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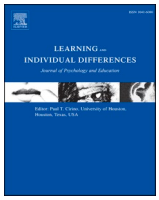

Transition from childcare to school: Surgency, center-based care and caregiver-child relationship predict self-regulation, social competence and well-being

Ruben G. Fukkink [a,*], Rosanne M.V. Sluiter [a], Minne Fekkes [a,b]

[a] University of Amsterdam, The Netherlands
[b] TNO Child Health, Leiden, The Netherlands

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ABSTRACT

There is an increasing interest in the precursors of children's learning and well-being in the transition from early childhood education and care to the early start of elementary school. In our study, we followed Dutch toddlers (N = 110) from childcare to the transition to elementary school and evaluated children's academic self-regulation, social competence and well-being in school. Children with high levels of surgency during their child care years have a less problematic transition to school and higher levels of well-being. Transition problems mediated the effect of temperament on self-regulation, social competence and well-being. Children from child-care centers had higher levels of social competence compared to children from home-based care. Conflicts in the caregiver-child relationship in childcare predicted maladjustment after entry in school. Aligning with an ecological perspective, characteristics at both child (temperament) and environmental level (type and quality of childcare) stimulated children to develop the foundation for their early learning at the onset of their school career.

Educational relevance and implications statement: The transition from childcare to elementary school is more successful if children have higher levels of surgency, had positive relationships with their caregivers in childcare, and went to center-based care (i.e., not home-based care). The transition phase has a direct influence on children's self-regulation, social competence and well-being in the classroom. Parents, ECEC caregivers and teachers may share this information about children's temperament, childcare background (home- or center-based) and conflict in the caregiver-child relationship in ECEC with a warm transfer between parents, ECEC staff and teachers in a tripartite dialogue before the entry to kindergarten. Parents and teachers may subsequently share their perspectives on children's experiences during the first weeks at the new school at a follow-up. This two-step approach before and after the entry to school may support children's well-being and guide the socio-emotional and academic support of individual students during the important transition from childcare to school. Further, preventing or reducing caregiver-child conflicts in ECEC may prevent lower levels of children's social competence when they have entered elementary school.

1. Introduction

There is a growing interest in the study of precursors of children's engagement, well-being and early learning in early childhood education and care (ECEC) and kindergarten. Their development relates to personality and motivational characteristics, in addition to cognitive processes, and both cognitive and personality factors in the early years contribute to later school achievement (Demetriou et al., 2020) and the development of 21st century skills (Chalkiadaki, 2018). Domains that are of particular importance as foundations for early learning include self-regulation, social well-being, social and emotional skills and emotional health, including internalizing and externalizing problem behavior (Shuey & Kankaraš, 2018). This broad domain has been categorized as emergent learning-related social skills, which 'set the stage' in preschool children for later social behavior and academic performance by providing the foundation for positive classroom behavior and early

* Corresponding author at: Research Institute of Child Development and Education, University of Amsterdam, Nieuwe Achtergracht 127, Amsterdam, the Netherlands.
E-mail address: R.G.Fukkink@uva.nl (R.G. Fukkink).

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school success (McClelland & Morrison, 2003). These skills, which mediate between personality and cognition, are a strong predictor of children's well-being, social skills in school (Seligman et al., 2009), school performance from preschool to kindergarten and elementary school (Demetriou et al., 2023) and lifelong learning (Cohen, 2006; Nix et al., 2013).

The ECEC curriculum has traditionally a strong social-emotional orientation in various countries (Sylva et al., 2020). However, over the last decade, there has been a gradual shift in the field towards a balanced view of children's social competencies and academic competencies, and, children's skill development related to academic self-regulation (e.g., focus on task, independent work, motivation) and peer collaboration (e.g., adapting to the play of other children, sharing, negotiating during peer play and conflict-solving) (Sylva et al., 2020). This development has also stimulated the interest in children's self-regulation and social participation as building blocks of early learning in the ECEC curriculum.

Exploring the link between child functioning in ECEC and stimulating the broad development of children in their early years have become a research domain of growing importance. This line of research should expand our currently limited knowledge of individual differences among children during ECEC and at the formal entry of elementary school, as well as important predictors that hinder or promote children's development during formal school entry and subsequent school careers. In this study, we investigate individual personality factors of children (see Demetriou et al., 2023) and environmental factors that contribute to the development of children's self-regulation, social competence and well-being as building blocks for their development during their school careers with a focus on the transition from childcare to elementary school.

1.1. Transition from ECEC to school

The transition from ECEC to school is an important milestone in the lives of young children (InTrans Project, 2022; OECD, 2017a). The transition ecology framework of Rimm-Kaufman and Pianta (2000) emphasizes that the early school transition is not just the end of ECEC or the start of elementary school, but serves as a bridge between them and is a distinct phase in children's development with a pivotal role for their academic success. The transition from ECEC to school may be an overwhelming and stressful experience (Balduzzi et al., 2019) or even a 'cultural shock' (Broström, 2005) for some young children. Children may experience a fundamental change in their identity as learners when they transition from one setting to another: whereas they used to be perceived as competent and autonomous children by childcare caregivers, they often tend to be perceived as 'incompetent novices' by primary school teachers in the new setting (Ackesjö, 2014). Benefits from the early years of schooling can fade out if transitions are not well-managed (OECD, 2017a). Difficult transitions can even have a negative effect on problem behavior, like a short-term effect on students' distress (Cryer et al., 2005), and negative long-term effects on self-regulation (Margetts, 2009). Conversely, well-managed transitions prepare children for school, improve equity in education outcomes, and ensure that well-being and social-emotional development endure (Lazzari et al., 2020; OECD, 2017a). Children's initial maladjustment to elementary school and possible problem behavior are thus critical for their development and well-being throughout the school years (Margetts, 2009).

An important context for the transition is the continuity between childcare and school. The Dutch system is characterized by a split system with little continuity between ECEC and primary school (see Eurydice, 2019), which starts when children are 4–5 years old. The split between childcare and early education is apparent in all four areas, according to the definition of 'ECEC system integration' from the Eurydice report: there are separate settings for childcare and education, different ministries are responsible for younger and older children, there are higher qualification requirements for core practitioners in pre-primary education than in childcare settings for younger children, and, finally, there are no formal educational guidelines for younger children in ECEC. There are also clear differences in structural quality characteristics (e.g., group size, teacher-child ratio) and the educational culture between ECEC and school, which may make the transition for students more challenging (Ahtola et al., 2011). Seen from this perspective, the Dutch context offers a critical case for the study of transition effects on young children.

1.2. Temperament as predictor during the transition

Temperament, defined as individual differences in reactivity and self-regulation in the context of internal and external demands or stimulation (Rothbart & Bates, 2006), is present early in infancy and toddlerhood and is a significant predictor of children's social-emotional development in the context of childcare (e.g., Fukkink, 2022; Phillips et al., 2012). Temperament is a multidimensional construct. Putnam et al. (2006) distinguish surgency, effortful control and negative affect as three basic temperamental factors. Surgency is characterized by impulsive behavior and a high degree of activity and courage. Effortful control involves the ability to concentrate and the ability to exert control. Negative affect is described as sadness and frustration (Potmseilova & Potmesil, 2021; Putnam et al., 2006).

Surgency may have a positive influence on children's social competence, because it helps them in developing peer relationships in childcare and elementary school (e.g., Mobley & Pullis, 1991). However, some studies have reported a reverse pattern with negative findings. Some authors have, therefore, suggested that high levels of surgency may be a risk factor for social functioning in the classroom (Gobeil-Bourdeau et al., 2022) and hyperactivity (Potmseilova & Potmesil, 2021). Negative affect may be associated with difficulty in controlling expressions of temperament in social situations in class. Effortful control is positively related to teachers' ratings of children's social competence and the social functioning of kindergarteners in general (Potmseilova & Potmesil, 2021). Temperament represents thus an important determinant of school readiness (Gobeil-Bourdeau et al., 2022).

The findings from different empirical studies make clear that it is important to consider individual temperamental differences among children at an early age. However, the divergent outcomes also underscore that little is known regarding the mechanisms through which temperament is associated with children's development during the transition to elementary school.

1.3. Childcare: quality as predictor

The influence of childcare on children's development is dependent on the process quality of ECEC: high-quality early care experiences may contribute to the social-emotional and cognitive development of children in their early years before they enter school. Process quality of ECEC is a broad concept. Many childcare studies include a measure for the quality of teacher-child interactions and a more global process quality measure with various quality indicators for the childcare environment (e.g., physical environment, program, etc.). In ECEC, caregivers' dyadic relationships with each individual child provide a key context for their well-being and development (Sluiter et al., 2023; Howes et al., 2000; Pianta et al., 1997) and academic adjustment (Van Craeyevelt et al., 2017). For preschool settings, the caregiver-child relationship also predicts student adjustment (Lee & Bierman, 2015) and a positive social development (e.g., Lippard et al., 2018); in fact, this relationship appeared to be stronger than the contribution of emotional support from the teacher at classroom level (Lee & Bierman, 2015; Lippard et al., 2018). In sum, process quality of ECEC seems an important precursor at environmental level for children's first years of elementary school. However, the predictive value of ECEC process quality measures is modest for various developmental outcomes at elementary school (Eadie et al., 2022; Perlman et al., 2016; Wang et al.,

2023). In addition, a split system may not only complicate the transition from ECEC to school, but may also limit the transfer of the benefits conferred by ECEC quality to kindergarten and elementary school (Balduzzi et al., 2019).

1.4. Type of care as predictor

The transition ecology framework of Rimm-Kaufman and Pianta (2000) acknowledges that children's development during and after transition does not reside solely in the child, but also reflects the environments in which children grow up. An important environment in the early years is the type of childcare. In various countries, children attend either center-based or home-based care. In home-based care, group size is smaller, the caregiver-child ratio is more favorable, and the stability of staff is higher than in center-based care (Eckhardt & Franziska Egert, 2020). These structural differences may have a positive influence on the quality of the dyadic relationship between the caregiver and individual children. In the Dutch context, the quality of the physical environment in center-based care may be superior to home-based care (Sluiter et al., 2023). Finally, the structural quality characteristics of center-based care (i.e., caregiver-child ratio and group size with a larger number of same-age peers) and also the educational climate in a center resemble more closely the classroom environment of elementary school, which may facilitate the transition from childcare to school. Seen from this perspective, there are two rival hypotheses: home-based care provides higher quality and is superior (i.e., a structural quality perspective), or center-based care prepares children better for school (i.e., a continuity perspective).

Some studies from the US have reported that children in kindergarten with a history of center-based care have, on average, slightly poorer social-emotional outcomes than children who attended home-based care, although differences are small (e.g., Coley et al., 2013; NICHD, 2003). Other studies, also from the US, have not found differences between social-emotional development from children in center-based vs. home-based care (e.g., Votruba-Drzal et al., 2004). Hence, there are mixed findings regarding the relationship between type of care and children's development in the preschool years. More research is needed to explore whether different ECEC environments may have different effects on children's development. Relatedly, we know little about possible differential effects of center- vs. home-based care on school transition.

1.5. The present study

From a transition ecology perspective (Rimm-Kaufman & Pianta, 2000), we focus on differences in temperament of toddlers and their predictive value for self-regulation, social competence, and well-being after the transition from ECEC (both center- and home-based care) to Dutch elementary school. Fig. 1 depicts a conceptual overview of the evaluated relationships between predictors at child level and environmental level and children's development in the specific context of the transition to school.

Specifically, we investigated the relationships between child temperament, type of care, and caregiver-child relationships in ECEC on children's development after the transition into Dutch elementary school. The main question from our study is: Is children's self-regulation, social competence and well-being after the transition to elementary school predicted by child temperament, type of care (center-based care vs. home-based care) and childcare quality? (1) We further explored whether these variables also predict children's problem behavior. Finally, we explored whether significant relationships were mediated by children's problems during the transition from ECEC to formal school: Are these influences of child temperament on children's social-emotional development after transitioning into elementary school direct effects and/or are they mediated by transition problems?

An innovative part of our study is that we investigate the transition from childcare to elementary school with an operationalization of quality of childcare which is broader than previous studies to investigate which quality dimensions (i.e., quality of caregiver-child interactions, caregiver-child relationship, quality of physical environment) predict children's development after their entry to school. Our study further adds to the literature a comparative perspective on transition with the inclusion of children who attended home-based or center-based care in the important context of a split system with little continuity between ECEC and elementary school (Eurydice, 2019).

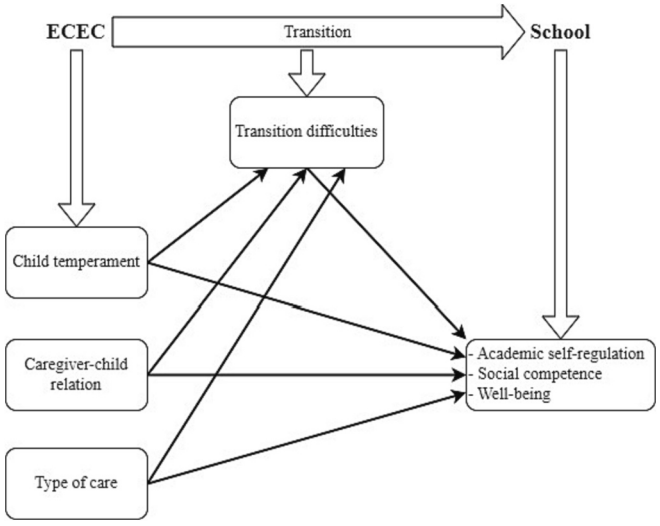

Fig. 1. Conceptual Framework: Precursors of Academic Self-regulation, Collaboration and Well-being in this Study.

2. Method

This study reports data that were collected as part of a study with three waves of data collection with parents, caregivers and teachers as informants (González-Moreira et al., 2023; see Sluiter et al., 2023 for more information).

2.1. Participants

Participants in this study included 110 children that recently transitioned into elementary school; 80 children from 33 child care centers and 30 children from 19 child care homes. Child care in the early years typically comprises either center-based child care or home-based child care. Home-based care is typically provided in the caregiver's home, whereas center-based care is provided in a child care center (see also OECD, 2017b). Home-based care offers families a home-like, small-scale setting with a relatively small group of children. Specifically, a group in Dutch home-based care consists, on average, of 3.71 children (vs. 11.1 children in center-based care) with a maximum child-caregiver ratio of 1:5 (vs. 1:8 in center-based care, depending on the age composition of the group). In our study, the inclusion of children from home-based care proved more complicated because of the smaller groups and it proved difficult to include children with the specified age range.

The children were followed from 30 months (T1) to 42 months (T2) and ≈ 52 months (T3); the third assessment took place after entry in elementary school, since most children go to the first (kindergarten) class in elementary school at age 4 in the Netherlands. There was a retention rate of 48.25 %, compared to the original sample ($N = 228$ and 184 at T1 and T2, respectively). Parents ($N = 110$, 90.9 % female) were aged 26 to 48 years ($M = 37.12$, $SD = 4.31$) at T3, they were mostly biological parents of the child (99.1 %), and most of them were cohabiting with the other biological parent of the child (90 %) (see Table 1 for further information on children, families and professionals).

Table 1
Descriptive characteristics of the sample.

	Total	Center-based care	Home-based care
	% / *M* (*SD*)	% / *M* (*SD*)	% / *M* (*SD*)
Child & family characteristics			
Gender (% girl)	48.2 %	52.5 %	36.7 %
Age child (months)	53.16 (2.47)	53.25 (2.45)	52.90 (2.54)
Parent born in NL (%)	94.5 %	93.8 %	96.6 %
Educational level (% college or more)	72.5 %	67.5 %	86.2 %
Income level (% high)	50.5 %	50.0 %	51.7 %
Age parent (yrs)	37.12 (4.31)	37.32 (4.30)	36.59 (4.36)
2-parent families	95.2 %	93.8 %	100 %
Parental stress (PSI; at T1/T2)	44.86 (11.52)	43.27 (10.85)	49.10 (12.37)
Quantity child care (days at T1/T2)	2.44 (0.59)	2.48 (0.60)	2.36 (0.55)
Caregiver characteristics at T1/T2			
Gender (% woman)	100 %	100 %	100 %
Work experience in childcare (yrs)	16.44 (9.42)	16.10 (9.73)	17.21 (8.86)
Educational level (% college or more)	18.6 %	20.4 %	14.3 %
School teacher characteristics			
Gender (% woman)	100 %	100 %	100 %
Work experience as teacher (yrs)	20.29 (13.84)	19.56 (13.69)	22.33 (14.43)

The background characteristics of the sample are comparable to the population of parents and children in Dutch ECEC (van den Brakel et al., 2020).

2.2. Procedure

Participants were recruited through two national ECEC organizations for center-based care and three national home-based child care bureaus, each with locations spread throughout the Netherlands. We used different procedures to recruit child care centers and child care homes. In the Netherlands, child care homes are affiliated with special agencies (in Dutch: 'gastouderbureaus'). Before the start of the study, we sent out a call to participate in this study to which home-based care providers could respond when they met criteria related to the age of children. Childcare centers were invited through their organization. Data collection for the first wave took place between October 2018–April 2019 (T1); between November 2019–June 2020 for the second wave (T2); and between November 2020–May 2021 for the third wave (T3). A trained observer visited each child care center or home for an entire day at T1 and T2 following a standard protocol. The observer filmed the caregivers interacting with the children during four episodes of twenty minutes each during play, lunch or snack, and transitions. The research assistant conducted observations for coding the quality of the physical environment (ECERS-R/FCCERS-R subscale space and furnishings). Digital questionnaires were sent to the parents and caregivers prior to the visit at T1 and T2; the caregiver who had the most contact with the child completed the questionnaire. At T3, children transitioned from child care to elementary school. When children were 3 months into elementary school, parents received a digital questionnaire. Through this questionnaire contact details of the teachers of the children were obtained. Subsequently, digital questionnaires were sent to the teachers as well.

The study has been approved by the Ethics Committee of the Faculty of Social and Behavioral Sciences of the University of … (file number 2018-…-9262). Active informed consent was obtained from caregivers and parents of all the included children.

2.3. Measures

Below we have indicated the measures with informant(s) and relevant waves of data collection (T1, T2, T3).

Temperament (parent report, T1 & T2). Children's temperament was measured with the Early Childhood Behavior Questionnaire Very Short Form at T1 (ECBQ-VSF; Putnam et al., 2006), and with the Childhood Behavior Questionnaire Very Short Form at T2 (CBQ-VSF; Putnam et al., 2006). The ECBQ-VSF and CBQ-VSF are 36-item measures that were developed as an abbreviated form of the original ECBQ (Putnam et al., 2006) and CBQ (Rothbart et al., 2001). These measures assess three dimensions of temperament: Surgency (e.g. CBQ, 'My child likes going down high slides or other adventurous activities'); Negative Affect (e.g. ECBQ, 'While in a public place, how often did your child seem afraid of large, noisy vehicles?'); and Effortful Control (e.g. CBQ, 'My child, when drawing or coloring in a book, shows strong concentration'). Parents and caregivers indicated how well a statement described their child on a 7-point Likert scale, with 'Not applicable' as an additional option if they had never seen the child in that situation. Higher scores indicate higher levels of Surgency, Negative Affect, and Effortful Control. Internal consistency at T1 and T2 was adequate (Cronbach's α was 0.60 for Surgency, 0.64 for Negative Affect, 0.66 for Effortful Control at T1; Cronbach's α was 0.60 for Surgency, 0.66 for Negative Affect, 0.63 for Effortful Control at T2). T1 and T2 scores were averaged into one (E) CBQ subscale score to represent the overall temperament across the year.

Caregiver-Child Relationship (ECEC caregiver, T1 & T2). Caregivers rated their relationships with the selected children at T1 and T2 using the authorized Dutch translation of Pianta'sStudent-Teacher Relationship Scale (STRS; Koomen et al., 2007), which has been validated for ECEC (see Roorda et al., 2014). The STRS distinguishes three dimensions of the teacher/caregiver-student relationship. The *Closeness* subscale measures the degree of openness, warmth, and security in the relationship, as perceived by the teacher or caregiver (e.g., 'I share an affectionate, warm relationship with this child'). The *Conflict* subscale refers to negative, discordant, unpredictable, and unpleasant interactions (e.g., 'This child and I always seem to be struggling with each other'). The *Dependency* subscale denotes overreliance and possessiveness of the child in the relationship that is developmentally inappropriate degree (e.g., 'This child is overly dependent on me'). The scores for each item are rated on a 5-point scale ranging from 1 (*not at all applicable*) to 5 (*highly applicable*). Higher scores for closeness and lower scores for conflict and dependency indicate more positive caregiver-child relationships. Internal consistency at T1 and T2 was adequate with Cronbach's α of 0.77 and 0.71 for Closeness, 0.82 and 0.86 for Conflict, and 0.76 and 0.76 for Dependency at T1 and T2, respectively. T1 and T2 scores were averaged into one STRS subscale score to represent the overall caregiver-child relationship across the year.

Child Care Process Quality (T1 & T2)**.** Child care process quality was measured at T1 and T2 using the *Emotional and Behavioral Support* (EBS) and *Engaged Support for Learning* (ESL) scales from the Classroom Assessment Scoring System (CLASS) - Toddler (La Paro et al., 2011). Prior to data collection, research assistants were trained as observers by an Affiliate CLASS Trainer. Observers passed the reliability test when dimension scores reached within one point agreement of 80 % with videoclips from the online Teachstone certification program. Observers rated all dimensions using a 7-point rating scale, with 1 and 2 reflecting a low score; 3, 4, and 5 reflecting a midrange score; and 6 and 7 reflecting a high score. The videos were coded by assistants who did not visit the location. At T1, 23 % of the videos were double coded, and observers reached within one point agreement of 94.4 % on average (range 90.6 %–100 %). At T2, about 20 % of the videos were double coded, and observers reached within one point agreement of 97.3 % on average (range 90.8 %–100 %). Internal consistency was calculated with Cronbach's α of the averaged scores of the four observed cycles and was adequate with 0.88 for EBS and 0.77 for ESL at T1, and 0.89 for EBS and

0.91 for ESL at T2. T1 and T2 scores were averaged into one CLASS EBS and ESL score to represent the average process quality across the year.

Quality of Space and Furnishings (T1 & T2)**.** The quality of space and furnishings of center-based child care and home-based child care was measured at T1 and T2 using the *Space and Furnishings* subscale of the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms et al., 1998) or Family Child Care Environment Rating Scale-Revised (FCCERS-R; Harms et al., 2007). Prior to data collection, research assistants were trained. Items are rated on a 7-point scale with descriptors for the scores 1 (inadequate), 3 (minimal), 5 (good), and 7 (excellent). Internal consistency for the ECERS-R/FCCERS-R space and furnishings at T1 and T2 was adequate with Cronbach's α of 0.67 and 0.61 at T1, and 0.75 and 0.62 at T2. T1 and T2 scores were averaged into one score, which summarizes the average quality.

Type of care (T1 & T2)**.** We verified the type of care at T1 and T2 with parent questionnaires; parents did not indicate a change between T1 and T2 and they did not change to a different center/home either.

Parental Stress (parent, T1 & T2)**.** Parental stress was measured as a covariate at T1 and T2 using the Dutch abbreviated version of the Parenting Stress Index (PSI; de Brock et al., 1992), which assesses the parent's perceived stress in parenting. The PSI consists of 25 items (e.g., 'Parenting with this child is harder than I thought it would be'). Items are rated on a 6-point Likert scale, with higher scores indicating higher levels of stress. Internal consistency was high (Cronbach's α of 0.91 at T1, and 0.93 at T2). T1 and T2 scores were averaged into one score representing the average level of parental stress.

Vision: Academic Self-regulation, Social Competence and Well-being (teacher report, T3). The Vision measure (Boxtel et al., 2014) is a widely used, teacher-reported measure for younger children in Dutch elementary schools. Viseon is a 32-item questionnaire that was completed by the teacher at T3. This measure assesses three dimensions: academic self-regulation (8 items, e.g., 'Does not need guidance during play or work', 'Can focus attention on play or work for ling time'; 'Is motivated to finish the task'), social competence (9 items, e.g., 'Can negotiate with other children during play', 'Can solve conflicts with other children', 'Can adapt to the play of other children'), and well-being (15 items, e.g., 'Dares to express opinions in the classroom', 'Needs only little emotional support from the teacher', 'Can cope with unexpected events').

The measure includes for each item two contrasting statements (e.g., 'Smiles often' versus 'Smiles rarely'). The teacher first determines which of the two statements is most applicable to the child. Subsequently, the teacher indicates whether that statement applies in full or only partially. Higher scores reflect higher levels of competencies in our study; scores range from 1 to 4. Internal consistency was good (Cronbach's α was 0.83 for Social behavior, 0.93 for Work-play attitude, 0.92 for Well-being).

Externalizing and Internalizing Problem Behavior (parent report, T3). Children's externalizing and internalizing problem behavior was measured with the Child Behavior Checklist / 1½-5 (CBCL / 1½-5; Achenbach & Rescorla, 2000). The CBCL was completed by parents and covers a range of behavioral, emotional, and social function problems. The questionnaire consists of 99 specific problem items, all of which are rated on a 3-point scale (0 = *not true;* 1 = *somewhat or sometimes true*; 2 = *very true or often true*) based on children's functioning over the preceding 2 months. Higher scores indicate high levels of problem behavior. Internal consistency was adequate for both externalizing and internalizing problem behavior (α = 0.80 and 0.63, respectively).

Transition difficulties (parent & teacher report, T3)**.** The difficulties experienced by children after the transition from ECEC to elementary school were assessed with the newly developed Transition Difficulties Scale. This short measure was completed by both the parent and the teacher at T3, and consists of 4 items ('Did your child experience a good start at elementary school?', 'How easy was the transition from ECEC to elementary school?', 'How well did your child connect with other children in their new class?', and 'How well did your child connect with their new teacher(s)?'). The scores for each item are rated on a 5-point scale ranging from 1 (*very good/well*) to 5 (*very bad/difficult*). Higher scores indicate more experienced difficulties during the transition. Internal consistency was good (Cronbach's α was 0.82 for parents, 0.78 for teachers); see Appendix A for further psychometric information at item level.

Background Characteristics (T1 for parents and caregivers, T3 for teachers). In the survey, questions were added related to demographic characteristics, including age, country of birth, language spoken at home, highest level of parents' education, type of education, social-economic status, and quantity of child care (i.e., hours spent in child care per week). Caregivers and teachers indicated their working experience in child care and elementary school.

2.4. Analysis

The data were analyzed with multi-level regression models using the Mixed Procedure in SPSS (version 28) to take into account the hierarchical nature of the data with children (level 1) nested within child care centers or homes (level 2). For all multi-level analyses, a random intercepts model was selected. Model fit was evaluated with the log-likelihood test and explained variance by reporting the marginal R^2.

We focused our analysis on the prediction of children's development after entering the first grade of Dutch elementary school (i.e., the criterion measure from T3) with scores from the previous ECEC period as predictors, statistically controlling for a number of covariates (gender and age child, quantity of childcare, income and parental stress). A major challenge in this line of research is demonstrating the often modest association between ECEC process quality measures and children outcomes (e.g., Eadie et al., 2022; Perlman et al., 2016; Wang et al., 2023). Given the multitude of variables that may influence children's development and the differences between ECEC and elementary school (e.g., different settings with different programs, different informants), demonstrating effects of early childcare predictors that transfer to the school setting is difficult. In our investigation of the assumed relationship between childcare quality and child outcomes at a later stage, we aggregated quality measures from the two ECEC waves into a cumulative composite score (see NICHD, 2003), which summarizes information from multiple occasions and covers a longer period of the time children attended childcare. The same strategy with aggregating T1 and T2 scores was used for parental stress. Further, some studies have reported significant associations between specific quality dimensions of the CLASS or STRS measure (e.g., Hamre et al., 2014) and we included, therefore, emotional support and behavorial support as separate predictors in our model.

In our longitudinal regression analyses we tested 11 predictors for five dependent variables; we also control for five covariates. Taking into account multiple testing of predictors in our analyses, we used the Benjamini-Hochberg procedure (Benjamini & Hochberg, 1995) to reduce the risk of Type 1 error. The false discovery rate for the analyses, at study level, was set at $q = 0.05$.

We assessed the mediating role of transition difficulties on the relationship between child temperament and social-emotional behavior with the SPSS macro PROCESS version 4.0 (Hayes, 2018). Mediation analysis was conducted using a bootstrapping procedure (5000 bootstrap samples) to estimate the indirect, direct, and total effects. A preliminary test indicated no multicollinearity (*VIF* was between 1.09 and 1.27 for all independent variables). Table 2 and the tables from the Appendix A present unstandardized regression weights (B weights) and their corresponding standard error; p values (0.05, 0.01, 0.001) are indicated with asterisks.

2.5. Attrition analysis

Missing data for the study variables ranged between 0 and 38.2 % and was missing completely at random (Little's MCAR test, $\chi^2 = 79.23, p = .236$). Because there was significant attrition from T1 to T3, we

Table 2
Multilevel Model for the Relationship between Temperament, Type of Care, Quality of Care and Social-emotional Development (N = 110).

	Self-regulation (teacher-reported)	Social Competence (teacher-reported)	Well-being (teacher-reported)	Internalizing problem behavior (parent-reported)	Externalizing problem behavior (parent-reported)
Fixed model					
Intercept	−38.59 (23.25)	−11.20 (15.03)	−53.79 (27.83)	16.06 (13.94)	−6.81 (18.58)
Outcome at baseline	NA	NA	NA	0.52 (0.10)*	0.23 (0.11)
Type of care[a]	−2.37 (1.91)	−4.32 (1.23)*	−2.40 (2.21)	−0.90 (1.19)	−1.64 (1.60)
Negative Affect	0.18 (1.29)	−1.22 (0.84)	−0.13 (1.59)	0.24 (0.91)	0.71 (1.13)
Surgency	0.52 (1.39)	0.62 (0.90)	6.76 (1.70)*	−0.99 (0.91)	1.59 (1.24)
Effortful Control	2.46 (1.49)	1.52 (0.96)	3.14 (1.80)	−0.52 (0.92)	−1.98 (1.31)
Quality of ECEC					
Emotional and Behavorial Support	0.45 (1.84)	−0.15 (1.19)	2.32 (2.14)	−0.14 (1.02)	0.35 (1.36)
Engaged Support for Learning	0.16 (1.30)	1.62 (0.84)	0.51 (1.54)	1.02 (0.77)	0.49 (1.06)
Space and Furnishings	−0.81 (1.03)	−0.44 (0.67)	−2.15 (1.17)	−0.45 (0.67)	0.22 (0.89)
Closeness	0.02 (0.21)	−0.05 (0.13)	0.06 (0.25)	−0.06 (0.13)	0.12 (0.18)
Dependency	0.07 (0.26)	0.07 (0.17)	0.44 (0.32)	−0.02 (0.15)	0.21 (0.20)
Conflict	−0.07 (0.14)	−0.35 (0.09)*	−0.40 (0.18)	0.21 (0.11)	0.27 (0.15)
Covariates					
Gender child[b]	−0.01 (1.40)	−1.39 (0.91)	2.24 (1.72)	−0.23 (0.87)	0.89 (1.16)
Age child (months)	0.89 (0.28)	0.43 (0.18)	0.50 (0.34)	−0.24 (0.18)	−0.35 (0.24)
Days of care p/w	−0.12 (1.13)	−0.69 (0.73)	1.24 (1.33)	1.07 (0.71)	1.90 (0.94)
Income parents	−0.27 (1.16)	1.76 (0.75)	1.92 (1.37)	0.03 (0.77)	1.12 (1.00)
Parental Stress	−0.17 (0.07)	0.03 (0.05)	−0.07 (0.09)	0.03 (0.05)	0.17 (0.06)
Random model					
R^2	0.30	0.44	0.38	0.49	0.45
–2LL baseline	438.613–412.163	394.437–352.784	469.588–437.666	672.348–601.071	726.002–662.673
-2LL full model	26.450	41.653*	31.928	71.277*	63.329*
Δ-2LL(Δdf = 16)					

[a] Reference category = home-based.
[b] Reference category = boy.
* $p < .001$.

checked in a preliminary analysis whether there were significant differences between the sample with complete data (T1, T2, T3) and the attrition sample without complete data. The children who did no longer participate in the third wave showed no significant differences compared to the sample of children with complete data, related to type of care, $\chi^2(1) = 2.61$, $p = .107$, gender, $\chi^2(1) = 3.44$, $p = .06$, or age, $t = 1.02$, $p = .310$. Two-sided t-tests showed no significant differences between the two groups for Negative Affect ($t = -0.67$, $p = .504$), Effortful Control ($t = 0.02$, $p = .981$), or Surgency ($t = 1.00$, $p = .319$). There were no significant differences either between the two groups for the quality measures, including CLASS EBS ($t = 1.56$, $p = .120$), CLASS ESL ($t = 1.95$, $p = .053$), Space & Furnishing ($t = 1.23$, $p = .220$), Closeness ($t = -1.09$, $p = .277$) and Dependency, $t = 1.04$, $p = .301$) with the only exception of Conflict ($t = 2.01$, $p = .046$); children with relatively low Conflict scores were more often no longer included at T3. Finally, no differences were found for parental stress (PSI), $t = 0.09$, $p = .930$). The differences, expressed in effect sizes, ranged from −0.09 to 0.27 with a mean of 0.13. We did not impute missing data for T2 or T3.

3. Results

The results from Table 2 show that there were no significant predictors for students' teacher-reported self-regulation after entering elementary school, except age of the child. Teacher-reported social competence after the transition to elementary school was predicted by type of care: children from center-based care had higher levels of social competence than their peers from home-based care ($B = -4.32$, SE = 1.23, $p < .001$). Further, caregiver-reported conflict from the ECEC period predicted a lower level of teacher-reported social competence in elementary school ($B = -0.35$, SE = 0.09, $p < .001$). Students' well-being in school, as perceived by the teacher, was positively related to parent-reported surgency during the preschool years ($B = 6.76$, SE = 1.70, $p < .001$). Further, students' internalizing and externalizing problem behavior, as perceived by the parent, was strongly correlated with the same variable in earlier waves, as expected, and there was no incremental significance of predictors related to temperament, childcare type or childcare quality.

Finally, childcare quality as measured with the CLASS or the selected subscale of the Environment Rating Scales, was not related to any of our outcomes. Only the ECEC caregiver-child relationship (i.e., conflict) was a significant childcare quality predictor of teacher-reported social competence ($B = -0.35$, SE = 0.09, $p < .001$).

3.1. Explorative mediation analysis

An explorative analysis showed that the effect of surgency was mediated by transition difficulties for students' outcomes in the first year of elementary school, as perceived by the teacher (see Fig. 2, Appendix A). Surgency of a child was related to less teacher-reported transition difficulties (a), which subsequently was positively associated with more positive outcomes for the VISION outcome variables self-regulation, social competence and well-being (b). Also the combined effect (i.e., the indirect relationship, a*b) was statistically significant for self-regulation, social competence and well-being, as reported by the teacher; $B = 2.01$ (SE = 0.80), $B = 1.14$ (0.53), and $B = 2.57$ (1.09), respectively, $p < .01$. This pattern applied to the teacher-reported mediator and outcome measures only. For parent-reported transition difficulties, only a significant relation was found with closeness of the caregiver-child relationship: a higher level of caregiver-reported closeness in childcare was associated with less parent-reported transition difficulties; $B = 0.19$, SE = 0.08, $p < .05$.

4. Discussion

We investigated the predictive relationships between child temperament, type of care (home- vs. center-based), and caregiver-child relationships in ECEC on the social-emotional skills of students in the first year of Dutch elementary school. The results of our study show that early temperament, specifically surgency, has a positive effect on teacher-reported well-being after the children transitioned into elementary school. Children who had higher levels of surgency during their childcare years were reported by their teachers to have higher levels of well-

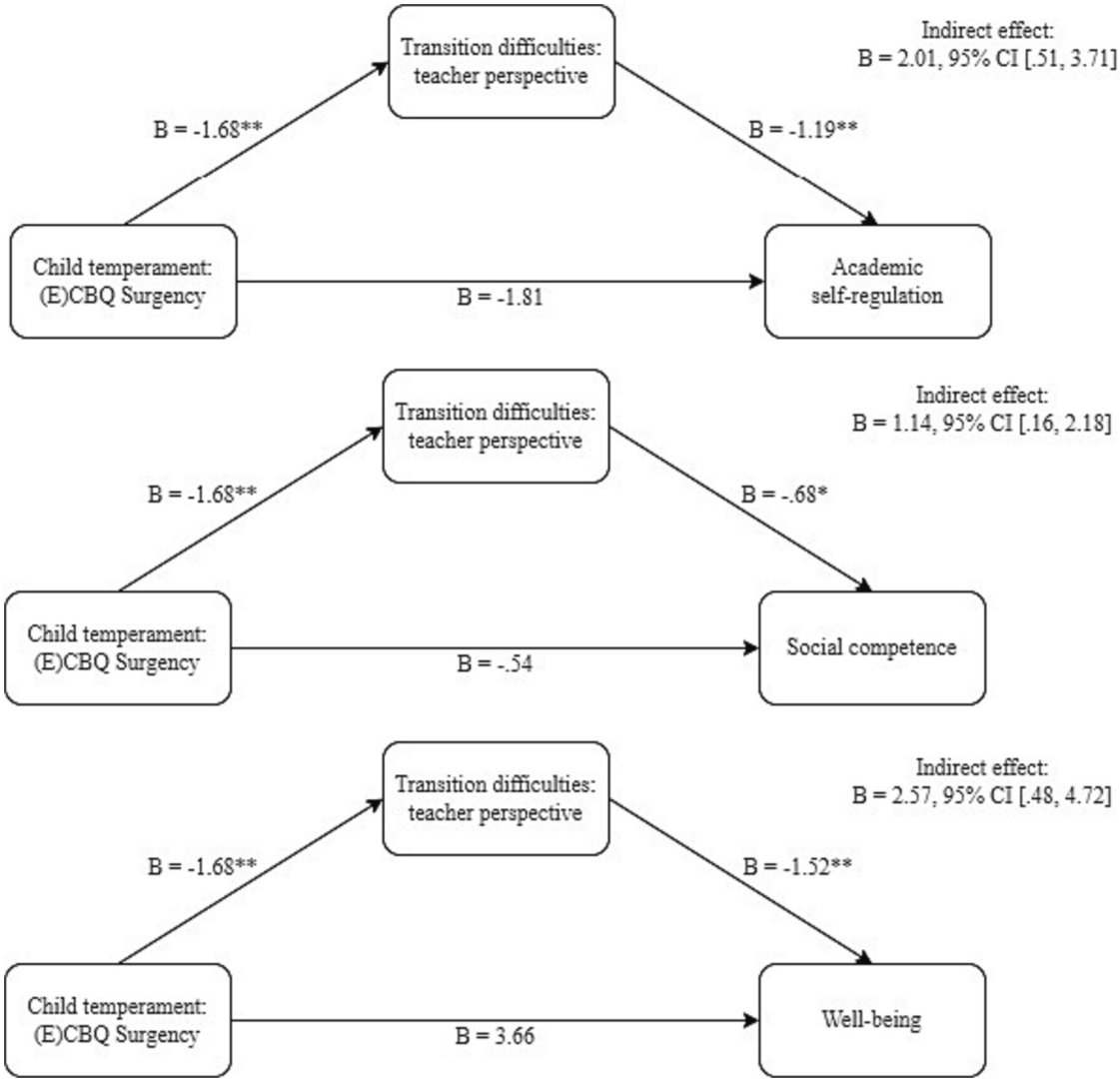

Fig. 2. Mediation Analysis for Self-regulation, Social Competence and Well-being (teacher-reported)
Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

being during their first months in primary school. An explanation for our finding that surgency is a promotive factor at child level for teacher-reported well-being, is that positive emotionality and optimism form the basis of the construct of surgency. Higher levels of surgency were a predictor of more externalizing problems behavior towards the end of the childcare years (see Sluiter et al., 2023), indicating that surgency may be a risk factor in the ECEC context. Very high levels of surgency may be a risk factor for social functioning in the school context as well (Gobeil-Bourdeau et al., 2022; Potmseilova & Potmesil, 2021). However, the children with relatively low levels of surgency from our sample, i.e. more shy and less extravert children, experienced more problems with the transition into school than their peers with average or above-average levels of surgency (see also Mobley & Pullis, 1991). Possibly, surgency may be related in a curvilinear way to children's classroom behavior at the entry of kindergarten. Future research should make clear whether surgency may be a protective factor during the specific transition phase, but may perhaps become a risk factor later in the first year of elementary school or afterwards.

Our findings further indicate a strong relation between type of childcare and teacher-reported social competence of students in the first year of elementary school, controlling for a selection of variables at child and family level and quantity and quality of childcare: children who received their childcare in a center-based setting had a higher level of social competence in primary education, compared to children who received their child-care in a home-based setting. A possible explanation is that children from center-based care are already used to relatively large groups with different peers, compared to children in home-based care who spent their time in smaller groups.

Third, the quality of the dyadic caregiver-child relationship, as perceived by the ECEC caregiver, predicted teacher-reported social-emotional development of children after transitioning into elementary school. Children with a more conflictuous relationship with their ECEC caregiver during the childcare years were less competent in their interaction with peers, according to their new teachers. Our study highlights thus the important role of the caregiver-child relationship in childcare, which is not only associated with children's social-emotional development during the preschool period, as perceived by both parents and caregivers (Sluiter et al., 2023), but also predicts students' development in elementary school.

The observational quality measures from our study (i.e., CLASS, subscale Space and Furnishings) did not predict child outcomes. We did not find significant relationships in our regression analysis, but there were no strong bivariate associations either (see Appendix C). Also previous research has found that quality of childcare has limited predictive validity (Eadie et al., 2022; Perlman et al., 2016; Wang et al., 2023). A statistical explanation for our finding may be that the range of

the observed quality scores is restricted. The fact is that the pedagogical quality in our sample was often adequate-to-good with little low or high scores. High quality levels may be needed for a transfer effect from ECEC to the first kindergarten year of elementary school, as some researchers have suggested (the so-called threshold hypothesis, see Zaslow et al., 2010). However, we cannot exclude the possibility that pedagogical quality of ECEC does not have strong effects on children's development in the first year of elementary school when children enter a new world, in particular in a split system (Balduzzi et al., 2019).

Finally, we found no significant results for negative affect and effortful control for any of our outcome measures. For parent-reported internalizing and externalizing problem behavior in kindergarten this may be explained by the inclusion of a baseline measure and, here, the incremental changes over one year may have been too small to relate them to toddler temperament in our non-clinical sample. However, this does not apply to the teacher-reported outcome measures from our study (i.e., the VISION measure). The bivariate relations between effortful control with teacher-reported social competence and academic self-regulation were in the expected direction (see Appendix C), but were not statistically significant in our final regression models. It is possible that the level of academic self-regulation is still low for our relatively young population; relatedly, age was the only significant predictor at child level in our study. The relatively early phase of formal learning in elementary school for our child sample may also have limited teachers' perceptions in our study, assuming that academic self-regulation develops and crystallizes during children's school career. Although temperament was a predictor of school readiness and social functioning in the school context in previous research (Gobeil-Bourdeau et al., 2022; Potmseilova & Potmesil, 2021), some studies have reported similar findings as we found related to social competence. In the study of Rispoli et al. (2013), child negativity at two years was not directly related to parent-reported social competence at kindergarten entry either. In the NICHD (2003) study, the maternal report measure of difficult temperament of the child (at 6 months) also proved to be an insignificant predictor for teacher-reported social competence, problems and conflicts at 54 months. Apparently, there is no straightforward relationship between temperament from early toddlerhood and (teacher- or parent-reported) behavior of children after kindergarten entry for regular populations (see Gobeil-Bourdeau et al., 2022). It is also possible that contextual variables like classroom quality may moderate the assumed relationship between temperament and students' well-being and self-regulation (e.g., Curby et al., 2011; Frohn et al., 2021).

Further, we explored whether the significant relationships between surgency and closeness with the caregiver and teacher-reported outcomes were mediated by children's experiences during the transition from childcare to school. Our exploratory mediation analysis suggests that children with higher levels of surgency and children with more closeness in the caregiver-child relationship during their childcare years had a less difficult transition into elementary school. This result was particularly strong for surgency, and was reported by both professional caregivers and parents. Furthermore, transition difficulties, as indicated by the teacher, were associated with lower levels of children's social-emotional functioning in elementary school. Our mediation analysis suggests thus that the adverse effects of lower levels of surgency on regulation, social competence, and well-being were mediated by transition problems. Smith and Bridget (2018) have argued that we may move forward in the study of temperament and early education outcomes by investigating mediating and moderating factors. Already at an early age, the effects of temperament may be moderated or mediated by individual or environmental factors, like coping mechanisms, sleep problems, or low classroom quality (see Smith & Bridget, 2018). Our mediation analysis suggests thus that the specific developmental phase of the transition is a pathway through which a temperamental risk factor exerts its influence for children with a low level of surgency. Possibly, these children in particular have a difficult time fitting in with the new environment (e.g., new peers, a different program, a new teacher), which has a negative effect on their behavior.

4.1. Strengths and limitations of this study

Our study has three strengths. First, our study design with waves of data collection before and after the transition and multiple informants enabled us to investigate their development of predicting factors during childcare years and investigate their influence on social-emotional functioning during the initial elementary school period. A second strength is that our study included diverse, validated measures and multiple informants in both the home and child care setting. In addition, our sample included both children from home-based and center-based care, which allowed a comparative investigation of two populations and an investigation of possible differences in development depending on the type of setting. A third strength is that we focused on the transition phase and measured possible accompanying problems. This enabled us to investigate the influence of this transition, both as a predicting factor and a mediator.

There are also serious limitations in our study. Because we included (an identical set of) several predictors for each outcome variables we performed multiple tests in our regression models, which increased the family-wise error rate. Further research in other samples is recommended to investigate whether our findings can be replicated. Another limitation is the skewed distribution between children in a center- and home-based setting. Although our sample size was large enough to investigate differences between the two settings, future studies with larger samples could provide more withing group analysis in each type of setting. Although we selected various validated and widely used measures, we did not find a measure for transition experiences that is validated for the Dutch context. Finally, a substantial limitation from our exploratory mediation analysis is that the statistically significant findings involved same-informant data for the transition problems and outcome measures. Shared-method variance and same-informant bias for the teacher-reported measures may have thus influenced our mediation results. Stronger evidence for mediation was found for well-being, because there was a convergent pattern for parent- and teacher-reported transition difficulties.

4.2. Implications for practice

In line with the transition ecology perspective (Rimm-Kaufman & Pianta, 2000), our study supports the importance of some specific individual, dyadic and ecological factors as early precursors of children's engagement and early learning during elementary school. The transition from childcare to elementary school is more successful if children have higher levels of surgency, went to center-based care (i.e., not home-based care), and had positive relationships with their caregivers in childcare with little conflict. Parent, ECEC caregivers and teachers may share this information about children's temperament, childcare background (type and quantity) and conflict in the caregiver-child relationship in ECEC before the entry to kindergarten, possibly supplemented with information at family level (e.g., socio-economic status, parental stress). After a warm transfer between ECEC staff, teachers and parents in a tripartite dialogue before the entry to kindergarten, parents and teachers may subsequently share their perspectives on the children's experiences during the first weeks at the new school at a follow-up, possibly with the use of a brief measures, as developed in our study. This two-step approach before and after the entry to school may guide the socio-emotional and academic support of individual students during the important phase of transition, which affects their well-being and adjustment to school.

Second, an important implication from our study is that preventing or reducing ECEC caregiver-child conflicts may prevent lower levels of children's well-being and social competence when they have entered elementary school.

Finally, future research should make clear (see González-Moreira

et al., 2023) how the voices of young children can also be integrated in the synthesis of information from all participants. In a unique developmental phase, effective coordination between all stakeholders may pave the way to support young children with different backgrounds at the important start of their school career.

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Declarations of competing interest

None.

CRediT authorship contribution statement

Ruben G. Fukkink: Conceptualization, Funding acquisition, Methodology, Supervision, Writing – original draft, Writing – review & editing, Investigation, Project administration. **Rosanne M.V. Sluiter:** Formal analysis, Investigation, Visualization, Writing – original draft. **Minne Fekkes:** Conceptualization, Funding acquisition, Investigation, Methodology, Supervision.

Appendix A

Mediation Analysis for Academic Self-regulation

		Effect of IV on M		Effect of M on DV		Total effect		Direct effect		Indirect effect			
M	IV	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	CI lower	CI upper
Transition: Teacher perspective	Sur	−1.68**	0.52	−1.19**	0.38	0.19	1.57	−1.81	1.60	2.01**	0.80	0.51	3.71
	NA	0.10	0.45	−1.19**	0.38	0.39	1.36	0.50	1.26	−0.11	0.64	−1.64	0.89
	EC	−0.58	0.55	−1.19**	0.38	2.19	1.67	1.50	1.56	0.69	0.68	−0.40	2.33
	Type	−0.35	0.59	−1.19**	0.38	1.51	1.81	1.10	1.68	0.41	0.84	−1.15	2.25
	Close	−0.10	0.08	−1.19**	0.38	−0.03	0.23	−0.15	0.22	0.12	0.12	−0.10	0.36
	Dep	−0.11	0.09	−1.19**	0.38	−0.12	0.28	−0.26	0.27	0.14	0.13	−0.14	0.39
	Confl	0.09	0.05	−1.19**	0.38	−0.11	0.16	0.00	0.16	−0.11	0.07	−0.26	0.03
Transition: Parent perspective	Sur	−1.86***	0.53	0.18	0.40	0.19	1.57	0.53	1.75	−0.34	0.87	−2.11	1.42
	NA	0.58	0.46	0.18	0.40	0.39	1.36	0.29	1.39	0.11	0.36	−0.58	0.96
	EC	0.82	0.56	0.18	0.40	2.19	1.67	2.04	1.71	0.15	0.51	−0.67	1.44
	Type	−1.05	0.61	0.18	0.40	1.51	1.81	1.70	1.87	−0.19	0.60	−1.61	0.86
	Close	−0.19*	0.08	0.18	0.40	−0.03	0.23	0.01	0.25	−0.04	0.11	−0.31	0.13
	Dep	−0.04	0.10	0.18	0.40	−0.12	0.28	−0.11	0.29	−0.01	0.05	−0.11	0.12
	Confl	0.04	0.05	0.18	0.40	−0.11	0.16	−0.11	0.16	0.01	0.03	−0.06	0.07

Note. Predictors are mean centered and no variables are standardized; Sur = (E)CBQ surgency; Na = (E)CBQ negative affect; Ec = (E)CBQ effortful control; Type = type of ECEC (1 = center-based, 0 = home-based); Close = STRS Closeness; Dep = STRS Dependency; Confl = STRS Conflict; * $p < .05$, ** $p < .01$, *** $p < .001$.

Mediation Analysis for Social Competence

		Effect of IV on M		Effect of M on DV		Total effect		Direct effect		Indirect effect			
M	IV	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	CI lower	CI upper
Transition: Teacher perspective	Sur	−1.68**	0.52	−0.68*	0.26	0.60	1.05	−0.54	1.10	1.14**	0.53	0.16	2.18
	NA	0.10	0.45	−0.68*	0.26	−1.16	0.91	−1.10	0.87	−0.07	0.35	−0.89	0.48
	EC	−0.58	0.55	−0.68*	0.26	1.63	1.12	1.24	1.07	0.39	0.42	−0.23	1.41
	Type	−0.35	0.59	−0.68*	0.26	3.34**	1.21	3.10**	1.16	0.24	0.48	−0.67	1.27
	Close	−0.10	0.08	−0.68*	0.26	−0.06	0.16	−0.12	0.15	0.07	0.06	−0.06	0.20
	Dep	−0.11	0.09	−0.68*	0.26	0.06	0.19	−0.02	0.18	0.08	0.08	−0.08	0.23
	Confl	0.09	0.05	−0.68*	0.26	−0.37**	0.11	−0.30**	0.11	−0.06	0.04	−0.15	0.01
Transition: Parent perspective	Sur	−1.86***	0.53	0.28	0.27	0.60	1.05	1.11	1.17	−0.52	0.54	−1.71	0.42
	NA	0.58	0.46	0.28	0.27	−1.16	0.91	−1.32	0.92	0.16	0.23	−0.23	0.69
	EC	0.82	0.56	0.28	0.27	1.63	1.12	1.40	1.14	0.23	0.30	−0.22	0.96
	Type	−1.05	0.61	0.28	0.27	3.34**	1.21	3.63**	1.24	−0.29	0.37	−1.23	0.24
	Close	−0.19*	0.08	0.28	0.27	−0.06	0.16	−0.01	0.16	−0.05	0.07	−0.22	0.04
	Dep	−0.04	0.10	0.28	0.27	0.06	0.19	0.07	0.19	−0.01	0.04	−0.09	0.08
	Confl	0.04	0.05	0.28	0.27	−0.37**	0.11	−0.38**	0.11	0.01	0.02	−0.03	0.06

Note. Predictors are mean centered and no variables are standardized; Sur = (E)CBQ surgency; NA = (E)CBQ negative affect; EC = (E)CBQ effortful control; Type = type of ECEC (1 = center-based, 0 = home-based); Close = STRS Closeness; Dep = STRS Dependency; Confl = STRS Conflict; * $p < .05$, ** $p < .01$, *** $p < .001$.

Mediation Analysis for Well-being

		Effect of IV on M		Effect of M on DV		Total effect		Direct effect		Indirect effect			
M	IV	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	CI lower	CI upper
Transition: Teacher perspective	Sur	−1.68**	0.52	−1.52**	0.47	6.22**	1.95	3.66	1.96	2.57**	1.09	0.48	4.72
	NA	0.10	0.45	−1.52**	0.47	−0.15	1.68	−0.01	1.55	−0.15	0.79	−2.13	1.06
	EC	−0.58	0.55	−1.52**	0.47	3.12	2.06	2.24	1.92	0.88	0.82	−0.53	2.71
	Type	−0.35	0.59	−1.52**	0.47	0.33	2.24	−0.20	2.07	0.53	1.08	−1.36	2.96
	Close	−0.10	0.08	−1.52**	0.47	0.11	0.29	−0.04	0.27	0.15	0.13	−0.14	0.41
	Dep	−0.11	0.09	−1.52**	0.47	0.26	0.35	0.09	0.33	0.17	0.17	−0.18	0.52
	Confl	0.09	0.05	−1.52**	0.47	−0.35	0.20	−0.21	0.19	−0.14	0.09	−0.33	0.02

(*continued on next page*)

(*continued*)

		Effect of IV on M		Effect of M on DV		Total effect		Direct effect		Indirect effect			
M	IV	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	CI lower	CI upper
Transition: Parent perspective	Sur	−1.86***	0.53	−0.75	0.49	6.22**	1.95	4.83*	2.13	1.39	1.11	−0.39	3.99
	NA	0.58	0.46	−0.75	0.49	−0.15	1.68	0.28	1.69	−0.44	0.54	−1.81	0.25
	EC	0.82	0.56	−0.75	0.49	3.12	2.06	3.73	2.08	−0.62	0.60	−2.02	0.35
	Type	−1.05	0.61	−0.75	0.49	0.33	2.24	−0.45	2.27	0.78	0.76	−0.40	2.53
	Close	−0.19*	0.08	−0.75	0.49	0.11	0.29	−0.03	0.30	0.14	0.11	−0.06	0.39
	Dep	−0.04	0.10	−0.75	0.49	0.26	0.35	0.23	0.35	0.03	0.10	−0.14	0.25
	Confl	0.04	0.05	−0.75	0.49	−0.35	0.20	−0.32	0.20	−0.03	0.05	−0.15	0.06

Note. Predictors are mean centered and no variables are standardized; Sur = (E)CBQ surgency; NA = (E)CBQ negative affect; EC = (E)CBQ effortful control; Type = type of ECEC, 1 = center-based, 0 = home-based); Close = STRS Closeness; Dep = STRS Dependency; Confl = STRS Conflict; * $p < .05$, ** $p < .01$, *** $p < .001$.

Appendix B

Item Statistics for Transition Difficulties Scale

	Scale Mean if item deleted	Scale Variance if item deleted	Corrected item-total Correlation	Alpha if item deleted
Parent questionnaire				
Q1. Good start	5.61	3.43	0.64	0.77
Q2. Transitioned well	5.56	3.08	0.63	0.77
Q3. Connect with children	5.32	3.04	0.67	0.75
Q4. Connect with teacher	5.59	3.62	0.62	0.78
Teacher questionnaire				
Q1. Good start	6.03	2.66	0.56	0.73
Q2. Transitioned well	5.91	2.29	0.58	0.73
Q3. Connect with children	5.82	2.42	0.59	0.72
Q4. Connect with teacher	6.19	2.64	0.61	0.71

Appendix C

Table of Correlations of Main Predictor and Variables (Total Sample).

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.VISION social competence	18.62	4.43	–															
2. VISION well-being	34.66	7.70	0.43***	–														
3. VISION regulation	15.32	6.14	0.50***	0.35**	–													
4. Internalizing problems	6.92	5.63	−0.11	−0.18	−0.21	–												
5. Externalizing problems	11.10	7.23	−0.25*	−0.03	−0.25*	0.68***	–											
6. Transition problems – teacher	3.99	2.03	−0.37**	−0.57***	−0.39***	0.20	0.05	–										
7. Transition problem – parent	3.36	2.35	−0.05	−0.36**	−0.02	0.31***	0.04	0.35**	–									
8. Surgency	4.73	0.46	0.01	0.39***	0.00	−0.12	0.18	−0.37**	−0.30**	–								
9. Negative Affect	2.77	0.58	−0.18	−0.10	−0.07	0.39***	0.33***	0.13	0.06	0.03	–							
10. Effortful Control	5.01	0.49	0.28*	0.19	0.28*	−0.11	−0.34***	−0.19	−0.09	−0.03	−0.08	–						
11. Emo-Behavorial Support	5.69	0.45	−0.01	0.09	0.04	0.08	0.00	0.08	0.10	−0.12	0.14	0.01	–					
12. Engaged Support Learning	3.94	0.64	0.12	0.16	0.11	0.07	0.02	0.01	−0.01	0.02	0.15	−0.05	0.45***	–				
13.E(*FC*)CERS-R	4.37	0.69	0.09	−0.12	0.06	−0.02	0.04	0.03	−0.07	0.09	0.21*	0.08	0.04	0.04	–			
14.STRS Closeness	48.25	3.50	−0.01	0.19	0.02	−0.18	−0.06	−0.24*	−0.38***	0.06	0.04	−0.05	0.11	0.12	−0.16	–		
15.STRS Dependency	12.26	3.41	−0.08	−0.02	−0.01	0.21*	0.19*	−0.01	0.08	−0.04	0.22*	−0.11	−0.07	0.10	0.04	−0.06	–	
16.STRS Conflict	16.69	4.86	−0.32**	−0.19	−0.13	0.33***	0.36***	0.20	0.10	0.05	0.16	−0.08	−0.09	−0.10	−0.02	−0.30***	0.45***	–

Note. Type: cbc = center-based (1) vs. home-based care (0); Gender: girl (1) vs. boy (0); * $p < .05$, ** $p < .01$, *** $p < .001$.

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