

This is a self-archived version of an original article. This version may differ from the original in pagination and typographic details.

Author(s): Salminen, Jenni; Pakarinen, Eija; Poikkeus, Anna-Maija; Laakso, Marja-Leena; Lerkkanen, Marja-Kristiina

Title: Teacher-child interactions as a context for developing social competence in toddler classrooms

Year: 2022

Version: Published version

Copyright: © 2022 Jenni Salminen, Eija Pakarinen, Anna-Maija Poikkeus, Marja-Leena Laakso,

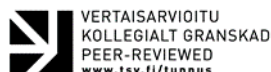
Rights: CC BY-NC 4.0

Rights url: <https://creativecommons.org/licenses/by-nc/4.0/>

Please cite the original version:

Salminen, J., Pakarinen, E., Poikkeus, A.-M., Laakso, M.-L., & Lerkkanen, M.-K. (2022). Teacher-child interactions as a context for developing social competence in toddler classrooms. *Journal of Early Childhood Education Research*, 11(1), 38-67.

<https://journal.fi/jecer/article/view/114006>



Teacher–child interactions as a context for developing social competence in toddler classrooms

**Jenni Salminen^a, Eija Pakarinen^b, Anna-Maija Poikkeus^c,
Marja-Leena Laakso^d & Marja-Kristiina Lerkkanen^e**

^a University of Jyväskylä, corresponding author, e-mail: jenni.e.salminen@jyu.fi,
<https://orcid.org/0000-0003-4534-6462>

^b University of Jyväskylä, <https://orcid.org/0000-0001-7190-6705>

^c University of Jyväskylä, <https://orcid.org/0000-0001-7913-8691>

^d University of Jyväskylä, <https://orcid.org/0000-0001-5185-9817>

^e University of Jyväskylä, <https://orcid.org/0000-0002-5709-5800>

ABSTRACT: The present study investigates the quality and variability of teacher–child interactions in relation to children’s social competence in Finnish toddler classrooms. The participants included 242 toddlers (114 girls, 128 boys) and their teachers ($N = 42$). The quality of teacher–child interactions (i.e., emotional and behavioral support; engaged support for learning) was observed using the CLASS-Toddler observation instrument (La Paro et al., 2012), and the average amount of within-day variability was calculated from the observed cycles. Teachers rated toddler’s social competence with the Multisource Assessment of Social Competence Scale (MASCS; Junttila et al., 2006) in relation to the toddlers’ cooperation, empathy, impulsivity, and disruptiveness. The results revealed that observed engaged support for learning was positively associated with the classroom average level of empathy in the spring when accounting for previous levels of empathy in the fall. In addition, a higher variability in engaged support for learning was negatively related to the empathy. The results emphasize the importance of active facilitation, well-timed feedback, and verbally rich support by teachers in promoting toddlers’ empathy throughout one’s daily activities, hence attesting to both the quality and consistency of such practices. The results are particularly useful for initial teacher training and in-service training.

Keywords: *teacher–child interaction, variability in teacher–child interaction, social competence, empathy, toddlers*

Introduction

Toddlerhood represents a period of time during which young children reach important milestones on a range of developmental domains¹. Toddlers' communication skills develop at an increasing speed (Baldwin & Meyer, 2009), as do their skills regulating their behavior in social interactions (Rose-Krasnor & Denham, 2009), and their play behavior gradually shifts toward shared play with peers (e.g., Hännikäinen & Munter, 2018). A substantial number of toddlers enter early childhood education and care (ECEC) (European Commission/EACEA/Eurydice, 2019), which means that interactions with peers and ECEC teachers² constitute a significant part of toddlers' daily lives, providing an important context for their social development (Howes, 2011). The interactions in ECEC classrooms allow children to gain positive experiences with peers, but they are also the contexts in which emotional and behavioral problems first arise (Hay et al., 1999). Creating and maintaining meaningful relationships calls for social competence, herein referred to as a presence of prosocial behavior and absence of antisocial behavior (Crowley & Merrell, 2003; Junttila, 2006; Merrell, 1993; Merrell & Gimpel, 1998). The multilevel construct of social competence encompasses the behaviors, tendencies, social motivation and capacity to use the resources for social engagement and successful goal achievement such as peer acceptance (e.g., Santos et al., 2014; Vaughn et al., 2009). Social competence is critical for successful and fulfilling peer interactions, which, in turn, serve as a protective factor against negative emotional experiences, such as bullying or exclusion (Repo & Repo, 2016).

In toddler classrooms, ECEC teachers play an important role in supporting toddlers' well-being and development as 'significant others' (Rogoff, 2008). High-quality teacher-child interactions, as conceptualized within the teaching through interactions –framework (TTI; Hamre et al., 2013) and measured with the Classroom Assessment Scoring System (CLASS-PreK; Pianta et al., 2008, CLASS-Toddler; La Paro et al., 2012) have been shown to play an important role for the development of children's academic skills, motivation and self-regulation (e.g., Mashburn et al., 2008; Pakarinen et al., 2011; Salminen, Guedes et al., 2021). The findings from kindergarten and primary grades have documented the importance of high-quality teacher-child interactions in promoting children's social competence (e.g., Pakarinen et al., 2020; Siekkinen et al., 2013; Spivak & Farran, 2012). However, the number of studies on the forms of beneficial teacher-child interactions for

¹ Toddlers are herein referred to as children specifically in their second and third years of life.

² The term teacher is used when referring to ECEC staff members in this sample of toddler classrooms, conceiving teacher's work as a combination of aspects of care, education, and teaching (see also Hännikäinen & Munter, 2018).

toddlers' social competence are still very few (e.g., Broekhuizen et al., 2018; La Paro et al., 2014). Studies among preschoolers further suggest that lower variability (i.e., greater consistency) of teacher–child interactions across the daily activities, alongside interaction quality is associated with better social and behavioral child outcomes (e.g., Brock & Curby, 2014; Curby et al., 2013). This is in line with the propositions of developmental theories emphasizing the benefits of stability and predictability of interactions (e.g., Ainsworth, 1969; Bowlby, 1969; Kaplan & Berman, 2010). However, more information is warranted on the role that the variability of teacher–child interaction plays in the development of toddler's social competence.

Prior research has shown that children's patterns of interacting with their peers become fairly stable through school entry (e.g., Boivin et al., 2005). To chart children's very early skill development, it is critical to understand how teachers can foster children's social competence in toddlerhood. The relevance of early onset studies has been shown by the findings of one of the few longitudinal studies documenting that the interactional experiences that children have within ECEC can have a long-lasting impact on their later social development all the way through their teenage years (e.g., Vandell et al., 2010).

The current study aims to examine the associations between teacher–child interaction quality and social competence in ECEC toddler classrooms, along with the role that the variability of teacher–child interaction quality plays in toddlers' social competence.

Social competence

Social competence is a multidimensional construct that includes several key dimensions leading to achieving one's social goals while maintaining positive relationships over time (e.g., Ladd, 2005; Rose-Krasnor, 1997; Santos et al., 2014; Waters & Sroufe, 1983). Social skills and socio-cognitive abilities are key in creating and maintaining meaningful and positive relationships (e.g., Ladd, 1999; Rubin et al., 2006). Regulation of emotions and behaviors along with understanding the expressions, intentions, and emotions of others is also needed to aid the child in controlling their own behavior and engaging in satisfying and reciprocal interactions (Denham, 2006; Rubin et al., 2006). Vaughan van Hecke et al. (2007) contended that social competence is predicated based on the individual's tendency to express positive emotions and interest, the ability to integrate the behavior of oneself with others in social interactions, and the ability to regulate attention and emotional reactivity within a frame of positive goal-related activity.

Social competence is not considered an innate characteristic of a child; rather, it is constructed through learning and engagement in various social interactions (Ladd, 2005) and contexts (e.g., Rogoff, 2008). Through the multitude of opportunities to interact with age-mates and children of different ages, toddlers gain an understanding of how to engage in more complex interactions in prosocial ways and how to resolve conflicts and regulate

their emotions so that they can inhibit aggressive behaviors (e.g., Chen et al., 2001; Howes, 2011).

The present study utilizes an operationalization of toddlers' social competence, as presented in the validation study of the Multisource Assessment of Social Competence Scale (MASCS) by Junttila et al. (2006), which draws from the constructs of the School Social Behavior Scales (see Crowley & Merrell, 2003). Here, social competence has been defined as reflecting two key domains of behaviors and related skills: presence of prosocial behavior (i.e., engagement in socially desirable activities, manifesting skills such as cooperation and empathy) and lack or absence of antisocial behavior (i.e., self-regulation and inhibition of behaviors with negative social outcomes, such as impulsiveness and disruptiveness) (Crowley & Merrell, 2003; Junttila, 2006; Merrell, 1993; Merrell & Gimpel, 1998).

Prosocial behavior

Prosocial behavior refers to socially desirable actions that socialization agents seek to foster in children, such as caring, sharing, helping, and comforting others (Crowley & Merrell, 2003; Junttila, 2006; Rubin et al., 2006). In the current study prosocial behaviors are defined as comprising the dimensions of cooperation and empathy. Cooperation with peers and participation in different group activities comprise the behaviors requiring social skills. Empathy, on the other hand, is typically seen to refer to the affective experience of another individual's emotional state and recognition of what the other feels (Lamm et al., 2007). Empathic children are sensitive toward others, avoid hurting others' feelings, and notice and understand how others are feeling. Toddlers can showcase empathy as "feeling with the other," indicating mutuality with a feeling offered by another person (Quann & Wien, 2006). At around 2 years of age, children's greater understanding of mental states and situations of other persons motivates them to engage in empathic behaviors (Ornaghi et al., 2020). Ability for empathy is considered to be an important mechanism behind many prosocial and moral behaviors that strengthen group cohesion and cooperation (Rieffe et al., 2010). Prosocial behaviors develop rapidly in toddlerhood (at around ages 2 and 3), along with toddlers' increased cooperation with others and the ability to help others and feel empathy (Eisenberg & Fabes, 1998; Rubin et al., 2006). Prosocial behaviors in toddlerhood can be considered the building blocks of good citizenship because they increase the "human capacities" for affiliation, cooperation, altruism, and understanding of social norms (Hay & Cook, 2007). In later childhood, a higher extent of prosocial behavior predicts acceptance by peers and can also promote learning processes (see Rubin et al., 1998).

Antisocial behavior

The second domain of social competence focused on in the present study is the absence of antisocial behavior. Antisocial behavior is linked with negative social outcomes, which can be both intentional or unintentional and can be directed toward others or toward the self, here operationalized through impulsivity and disruptiveness. Impulsivity relates to an individual's ability to inhibit undesired behavior in a given social situation; therefore, impulsivity closely relates to early self-regulation skills (e.g., Rose-Kasnor & Denham, 2009; Willoughby et al., 2010). Impulsive children may struggle in situations where waiting for one's turn is required or where sudden reactions to situations, persons, or events need to be suppressed. Disruptiveness, on the other hand, is directed at other people and typically involves aggressive behavior. Disruptive behavior can be manifested as teasing, disrespecting others, annoying, disturbing, or being aggressive toward peers or adults (Junttila et al., 2006; see also Williams et al., 2007). Antisocial behavior in a child's early years appears to first increase until the age of 3 and then gradually declines, which can be explained by children's developing abilities that aid in understanding other persons' ideas, attitudes, and opinions (NICHD ECCRN, 2004; Tremblay, 2000; Rubin et al., 2006), but also with increased self-regulation skills (e.g., Denham et al., 2012). Antisocial behavior in toddlerhood may not necessarily indicate poor social competence: aggression and expression of impulses within the safe environment of ECEC can be seen to represent the normative age-related patterns of development (Williams et al., 2007). Older children with a high extent of antisocial behavior, on the other hand, are more likely to perform poorly on academic tasks and more likely to have higher levels of school dropout (Denham, 2006; Farmer, 2000; Raver & Knitzer, 2002). High rates of aggressive behavior in first-grade students have been shown to increase the likelihood of behavioral adjustment problems in interactions with both teachers and peers (Thomas et al., 2008).

Quality and variability of teacher–child interactions

ECEC quality commonly pertains to the structural and process features that jointly exert their influence on child outcomes (European Commission, 2014; Vlasov et al., 2019). Supportive and high-quality teacher–child interactions, which are the most common indicator of high process quality, are known to promote children's social, emotional, and cognitive development (e.g., OECD, 2018; Slot et al., 2018).

In the current study, the quality of teacher–child interaction was operationalized along with the constructs delineated in the Teaching Through Interactions framework (TTI; Hamre et al., 2013). Interactions in toddler classrooms have been studied to a lesser extent, with the TTI framework compared to preschool, kindergarten, and primary classrooms, but the accumulating evidence convincingly shows that similar characteristics of high-quality teacher–child interaction are mutually beneficial for

children of different ages (e.g., Salminen, Guedes, et al., 2021; Broekhuizen et al., 2016; Perlman et al., 2016). It is, however, noteworthy that teacher–child interaction is conceptualized and scaled age-appropriately across the observation instruments intended for different age groups. The assessment instrument for toddlers, drawing from the TTI framework, the Classroom Assessment Scoring System (CLASS-Toddler; La Paro et al., 2012), comprises two main domains: emotional and behavioral support and engaged support for learning. Emotional and behavioral support is rooted in the theoretical underpinnings of attachment theory (e.g., Gonzales-Mena & Widmeyer Eyer, 2007), theories of self-regulated learning (e.g., Calkins, 2007), and developmentally appropriate practices (e.g., Bredekamp & Copple, 2008). The domain of engaged support for learning builds on the theoretical understanding of interactions as the key mechanism through which learning and development are supported. It also addresses the specific role of language in children’s engagement and learning (e.g., Vygotsky, 1978), encompassing the degree to which the aspects of interactions between teacher and children, such as feedback and scaffolding, foster a toddler’s learning and development.

The TTI framework states that high-quality teacher–child interactions are not only nurturing and responsive but also include low amounts of variability (Bailey et al., 2013; Finders et al., 2021). Over the past decade, increasing attention has been given to the variability of teacher–child interactions, in addition to the broader quality of these interactions (e.g., Brock & Curby, 2014; Curby et al., 2013; Finders et al., 2021). This suggests that both quality and variability contribute unique and important aspects to children’s interactional experiences in the classroom environment. In the current study, variability refers to the degree to which the quality of teacher–child interactions systematically varies across a day. Interaction variability builds theoretically on the principles of attachment theory (e.g., Ainsworth, 1969; Bowlby, 1969). Low variability—that is, high stability of interactions—has been associated with increased predictability on how teacher responds to children’s needs and initiations across different activities and settings. This, in turn, increases the children’s sense of security and facilitates their engagement and exploration in the classroom context (Brock & Curby, 2014). Additionally, the resource depletion theory (Kaplan & Berman, 2010) suggests that high variability in teacher–interaction increases the amount of cognitive effort by requiring children to divide their attention between classroom social activities and the interactions of an unpredictable teacher and distract them from fully engaging in and making sense of social interactions (Curby et al., 2013).

Teacher–child interaction quality, variability, and children’s social competence

Prior studies utilizing the TTI framework (Hamre et al., 2013) to conceptualize teacher–child interactions have consistently documented links between a teacher’s high-quality

emotional support and higher social competence among children in the kindergarten and toddler classroom context. These links exist in terms of both improved prosocial behaviors and diminished antisocial behaviors. *Emotional support* has been shown to predict more advanced prosocial behaviors (i.e., cooperation and empathic behavior) among six-year-old Finnish kindergarteners (Pakarinen et al., 2020) and increased cooperation and participation in social activities among four-year-old kindergarteners in the United States (Mashburn et al., 2008). By focusing on school transition, Broekhuizen et al. (2016) confirmed that higher-quality emotional and behavioral support in preschool and kindergarten classrooms predicted among other things, more cooperation with others and more empathic behavior in both kindergarten and the first grade. Similar findings have also been reported with respect to toddlers' social competence. A study in the context of Dutch toddler classrooms showed that high levels of emotional and behavioral support were related to more caregiver-rated child social competence (e.g., cooperation with others and empathy) one year later (Broekhuizen et al., 2018). The mechanism underlying the prediction links sensitive and responsive teacher interactions to strengthening children's sense of security and a higher propensity to explore their social environment (Downer et al., 2010). Emotionally supportive, sensitive, and responsive interactions therefore increase children's capacity to engage in positive and socially desirable behaviors by cooperating and showing empathic behaviors toward peers and adults in the classroom (e.g., Pakarinen et al., 2020). It is also likely that sensitive, warm, and responsive teachers can provide children with an experience of a broader culture of care in the classroom, further shaping children's prosocial behaviors (e.g., Quann & Wien, 2006).

Teachers' high-quality emotional support has also been associated with fewer antisocial behaviors among toddlers and older children. In a study by La Paro et al. (2014), toddlers were rated as having fewer behavioral problems (e.g., aggression, defiance, and negative emotionality) in classrooms where the teachers' emotional and behavioral support was of a higher quality. In the study by Broekhuizen et al. (2016), a similar association was observed as kindergarteners and first graders established fewer behavioral problems (e.g., aggressiveness, conduct problems) in classrooms of higher emotional support. These associations could be explained by the fact that emotionally supportive, warm, and sensitive interactions in a classroom can help children focus on the tasks at hand (e.g., Pakarinen et al., 2014). This may play a particularly important role for children who experience difficulties in regulating their emotions and show disruptiveness and impulsivity in classroom settings.

The role of variability in teacher-child interaction quality for children's interactional experiences in classroom contexts and consequently in their development of social competence has been, to our current understanding, examined only with respect to teachers' emotional support (see Brock & Curby, 2014; Curby et al., 2013) and not within

toddler classrooms. Regarding the variability of teacher–child interactions, Curby et al. (2013) showed that children in an emotionally consistent (i.e., low variability) preschool classrooms had superior achievement gains and displayed more social competence (e.g., cooperation in the classroom) the following year relative to those children in less emotionally consistent classrooms. Furthermore, in a study by Brock and Curby (2014), children who experienced consistent emotional support and close relationships with their teachers in pre-K also received higher social competence (e.g., cooperation) ratings by their kindergarten teachers in contrast to children in classrooms with less emotional support consistency. The low variability in teacher–child interactions was considered to produce a more conducive learning atmosphere, one where the children would know more of what to expect and feel more secure. This allows them to attend to learning tasks with fewer disruptions and without the cognitive load of dividing their attention between ongoing social interactions with their peers and an unpredictable teacher. Moreover, an emotionally inconsistent teacher might also serve as a poor role model for emotion regulation and thus for cooperation (Brock & Curby, 2014). In these studies, emotional support consistency, along with the mean levels of emotional support quality, provided additional information about the interactional experiences children encounter in the classroom environment, and their unique relations to child outcomes (Curby et al., 2013).

Taken together, the prior literature provides evidence of predictive associations between teachers' emotional and behavioral support—and the consistency thereof—and young children's social competence. Teacher's observed *instructional support/engaged support for learning*, though, has been more systematically linked with benefits for academic outcomes (e.g., Howes et al., 2008; Mashburn et al., 2008). However, a few studies have suggested that instructional support can also foster social competence. First, a study by Siekkinen et al. (2013) revealed that instructional support was associated with children's low levels of disruptiveness in Finnish kindergarten classrooms and that there was a link with teacher stress. Additionally, Bulotsky-Shearer et al. (2020) showed that higher organizational and instructional support was beneficial in buffering the risks of social competence for children who entered preschool exhibiting problem behavior with peers. The mechanism could be such that in classrooms with higher instructional support, teachers actively engage children in the learning processes by promoting language skills, problem solving and planning through the use of feedback and modeling. This can be seen to bolster particularly useful skills for the successful initiation of play with peers (see, e.g., Bulotsky-Shearer et al., 2020).

Second, the study by Siekkinen et al. (2013) also revealed a link between higher instructional quality and higher levels of empathy. Although there are no other studies using the CLASS instrument to confirm this finding, teachers' verbal guidance and conversing (also central to instructional support) have more broadly been shown to have a positive impact on the development of children's social competence, particularly

prosocial skills like empathy and cooperation. For instance, Spivak and Farran (2012) reported an association between teachers' verbal encouragement of prosocial behavior and empathy (e.g., encouraging children to share, drawing children's attention to others' feelings with feedback) and children's gains in prosocial behavior in the context of first-grade classrooms. Similarly, an intervention study conducted in toddler classrooms by Grazzani et al. (2016) showed that conversing about emotions with small groups of toddlers increased toddlers' prosocial behavior (e.g., empathic behavior and cooperation) and emotional understanding. Rosenthal and Gatt (2011) noted that teachers' verbal modeling and explanation-seeking are particularly useful strategies for supporting toddlers' social competence (e.g., competent empathic behavior). They use the concept of "audiencing" when referring to teachers' facilitation intended to support empathic behavior among toddlers during moments of heightened emotionality. The role of the teacher is considered to be effective through two mechanisms. One is responding to the needs of an individual child (e.g., comforting a child who is upset and helping them to regulate their emotion). The other is setting the stage for learning for the whole group by helping the other children (the audience) understand the experiences of their peer and attend to the needs of their peer and providing a model of empathic behavior for them. Finally, scaffolding toddlers' verbal expressions through the rich use of language might be particularly relevant for supporting empathic behaviors, because toddlers have limitations in terms of vocabulary, verbal communication, and their ability to reflect and report on their own perceptions of interactions (Howes, 2011).

The current study

The present study aims to provide novel information on the role that the quality and variability of teacher-child interactions may play in creating a supportive interactional context for the development of social competence in ECEC toddler classrooms. We examine the extent to which the quality and variability of teacher-child interactions are associated with social competence (i.e., the presence of prosocial behaviors and the absence of antisocial behaviors) among Finnish toddlers. Based on prior studies with older children (e.g., Pakarinen et al., 2020), we expect to find an association between high-quality teacher-child interactions in the domain of emotional and behavioral support and higher prosocial (i.e., more cooperative and empathic) and lower antisocial behaviors (i.e., less disruptive and impulsive), as rated by toddlers' ECEC teachers (e.g., Pakarinen et al., 2020; Broekhuizen et al., 2016). Additionally, relying on the growing body of evidence on the importance of instructional support/ engaged support for learning for children's social competence among older children, we further expect to find an association between higher-quality engaged support for learning and higher prosocial (more empathic

behaviors) and lower antisocial behaviors (less disruptive behaviors) (Siekkinen et al., 2013).

We also examine the association between the variability of teacher–child interactions across the observations and toddlers’ social competence. Limited evidence of the benefits of lower variability of teacher–child interactions in the domain of emotional support in terms of children’s cooperation skills has been established (e.g., Curby et al., 2013). Therefore, we expect higher levels of variability in the emotional and behavioral support domain to be associated with less cooperative behaviors among toddlers rated by their ECEC teachers. Furthermore, based on a prior study showing that instructional support quality also varies significantly across daily activities (see Cabell et al., 2014; Finders et al., 2021), we anticipate that variations in the engaged support for learning might also be influential for toddlers’ social competence. However, no dimension-specific expectations were set for the current study.

Method

Participants and procedure

The current study is part of a larger project focusing on the role of teacher–child interactions in children’s learning and development (Interaction, Development and Learning [VUOKKO]–follow-up study: Lerkkanen & Salminen, 2015–2019). The participants were recruited from one medium-sized Finnish city as part of a shared development project between the city and university in the fall of 2015. The data for the current study were gathered during the fall of 2015 (T1) and spring of 2016 (T2).

The participants were 42 teachers and 242 children (53% boys; M_{age} at T1 = 28.7 months, $SD = 3.5$), all born in 2013 and enrolled in 43 toddler classrooms from 36 public (nonprofit) day care centers. Before approaching the ECEC teachers and parents, a research permit was obtained from the city administration that was responsible for the ECEC and from the ECEC center leaders. Initially, all public ECEC centers in the city, which had children born in year 2013 were approached with a research invitation. Participation in the study, however, was voluntary, and active informed consent was obtained from the parents (regarding their child’s and their own participation) and ECEC teachers. Because there were also younger and older children in every classroom (and not included in the research sample of children born in 2013 for whom the questionnaire data were collected), informed consent for all children who were present during the video recordings was collected via parents in each participating classroom.

An average of 17 children were enrolled in the classrooms (Min = 8, Max = 45, SD = 7). The number of participating children in a classroom varied between 1 and 11 (M = 6 participating children). All teachers were qualified to work in ECEC and held either an ECEC teacher qualification or at least a tertiary degree qualification (i.e., that of a practical nurse). The participating teachers had an average teaching experience of 18 years (SD = 9.4). In most groups (77.5%), the age range of the children varied between 0 and 3 years, and in the remaining groups (22.5%), the age range was somewhat wider. Information was available for the education levels of 195 mothers, 33.3% of whom had attended high school or less, and 66.7% had a vocational or higher education degree.

The quality of teacher–child interaction was observed with the Classroom Assessment Scoring System CLASS-Toddler (La Paro et al., 2012) in toddler classrooms in the spring (T2). Each toddler classroom was observed during two separate days in the morning hours between 8 a.m. and 12 a.m. During these classroom visits, four typical daily activities were video recorded: play, emerging academic, creative activity, and meal, representing the typical daily experiences for children in ECEC (see, e.g., Booren et al., 2012; Slot et al., 2016). Altogether three to four video-recorded cycles were obtained for each classroom, resulting in a total of 164 cycles. An average length of the cycles was 17 minutes. From five classrooms, only three video-recorded cycles were obtained.

Teachers were asked to rate the children’s social competence (i.e., presence of cooperation and empathy, absence of disruptiveness, and impulsivity) twice during the academic year (fall [T1] and spring [T2]) using the Multisource Assessment of Social Competence Scale (MASCS; Junntila et al., 2006). The spring ratings were around the same time or after the classroom video recordings. On average, the time between the two waves of data collection of teacher ratings was six months. Parents reported their education and family characteristics through a questionnaire. However, all parents did not reply to the questionnaire, and only the responses of mothers (of education and family demographics) were considered in the analysis because their response rate was higher than that of fathers.

Measures

Teacher–child interaction quality and variability in quality

The CLASS-Toddler (La Paro et al., 2012) instrument was used to measure the quality of teacher–child interactions. The CLASS-Toddler is an observational tool designed to analyze the interactions between teachers and children aged 15–36 months old. The CLASS-Toddler assesses eight dimensions across two broad domains: emotional and behavioral support and engaged support for learning. Emotional and behavioral support encompasses the dimensions of positive climate, negative climate, teacher sensitivity, regard for child perspectives, and behavior guidance. This domain measures the degree

to which the interactions between the teacher and children are warm and affectionate and lack a negative tone and punitive control. It also takes into consideration how sensitive and responsive teachers are to a child's needs, to what extent they seek to follow a child's interests, and whether proactive strategies are used to promote a child's behavior regulation (La Paro et al., 2012). The second domain—engaged support for learning—comprises the dimensions of facilitation of learning and development, quality of feedback, and language modeling, focusing on teachers' strategies to promote learning, thinking, reasoning, and language development through multimodal facilitation and engagement (La Paro et al., 2012). Each dimension is scored on a 7-point scale across 20-minute observation cycles based on the behavioral markers provided in the manual. Scores of 1 and 2 are considered to reflect a low quality, 3 to 5 midrange, and 6 and 7 high quality.

Two trained observers rated the quality of teacher–child interactions using the CLASS-Toddler (rating independently each cycle for the 8 dimensions). The means for each of the two domains were calculated across dimensions at each cycle and across raters and averaged across the entire observation. Based on a factor analysis, a negative climate item was excluded from the emotional and behavioral support domain. The Cronbach's alpha reliability for emotional and behavioral support was .86 and was .87 for engaged support for learning, suggesting high internal consistency.

In addition, the present study investigated the variability of teacher–child interactions (i.e., standard deviation) across the cycles of the teacher–child interactions domain scores. Consistent with prior work in this field (Curby et al., 2010), the average amount of within-day variability was calculated for emotional and behavioral support and engaged support for the learning domains. This involved computing the variances within a day and then taking the square root to convert these values into a standard deviation. This standard deviation for emotional and behavioral support and engaged support for learning was used in the analyses as an indicator of the variability of teacher–child interaction quality. Inspecting variability alongside mean quality is important as, merely collapsing CLASS scores across observation cycles to arrive at an average may mask meaningful differences between classrooms and important information about children's learning environments can be lost (Finders et al., 2021).

Prior to coding, the two observers attended a two-day CLASS-Toddler training session with a certified trainer. At the end of the training, each observer coded five master-coded videos and passed the reliability test within 1 scale point of at least 80% of the master codes. In addition, a subset of the video-recorded cycles was double coded to ensure reliability. On average, the interrater agreement within 1 scale point (as suggested by Pianta et al., 2008) was 98%, ranging from 94% (regard for child perspectives; 97% teacher sensitivity and quality of feedback) to 100% (remaining CLASS-Toddler dimensions). Intraclass correlations calculated for the two raters' codings averaged .85,

ranging from .81 (teacher sensitivity) to .93 (facilitation of learning and development), suggesting high interrater reliability across the observers. A previous study has demonstrated the structural validity of the CLASS-Toddler in Finnish toddler classrooms (see Cadima et al., 2021).

Social competence

Teachers rated toddlers' social competence using the MASCS (Junttila et al., 2006). In the development of the MASCS, some of the constructs and operationalizations of prosocial and antisocial behavior present in the teacher rating of the School Social Behavior Scale (SSBS; Merrell 1993; Merrell & Gimpel, 1998; see also Crowley & Merrell, 2003) were utilized as the basis for the new instrument adapted for Finnish use. The MASCS is considerably shorter than the SSBS regarding the number of items, and it was expanded to ratings by parents and children themselves, as well as teachers. The MASCS has been documented to be a valid and reliable tool in the Finnish samples for assessing social competence across several age groups—including toddlers (see Junttila et al., 2006; Paunula et al., 2020).

The MASCS items (a total of 13 in the present study) were rated on a 4-point scale (1 = *never*, 4 = *very frequently*) by the toddler's classroom teachers (one teacher's rating for each child) in the fall (T1) and spring (T2). The MASCS comprises the following four dimensions, which form the scales for the domains of prosocial behavior and antisocial behavior: The domain of prosocial behavior consists of *Cooperation* (three items: "Participates efficiently in group activities"; "Offers help to other children"; and "Cooperates with other children": $\alpha = .68$ [T1] and $.71$ [T2]) and *Empathy* (three items: "Knows how to be a good friend"; "Is sensitive to the feelings of others"; and "Shows acceptance toward other children": $\alpha = .75$, [T1] and $.85$ [T2]). The domain of antisocial behaviors consists of *Disruptiveness* (four items: "Argues and quarrels with peers"; "Teases or makes fun of other children"; "Acts without thinking"; and "Bothers and irritates other children": $\alpha = .74$ [T1] and $.85$ [T2]) and *Impulsivity* (three items: "Has a short fuse"; "Has temper outbursts or tantrums"; and "Irritates her/himself easily": $\alpha = .87$ [T1] and $.91$ [T2]). Higher scores for each dimension indicate higher levels of prosocial and antisocial behaviors. The dimension scores of social competence were used in the present analysis.

Analysis strategy

The data were analyzed using the Mplus statistical package (Version 8; Muthén & Muthén, 1998–2015). We used the Full Information Maximum Likelihood (FIML) estimation to account for missing data (Enders, 2001) and the Maximum Likelihood Robust (MLR) estimator to adjust for any non-normality in the data. The separate multilevel models were specified for each dimension of social competence because of their high

intercorrelations. Social competence in the spring was predicted by social competence in the fall. The quality of teacher–child interactions was assessed in the spring (including CLASS dimension and domain scores and a calculated measure of variability in quality of teacher–child interactions). CLASS domains were analyzed in separate models due to their high correlation ($r = .690, p < .001$). Children’s gender, age, teacher–child ratio, and mothers’ level of education were controlled for in the analyses due to the fact, that these factors are considered to be key background characteristic linked to either/or social competence and teacher–child interactions (e.g., Cadima et al., 2021; Pakarinen et al., 2020).

The goodness of fit of the models was evaluated using four indicators: chi-square, Bentler’s comparative fit index (CFI), Tucker-Lewis fit index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). The cutoff values for good-fitting models were as follows: $\chi^2 = ns$ ($p > .05$), SRMR $< .05$, RMSEA $< .05$, and CFI and TLI $> .95$ (Byrne, 2012). Standardized regression coefficients were used as measures of effect size, with $\beta < 0.10$ indicating a small effect, a β of around 0.30 indicating a medium-sized effect, and $\beta > 0.50$ indicating a large effect size (Kline, 2005).

Results

The descriptive statistics are shown in Table 1. Correlations between the study variables are shown in Table 2. First, the modeling indicated that proportion of variance accounted at the classroom level was statistically significant in teacher ratings of empathy (ICC = .29 and .22, T1 and T2, respectively), disruptiveness (ICC = .14 and .16, T1 and T2, respectively), and cooperation (ICC = .13 at T1) whereas it was not statistically significant in teacher ratings of cooperation (ICC = .12 at T2) and impulsivity (ICC = .11 and .06, T1 and T2, respectively). To account for the level of social competence at the beginning of the school year, we decided to continue with multilevel modeling with the dimensions of empathy and disruptiveness because they had significant classroom-level variation in both the fall and spring. The results of the multilevel models are presented in Table 3.

TABLE 1 Descriptive statistics for the study variables

<i>VARIABLES</i>	<i>N</i>	<i>%</i>	<i>M</i>	<i>SD</i>	<i>RANGE</i>
Child Characteristics					
Gender (Boy)	128	52.9			
Age in Months	242		28.67	3.46	23–34
Teacher Characteristics					
Female	42	97.7			
Age in Years	40		45.93	9.62	23–60
Work Experience in Years	39		17.54	9.40	4–36
Classroom Characteristics					
Group Size	40		16.90	7	8–45
Child–Adult Ratio	40		5.03	1.07	3.25–7.70
Teacher–Child Interactions					
Emotional and Behavioral Support	42		5.58	.43	4.56–6.25
Variability in EBS ¹	39		1.59	.79	0–3.33
Engaged Support for Learning	42		3.35	.48	2.33– 4.25
Variability in ESL ²	39		1.70	.83	.33–3.61
Social Competence					
Cooperation T1	205		2.24	.44	1.07–3.17
Empathy T1	205		2.28	.46	.81–3.25
Disruptiveness T1	205		1.35	.41	.71–2.82
Impulsivity T1	205		1.73	.61	.86–3.42
Cooperation T2	161		2.36	.45	1.07–3.36
Empathy T2	160		2.46	.49	.81–3.40
Disruptiveness T2	160		1.38	.42	.68–2.74
Impulsivity T2	160		1.87	.61	.86–3.60

Note. ¹Emotional and behavioral support; ²Engaged support for learning

TABLE 2 Correlations between the study variables (between level correlations above the diagonal)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. Child Age	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Child gender	.056	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Mother's Education	.034	-.074	1	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Adult-Child Ratio	-	-	-	1	.520**	.200	.038	.061	.227	.382	.715**	.763	.189	.099	-.043	.013
5. Cooperation T1	.227**	-.280***	.058	-	1	.732***	-.335	-.224	.654+	.696**	-.374	-.601	-.106	-.096	.129	-.176
6. Empathy T1	.181**	-.142*	.005	-	.732***	1	-.565*	-.172	-.076	.338	-.434	.346	-.140	.019	.281+	.047
7. Disruptiveness T1	-.085	.200**	.064	-	-.248***	-.451***	1	.740***	-.908+	-.254	.690*	.743	-.324	-.338	.280	-.301
8. Impulsivity T1	-.019	.173*	-.043	-	-.215**	-.365***	.722***	1	-.373	.012	.683+	.691	-.613*	-.524*	.084	-.052
9. Cooperation T2	.030	-.374***	.163+	-	.591***	.389***	-.276**	-.295***	1	.253	-.076	-.442	.407*	.478+	-.380	-.496+
10. Empathy T2	.031	-.148+	.075	-	.524***	.479***	-.374***	-.403***	.699***	1	.376	.031	-.031	.212	-.136	-.407*
11. Disruptiveness T2	.014	.169*	-.029	-	-.198*	-.327***	.627***	.579***	-.262**	-.418***	1	.787	.023	.023	-.338	-.083
12. Impulsivity T2	-.011	.087	-.081	-	-.172*	-.238**	.523***	.747***	-.321***	-.488***	.669***	1	-.688	-.437	.366	.694
13. EBS ¹	-	-	-	-	-	-	-	-	-	-	-	-	1	.690***	.122	.210
14. ESL ²	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.309+	.470**
15. Variability in EBS ³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.767***
16. Variability in ESL ⁴	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Note. + $p < .09$, * $p < .05$, ** $p < .01$, *** $p < .001$; ¹EBS = Emotional and behavioral support; ²ESL = Engaged support for learning; ³Variability in emotional and behavioral support; ⁴Variability in engaged support for learning

TABLE 3 Teacher-child interaction quality, its variability, and social competence

Models	Engaged Support for Learning				Emotional and Behavioral Support			
	Empathy T2		Disruptiveness T2		Empathy T2		Disruptiveness T2	
	β / r	(SE)	β / r	(SE)	β / r	(SE)	β / r	(SE)
Within (Child-level)								
<i>Regression paths</i>								
Social Competence ^a T1 → Social Competence ^a T2	.532***	(.074)	.612***	(.089)	.530***	(.076)	.610***	(.087)
Age → Social Competence ^a T2	-.077	(.077)	-.016	(.072)	-.064	(.071)	-.026	(.073)
Mother's Education → Social Competence ^a T2	.073	(.075)	-.067	(.076)	.082	(.075)	-.066	(.077)
Gender ^b → Social Competence ^a T2	-.077	(.070)	.016	(.072)	-.107	(.069)	.032	(.071)
<i>Covariances/Correlations</i>								
Social Competence ^a T1 with Gender ^b	-.214**	(.078)	.198*	(.079)	-.229**	(.075)	.197*	(.079)
Social Competence ^a T1 with Age	.115*	(.055)	-.083	(.078)	.128*	(.055)	-.081	(.074)
Social Competence ^a T1 with Mother's Education	.039	(.090)	.072	(.083)	.048	(.090)	.075	(.083)
Gender ^b with Mother's Education	-.074	(.060)	-.075	(.060)	-.074	(.060)	-.075	(.060)
Gender ^b with Age	.045	(.050)	.045	(.050)	.045	(.050)	.045	(.370)
Mother's Education with Age	.029	(.074)	.027	(.074)	.029	(.074)	.027	(.074)
Between (Classroom Level)								
<i>Regression paths</i>								
Social Competence ^a T1 → Social Competence ^a T2	.456+	(.266)	.815+	(.489)	.423	(.320)	.697*	(.315)
TCI ^c → Social Competence ^a T2	.643**	(.243)	.383	(.431)	-.063	(.303)	.232	(.206)
Variability in TCI ^c → Social Competence ^a T2	-.598**	(.211)	-.299	(.371)	-.148	(.264)	-.208	(.190)
Child-Adult Ratio → Social Competence ^a T2	.215	(.169)	.522+	(.272)	.303	(.220)	.502*	(.243)
Social Competence ^a T1 → TCI ^c	-.007	(.233)	-.406	(.258)	-.243+	(.140)	-.300	(.268)
Social Competence ^a T1 → Variability in TCI ^c	.111	(.255)	.168	(.306)	.352*	(.149)	.133	(.239)
<i>Covariances/Correlations</i>								
TCI ^c with Variability in TCI ^c	.482***	(.108)	.578**	(.172)	.271*	(.129)	.159	(.128)
TCI ^c with Child-Adult Ratio	.104	(.156)	.150	(.181)	.218+	(.131)	.215	(.136)
Variability in TCI ^c with Child-Adult Ratio	.003	(.135)	-.003	(.151)	-.075	(.153)	-.038	(.155)

Note. + $p < .09$, * $p < .05$, ** $p < .01$, *** $p < .001$; ^a Empathy & Disruptiveness; ^b 1 = girl; 2 = boy; ^c Teacher-child interaction quality = Engaged Support for Learning or Emotional and Behavioral Support

Disruptiveness

The model for disruptiveness and emotional and behavioral support fitted the data well: $\chi^2(2) = 0.325$, $p = .850$, CFI = 1.00, TLI = 1.00, RMSEA = .000, SRMR_{within} = .002, SRMR_{between} = .038. The results of the multilevel modeling (Table 3) indicated the classroom average level of disruptiveness was highly stable across the year ($\beta = .697$, $p < .05$). A higher educator-child ratio was positively linked to higher ratings of disruptiveness ($\beta = .502$, $p < .05$). Emotional and behavioral support and the variability of such support, however, were not significantly related to the classroom average level of disruptiveness. The results at the individual children level showed that disruptiveness was stable across the school year ($\beta = .610$, $p < .001$) and gender positively predicted disruptiveness ($\beta = .197$, $p < .05$), meaning that boys were rated by teachers as more disruptive.

The model for disruptiveness and engaged support for learning fit the data well: $\chi^2(2) = 0.694$, $p = .707$, CFI = 1.00, TLI = 1.00, RMSEA = .000, SRMR_{within} = .002, SRMR_{between} = .049. The results (Table 3) were otherwise similar to the findings above, but the classroom average level of disruptiveness was found to be stable across the school year ($\beta = .815$, $p < .10$) only at a marginally significant level. Child-adult ratio was positively related to the disruptiveness ($\beta = .522$, $p < .06$), albeit marginally significantly. Engaged support for learning and the variability of such support, however, were not significantly related to the disruptiveness.

Empathy

The model for empathy and emotional and behavioral support fitted the data well: $\chi^2(2) = 1.070$, $p = .586$, CFI = 1.00, TLI = 1.00, RMSEA = .000, SRMR_{within} = .003, SRMR_{between} = .049. The results of multilevel modeling (Table 3) indicated that the classroom average level of empathy in the fall was negatively related to observed emotional and behavioral support ($\beta = -.243$, $p < .09$) in the spring and positively related to variability in emotional and behavioral support ($\beta = .352$, $p < .05$). At the individual children level, empathy showed stability ($\beta = .530$, $p < .001$). The results further indicated that girls tended to be rated as more empathic by their teachers than boys ($\beta = -.229$, $p < .01$) and older children as more empathic than younger children ($\beta = .128$, $p < .05$).

The model for empathy and engaged support for learning fitted the data well: $\chi^2(2) = 0.973$, $p = .615$, CFI = 1.00, TLI = 1.00, RMSEA = .000, SRMR_{within} = .003, SRMR_{between} = .044. The results of multilevel modeling (Table 3) indicated that the classroom average level of empathy in the fall was positively related to empathy in the spring ($\beta = .456$, $p < .09$), albeit marginally significantly. In addition, engaged support for learning was positively associated with teacher-rated classroom average level of empathy ($\beta = .643$, $p < .01$) in the spring when accounting for previous levels of empathy. In addition, a higher variance in engaged support for learning was negatively related to empathy ($\beta = -.598$, $p < .01$). At

the level of individual children, the results further indicated that empathy in the fall was positively related to empathy in the spring ($\beta = .532, p < .01$). In addition, girls tended to be rated as more empathic by their teachers than boys ($\beta = -.214, p < .01$) and older children as more empathic than younger children ($\beta = .115, p < .05$).

Discussion

The number of classroom observation studies (using the CLASS tool) have steadily increased, more recently in the context of ECEC. However, studies among toddlers continue to be very few. The current study set out to explore the extent to which the quality and variability of teacher–child interactions (as measured with the CLASS-Toddler) are associated with children’s social competence, which are defined as prosocial and antisocial behavior as rated by their teachers, in a sample of Finnish toddler classrooms. The results indicated that a high quality of observed engaged support for learning in the classroom was positively associated with toddlers’ prosocial behavior, namely teacher ratings of empathy. In addition, higher variability in engaged support for learning in the classroom (i.e., less consistency across observational cycles) was negatively related to teacher ratings of empathy. At the same time, no associations were found between either of the CLASS domains of teacher–child interaction quality and teacher ratings of disruptiveness.

The lack of associations between teacher–child interaction quality and teacher-rated toddler disruptiveness was rather unexpected because prior studies among older children have shown evidence of the benefits of higher-quality teacher support for less antisocial and problem behavior (e.g., Siekkinen et al., 2013). However, similar association has not been fully confirmed in the toddler classrooms, rather, the lack of association between observed teacher–child interaction quality and externalizing behavioral problems has been reported before (Broekhuizen et al., 2018). In the current study, this unexpected finding can at least partially be explained by broader toddler development and by the way disruptive behavior is perceived by teachers in toddler classrooms (see Williams et al., 2007). For instance, as toddlers’ play behavior gradually shifts toward shared play with peers, this means that children spend more time together, and these situations are also likely to challenge developing social skills and, for example, evoke disruptive and even aggressive behavior. Hence, teachers may consider disruptiveness as more natural and “expected” behavior in the case of toddlers than what the items of the MASC instrument originally intend.

Quality of engaged support for learning and empathic behavior

Finding positive associations between a high quality of observed engaged support for learning and teacher-rated empathy was also rather surprising considering the broad and

well-documented evidence of the role of high quality emotional and behavioral support on the overall development of social competence across different age groups and countries (e.g., Broekhuizen et al., 2018; Curby et al., 2013; La Paro et al., 2014; Pakarinen et al., 2020). One possible reason for this may be because of the average quality of observed emotional and behavioral support was higher than for engaged support for learning. This suggests that toddler classrooms generally have a warm and affectionate climate, with teachers sensitively responding to children's needs, initiatives, and perspectives, which may stem from heightened national attention to promoting the practices of teacher sensitivity and emotional availability in Finnish ECEC through research (Hännikäinen, 2017; Ranta, 2020) and interventions (e.g., Harkoma et al., 2021). However, international studies suggest that promoting positive, secure, and sensitive relationships with toddlers might not be enough to support children's socio-emotional development (e.g., Rosenthal & Gatt, 2011). Thus, the findings point to the importance of ensuring high-quality instructional support/engaged support for learning for young children's social development (e.g., Siekkinen et al., 2013). The results of the current study do not indicate that the role of emotional and behavioral support is not relevant for toddler's social development but rather speak for the added value of high-quality engaged support for learning across the day and different activities.

There are several plausible pathways that might explain the positive association between high quality engaged support for learning and children's empathic behavior:

Active facilitation provides a model of empathic behavior. The results of the current study speak to the importance of teacher's purposeful presence with toddlers across different daily activities and intentional initiatives to engage children in activity through active facilitation. By actively engaging in activities with toddlers, teachers are more likely to observe the children's behaviors and interests and connect with their ongoing activities. This allows teachers to directly acknowledge and support empathy and affective perspective taking by explaining or reasoning together with toddlers about emotions and their expressions. This assumption is in line with the notions of Rosenthal and Gatt (2011), who used the concept of "audiencing" when referring to teachers being both able to respond to the needs of the individual children and, at the same time, set the stage for learning of the whole group by helping the other children (the audience) to engage and understand the experiences of their peer, through providing a verbal and physical model of empathic behavior for them.

Feedback and scaffolding reinforce empathic behavior. High-quality engaged support for learning is also characterized by the provision of thoughtful and constructive feedback that aids the toddler in recognizing the elements of prosocial behavior and pay attention to the appropriate means of interacting and negotiating one's own desires with those of the others. The wide acknowledgment that social competence is learned rather than an

innate quality (e.g., Ladd, 2005) alludes to the fact that meaningful and well-timed feedback can bolster empathic behavior through positive reinforcement. By providing feedback and through affirmation and encouragement, teachers can help children recognize the moments they have behaved in an empathic way or showed empathy toward others (see also Spivak & Farran, 2012). Through scaffolding, the teacher can reinforce and solidify empathic behavior together with the children and gradually fortify the children's self-efficacy beliefs in performing empathic behaviors independently and voluntarily (e.g., hugging when someone has hurt him- or herself, patting someone on the back, sharing emotions with the other, etc.).

Rich and diverse use of language provides a vocabulary of empathy. Finally, the results of the current study have shown that regular and reciprocal discussions between teacher and children are not only effective contexts for improving toddlers' language, learning, and deeper thinking skills (Salminen, Muhonen, et al., 2021) but also for learning empathic behaviors. During such discussions, teachers can address manifestations of empathic behavior with toddlers, for example, by discussing why it is important to show acceptance toward others or to know how to be a good friend. By using rich vocabulary and by repeating toddlers' utterances and extending them with more nuanced expressions, teachers can provide children with effective tools in the form of "the right words" for their communication with peers in different situations. For toddlers, learning verbal expressions or labels for emotions provides them with a more sophisticated means to understand and make themselves understood by others. Finally, teachers' use of self- and parallel talk is a particularly powerful way of making explicit and explaining empathic behavior for and with children. The teacher can make a child's subtle gesture known, validated, and, therefore, more likely to be understood correctly by another child (e.g., "Now John is handing you a tissue. He wants you to wipe your tears, and maybe you would then like to play with him?").

Variability of engaged support for learning and empathic behavior

Prior studies have shown that the variability of teacher child interaction is a meaningful measure for understanding children's interactional experiences in the classroom context alongside teacher-child interaction quality (e.g., Finders et al., 2021). They have also shown that the lower variability of teacher-child interaction in the domain of emotional support plays a unique role in the developmental gains of preschoolers' social competence (see Curby et al., 2013). Although, the results were limited in the current study, they are novel in showing that a higher variability of engaged support for learning may have detrimental effects on toddlers' empathic behaviors. Similar findings have not been reported before. However, one explanation for the finding is that teachers who vary vastly in their interactions in the domain of engaged support for learning may fail to systematically engage in activities with toddlers and scaffold their behaviors through the timely use of language and feedback, consequently undermining toddlers' developmental

needs, also with respect to empathic behaviors. Another explanation might relate to unpredictable teachers proving to be poor role models for establishing empathic behavior (see also Brock & Curby, 2014; Quann & Wien, 2006). Systematic modeling may be a particularly relevant avenue of learning for toddlers. It is interesting to note that in the prior study by Curby et al. (2013), mean levels of teacher–child interaction quality were not significant predictors of children’s social outcomes when consistency (i.e., low variability) was included in the same model. In our study, the mean levels of classroom quality were still related to empathy although variability was also included in the same multilevel model. This finding is important in suggesting that even though variability plays a role, it does not rule out the importance of teacher–child interaction quality. Rather, it suggests their unique contributions to building an interactional context for the development of social competence.

Implications

Finnish ECEC has typically had a strong emphasis on supporting children’s social skill development, and the role of interaction in child development and learning has been underlined in the national curriculum (Finnish National Agency for Education [EDUFI], 2018, p. 15). However, the perspectives of infants and toddlers have been neglected in the curriculum (Rutanen & Hännikäinen, 2019), and shortcomings seem to exist in the implementation of pedagogy (actualized in teacher–child interactions) in toddler classrooms (Repo et al., 2020). The results of the current study add to the research of teacher–child interaction quality in toddler classrooms, indicating that high-quality engaged support for learning in the ECEC classrooms is beneficial to toddlers’ social competence. The results of the current study are particularly useful for ECEC teacher training because they provide new insights both for the importance and implementation of toddler pedagogy. In line with earlier literature in toddler, preschool, and kindergarten classrooms, the overall level of quality of teacher–child interactions in the domain of engaged support for learning was lower than the overall level in the domain of emotional and behavioral support, reaching only the low- to mid-levels. Furthermore, higher variability of teacher–child interaction quality in the domain of engaged support for learning was associated with fewer empathic behaviors on toddlers. Therefore, the results call for a continuing need to address the characteristics of teacher support, particularly in the domain of engaged support for learning and the stability of these interactions across daily activities as part of pre- and in-service training.

Limitations and future directions

The current study has some limitations. First, the observational data were gathered in ECEC settings within one Finnish municipality where teacher training takes place. Therefore, one must exert caution in generalizing the results. Second, in contrast to some prior studies, we found no association between observed classroom emotional and

behavioral support and ratings of toddlers' social competence. The results should preferably be replicated in another toddler sample to further validate this finding. Related to this somewhat unexpected finding, it should be noted that the highly qualified, motivated, and knowledgeable staff of the toddler classrooms in the current sample may have decreased variation in the domain of emotional and behavioral support. The lack of broader associations between teacher-child interaction quality and domains of social competence, particularly antisocial behavior, should likewise be inspected in further studies. Third, teacher ratings of the assessment of children's social competence in their classroom were used in the current study. Teacher assessment might be more vulnerable to bias, especially if not compared with other forms of assessment (e.g., parental ratings, observer ratings or direct measures), so the results should be interpreted with caution. The use of multiperson data is also suggested in the literature (Broekhuizen et al., 2018). Fourth, although the current study showed an association between both the quality and variability of teacher-child-interaction and toddlers' social competence, further research is needed to understand in detail the interplay (i.e., interaction effects) between these two aspects of teacher-child interaction and the role that they play for the development of child outcomes. Fifth, the identified effects were small in size, and only a small part of the variance was explained because of the relatively small sample size. Relatedly, it should be noticed that classrooms varied in terms of participating children. Considering that children's social competence becomes rather stable before school entry, it would be important for future studies to utilize longitudinal data to analyze how and to what extent early teacher-child interaction quality is concurrently associated with and subsequently predicts children's social competence later in kindergarten and in the early years of primary education. In future studies, it would also be important to examine the role that early self-regulation skills play in the development of social competence and whether teacher-child interaction quality is differently associated with the indicators of self-regulation skills.

Conclusion

The results of the current study speak for the added value of high-quality engaged support for learning rather than emphasizing the traditionally acknowledged role of emotional and behavioral support for toddler's social development. In order to enhance toddlers' empathic behavior, interactions and teacher support need not only to be of high quality, but also show low variability across these interactions to facilitate predictability and coherence for toddlers' daily experiences. The results imply that toddlers' empathic behavior is socially constructed at the classroom level, in the context of high-quality teacher-child interaction.

Acknowledgments

The authors wish to express their sincere thanks to all the children, teachers, and guardians for participating in the Interaction, Development and Learning (VUOKKO) - follow up study (Lerkkanen & Salminen, 2015–2019). The first author was funded by the Academy of Finland (Grant no. 308070) and the Tiina and Antti Herlin Foundation (2015–2016).

References

- Ainsworth, M. D. S. (1969). Object relations, dependency, and attachment: A theoretical review of the infant-mother relationship. *Child Development, 40*, 969–1025. <https://doi.org/10.2307/1127008>
- Baldwin, D., & Meyer, M. (2009). How inherently social is language? In E. Hoff & M. Shatz (Eds.), *Blackwell handbook of language development* (pp. 87–106). Blackwell.
- Boivin, M., Vitaro, F., & Poulin, F. (2005). Peer relationships and the development of aggressive behavior in early childhood. In R. E. Tremblay, W. W. Hartup, & J. Archer (Eds.), *Developmental origins of aggression* (pp. 376–397). The Guilford Press.
- Booren, L. M., Downer, J. T., & Vitiello, V. E. (2012). Observations of children's interactions with teachers, peers, and tasks across preschool classroom activity settings. *Early Education and Development, 23*(4), 517–538. <https://doi.org/10.1080/10409289.2010.548767>
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. Basic Books.
- Bredenkamp, S., & Copple, C. (1998). *Developmentally appropriate practice in early childhood programs* (3rd ed). National Association for the Education of Young Children.
- Brock, L. L., & Curby, T. W. (2014). Emotional support consistency and teacher–child relationships forecast social competence and problem behaviors in prekindergarten and kindergarten. *Early Education and Development, 25*(5), 661–680. <http://dx.doi.org/10.1080/10409289.2014.866020>
- Broekhuizen, M. L., Mokrova, I. L., Burchinal, M. R., Garrett-Peters, P. T., & Family Life Project Key Investigators. (2016). Classroom quality at pre-kindergarten and kindergarten and children's social skills and behavior problems. *Early Childhood Research Quarterly, 36*, 212–222. <https://doi.org/10.1016/j.jecresq.2016.01.005>
- Broekhuizen, M. L., Van Aken, M. A., Dubas, J. S., & Leseman, P. P. (2018). Child care quality and Dutch 2- and 3-year-olds' socio-emotional outcomes: Does the amount of care matter? *Infant and Child Development, 27*(1), e2043. <https://doi.org/10.1002/icd.2043>
- Bulotsky-Shearer, R. J., Fernandez, V. A., Bichay-Awadalla, K., Bailey, J., Futterer, J., & Qi, C. H. (2020). Teacher-child interaction quality moderates social risks associated with problem behavior in preschool classroom contexts. *Journal of Applied Developmental Psychology, 67*, 101103. <https://doi.org/10.1016/j.appdev.2019.101103>
- Byrne, B. M. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. Routledge.

Salminen, Pakarinen, Poikkeus, Laakso & Lerkkanen.

Journal of Early Childhood Education Research 11(1) 2022, 38–67. <http://jecer.org>

- Cadima, J., Aguiar, C., Guedes, C., Wysłowska, O., Salminen, J., Slot, P., Barata, C., & Lerkkanen, M.-K. (2021). *Variations in process quality across activities in toddler classrooms in four European countries*. Manuscript submitted for publication.
- Calkins, S. D. (2007). The emergence of self-regulation: Biological and behavioral control mechanisms supporting toddler competencies. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 261–284). The Guilford Press.
- Chen, D. W., Fein, G. G., Killen, M., & Tam, H-P. (2001). Peer conflicts of preschool children: Issues, resolution, incidence, and age-related patterns. *Early Education and Development, 12*, 523–544. https://doi.org/10.1207/s15566935eed1204_3
- Crowley, S. L., & Merrell, K. W. (2003). The structure of the School Social Behavior Scales: A confirmatory factor analysis. *Assessment for Effective Intervention, 28*(2), 41–55.
- Curby, T. W., Brock, L. L., & Hamre, B. K. (2013). Teachers' emotional support consistency predicts children's achievement gains and social skills. *Early Education and Development, 24*(3), 292–309. <http://dx.doi.org/10.1080/10409289.2012.665760>
- Curby, T. W., Grimm K. J., & Pianta, R. C. (2010). Stability and change in early childhood classroom interactions during the first two hours of a day. *Early Childhood Research Quarterly, 25*(3), 373–384. <https://doi.org/10.1016/j.ecresq.2010.02.004>
- Denham, S. A. (2006). Social-emotional competence as support for school readiness: What is it and how do we assess it? *Early Education and Development, 17*(1), 57–89. https://doi.org/10.1207/s15566935eed1701_4
- Denham, S. A., Warren-Khot, H. K., Bassett, H. H., Wyatt, T., & Perna, A. (2012). Factor structure of self-regulation in preschoolers: Testing models of a field-based assessment for predicting early school readiness. *Journal of Experimental Child Psychology, 111*(3), 386–404. <https://doi.org/10.1016/j.jecp.2011.10.002>
- Downer, J., Sabol, T. J., & Hamre, B. K. (2010). Teacher–child interactions in the classroom: Toward a theory of within-and cross-domain links to children's developmental outcomes. *Early Education and Development, 21*(5), 699–723. <https://doi.org/10.1080/10409289.2010.497453>
- Eisenberg, N., & Fabes, R. A. (1998). Prosocial development. In W. Damon (Ed.), *Handbook of child psychology. Vol. 3. Social, emotional and personality development* (pp. 701–778). Wiley.
- Enders, C. K. (2001). The performance of the full information maximum likelihood estimator in multiple regression models with missing data. *Educational and Psychological Measurement, 61*, 713–740. <https://doi.org/10.1177/0013164401615001>
- European Commission. (2014). *Proposal for key principles of a quality framework for early childhood education and care. Report of the working group on early childhood education and care under the auspices of the European Commission*. http://ec.europa.eu/dgs/education_culture/repository/education/policy/strategic-framework/archive/documents/ecec-quality-framework_en.pdf
- European Commission/EACEA/Eurydice. (2019). *Key data on early childhood education and care in Europe. 2019 edition. Eurydice report*. Publications Office of the European Union. <https://ec.europa.eu/eurostat/documents/3217494/5785249/EC-01-14-484-EN.PDF/cbdf1804-a139-43a9-b8f1ca5223eea2a1>

Salminen, Pakarinen, Poikkeus, Laakso & Lerkkanen.

Journal of Early Childhood Education Research 11(1) 2022, 38–67. <http://jecer.org>

- Farmer, T. W. (2000). The social dynamics of aggressive and disruptive behavior in school: Implications for behavior consultation. *Journal of Educational and Psychological Consultation, 11*, 299–321. <https://doi.org/10.1080/10474412.2000.9669417>
- Finders, J. K., Budrevich, A., Duncan, R. J., Purpura, D. J., Elicker, J., & Schmitt, S. A. (2021). Variability in preschool CLASS scores and children's school readiness. *AERA Open, 7*(1), 1–19. <https://doi.org/10.1177/23328584211038938>
- Finnish National Agency for Education (EDUFI). (2018). *National core curriculum for early childhood education and care 2018*. Regulations and guidelines 2018:3c.
- Gonzales-Mena, J., & Widmeyer Eyer, D. (2007). *Infants, toddlers and caregivers: A curriculum, of respectful, responsive care and education* (7th ed.). McGraw Hill.
- Grazzani, I., Ornaghi, V., Agliati, A., & Brazzelli, E. (2016). How to foster toddlers' mental-state talk, emotion understanding, and prosocial behavior: A conversation-based intervention at nursery school. *Infancy, 21*(2), 199–227. <https://doi.org/10.1111/inf.12107>
- Hamre, B. K., Pianta, R. C., Downer, J. T., DeCoster, J., Mashburn, A. J., Jones, S. M., Brown, J. L., Cappella, E., Atkins, M., Rivers, S. E., Brackett, M. A., & Hamagami, A. (2013). Teaching through interactions: Testing a developmental framework of teacher effectiveness in over 4,000 classrooms. *The Elementary School Journal, 113*(4), 461–487. <https://doi.org/10.1086/669616>
- Harkoma, S., Sajaniemi, N., Suhonen, E., & Saha, M. (2021). Impact of pedagogical intervention on early childhood professionals' emotional availability to children with different temperament characteristics. *European Early Childhood Education Research Journal, 29*(2), 183–205. <https://doi.org/10.1080/1350293X.2021.1895264>
- Hännikäinen, M. (2017). Kasvattajan pedagoginen herkkyyks ja pienten lasten emotionaalinen hyvinvointi päiväkotiryhmissä [Teacher's pedagogical sensitivity and young children's emotional well-being in ECEC]. *NMI-Bulletin, 27*(1), 54–63.
- Hännikäinen, M., & Munter, H. (2018). Toddlers' play in early childhood education settings. In P. K. Smith & J. L. Roopnarine (Eds.), *The Cambridge handbook of play: Developmental and disciplinary perspectives* (pp. 491–510). Cambridge University Press.
- Hay, D. F., & Cook, K. V. (2007). The transformation of prosocial behavior from infancy to childhood. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 100–131). Guilford Press.
- Hay, D. F., Castle, J., Davies, L., Demetriou, H., & Stimson, C. A. (1999). Prosocial action in very early childhood. *Journal of Child Psychology and Psychiatry, 40*(6), 905–916. <https://doi.org/10.1111/1469-7610.00508>
- Howes, C. (2011). Children's social development within the socialization context of child care and early childhood education. In P. K. Smith & C. H. Hart (Eds.), *The Wiley-Blackwell handbook of childhood social development* (2nd ed., pp 246–262). Blackwell Publishing Ltd.
- Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly, 23*, 27–50. <https://doi.org/10.1016/j.ecresq.2007.05.002>
- Junttila, N., Voeten, M., Kaukiainen, A., & Vauras, M. (2006). Multisource assessment of children's social competence. *Educational and Psychological Measurement, 66*, 874–895. <https://doi.org/10.1177/0013164405285546>

- Kaplan, S., & Berman, M. G. (2010). Directed attention as a common resource for executive functioning and self-regulation. *Perspectives on Psychological Science, 5*, 43–57. <https://doi.org/10.1177=1745691609356784>
- Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). Guilford Press.
- La Paro, K. M., Hamre, B. K., & Pianta, R. C. (2012). *Classroom assessment scoring system. Manual, toddler*. Paul H. Brookes Publishing Company.
- La Paro, K. M., Williamson, A. C., & Hatfield, B. (2014). Assessing quality in toddler classrooms using the CLASS-Toddler and the ITERS-R. *Early Education and Development, 25*(6), 875–893. <https://doi.org/10.1080/10409289.2014.883586>
- Ladd, G. W. (1999). Peer relationships and social competence during early and middle childhood. *Annual Review of Psychology, 50*, 333–359.
- Ladd, G. W. (2005). *Children's peer relations and social competence: A century of progress*. Yale University Press.
- Lamm, C., Batson, C. D., & Decety, J. (2007). The neural substrate of human empathy: Effects of perspective-taking and cognitive appraisal. *Journal of Cognitive Neuroscience, 19*(1), 42–58. <https://doi.org/10.1162/jocn.2007.19.1.42>
- Lerkkanen, M.-K., & Salminen, J. (2015–2019). Interaction, Development & Learning (VUOKKO) - study. Early Childhood Education. Unpublished data. University of Jyväskylä, Finland.
- Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D. M., & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development, 79*, 732–749. <https://doi.org/10.1111/j.1467-8624.2008.01154.x>
- Merrell, K. W. (1993). Using behavior rating scales to assess social skills and antisocial behavior in school settings: Development of the school social behavior scales. *School Psychology Review, 22*, 115–133. <https://doi.org/10.1080/02796015.1993.12085641>
- Merrell, K. W., & Gimpel, G. A. (1998). *Social skills of children and adolescents: Conceptualization, assessment, treatment*. Erlbaum.
- Muthén, L. K., & Muthén, B. O. (1998). *Mplus user's guide* (7th ed.). Muthén & Muthén.
- NICHD Early Child Care Research Network. (2004). Trajectories of physical aggression from toddlerhood to middle childhood. *Monographs of the Society for Research in Child Development, 69*. <https://www.jstor.org/stable/3701390>
- OECD. (2018). Engaging young children: Lessons from research about quality in early childhood education and care. In *Starting strong*. OECD Publishing. <https://doi.org/10.1787/9789264085145-en>
- Ornaghi, V., Conte, E., & Grazzani, I. (2020). Empathy in toddlers: The role of emotion regulation, language ability, and maternal emotion socialization style. *Frontiers in Psychology, 11*, 2844. <https://doi.org/10.3389/fpsyg.2020.586862>
- Pakarinen, E., Aunola, K., Kiuru, N., Lerkkanen, M. K., Poikkeus, A. M., Siekkinen, M., & Nurmi, J. E. (2014). The cross-lagged associations between classroom interactions and children's achievement behaviors. *Contemporary Educational Psychology, 39*(3), 248–261. <https://doi.org/10.1016/j.cedpsych.2014.06.001>

- Pakarinen, E., Kiuru, N., Lerkkanen, M.-K., Poikkeus, A.-M., Ahonen, T., & Nurmi, J.-E. (2011). Instructional support predicts children's task avoidance in kindergarten. *Early Childhood Research Quarterly, 26*(3), 376–386. <https://doi.org/10.1016/j.ecresq.2010.11.003>
- Pakarinen, E., Lerkkanen, M.-K., & von Suchodoletz, A. (2020). Teacher emotional support in relation to social competence in preschool classrooms. *International Journal of Research & Method in Education, 43*(4), 444–460. <https://doi.org/10.1080/1743727X.2020.1791815>
- Paunula, V., Junntila, N., Aromaa, M., Rautava, P., & Räihä, H. (2020). Parental psychosocial well-being as a predictor of the social competence of a child. *Journal of Child and Family Studies, 29*(11), 3004–3019. <https://doi.org/10.1007/s10826-020-01790-6>
- Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *Classroom assessment scoring system. Manual, pre-K*. Paul H. Brookes Publishing Company.
- Quann, V., & Wien, C. A. (2006). The visible empathy of infants and toddlers. *Young Children, 61*(4), 22–28. http://www.brainandbelief.com/uploads/5/4/1/5/5415260/visible_empathy_of_infants_and_toddlers.pdf
- Ranta, S. (2020). Positiivinen pedagogiikka suomalaisessa varhaiskasvatuksessa ja esiopetuksessa [Positive pedagogy in the Finnish early childhood education and care centers and pre-school] [Dissertation, University of Lapland]. Acta electronica Universitatis Lapponiensis 283. <http://urn.fi/URN:ISBN:978-952-337-217-7>
- Raver, C. C., & Knitzer, J. (2002). *Ready to enter: What research tells policymakers about strategies to promote social and emotional school readiness among three-and four-year-old children* (Policy paper). National Center for Children in Poverty.
- Repo, L., & Repo, J. (2016). Integrating bullying prevention in early childhood education pedagogy. In O. Saracho (Ed.), *Contemporary perspectives on research on bullying and victimization in early childhood education* (pp. 273–294). Information Age Publishing.
- Repo, L., Paananen, M., Eskelinen, M., Mattila, V., Lerkkanen, M.-K., Gammelgård, L., Ulvinen, J., Marjanen, J., Kivistö, A., & Hjelt, H. (2020). *Every day quality in early childhood education and care – ECEC curriculum implementation at ECEC centres and in family day care* (Summaries 16:2020). Finnish National Education Evaluation Centre.
- Rieffe, C., Ketelaar, L., & Wiefferink, C.H. (2010). Assessing empathy in young children: Construction and validation of an Empathy Questionnaire (EmQue). *Personality and Individual Differences, 49*(5), 362–367. <https://doi.org/10.1016/j.paid.2010.03.046>
- Rogoff, B. (2008). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, and apprenticeship. In K. Hall, P. Murphy, & J. Soler (Eds.), *Pedagogy and practice: Culture and identities* (pp. 58–74). Sage.
- Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development, 6*, 111–135. <https://doi.org/10.1111/j.1467-9507.1997.tb00097.x>
- Rose-Krasnor, L., & Denham, S. (2009). Social-emotional competence in early childhood. In K. Rubin, W. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 162–179). The Guilford Press.
- Rosenthal, M., & Gatt, L. (2011). Training early years practitioners to support young children's social relationships. In M. Kernan & E. Singer (Eds.), *Peer relationships in early childhood education and care* (pp. 113–126). Routledge.
- Salminen, Pakarinen, Poikkeus, Laakso & Lerkkanen. *Journal of Early Childhood Education Research* 11(1) 2022, 38–67. <http://jecer.org>

- Rubin, K. H., Bukowski, W., & Parker, J. G. (1998). Peer interactions, relationships, and groups. In N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 619–700). Wiley.
- Rubin, K. H., Bukowski, W. M., & Parker, J.G. (2006). Peer interactions, relationships, and groups. In N. Eisenberg (Vol. Ed.), *Handbook of child psychology, Vol. 3: Social, emotional, and personality development* (6th ed., pp. 571–645). Wiley.
- Rutanen, N., & Hännikäinen, M. (2019). Finland: Becoming and the youngest children at home and in ECEC. In M. Gradovski, E. Eriksen Ødegaard, N. Rutanen, J. Sumsion, C. Mika, & E. J. White (Eds.), *The first 1000 days of early childhood: Becoming* (pp. 93–108). Springer.
- Salminen, J., Muhonen, H., Cadima, J., Pagani, V., & Lerkkanen, M. K. (2021). Scaffolding patterns of dialogic exchange in toddler classrooms. *Learning, Culture and Social Interaction, 28*, 100489. <https://doi.org/10.1016/j.lcsi.2020.100489>
- Salminen, J., Guedes, C., Lerkkanen, M. K., Pakarinen, E., & Cadima, J. (2021). Teacher-child interaction quality and children's self-regulation in toddler classrooms in Finland and Portugal. *Infant and Child Development, e2222*. <https://doi.org/10.1002/icd.2222>
- Santos, A. J., Vaughn, B. E., Peceguina, I., Daniel, J. R., & Shin, N. (2014). Growth of social competence during the preschool years: A 3-year longitudinal study. *Child Development, 85*(5), 2062–2073. <https://doi.org/10.1111/cdev.12246>
- Siekkinen, M., Pakarinen, E., Lerkkanen, M.-K., Poikkeus, A.-M., Salminen, J., Poskiparta, E., & Nurmi, J.-E. (2013). Social competence among 6-year old children and classroom instructional support and teacher stress. *Early Education and Development, 24*, 877–897. <https://doi.org/10.1080/10409289.2013.745183>
- Slot, P. L., Bleses, D., Justice, L. M., Markussen-Brown, J., & Højen, A. (2018). Structural and process quality of Danish preschools: Direct and indirect associations with children's growth in language and preliteracy skills. *Early Education and Development, 29*(4), 581–602. <https://doi.org/10.1080/10409289.2018.1452494>
- Slot, P., Cadima, J., Salminen, J., Pastori, G., & Lerkkanen, M.-K. (2016). *Multiple case study in seven European countries regarding culture-sensitive classroom quality assessment*. WP2.3 Curriculum and quality analysis impact review. CARE project. Utrecht University.
- Spivak, A. L., & Farran, D. C. (2012). First-grade teacher behaviors and children's prosocial actions in classrooms. *Early Education and Development, 23*(5), 623–639. <https://doi.org/10.1080/10409289.2011.566164>
- Thomas, D. E., Bierman, K. L., Thompson, C., & Powers, C. J. (2008). Double jeopardy: Child and school characteristics that predict aggressive-disruptive behavior in first grade. *School Psychology Review, 37*, 516–532. <https://doi.org/10.1080/02796015.2008.12087865>
- Thomason, A. C., & La Paro, K. M. (2009). Measuring the quality of teacher-child interactions in toddler child care. *Early Education and Development, 20*, 285–304. <https://doi.org/10.1080/10409280902773351>
- Tremblay, R. E. (2000). The development of aggressive behavior during childhood: What have we learned in the past century? *International Journal of Behavioral Development, 24*, 129–141. [10.1080/016502500383232](https://doi.org/10.1080/016502500383232)
- Vaughan Van Hecke, A., Mundy, P. C., Acra, C. F., Block, J. J., Delgado, C. E. F., Parlade, M. V., Meyer, J. A., Neal, A. R., & Pomares, Y. B. (2007). Infant joint attention, temperament, and social

- competence in preschool children. *Child Development*, 78(1), 53–69.
<https://doi.org/10.1111/j.1467-8624.2007.00985.x>
- Vaughn, B. E., Shin, N., Kim, M., Coppola, G., Kryzysik, L., Santos, A. J., Peceguina, I., Daniel, J. R., Verissimo, M., DeVries, A., Elphick, E., Ballentina, X., Bost, K., Newell, W., Miller, E., Snider, B., & Korth, B. (2009). Hierarchical models of social competence in preschool children: A multi-site, multi-national study. *Child Development*, 80, 1775–1796.
<https://doi.org/10.1111/j.1467-8624.2009.01367.x>
- Vlasov, J., Salminen, J., Repo, L., Karila, K., Kinnunen, S., Mattila, V., Nukarinen, T., Parrila, S., & Sulonen, H. (2019). *Guidelines and recommendations for evaluating early childhood education and care* (publications 5:2019). Finnish Education Evaluation Centre.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Williams, S. T., Ontai, L. L., & Mastergeorge, A. M. (2007). Reformulating infant and toddler social competence with peers. *Infant Behavior and Development*, 30(2), 353–365.
<https://doi.org/10.1016/j.infbeh.2006.10.008>
- Willoughby, M., Kupersmidt, J., Voegler-Lee, M., & Bryant, D. (2011). Contributions of hot and cool self-regulation to pre-school disruptive behavior and academic achievement. *Developmental Neuropsychology*, 36(2), 162–180.
<https://doi.org/10.1080/87565641.2010.549980>