to the knowledge base by exploring how student–student relationship, student–teacher relationship, problem behavior in class, and teacher collective efficacy influence the development of social skills in different groups of children. However, several other important influences are likely at play in shaping children's social skills development (e.g., parenting practices, social training, classroom leadership). Future research could expand on the current study by including additional predictors.

Other strengths of the study are the inclusion of a large sample of typically developing elementary school children and the use of a well-validated and comprehensive measure of social skills across five time points. Moreover, to reduce bias stemming from mono-informant data, we used cross-rater assessment and hereby strengthening the validity of the study results (Shadish et al., 2002). On the other hand, the children's social skills were rated in one context and by teachers only, which may be noted as a limitation. Although teachers have been found to be reliable raters of children's social skills (Ogden, 2003; Renk & Phares, 2004; Sørlie et al., 2008), adding self-reports, direct observations or parent-reports would have increased the validity of the findings. Moreover, there is a newer version of the social skills scale, the SSIS (Social Skills Improvement System, Gresham & Elliott, 2008) than the one used in the current study. However, SSIS was not available at the time the study was initiated, and change of measure across assessment points was not seen as adequate. We preferred the SSRS version also to enable comparisons of the results with those of earlier studies.

We did not assess the students' level of risk, which may be an important precursor or covariate in models such as ours. Furthermore, the assessment of social skills started in 4th grade and by this point in time teachers' perceptions of students' social skills may be fairly well established, in the sense that teachers may view and therefore rate children based on earlier opinions about and experiences with their students. Besides, some unexpected findings emerged. For example, in both the Moderate-Stable and Low-Increasing trajectory, higher student–teacher relationship predicted less growth in social skills over time (although student–teacher relationship did positively predict the intercepts).

From the results, strengthening student–student relationships seems especially important in order to curb a decline or encourage an increase in children's social skills over time. In particular, teachers ought to be attentive to students who are too close or too dependent on them, although many of these students behave well and rarely misbehave. Excessive reliance on adults may 'back-fire' on the children and render them

helpless or inexperienced in peer interactions. For some students, problem behavior in the classroom also seems to be a risk factor for their development of social skills. Perhaps classroom environments characterized by noise and disorder rob certain children of opportunities to exercise pro-social skills. A well-led and orderly classroom is not only conducive to academic learning (e.g., Korpershoek et al., 2016) but also models appropriate behavior and communicates rules for acceptable and positive behavior. Clearly, it would be of great importance for future studies to see whether the observed associations between school-factors and social skills trajectories can be replicated, preferably in longitudinal studies using reliable measures of social skills.

Moreover, we did not test the interaction effects of the predictors and so the potential for one predictor (e.g., student–teacher relationship) to affect social skills development depending on levels in another predictor (e.g., problem behavior in class) remains untested. It would be interesting in future studies to examine such interactions, for example, problem behavior in class may exert more influence on children's social skills development in cases of lower relationship quality with peers. Finally, because this study was conducted in schools delivering some kind of measures to increase a positive learning environment, caution must be exercised when interpreting the social skills means across time points.It can, however, be noted that the social skills mean score at baseline corresponded well with the mean score in a sample of same-aged students from a representative sample of Norwegian schools (Ogden, 1995), indicating a normal sample and that the study results are valid beyond the current sample, at least within the Norwegian context. Moreover, we re-ran the final model adding school program type as a predictor. It did not change the curves of the trajectories, the proportions of students in each trajectory, nor the direction of effects of each of the other predictors. This additional model testing supports the robustness of our results.

Conclusions

The current study adds to the empirical foundation showing that children's development of social skills during middle childhood seems to follow a differentiated and complex pattern. The most noteworthy findings indicate that both the level (intercept), shape, and direction of children's social skills trajectories (slope) are partly dependent on qualitative and modifiable aspects of the school context. Particularly, the students' relationships with their peers and teachers seem influential – for "better or worse." However, more large-scale longitudinal studies are necessary before conclusions can be drawn.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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References

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman/Times Books/Henry Holt & Co.

Beauchamp, M. H., & Anderson, V. (2010). Social: An integrative framework for the development of social skills. *Psychological Bulletin*, *136*(1), 39–64. https://doi.org/10.1037/a0017768

Belsky, J., Bakermans-Kranenburg, M. J., & van IJzendorn, M. H. (2007). For better and worse: Differential susceptibility to environmental influences. *Current Directions in Psychological Science*, *16*(6), 200–304. https://doi.org/10.1111/j.1467-8721.2007.00525.x

Berry, D., & Connor, E. (2010). Behavioral risk, teacher–child relationships, and social skill development across middle childhood: A child-by-environment analysis of change. *Journal of Applied Developmental Psychology*, *31*(1), 1–14. https://doi.org/10.1016/j.appdev.2009.05.001

Bijstra, J., & Jackson, S. (1998). Social skills training with early adolescents: Effects on social skills, well-being, self-esteem and coping. *European Journal of Psychology of Education*, *13*(4), 569–583. https://doi.org/10.1007/BF03173106

Bornstein, M. H., Putnick, D. L., & Esposito, G. (2017). Continuity and stability in development. *Child Development Perspectives*, *11*(2), 113–119. https://doi.org/10.1111/cdep.12221

Bronfenbrenner, U., & Morris, P. A. (2007). The bioecological model of human development. In R. M. Lerner (Ed.), *Handbook of child psychology* (Vol. 1, pp. 793–828). John Wiley & Sons, Inc.

Caprara, G. V., & Pastorelli, C. (1993). Early emotional instability, prosocial behaviour, and aggression: Some methodological aspects. *European Journal of Personality*, *7*(1), 19–36. https://doi.org/10.1002/per.2410070103

Carlo, G., Crockett, L. J., Randall, B. A., & Roesch, S. C. (2007). A latent growth curve analysis of prosocial behavior among rural adolescents. *Journal of Research on Adolescence*, *17*(2), 301–324. https://doi.org/10.1111/j.1532-7795.2007.00524.x

Côté, S., Tremblay, R. E., Nagin, D., Zoccolillo, M., & Vitaro, F. (2002). The development of impulsivity, fearfulness, and helpfulness during childhood: Patterns of consistency and change in the trajectories of boys and girls. *Journal of Child Psychology and Psychiatry*, *43*(5), 609–618. https://doi.org/10.1111/1469-7610.00050

Davis, H. A. (2003). Conceptualizing the role and influence of student-teacher relationships on childrens' social and cognitive development. *Educational Psychologist*, *38*(4), 207–234. https://doi.org/10.1207/S1532698SEP3804_2

DiDonato, A. (2014). *New directions in social competence research: Examining developmental trajectories and language minority populations* [Dissertation for the degree Doctor of Philosophy]. Arizona State University.

Eccles, J. S. (1999). The development of children ages 6 to 14. *The Future Of Children / Center for the Future of Children, the David and Lucile Packard Foundation*, *9*(2), 30–44. https://doi.org/10.2307/1602703

Eiden, R. D., Colder, C., Edwards, E. P., & Leonard, K. E. (2009). A longitudinal study of social competence among children of alcoholic and nonalcoholic parents: Role of parental psychopathology, parental warmth, and self-regulation. *Psychology of Addictive Behaviors*, *23*(1), 36–46. https://doi.org/10.1037/a0014839

Eisenberg, N., Fabes, R. A., Murphy, B., Maszk, P., Smith, M., & Karbon, M. (1995). The role of emotionality and regulation in children's social functioning: A longitudinal study. *Child Development*, *66*(5), 1360–1384. https://doi.org/10.1111/j.1467-8624.1995.tb00940.x

Elliott, S. N., Gresham, F. M., Freeman, T., & McCloskey, G. (1988). Teacher and observer ratings of children's social skills: Validation of the social skills rating scales. *Journal of Psychoeducational Assessment*, *6*(2), 152–161. https://doi.org/10.1177/073428298800600206

Fraley, R. C., & Roberts, R. W. (2005). Patterns of continuity: A dynamic model for conceptualizing the stability of individual differences in psychological constructs across the life course. *Psychological Review*, *112*(1), 60–74. https://doi.org/10.1037/0033-295X.112.1.60

Goddard, R. D. (2001). Collective efficacy: A neglected construct in the study of schools and student achievement. *Journal of Educational Psychology*, *93*(3), 467–476. https://doi.org/10.1037/0022-0663.93.3.467

Goddard, R. D., Hoy, W. K., & Woolfolk Hoy, A. (2000). Collective efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal*, *37*(2), 479–507. https://doi.org/10.3102/00028312037002479

Goddard, R. D., Hoy, W. K., & Woolfolk Hoy, A. (2004). Collective efficacy beliefs: Theoretical developments, empirical evidence, and future directions. *Educational Researcher*, *33*(3), 3–13. https://doi.org/10.3102/0013189X033003003

Gresham, F. M., & Elliott, S. N. (1990). *Social skills rating system. Manual*. American Guidance Service.

Gresham, F. M., & Elliott, S. N. (2008). *Social skills improvement system: Rating scales*. Pearson Assessments.

Grey, J., & Sime, N. (1989). Findings from the national survey of teachers in England and Wales. In Elton (Ed.), *Discipline in schools. Report of the committee of enquiry chaired by Lord Elton* Department of education and science and the Welsh office. Her Majesty's stationary office (pp. 220–292). Retrieved from http://www.educationengland.org.uk/documents/elton/elton1989.html

Griggs, M. S., Gagnon, S. G., Hulesman, T. J., Kidder-Ashley, P., & Ballard, M. (2009). Student–teacher relationships matter: Moderating influences between temperament and preschool social competence. *Psychology in the Schools*, *46*(6), 553–567. https://doi.org/10.1002/pits.20397

Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, *72*(2), 625–638. https://doi.org/10.1111/1467-8624.00301

Hattie, J. (2009). *Visible learning. A synthesis of over 800 meta-analyses relating to achievement*. New York; Routledge.

Hukkelberg, S., & Sørlie, M.-A. (in review). *The Short Collective Teacher Efficacy Scale: Construct and criterion validity*. Contemporary Educational Psychology.

Humphrey, N., & Wigelsworth, M. (2012). Modeling the factors associated with children's mental health difficulties in primary school: A multilevel study. *School Psychology Review*, *41*(3), 326.

Iarocci, G., Yager, J., & Elfers, T. (2007). What gene-environment interactions can tell us about social competence in typical and atypical populations. *Brain and Cognition*, *65*(1), 112–127. https://doi.org/10.1016/j.bandc.2007.01.008

Jung, T. &., & Wickrama, K. A. S. (2008). An introduction to latent class growth analysis and growth mixture modeling. *Social and Personality Psychology Compass*, *2*(1), 302–317. https://doi.org/10.1111/j.1751-9004.2007.00054.x

Kellam, S. G., Ling, X., Merisca, R., Brown, C. H., & Ialongo, N. (1998). The effect of the level of aggression in the first grade classroom on the course and malleability of aggressive behavior into middle school. *Development and Psychopathology*, *10*(2), 165–185. https://doi.org/10.1017/S0954579498001564

Kjøbli, J., & Sørlie, M.-A. (2008). School outcomes of a community-wide intervention model aimed at preventing problem behavior. *Scandinavian Journal of Psychology*, *49*(4), 365–375. https://doi.org/10.1111/j.1467-9450.2008.00648.x

Klasussen, T., & Rasmussen, L.-M. P. (2013). *Psychometric validity and reliability of the Social Skills Improvement System. Rating Scales (SSIS-RS)* [Master thesis]. University of Tromsø, Department of Psychology, Faculty of Health Science.

Kokko, K., Tremblay, R. E., Lacourse, E., Nagin, D. S., & Vitaro, F. (2006). Trajectories of prosocial behavior and

physical aggression in middle childhood: Links to adolescent school dropout and physical violence. *Journal of Research on Adolescence*, *16*(3), 403–428. https://doi.org/10.1111/jora.2006.16.issue-3

Koomen, H. M. Y., & Jellesma, F. C. (2015). Can closeness, conflict, and dependency be used to characterize students' perceptions of the affective relationship with their teacher? Testing a new child measure in middle childhood. *British Journal of Educational Psychology*, *85*(4), 479–497. https://doi.org/10.1111/bjep.2015.85.issue-4

Korpershoek, H., Harms, T., de Boer, H., van Kuijk, M., & Doolaard, S. (2016). A meta-analysis of the effects of classroom management strategies and classroom management programs on students' academic, behavioral, emotional, and motivational outcomes. *Review of Educational Research*, *86*(3), 643–680. https://doi.org/10.3102/0034654315626799

Ladd, G. W., Kochenderfer, B. J., & Coleman, C. C. (1996). Friendship quality as a predictor of young children's early school adjustment. *Child Development*, *67*(3), 1103–1118. https://doi.org/10.2307/1131882

Lindberg, E., & Ogden, T. (2001). *Elevatferd og læringsmiljø 2000. En oppfølgings-undersøkelse av elevatferd og læringsmiljø i grunnskolen*. Rapport. Læringsmiljøsenteret.

Malecki, C. K., & Elliot, S. N. (2002). Children's social behaviors as predictors of academic achievement: Longitudinal analysis. *School Psychology Quarterly*, *17*(1), 1–23. https://doi.org/10.1521/scpq.17.1.1.19902

Masten, A. S., Desjardins, C. D., McCormick, C. M., Kuo, S. I., & Long, J. D. (2010). The significance of childhood competence and problems for adult success in work: A developmental cascade analysis. *Development and Psychopathology*, *22*(3), 679–694. https://doi.org/10.1017/S0954579410000362

Mpofu, E., Thomas, K. R., & Chan, F. (2004). Social competence in Zimbabwean multicultural schools: Effects of ethnic and gender differences. *International Journal of Psychology*, *39*(3), 169–178. https://doi.org/10.1080/00207590344000385

Muthén, L. K., & Muthén, B. O. (2007). *Mplus user's guide* (6th ed.). Muthén & Muthén.

Nantel-Vivier, A., Kokko, K., Caprara, G. V., Pastorelli, C., Gerbino, M. G., Paciello, M., Côté, S., Pihl, R. O., Vitaro, F., & Tremblay, R. E. (2009). Prosocial development from childhood to adolescence: A multi-informant perspective with Canadian and Italian longitudinal studies. *Journal of Child Psychology and Psychiatry*, *50*(5), 590–598. https://doi.org/10.1111/j.1469-7610.2008.02039.x

Obradović, J., Burt, K. B., & Masten, A. (2010). Testing a dual cascade model linking competence and symptoms over 20 years from childhood to adulthood. *Journal of Clinical Child & Adolescent Psychology*, *39*(1), 90–102. https://doi.org/10.1080/15374410903401120

Obradović, J., & Hipwell, A. (2010). Psychopathology and social competence during the transition to adolescence: The role of family adversity and pubertal development. *Development and Psychopathology*, *22*(3), 621–634. https://doi.org/10.1017/S0954579410000325

Obradović, J., Van Dulmen, M. H. M., Yates, T. M., Carlson, E. A., & Egeland, B. (2006). Developmental assessment of competence from early childhood to middle adolescence. *Journal of Adolescence*, *29*(6), 857–889. https://doi.org/10.1016/j.adolescence.2006.04.009

OECD. (2015). *Skills for social progress: The power of social and emotional Skills*. OECD skills studies.

Ogden, T. (1995). *Kompetanse i kontekst. En studie av risiko og kompetanse hos 10 og 13 åringer. Prosjekt Oppvekstnettverk*. Rapport 3. Barnevernets Utviklingssenter.

Ogden, T. (1998). *Elevatferd og læringsmiljø. Læreres erfaringer med og syn på elevatferd og læringsmiljø i grunnskolen*. Rapport. Kirke-, utdannings- og forskningsdepartementet.

Ogden, T. (2003). The validity of teacher ratings in adolescent's social skills. *Scandinavian Journal of Educational Research*, *47*(1), 63–74. https://doi.org/10.1080/00313830308605

Ogden, T. (2015). *Sosial kompetanse og problematferd blant barn og unge*. Gyldendal Akademisk.

Ogden, T., & Hagen, K. A. (2018). *Adolescent mental health. Prevention and intervention* (2nd ed). Routledge.

Parks, F. R., & Kennedy, J. H. (2007). The Impact of race, physical attractiveness, and gender on education majors' and teachers' perceptions of student competence. *Journal of Black Studies*, *37*(6), 936–943. https://doi.org/10.1177/0021934705285955

Pianta, R. C., Steinberg, M. S., & Rollins, K. B. (1995). The first two years of school: Teacher-child relationships and deflections in children's classroom adjustment. *Development and Psychopathology*, *7*(2), 295–312. https://doi.org/10.1017/S0954579400006519

Pianta, R. C., & Stuhlman, M. W. (2004). Teacher-child relationships and children's success in the first years of school. *School Psychology Review*, *33*(3), 444–458.

Renk, K., & Phares, V. (2004). Cross-informant ratings of social competence in children and adolescents. *Clinical Psychology Review*, *24*(2), 239–254. https://doi.org/10.1016/j.cpr.2004.01.004

Rudolph, K. D., Hammen, C., & Burge, K. (1995). Cognitive representations of self, family, and peers in school-age children: Links with social competence and sociometric status. *Child Development*, *66*(5), 1385–1402. https://doi.org/10.1111/j.1467-8624.1995.tb00941.x

Sallquist, J. V., Eisenberg, N., Spinrad, T. L., Reiser, M., Hofer, C., Zhou, Q., Liew, J., & Eggum, N. (2009). Positive and negative emotionality: Trajectories across six years and relations with social competence. *Emotion*, *9*(1), 15–28. https://doi.org/10.1037/a0013970

Sameroff, A. J., & Mackenzie, M. J. (2003). Research strategies for capturing transactional models of development: The limits of the possible. *Development and Psychopathology*, *15*(3), 613–640. https://doi.org/10.1017/S0954579403000312

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton Mifflin.

Sørlie, M.-A., Hagen, K. A., & Ogden, T. (2008). Social competence and antisocial behavior: Continuity and distinctiveness across early adolescence. *Journal of Research on Adolescence*, *18*(1), 121–144. https://doi.org/10.1111/j.1532-7795.2008.00553.x

Sørlie, M.-A., & Nordahl, T. (1998). *Problematferd i skolen: Hovedfunn, forklaringer og pedagogiske implikasjoner*. Rapport 12a/98. Norsk institutt for forskning om oppvekst, velferd og aldring.

Sørlie, M.-A., & Ogden, T. (2014). Reducing threats to validity by design in a nonrandomized experiment of a school-wide prevention model. *International Journal of School & Educational Psychology,4*, *2*(4), 235–246. https://doi.org/10.1080/21683603.2014.881309

Sørlie, M.-A., & Ogden, T. (2015). School-wide positive behavior support-Norway. Impacts on problem behavior and classroom climate. *International Journal of School & Educational Psychology*, *3*(3), 1–16. https://doi.org/10.1080/21683603.2015

Sørlie, M.-A., & Torsheim, T. (2011). Multilevel analysis of the relationship between teacher collective efficacy and problem behaviour in school. *School Effectiveness and School Improvement*, *22*(2), 175–191. https://doi.org/10.1080/09243453.2011.563074

Spilt, J. L, Vervoort, E, & Verschueren, K. (2018). Teacher-child dependency and teacher sensitivity predict engagement of children with attachment problems. *School Psychology Quarterly*, *33*(3), 419–427. https://doi.org/10.1037/spq0000215

Spivak, A. L., & Farran, D. C. (2016). Predicting first graders' social competence from their preschool classroom interpersonal context. *Early Education and Development*, *27*(6), 735–750. https://doi.org/10.1080/10409289.2016.1138825

Tremblay, R. E., Loeber, R., Gagnon, C., Charlebois, P., Larivée, S., & LeBlanc, M. (1991). Disruptive boys with stable and unstable high fighting behavior patterns during junior elementary-school. *Journal of Abnormal Child Psychology*, *19*(3), 285–300. https://doi.org/10.1007/BF00911232

UNICEF. (2012). *Global evaluation of life skills education programmes*.

Welsh, M., Parke, R. D., Widaman, K., & O'Neil, R. (2001). Linkages between children's social and academic competence: A longitudinal analysis. *Journal of School Psychology*, *39*(6), 463–481. https://doi.org/10.1016/S0022-4405(01)00084-X

Welsh, W. N. (2003). Individual and institutional predictors of school disorder. *Youth Violence and Juvenile Justice*, *1*(4), 346–368. https://doi.org/10.1177/1541204003255843

Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology*, *35*(3), 193–202. https://doi.org/10.1016/j.cedpsych.2010.03.002

Westiling, E., Andrews, J. A., & Peterson, M. (2012). Gender differences in pubertal timing, social competence, and cigarette use: A test of the early maturation hypothesis. *Journal of Adolescent Health*, *51*(2), 150–155. https://doi.org/10.1016/j.jadohealth.2011.11.021

Zee, M., Koomen, H. M. Y., & Van Der Veen, I. (2013). Student–teacher relationship quality and academic adjustment in upper elementary school: The role of student personality. *Journal of School Psychology*, *51*(4), 517–533. https://doi.org/10.1016/j.jsp.2013.05.003

Zsolnai, A. (2002). Relationship between children's social competence, learning motivation and school achievement. *Educational Psychology*, *22*(3), 317–330. https://doi.org/10.1080/01443410220138548