

**Interaction Quality in Norwegian ECEC for Toddlers Measured with the Caregiver  
Interaction Profile (CIP) Scales**

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## **Abstract**

The core aspect within process quality is quality of interactions between caregivers and children. This article investigates six interaction skills of caregivers in ECEC groups for toddlers in Norway using the Caregiver Interaction Profile (CIP) scales. The participants are 110 teachers and 58 assistants in 111 toddler groups. Results show that caregivers score between moderate and adequate-to-good levels on the more basic interaction skills. For the more educational interaction skills, scores were mostly at the inadequate level. Comparing teachers and assistants, teachers score higher on respect for autonomy, structuring and limit setting, verbal communication, and developmental stimulation. In addition, correlations show that the CIP scores were differentially associated with several ITERS-R scales, which supports the applicability of the measure. Because of the overall moderate-to-low scores, there is a need for in-service training to improve the process quality of ECEC for toddlers.

**Keywords:** ECEC, process quality, interaction skills, toddlers, CIP, ITERS-R

## **Interaction Quality in Norwegian ECEC for Toddlers Measured with the Caregiver Interaction Profile (CIP) Scales**

Over the past 15–20 years, there has been a substantial expansion of early childhood education and care (ECEC) in Norway, which, in terms of public expenditure on ECEC, now ranks fifth among all OECD countries, after Iceland (first), Sweden (second), Denmark (third), and France (fourth) (OECD, 2016). This expansion of ECEC in Norway is the direct result of a 2003 government decision to ensure access for all children whose parents want their children to be enrolled in ECEC. Furthermore, in 2009, a place in ECEC became a legal right for all children from the age of 1. Currently, 91% of all Norwegian children aged 1–5 years and 82.5% of children younger than 3 years old are enrolled in ECEC (Statistics Norway [SSB], 2018). All children receive a full-time offer of ECEC, at 41 hours per week or more. Given this relatively rapid expansion, especially for children aged 1–3 years, it is not clear whether the sector is equipped to provide them with high-quality ECEC. The OECD (2015) states that research to monitor this expansion has been insufficient so far.

When examining ECEC quality, a distinction is often made between structural quality characteristics (e.g., child-to-caregiver ratio, level of pre-service training, accessible play and learning materials) and process quality (e.g., caregiver–child interactions) (Lamb & Ahnert, 2006; Phillips & Lowenstein, 2011). Whereas structural quality characteristics can be seen as prerequisites for high-quality ECEC (though they do not guarantee it), process quality taps into the actual, everyday quality of education and care received by children (Lamb & Ahnert, 2006). The core aspect within process quality is the quality of interactions between caregivers and children, and between children and other children that are embedded in daily experiences (Bjørnstad et al., 2012; Phillips & Lowenstein, 2011). Sensitive and responsive caregivers who provide high levels of verbal and developmental stimulation in positive classroom climates with developmentally appropriate opportunities to learn and explore are seen as

caregivers who provide high-process-quality ECEC (Bjørnstad et al., 2012; Hamre et al., 2013; Slot, Leseman, Verhagen, & Mulder, 2015). High-process-quality ECEC contributes directly to children's immediate and future well-being, learning, and development (Broekhuizen, Mokrova, Burchinal, & Garrett-Peters, 2016; La Paro, Williamson, & Hatfield, 2014; Phillips & Lowenstein, 2011; Sanders & Howes, 2013; Sylva et al., 2006; Thomason & La Paro, 2009; Vandell, Belsky, Burchinal, Steinberg, & Vandergrift, 2010).

Until recently, large-scale quantitative studies examining ECEC quality in Norway have largely focused on structural quality characteristics, and only few, much smaller qualitative studies have been conducted on the process aspects of high-quality ECEC (Bjørnstad et al., 2012; Gulbrandsen & Eliassen, 2013). The OECD (2015) has stated that there is a lack of knowledge on process quality in Norwegian ECEC, and that nationwide monitoring of these aspects is highly recommended. To follow this recommendation, and to enhance the research knowledge related to process quality in Norway, two large-scale national research projects—the Better Provisions for Norway's children in ECEC (BePro) project and the Searching for Qualities (SfQ) project—were commissioned to examine process quality in a large sample of Norwegian ECEC institutions. The present study is part of these projects.

The two projects used an internationally widely used and valid measurement for examining quality: The Infant/Toddler Environment Rating Scale-Revised (ITERS-R; Harms, Cryer, & Clifford, 2006). This is the first time in Norway that the ITERS-R is used (Bjørnstad & Os, 2018). The ITERS-R measures several aspects of quality, ranging from the physical and organisational aspects of the ECEC setting to the quality of caregiver-child interactions. However, despite including some aspects of interaction quality, the measure is superficial, in terms of observing the quality of caregiver-child interactions (Bisceglia, Perlman, Schaack, & Jenkins, 2009; Bjørnstad & Os, 2018; Helmerhorst et al., 2014). In addition, ITERS-R is a group measure that does not distinguish between individual

caregivers' practices. For these reasons, the CIP scales are included as an additional tool to measure caregivers' interaction skills. The CIP scales were originally developed for use in a Dutch context and have been validated by Helmerhorst et al. (2014). Since the interaction skills in the CIP scales are assumed to positively influence children's well-being and development (Helmerhorst et al., 2014), using them to assess caregivers' interaction skills is a valuable contribution to the ITERS-R study. Additionally, this may be valuable in the Norwegian context because the staff composition in Norwegian ECEC groups consists of both teachers with bachelor's degrees in ECEC and assistants with no pre-service ECEC qualifications. Scores on the CIP scales may show whether this difference in educational background is related to differences in interaction skills between teachers and assistants.

The primary aim of the study is to examine the quality of caregivers' interactions with children under 3 years of age in Norwegian ECEC groups, paying special attention to possible differences between ECEC teachers and assistants. Since this study is the first Norwegian study using the CIP scales, its secondary aim is to examine the applicability and usefulness of the scales in a Norwegian context by relating CIP scores to ITERS-R scores in the same ECEC groups.

### **Norwegian ECEC: Context and Earlier Research**

Norwegian ECEC provision has become a welfare benefit and a universal offer to all families and their children under the age of 6. Strongly rooted in the Nordic tradition and emphasising a holistic approach to children's care, play, learning, and formation, the care aspects are regarded as more important than the educational aspects (M. Alvestad, Tuastad, & Bjørnstad, 2017). To ensure quality in all ECEC centres, both private and municipality-driven facilities are required to follow the Kindergarten Act (Ministry of Education and Research, 2005) and the guidelines in the National Framework Plan for Kindergartens

(Ministry of Education and Research, 2005; Norwegian Directorate for Education and Training, 2017a). The framework plan is not age-specific. ECEC teachers are responsible for adapting the requirements in the framework plan to specific groups and children's ages and abilities, based on their professional judgment. However, it is strongly highlighted in the framework plan that everyday interactions between people are vital for children's well-being, development, and learning (Norwegian Directorate for Education and Training, 2017a).

Up to 2018, there was no regulation of the caregiver-to-child ratio (including both ECEC teachers and assistants) or group sizes, except that one of the caregivers in each group is required to hold a bachelor's degree in ECEC or the equivalent. In contrast to the caregiver-to-child ratio, the ECEC teacher-to-child ratio is regulated by law, with one ECEC teacher per 7–9 children under the age of 3 (Ministry of Education and Research, 2005). The OECD (2015) states that this lack of regulation of the caregiver-to-child ratio and group size is a potential threat to the quality provided by Norwegian ECEC. Consequently—and with pressure from practitioners—the Norwegian government decided to increase both the ECEC teacher-to-child ratio (Government, 2017a) and regulate the caregiver-to-child ratio (Government, 2017b). The new regulation took effect in August 2018 with a teacher-to-child ratio of one ECEC teacher per maximum seven children under the age of 3 and, beginning August 2019, the caregiver-to-child ratio will be a minimum of one caregiver per three children under the age of 3. There are, however, no fixed regulations for group size. Group composition in Norway is often divided into ECEC groups with children 1–3 years old (defined as toddler groups) and 3–5 years old or with mixed-aged groups of children 1–6 years old traditionally located in the same centre. The average group size for the 1–3-year-old group is nine children per group (Norwegian Directorate for Education and Training, 2017b).

The workforce that works directly with children in Norwegian ECEC centres consists of ECEC teachers holding a 3-year tertiary degree (bachelor's degree in ECEC or equivalent

pedagogical education) and assistants with no specific requirements related to qualifications or pre-service training in ECEC. However, almost all of the assistants have completed the upper secondary level (age 19) or higher, and a small proportion (around 20%) have completed vocational training programmes related to childcare and youth work for children aged 1–18 (Statistics Norway [SSB], 2017).

When it comes to defining the responsibilities and work tasks carried out in ECEC, the National Framework Plan for Kindergartens states that the ECEC teacher in a child group is responsible for planning, documenting, and leading the pedagogical work, based on good professional judgement. In their pedagogical work, teachers are obliged to fulfil the requirements of the Kindergarten Act and the framework plan (Norwegian Directorate for Education and Training, 2017a). In contrast, there are no descriptions or guidelines in the framework plan that specifically describe assistants' responsibilities and work tasks. Nevertheless, there is a strong tradition in Norwegian ECEC related to equality in the workforce that involves flat organisational structures. Research indicates that, in practice, the division of labour between ECEC teachers and assistants is rather minimal: they largely do the same tasks (Børhaug, Helgøy, Homme, Lotsberg, & Ludvigsen, 2011; Eik, 2014; Steinnes, 2014; Steinnes & Haug, 2013). For example, in a national survey, Steinnes (2014) found that both teachers and assistants report having equal responsibility for reading to children, changing nappies, playing with the children, supervising physical activities, and helping children get dressed. In addition, the survey showed that assistants spent 81% of their total working hours with children, whereas teachers spent only 66% of their total hours working with children (Steinnes, 2014).

Despite the relative equality in the division of labour and pedagogical work and the flat organisational structure, there are indications that educated ECEC teachers score significantly higher than assistants in terms of the provided process quality. One recent

ITERS-R study by Bjørnstad and Os (2018) from the same research project as this study found that groups with an ECEC teacher present during the observations—versus groups with no ECEC teacher present (only assistants present in the group) during the observations—scored significantly higher on the two 7-point scales in the ITERS-R that specifically focus on process quality: interactions (ECEC teacher present  $M = 4.78$ ,  $SD = 1.49$ ; non-qualified teacher present  $M = 3.87$ ,  $SD = 1.33$ ;  $p = 0.01$ ) and listening and talking (ECEC teacher present  $M = 4.39$ ,  $SD = 1.37$ ; non-qualified teacher present  $M = 3.79$ ,  $SD = 1.24$ ) (Bjørnstad & Os, 2018). This is in accordance with studies in which higher levels of caregiver formal education seem to be associated with higher levels of process quality in ECEC for toddlers (Burchinal, Cryer, Clifford, & Howes, 2002; Dalli et al., 2011; Manning, Garvis, Fleming, & Wong, 2017; Melhuish & Gardiner, 2017; Phillips, Mekos, Scarr, McCartney, & Abbott-Shim, 2000).

The total ITERS-R score in the Norwegian ITERS-R study falls within the minimal level of quality ( $M = 3.89$ ,  $SD = 0.80$ ) on a 7-point scale (1 is inadequate, 3 is minimal, 5 is good, and 7 is excellent) and is in line with other international studies (Vermeer, van IJzendoorn, Cárcamo, & Harrison, 2016). Quality at the subscale level in the Norwegian study ranges from an average score of 3.49 for both personal care routines ( $SD = 1.00$ ) and activities ( $SD = 0.77$ ), 3.80 ( $SD = 0.90$ ) for space and furnishings, 4.34 ( $SD = 1.37$ ) for listening and talking, 4.72 ( $SD = 1.50$ ) for interactions, and 4.34 ( $SD = 1.31$ ) for programme structure. This indicates minimal quality at the subscale level (Bjørnstad & Os, 2018). The authors of the study argue that the quality for toddlers in Norwegian ECEC is not as good as expected, and there seems to be a need to enhance the quality (Bjørnstad & Os, 2018). Although these ITERS-R scores provide a broad picture of the quality of the ECEC environment, they provide only limited information on the interactions between caregivers



and children (Fenech, 2011). Therefore, in the present study, we also administer the CIP, to assess individual teachers' and assistants' interaction skills.

### **Caregiver Interaction Skills**

High-quality interactions between caregivers and young children drive children's development and are important for their well-being (Helmerhorst et al., 2014; Melhuish et al., 2015). The Netherlands Consortium for Research in Child Care (NCKO; Helmerhorst et al., 2014) developed a tool for measuring quality in caregivers' interactions with children in ECEC: the Caregiver Interaction Profile (CIP) scales. Based on systematic literature review and empirical evidence the consortium developed six interactional key aspects that underpin the relationship between caregiver interactive skills and developmental outcomes in children. These are considered to play an important role in fostering the well-being and development of children from birth to 4 years (Helmerhorst et al., 2014; Helmerhorst, Riksen-Walraven, Deynoot-Schaub, & Fukkink, 2015). The six specific caregiver interaction skills that constitute the CIP scales are: (1) sensitive responsiveness, (2) respect for autonomy, (3) structuring and limit-setting, (4) verbal communication, (5) developmental stimulation, and (6) fostering positive peer interactions. The first three skills are related to basic aspects of care. *Sensitive responsiveness* refers to the extent to which a caregiver recognises and responds to children's individual and physical needs, as well as their signals and cues. *Respect for autonomy* relates to the extent to which a caregiver is non-intrusive and recognises, respects, and supports children's intentions and perspectives. *Structuring and limit-setting* relates to a caregiver's ability to communicate clear expectations, to structure situations accordingly, and to provide children with clear and consistent limits regarding their behaviour. The last three skills focus on educational aspects. *Verbal communication* refers to both the frequency and quality of verbal interactions between caregivers and children. *Developmental stimulation* is described as a caregiver's deliberate attempts to foster different

aspects of children's development (e.g., social, motor, cognition and creativity) using a diverse range of activities and materials that are attuned to children's attention, states, and developmental levels. *Fostering positive peer interactions* focuses on the quality of guidance that a caregiver provides about the interactions between children in the group.

The first time the CIP scales were used in the Netherlands, the results revealed a moderate average score across the six CIP scales ( $M = 3.6$  on a 7-point scale; inadequate = 1–3.4, moderate = 3.5–4.4, and adequate to good = 4.5–7). However, substantial differences were found between the different caregiver interaction skills, with adequate-to-good scores for the more basic caregiving skills of sensitive responsiveness ( $M = 4.81$ ,  $SD = 0.93$ ), respect for autonomy ( $M = 4.51$ ,  $SD = 0.84$ ), and structuring and limit-setting ( $M = 4.90$ ,  $SD = 1.17$ ). The scores in educational skills ranged from moderate for verbal communication ( $M = 3.60$ ,  $SD = 0.90$ ) to inadequate for both developmental stimulation ( $M = 2.16$ ,  $SD = 0.93$ ) and fostering positive peer interactions ( $M = 1.72$ ,  $SD = 0.83$ ) (Helmerhorst et al., 2015).

There are several reasons for choosing the CIP scales as a tool for measuring caregivers' interactions with children in this study. The tool is regarded as a valid measurement for interactional quality in ECEC (OECD, 2015). In addition, as stated by Helmerhorst et al. (2014), the CIP scales are time-efficient and designed to be administered together with ITERS-R (and ECERS-R) by a single researcher during an one-day visit with a group. Another advantage of the CIP scales is that they take into account that ECEC is a group setting. It is not sufficient for caregivers to have the capability to interact with individual children; they also must be able to divide their attention and react consistently between groups of children (Helmerhorst et al., 2014). The caregiver interaction skills measured with the CIP scales have also been found to be suitable in training programmes for improving caregivers' interactive skills in the Netherlands (Helmerhorst et al., 2017).

## Current Study

This study uses the CIP scales (Helmerhorst et al., 2014) to examine the quality of caregivers' interactions with toddlers in a subsample of Norwegian ECEC groups, with special attention to differences between ECEC teachers and assistants. Despite the considerable knowledge available about the importance of interactions between caregivers and 1–3-year-old children in ECEC, research shows that interactional quality is lower for toddlers in ECEC compared to children 3–6 years old (Bjørnstad & Os, 2018; Dalli et al., 2011; Helmerhorst et al., 2015; La Paro et al., 2014). Given that the CIP scales were developed and validated in the Netherlands and have only recently been used for the first time in Norway, the study also aims to confirm the applicability and usefulness of the scales in the Norwegian context by relating them to the ITERS-R scales applied to the same groups. Significant, but not-too-high, positive correlations between the CIP scales and ITERS-R are expected, as this would indicate that the CIP scales capture an additional aspect of process quality, which would make them a useful addition to ITERS-R. More specifically, we expect that the ITERS-R *listening and talking* and *interaction* scales—the two scales that focus on caregiver–child interactions—would be most strongly correlated with the CIP scales. We also expect significant and positive associations with the more organisational activities and programme structure scales, as these more content- and curriculum-oriented scales are presumed to be prerequisites of high-quality caregiver–child interactions (Dalli et al., 2011; Sylva et al., 2006). In addition, we expected to find no—or only weak—associations with the personal care routines and space and furnishings scales, as these scales focus least on interaction skills. Although there are interactional aspects included in these scales, they are mainly at the high end of the items (a score of 5–7). However, the earlier ITERS-R study by

Bjørnstad and Os (2018), showed that most groups do not reach this level. Finally, based on earlier research, we expect the correlations to be somewhat stronger for ECEC teachers than assistants, as ECEC teachers have more responsibility for leading and planning pedagogical work (Steinnes & Haug, 2013), and as such are expected to contribute more to the overall quality of ECEC groups, as assessed with the ITERS-R (Bjørnstad & Os, 2018; Norwegian Directorate for Education and Training, 2017a).

Regarding the quality of young children's interactions with their caregivers, as assessed with the CIP scales, we expect moderate to good scores among the ECEC groups for the more basic interaction skills (sensitive responsiveness, respect for autonomy, and structuring and limit-setting) and lower scores for the more educationally focused interaction skills (verbal communication, developmental stimulation, and fostering positive peer interactions). In addition, we expect these scores to be somewhat higher for Norwegian ECEC groups than for Dutch groups, given that Norwegian teachers have bachelor's degrees in ECEC, while the majority of Dutch caregivers have completed 3-year vocational training at the intermediate level in general social-pedagogical work.

In addition to interaction quality at the ECEC group level, we investigated the mean differences in average scores on the CIP scales between teachers and assistants. Based on both the differences in pre-service education and the fact that teachers have more responsibility for leading and planning the pedagogical work in their groups, we hypothesise higher scores for ECEC teachers than assistants, especially for the more educationally focused interaction skills. However, because of the flat organisational structure in Norwegian ECEC, in which the planning of the pedagogical work and the leading of the classroom and activities might be more equally divided than stated in the National framework plan for Kindergartens (Steinnes, 2013, 2014; Steinnes & Haug, 2013), we expect that these differences would not be large.

## Methods

### Participants

This study is a part of the two longitudinal research projects BePro and SfQ. These projects collaborated in evaluating the quality in Norwegian ECEC using the ITERS-R, ECERS-R, and CIP scales. Using a stratified random sampling procedure, 158 ECEC centres in five regions in Norway were approached to participate in the study, and 93 centres agreed to participate. Groups within these centres were observed with ITERS-R ( $n = 206$ ) when parents of at least two children in the group actively consented to participation in the individual assessments (e.g., cognitive skills). In addition, in 111 of the 206 groups, at least one caregiver and enough parents consented to video recordings made as part of the CIP assessment. Those 111 participating groups, distributed over 66 centres, scored somewhat higher ( $M = 4.11$ ,  $SD = 0.76$ ) than the 95 non-participating groups ( $M = 3.64$ ,  $SD = 0.76$ ) on the average ITERS-R total score,  $t(204) = 4.47$ ,  $p < .001$ . This sample includes somewhat more municipal (62.10%) and fewer private centres (37.90%) compared to the national distribution (47% public and 53% private; Statistics Norway [SSB], 2018). However, there were no significant differences on the ITERS-R total score when comparing the classrooms of municipal ( $M = 4.16$ ,  $SD = 0.76$ ) and private centres ( $M = 4.00$ ,  $SD = 0.78$ ,  $t(109) = 1.00$ ,  $p = 0.32$ ). Table 1 provides sample characteristics at the group and caregiver levels for these 111 groups. These statistics show that most observed groups had a 1–3 years old age group (84.5%), and that there were relatively large variations, in terms of group sizes, caregiver-to-child ratios (both teacher and assistant), and teacher-to-child ratios, as observed during the ITERS-R assessment. In only 28 of 66 centres was more than one group observed; in 14

centres, two groups were observed; in 12 centres, three groups were observed; in one centre, four groups were observed; and in one centre, five groups were observed.

All caregivers in the groups received an opt-in letter to actively consent to the video recordings, resulting in a total sample of 168 caregivers. These 168 participating caregivers can be divided into teachers ( $n = 110$ ), who have a 3-year tertiary degree in ECEC (bachelor's level) or equivalent, and assistants ( $n = 58$ ), who complete the upper secondary level of education (age 19) or higher. Two teachers had not yet completed a bachelor's degree, though they received dispensation from the educational requirement. The reason for the unequal distribution in our sample—fewer assistants than teachers—might be the free choice given to participate in the video study; the teachers seemed more confident and willing to participate in these situations. In all participating groups, one teacher was observed, except for two groups in which only an assistant consented to be recorded and one group in which two teachers and no assistant were observed. In 54 groups, one teacher and one assistant were observed. There was one group in which, in addition to one ECEC teacher, two assistants were observed. This was the only group in which three caregivers were observed. In 55 groups, only one teacher and no assistant was observed.

**Table 1. *Sample characteristics at the group and caregiver levels***

### **Procedures**

As recommended by Helmerhorst et al. (2014), a trained observer visited the toddler group from 8:00 a.m. to approximately 3:00 p.m. to collect data for ITERS-R and video record situations to be rated later according to the CIP scales. In addition to the written information sent to the centres in advance, the observer informed the caregivers about the four naturally occurring situations (diapering, mealtime, free play, and transition between group activities) that would be recorded for 8–10 minutes per participating caregiver. Apart from

this information, the caregivers did not receive specific instructions, and the observer followed the regular day's structure.

The inclusion of four everyday situations can illuminate variations in interactional features in different situations (Degotardi, 2010; Dickinson, 2001; Girolametto & Weitzman, 2002; Rhyner, Guenther, Pizur-Barnekow, Cashin, & Chavie, 2013). The chosen situations constitute a powerful context in which caregivers' interactions with children are embedded and can give a valid and reliable estimation of the interactions as they happen on a daily basis. Routine situations also create opportunities to engage children in meaningful interactions that promote their learning and development (Hallam, Fouts, Bargreen, & Perkins, 2016).

The observer completed ITERS-R and made video recordings in the first 3–4 hours of the visit. Next, in line with the ITERS-R manual, the observer interviewed the teachers, to collect additional information that could not be observed (e.g., how frequently certain activities take place and the kind of additional material available). Finally, if the recordings could not be completed during the first 3 - 4 hours, additional recordings were made in the afternoons. General information about the ECEC centres and specific groups was collected through a questionnaire filled out by the heads of the centres.

## **Measures**

**ITERS-R.** ITERS-R is a widely used, standardised observation instrument to assess global quality in child care groups in which more than 50% of the children are younger than 30 months of age (Harms et al., 2006). Eleven of the 111 groups studied had children aged 1–6, and fewer than 50% of the children in these groups were younger than 3 years old. However, for reasons of comparability, ITERS-R was still used, with special attention paid to the environment as experienced by the children younger than 3 years old. The ITERS-R consists of seven scales, six of which were used in this study: 1) space and furnishings (5

items), 2) personal care routines (6 items), 3) listening and talking (3 items), 4) activities (10 items), 5) interactions (4 items), and 6) programme structure (4 items). The parents and staff scale was not used in this study. The ITERS-R data in the current study was available from the former study by Bjørnstad and Os (2018).

When comparing the ITERS-R total score for these 11 groups with children aged 1–6 to the other 100 groups, we found that there was a marginally significant effect, with the 11 groups scoring somewhat higher ( $M = 4.51$ ,  $SD = 0.61$ ) than the other 100 groups ( $M = 4.08$ ,  $SD = 0.78$ ,  $t(109) = -1.79$ ,  $p = 0.08$ ). However, separate follow-up analyses of variance (ANOVA's) for the six scales showed that there was a difference only for the scale *activities*, and not on the other five scales used. Therefore, and to prevent data loss, we decided to keep those 11 groups in our analyses.

Through several yes/no indicators, the items in each subscale were rated on a 7-point scale (1 = inadequate, 3 = minimal, 5 = good, 7 = excellent). Next, scale scores were calculated by taking the means of the items belonging to each scale: space and furnishings ( $M = 3.91$ ,  $SD = 0.89$ ), personal care routines ( $M = 3.63$ ,  $SD = 1.01$ ), listening and talking ( $M = 4.62$ ,  $SD = 1.30$ ), activities ( $M = 3.66$ ,  $SD = 0.74$ ), interactions ( $M = 5.16$ ,  $SD = 1.44$ ), and programme structure ( $M = 4.64$ ,  $SD = 1.26$ ). In addition, an overall ITERS-R score was calculated by averaging the scores across all 32 items ( $M = 4.11$ ,  $SD = 0.76$ ).

Two researchers (the first and third authors of this study) completed the online ITERS-R course offered by the Environment Rating Scales Institute (ERSI), followed by intensive training with the developers of ITERS-R. This training was completed with a reliability check, with an average within-1-point reliability score of 96%. The two certified researchers trained the twelve observers for this study (2–4 per region), following the same procedures described by ERSI. The observers were trained in the field by one of the two researchers until they reached an interrater agreement of at least 85%. The average agreement during this



training in the field was 88%, with a range of 85–96% for all items. In addition, when observers scored wrong indicators for certain items, they were further trained until they could reliably apply these specific indicators.

**CIP scales.** Since the CIP scales were available only in Dutch at the time of the study, the coding manual was translated from Dutch to Norwegian in cooperation with the Dutch NCKO team, to ensure the international comparability of the results. The CIP scales were developed for child care groups with children from 0–4 years of age.

The six CIP scales are rated on a 7-point scale, with 1 = very low, 2 = low, 3 = moderate/low, 4 = moderate, 5 = moderate/high, 6 = high, and 7 = very high. The coding manual provides a general definition of the specific interactive skills for each of the six scales, followed by three brief descriptions characterising the scores at the low (1, 2), moderate (3, 4, 5), and high (6, 7) levels of the scale. For example, the description of the scale *sensitive responsiveness* is as follows:

A caregiver scoring in the high (6, 7) range:

“Shows warm and genuine interest in the children and provides emotional support when needed. In general, the caregiver responds promptly and appropriately to the children’s signals, thereby functioning as a “secure base” for the children. If unable to respond, she acknowledges having noticed the signal and provides a more complete response as soon as possible.

A caregiver scoring in the middle range (3, 4, 5):

provides emotional support to the children, but her support is inconsistent. The emotional support she provides may vary across children and/or across time. She sometimes misses signals and her reactions are not always adequate.

A caregiver scoring in the low (1, 2) range:

hardly provides emotional support to the children. She misses many signals or her reactions are too slow or inadequate. She may show indifferent or detached behavior.”

(Helmerhorst et al., 2014, p. 778).

These brief descriptions are further illustrated with more-detailed behavioural descriptions for each of the seven possible scale points. Four trained observers independently rated the video episodes on the six CIP scales. For 129 caregivers, there were four episodes; for 33 caregivers, there were three episodes; and for six caregivers, there were two episodes. Since there was no situation that was systematically missing, and Little's MCAR test— $\chi^2(239) = 273.88, p = .06$ —revealed that the data were missing completely at random, an average score per skill was calculated across the available episodes for each caregiver. These average scores have been classified into three quality levels, which have been labelled using Helmerhorst et al. (2015) as inadequate ( $M < 3.50$ ), moderate ( $3.50 \leq M < 4.50$ ), and adequate-to-good ( $M \geq 4.50$ ).

Four researchers were trained by the developers of the CIP scales in the Netherlands in rating the scales. The researchers completed the training when they reached a within-1-point agreement of 80% with the expert score for five videos. Interrater reliability during the coding process was computed for 10% of the videos. The intra-class-correlation (ICC) with absolute agreement was 0.85 for sensitive responsiveness, 0.90 for respect for autonomy, 0.94 for structuring and limit-setting, 0.91 for verbal communication, 0.91 for developmental stimulation, and 0.78 for fostering positive peer interactions. Researchers did not score video episodes they had recorded themselves.

## **Results**

### **Preliminary Analysis: Correlations Between the Six CIP Scales**

As a preliminary analysis, we calculated the correlations between the six individual CIP scales (see Table 2). As expected, the correlations between the six scales were positive and moderate to strong, as the scales measure related—but conceptually different—aspects of the same concept (interactional skills). Only the correlation between fostering positive peer

interaction and structuring and limit setting was not significant. This correlational pattern is very similar to the pattern in the Dutch validation study of the CIP scales (Helmerhorst et al., 2014). An exploratory factor analysis for the total group, using an oblique rotation, yielded a 1-factor solution that explained 66% of the variance, and Cronbach's alpha for the six scales was .90 for the teachers and .88 for the assistants. This is very similar to the results in the Dutch validation study, in which 68% of the variance was explained by one factor (Helmerhorst et al., 2014). Based on these findings, the six scales were averaged into one total CIP score per caregiver. However, as several of the correlations were below .50, and mean level differences can occur between the scale scores—to reflect relative strengths and weaknesses in interactive skills—it remains important, as in the studies of Helmerhorst et al. (2014; 2015; 2017), to analyse the individual scales as well.

### **Relationships Between the CIP Scales and the ITERS-R Scales**

To examine the applicability and usefulness of the CIP scales in the Norwegian context, bivariate correlations were calculated between the ITERS-R-scales and the averaged CIP scores in the 55 groups in which both a teacher and an assistant were observed (see Table 2). There was one group in which one teacher and two assistants were observed. For this group, the scores of the assistants were averaged before the group-level scores were calculated. The correlations in Table 2 show that there were, as expected, no significant associations between the ITERS-R scales space and furnishings and personal care routines and any of the six CIP scales at the group level. However, as expected, the strongest associations were found between the ITERS-R scales listening and talking, interactions, and programme structure and the CIP scales *verbal communication* and *developmental stimulation*. In addition, there were marginally significant associations between these ITERS-R scales and the CIP scale *sensitive responsiveness*, and there was a marginally significant

association between the ITERS-R scale *interactions* and the CIP scale *structuring and limit-setting*. These meaningful, but not-too-high, correlations indicate that the CIP scales measure something different than ITERS-R, which makes them a useful addition to ITERS-R. There were no associations between the ITERS-R scales and the CIP scales *fostering positive peer interactions* and *respect for autonomy*.

When separately evaluating the correlations for teachers and assistants, associations were somewhat stronger for teachers than for assistants, both in significance level and absolute size. In addition, in contrast to the correlations at the level of the ECEC groups and for assistants, there were significant associations between the ITERS-R scales listening and talking, interactions and programme structure and the CIP scales *respect for autonomy* and *structuring and limit-setting* (correlations between .19 and .28) for teachers.

**Table 2. Correlations between CIP scales and ITERS-R at the level of the ECEC groups (n = 55)**

**Mean Scores on the CIP Scales: Group Level, Teachers, and Assistants**

Descriptive statistics for the CIP scales at the group level, and for the teachers and assistants separately, are displayed in Table 3. Again, we averaged the CIP scores in the 55 groups in which both a teacher and an assistant were observed, to calculate mean scores at the group level. Average scores on sensitive responsiveness, respect for autonomy, structuring and limit-setting, and verbal communication were between moderate and adequate-to-good levels and covered almost the whole range of the 7-point scale. *Verbal communication* was at an inadequate level only for assistants. For *developmental stimulation* and, especially, *fostering positive peer interactions*, the average scores were at the inadequate level, and the range of scores was more restricted. For the total CIP score, the scores at the group level and

for teachers were at the moderate level, and for assistants they were at the inadequate level, just below the moderate level. There was a similar pattern for teachers and assistants (and thus also at the group level) regarding scales with the highest and lowest scores (i.e., rank order stability), and the standard deviations were also comparable.

In addition to the mean scores, we also calculated the percentage of ECEC groups (only for the 55 groups in which both a teacher and assistant were observed), teachers, and assistants who scored at the inadequate, moderate and adequate-to-good levels for the total CIP score. A total of 54.54% of the ECEC groups, 36.36% of the teachers, and 48.27% of the assistants scored at the inadequate level; 36.36% of the ECEC groups, 43.63% of the teachers, and 46.55% of the assistants scored at the moderate level; and 9.09% of the ECEC groups, 20.00% of the teachers, and only 5.17% of the assistants scored at the adequate-to-good level.

**Differences between teachers and assistants.** Our data is clustered into three levels (centre, group, and caregiver). To evaluate whether it is important to take this clustering of our data into account, we calculated the square root of the design effect (DEFT) to evaluate. If DEFT is small (e.g, 1.50 or less; Lai & Kwok, 2015; Muthén & Satorra, 1995), then the standard errors are minimally affected by clustering, and results will be essentially identical, compared to, for example, multilevel modelling. In our sample, with 66 centres and 111 groups, and thus an average cluster size of 1.68, the DEFT ( $\text{SQRT}[1 + (\text{Average Cluster Size} - 1) * \text{ICC}]$ ) would only exceed the value of 1.50 with an ICC of 1.47. As the maximum value of an ICC is 1.00, this value is not possible.

Although DEFT was minimal for the clustering of groups in centres, we calculated an ICC to assess the level of consistency between the scores on the CIP scales of teachers and assistants in the same group, in the 55 groups in which both a teacher and an assistant were observed. Only for respect for autonomy was there a significant ICC between teachers and assistants ( $r = .31, p = 0.01$ ). For the other CIP scales and the total CIP score, the ICCs were

not significant. These results mean that, in terms of respect for autonomy, teachers and assistants in the same groups are only slightly more similar to each other than teachers and assistants from different groups. Moreover, using the ICC, we calculated the DEFT for respect for autonomy, which is 1.14 ( $\text{SQRT}[1 + (2^{-1}) * 0.31]$ ). Based on these findings, and to ease interpretation, we decided to conduct single-level analysis instead of multilevel analysis when evaluating the mean differences between the scores of teachers and assistants.

To test the mean differences between the scores of teachers and assistants, a MANOVA was conducted, with the six scales as dependent variables. There was no significant difference between the average six CIP scale scores of teachers in a classroom with or without an observed assistant ( $p$ 's between .37 and .87), so we decided to include the total group of teachers ( $n = 110$ ) and assistants ( $n = 58$ ) in these analyses. Preliminary analyses showed that the assumptions for MANOVA (e.g., homogeneity of variances) were met. Using Wilks' Lambda, there was a marginally significant difference between teachers and assistants in their interaction skills ( $\Lambda = 0.93$ ,  $F(6, 161) = 2.01$ ,  $p = 0.07$ ). Separate, follow-up, univariate ANOVAs (Table 3) and calculations of effect sizes (Cohen's  $d$ ) revealed that teachers scored significantly higher than assistants on the scales respect for autonomy ( $d = 0.40$ ), verbal communication ( $d = 0.45$ ), and developmental stimulation ( $d = 0.48$ ) and even marginally higher for structuring and limit-setting ( $d = 0.28$ ). These effect sizes can be interpreted as being small (0.2) to medium (0.5) in size (Cohen, 1992). There were no significant differences for the scales *sensitive responsiveness* and *fostering positive peer interactions*. A separate univariate ANOVA for the total CIP score showed that, in line with the results for the individual scales, the total CIP score was also significantly higher for teachers ( $d = 0.44$ ). When these analyses were run for the 55 groups in which there was both a teacher and assistant present, the conclusions remained the same, except that the marginally significant effect for structuring and limit-setting disappeared.

In summary, the results at the level of the ECEC group are in line with our expectations, with more moderate and adequate-to-good scores for the more basic interaction skills and lower scores for the more educationally focused interaction skills. In addition, and as expected, teachers have better interaction skills than assistants, especially in terms of respect for autonomy, verbal communication, and developmental stimulation. However, even with these higher skills, there remains room for improvement, in terms of mean-level scores, as more teachers scored at the inadequate level (36.4%) than at the adequate-to-good level (20.0%), in terms of overall interaction skills. Logically, this holds even more strongly for the mean-level scores of the assistants.

**Table 3. Mean scores on the CIP scales at the group- and individual-caregiver levels (separately for teachers and assistants)**

### **Discussion**

This study examines the quality of caregivers' interactions with children under 3 years of age in Norwegian ECEC groups, with a special focus on the possible differences between ECEC teachers and assistants. As expected, the quality of interactions was moderate, on average, with higher scores on the more basic interaction skills, compared to the educational skills. Moreover, ECEC teachers scored higher than assistants on several of the interaction skills. Since this study is the first Norwegian study using the CIP scales, the second aim of the study is to examine the applicability and usefulness of the CIP scales in the Norwegian context by relating the CIP results to the results of quality measured with ITERS-R in the same ECEC groups.

With regard to the applicability of the CIP skills, our results reveal that the relationship between the ITERS-R scales and the CIP scales largely resembles the

correlational pattern presented in the Dutch validation of the CIP scales by Helmerhorst et al. (2014). In contrast to their study, however, we found no significant associations between the ITERS-R scales *space and furnishings* and *personal care routines* and the CIP scales. Although there are interactional aspects at the higher end (a score of 5–7) in some of the items of these two subscales, our sample mostly did not reach the high levels in these items. Together with the fact that these scales are not at the heart of the interaction skills assessed with the CIP scales, our findings support the applicability and usability of the CIP scales in the Norwegian ECEC context for toddlers.

When comparing interaction quality at the group level with the Dutch scores, the Norwegian scores were in the same range, both for the more-basic interaction skills and more-educational interaction skills, as reported in Helmerhorst (2015). Based on Norway having a higher caregiver-to-child ratio for children under the age of 3 (1:3) than the Netherlands (1:3 for children under the age of 1, and 1:5 for children between the age of 1 and 2), as well as the number of qualified teachers with bachelor's degrees in ECEC, we expected that the interaction quality would be higher in Norway than in the Netherlands. We were surprised that the Norwegian scores on sensitive responsiveness were within the moderate level and were lower than the Dutch scores, since one of the most important values in Norwegian ECEC is close relationships and attachment between caregivers and children (Bae, 2004; Drugli, 2010; Ministry of Education and Research, 2012). An explanation for the low scores might be that Norwegian caregivers' sensitivity is based on individual approaches, while CIP presupposes caregivers' abilities to divide their attention between the children in the group (Os, accepted for publication). Other structural factors, such as differences in the schedule of the day, group sizes, and in organisational form, may also have influenced these scores. Future, also qualitatively oriented, studies might investigate this further.



The scores for the scales focusing on the more-educational aspects of interaction were mainly at inadequate levels for both teachers and assistants. It was expected that scores for the educational skills would be lower than the more-basic skills, but it is remarkable and deserves attention that the educational skills were low in an absolute sense (inadequate levels). However, even with the low score, Norwegian caregivers score higher than the Dutch on developmental stimulation. An explanation might be the already-mentioned unequal structural conditions between the two countries.

Although teachers score higher than assistants on verbal communication and developmental stimulation, they still score relatively low on the educationally focused interaction skills. Scoring lower on the educational skills than the basic interaction skills is in line with the findings of other international studies (Helmerhorst et al., 2014; Helmerhorst et al., 2015; Mashburn et al., 2008; Thomason & La Paro, 2009). This calls for attention, since it is the provided level of educational support that often has the strongest positive influence on children's cognitive and language development (Belsky et al., 2007; Burchinal, Vandergrift, Pianta, & Mashburn, 2010; Manning et al., 2017; Mathers et al., 2011). It can be questioned whether teachers receive enough specific training to provide high-quality interactions in ECEC (Melhuish et al., 2015; OECD, 2015; Sanders & Howes, 2013). Even if caregiver and child interactions are the focus in the Norwegian teacher education curriculum, there is no attention paid to the special competence related to working with children under the age of 3 (Ministry of Education and Research, 2012). Like the framework plan for ECEC, the curriculum is broad and holistic and does not specify learning approaches for specific age groups.

Another explanation for the low scores on educational interaction skills in the Norwegian context could be the holistic view on care, play, and learning in which care and play are the main focus. The concept of learning is highly debated, and a share of Norwegian

teachers resist including learning as a part of children's everyday lives in ECEC (M. Alvestad et al., 2017). Based on this ideological approach, it seems natural that both teachers and assistants score higher on more care-focused interaction skills than more education-focused interaction skills, especially in ECEC for younger children.

As expected, assistants generally scored lower on the interactional skills than teachers, both on the more-basic and the more-educational skills. Based on the different educational levels and pre-service training, we expected that the teachers would score higher for the more-educationally focused skills, although we expected the difference to be minimal, based on the flat organisational structure. Teachers scored higher than assistants for both the interactional skills *verbal communication* and *developmental stimulation*. It appears that the ECEC teachers' higher levels of pre-service education—compared to assistants—provides them with tools to have more high-quality verbal interactions with children and to grasp more opportunities to foster children's development. However, an important and noteworthy finding is that a teacher and an assistant in the same group were not more similar to each other in their scores on the CIP scales than a teacher and an assistant from different groups. This may indicate that there is a lack of in-service training directed towards improving interaction skills that includes all staff members in a certain group (Slot et al., 2015). This finding also brings into question ECEC teachers' roles as models for their assistants and their ability to help their staff improve their competence in interaction skills. According to Steinnes (2014), assistants spend 81% of their working hours with the children. Therefore, there is an urgent need for training, to increase assistants' interaction skills and competence, which in the literature has been shown to improve caregivers' interactions with children (Helmerhorst et al., 2017; Jilink, Fukkink, & Huijbregts, 2018; Mathers, Singler, & Karemaker, 2012).

Thus, despite earlier research in Norway stating that the division of labour is organised in a flat organisational structure, and that teachers and assistants report doing mainly the same

work tasks (Børhaug et al., 2011; Eik, 2014; Steinnes, 2013, 2014), we found that teachers, overall, score higher than assistants on both the basic and educational aspects of interaction. This difference is even more salient when considering that assistants spend a greater number of their total work hours with the children. These results also indicate that teachers' claims that they are better equipped to perform high-quality interactions with children compared to assistants might, to a certain degree, be correct (Steinnes, 2013).

When it comes to the skill *fostering positive peer interaction*, both teachers and assistants scored very low. The low level in encouraging interactions between peers is in accordance with results from the Netherlands (Helmerhorst et al., 2015) and international research (File, 1993; Howes & Clements, 1994; Kutnick et al., 2007; Williams, Mastergeorge, & Ontai, 2010). It can be questioned whether the reason for the low scores is that the scale is too demanding, with unrealistically high standards. However, the definition of a score at the moderate level is that the caregiver sometimes provides positive interactions between the children, but—not consequently—several opportunities to promote positive interactions are not used in this score range. Based on this description, a moderate level does not seem to be an unrealistic criterion to be met in everyday interactions with a group of children. The inadequate level of *fostering positive peer interactions* calls for attention, both in research and in practical work. According to Fabes, Hanish, and Martin (2003, p. 1039), peers are “...one of the most important, but unrecognized, contributors to child care effects...” Interactions between peers might contribute to children's learning of social skills and enhance friendship, well-being, and togetherness in the group (Gevers Deynoot-Schaub & Riksen-Walraven, 2006a, 2006b; Musatti, Mayer, Pettenati, & Picchio, 2017; Os, 2013). Despite this, research-based knowledge about how to foster peer interactions is still sparse (Acar, Hong, & Wu, 2017; Musatti et al., 2017; Williams et al., 2010). Unfortunately, research shows that involvement in peer interactions often seems to be restrictive, intrusive, and adult-centred

(Williams et al., 2010), even though positive, non-intrusive, and non-restrictive strategies seem to be more adequate in fostering positive peer interactions among children (de Haan & Singer, 2003; Kempe, David, & Hysmith, 1997; Singer & Hännikäinen, 2002).

### **Limitations, Strengths, and Future Directions**

This study has some limitations and strengths. The first limitation is that the groups that participated in this research scored somewhat higher on the ITERS-R total score than the groups that did not participate in this study, which is an indication that the lowest quality groups probably did not participate. However, despite this slight positive bias, the average scores on the CIP scales were still relatively low and in line with results from the Dutch study (Helmerhorst et al., 2015). This indicates that, although Norwegian teachers are better-educated than Dutch teachers (bachelor's degrees versus intermediate vocational degrees), they do not score higher on interaction skills, and they perhaps would have scored even worse if we had been able to include more lower-quality groups. It is not expected that this slight positive bias influenced the identified differences between teachers and assistants in their interaction skills, as there is no reason to assume that more groups with (than without) differences between teachers and assistants in their interaction skills participated, though some caution with interpreting and generalising these findings is warranted. Future studies should aim to include more representative samples, especially in the case of national quality measurements.

A second, related, limitation of this study is the low participation rate (59%). One explanation might be that, in Norway, it is voluntary to participate in any research, and researchers are obliged to not pressure potential participants. When it comes to video recording, there is a resistance among caregivers and parents to give their consent. Based on that, we had a relatively small sample size, especially for the assistants. It is likely that

assistants who were not secure about their professional skills did not consent to be video recorded. As such, the difference in interaction skills found in this study might be an underestimation of the actual difference in interaction skills, compared to when an assistant from each group was included in the analysis. Future studies should aim to include at least one teacher and one assistant from all groups in their samples.

A final limitation concerns that there were six caregivers (three teachers and three assistants) for which we recorded only two instead of the minimum of three situations (Helmerhorst et al. 2014; 2015). We decided to keep these six cases in our analyses, because data were missing completely at random and excluding them would mean unnecessary data loss. However, future studies should try to record caregivers at least three times, to ensure the validity of these caregiver's scores on the CIP scales.

Besides these limitations, this study also has some important strengths. First, to our knowledge, this is the first large-scale, quantitative study to observe the quality of caregiver-child interactions in Norwegian ECEC centres and investigate individual-level differences between Norwegian ECEC teachers and assistants in the quality of their interactions with children. As such, it provides us with important knowledge about the level of interaction quality that young children experience with different types of staff members. Second, the CIP scales seem to be an adequate and stable measure to assess individual differences in caregivers' interaction skills. As such, the CIP scales appear to be a valuable extension of ITERS-R, when it comes to measuring individual teacher and assistant interaction quality in Norwegian ECEC for toddlers. Future studies should further investigate the psychometric properties of the CIP scales by, for example, investigating the measurement invariance of the CIP scales across countries (e.g., the Netherlands and Norway) and over different video recorded situations (e.g., meal time and a transition period) (cf. Degotardi, 2010; Hallam et al., 2016; Rhyner et al., 2013). Through these analyses, it can be evaluated whether the CIP

scales work similarly in different countries and over different situations, which would strengthen any comparative studies using the CIP scales.

### **Implications for Practice and Policy**

The findings from this study have some important implications for policy and practice. First, it appears that teachers' pre-service education does matter for high-quality interaction (Manning et al., 2017). However, as indicated by the relatively low scores for teachers on several of the interaction skills, the effect of education seems not to be as thorough as practice and policy would imply. This outcome is in line with the general concern that there is a lack of specific competence for working with children under the age of 3 in Norwegian ECEC (T. Alvestad et al., 2014; Expert panel for kindergarten teacher education, 2015, p. 100; Ministry of Education and Research, 2012; NOKUT, 2010, p. 28). Future teachers need comprehensive theoretical and research-based knowledge about high-quality interactions in general, as well as detailed understandings of various aspects of high-quality interactions that address basic aspects and, especially, educational aspects. Student teachers should also be given rich opportunities to improve their interaction skills during periods of practice under the guidance of skilled pre-service teachers. Furthermore, training should emphasise that ECEC is a group setting in which both the distribution of attention between individual children and more group-focused approaches are necessary to provide high-quality interactions with children in toddler groups.

Second, several studies have shown that in-service training and professional development is probably more important for teachers' and assistants' interaction skills than pre-service education (Slot et al., 2015). As such, high-quality in-service training and professional development for the whole workforce is recommended to improve caregivers' interaction skills (Henrichs, Slot, & Leseman, 2016). Helmerhorst et al. (2017) and Jilink et

al. (2018) have shown that the interaction skills in the CIP scales can be improved by training. Several reviews and meta-analyses indicate that effective professional development needs to consist of some essential elements, such as successful implementation, permanence, reflection, and joint participation as a team (Egert, 2015; Henrichs et al., 2016; Zaslow, Tout, Halle, Whittaker, & Lavelle, 2010). However, there are contradictions concerning the duration of intervention and training programmes. Both longer and more-intensive interventions (Nelson, Westhues, & MacLeod, 2003) and short-term, targeted interventions seem to have effect (Jilink et al., 2018; Werner, Linting, Vermeer, & Van IJzendoorn, 2016). Werner et al. (2016) show in their meta-study that short time targeted interventions have a small to moderate effect in improving caregivers' interaction skills. However, more research is needed to find effective intervention strategies.

On the political level, it is necessary to consider and take action regarding the challenges Norwegian ECEC has in providing high-quality interactions for the youngest children. These interactions are of utmost significance for children's well-being and development. To obtain this, a sustainable system of continuous professional development in which the whole team—both teachers and assistants—participates is required (Henrichs et al., 2016).

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Table 1. *Sample characteristics at the group and caregiver level.*

	<i>M (SD)</i>	Range
Group level ( <i>n</i> = 111)		
Group size (# children present)	10.68 (4.07)	4.00-28.00
Child-caregiver ratio (# children present)	3.01 (0.93)	1.00-6.33
Child-teacher ratio (# children present)	9.05 (3.36)	4.00-19.00
Age group %		
1-3 years old	84.54%	
1-4 years old	5.45%	
1-6 years old	10.00%	
Caregiver level <sup>a</sup> ( <i>n</i> = 168)		
Female %	93.45%	
Type %		
Teacher ( <i>n</i> = 110)	65.48%	
Assistant ( <i>n</i> = 58)	34.52%	

*Note.* <sup>a</sup> Caregiver refers to both teachers and assistants.

Table 2. Correlations between CIP scales and ITERS-R at the level of the ECEC groups ( $n = 55$ ).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>CIP</b>														
1. Sensitive responsiveness	-													
2. Respect for autonomy	.78**	-												
3. Structuring and limit setting	.73**	.68**	-											
4. Verbal communication	.73**	.62**	.48**	-										
5. Developmental stimulation	.67**	.52**	.32*	.81**	-									
6. Fostering positive peer int.	.46**	.35**	.21	.54**	.54**	-								
7. CIP Total	.93**	.86**	.75**	.86**	.80**	.57**	-							
<b>ITERS-R</b>														
8. Space and Furnishings	.06	-.02	-.04	.22	.14	.00	.08	-						
9. Personal Care Routines	.00	-.04	-.11	.19	.12	.05	.03	.37**	-					
10. Listening and Talking	.26†	.22	.09	.52**	.42**	.20	.35**	.48**	.53**	-				
11. Activities	.03	.03	-.11	.22	.21	.01	.08	.39**	.58**	.51**	-			
12. Interactions	.23†	.16	.23†	.39**	.26†	.02	.28*	.39**	.52**	.54**	.44**	-		
13. Program Structure	.25†	.18	.15	.40**	.33*	.01	.29*	.45**	.28*	.51**	.47**	.57**	-	
14. Total ITERS-R	.15	.10	.02	.41**	.31**	.07	.22	.65**	.77**	.77**	.81**	.77**	.68**	-

Note. †  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ .

Table 3. Mean scores on the CIP scales at the group- and individual caregiver-level (separately for teachers and assistants).

CIP scales	Group-level ( $n = 55$ ) <sup>a</sup>		Teachers ( $n = 110$ )		Assistants ( $n = 58$ )		$p$	$d$
	$M$ ( $SD$ )	Range	$M$ ( $SD$ )	Range	$M$ ( $SD$ )	Range		
Sensitive responsiveness	4.05 (0.79)	2.00-5.67	4.21 (1.15)	1.00-6.50	3.94 (1.05)	1.00-6.00	.140	0.25
Respect for autonomy	4.45 (0.85)	2.17-6.63	4.65 (0.99)	2.25-7.00	4.23 (1.10)	1.50-7.00	.012	0.40
Structuring and limit setting	4.80 (0.74)	3.33-6.13	4.99 (0.99)	2.50-7.00	4.70 (0.99)	2.67-6.75	.073	0.28
Verbal communication	3.65 (0.67)	2.33-5.50	3.84 (0.91)	2.00-6.00	3.44 (0.87)	1.67-5.25	.007	0.45
Developmental stimulation	3.02 (0.77)	1.50-4.63	3.25 (1.09)	1.25-6.25	2.77 (0.89)	1.00-4.25	.004	0.48
Fostering positive peer int.	1.53 (0.35)	1.00-2.63	1.61 (0.54)	1.00-3.50	1.49 (0.46)	1.00-2.75	.154	0.24
CIP Total	3.58 (0.57)	2.11-4.88	3.76 (0.78)	2.01-5.67	3.43 (0.73)	1.67-4.92	.008	0.44

Note. <sup>a</sup> The mean-scores on the group level were only calculated for the 55 groups in which both a teacher and an assistant was observed.