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Caregiver's Mind-Mindedness in Early Center-based Childcare

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ABSTRACT

Recent studies suggest that mind-mindedness is an important element of caregiver–child interactions in family and childcare context. This study investigated caregivers' mind-mindedness in a nationally representative Dutch sample and its relation with structural quality factors (i.e., group size, caregivers' education and work experience, group type, and situation) and caregivers' interactive skills. Participants were 99 caregivers recruited in 50 childcare centers. Mind-mindedness was assessed with observations during free-play and lunch situations in infant, preschool, and mixed-age groups (0–4-year-olds). Caregivers' appropriate and nonattuned mind-related comments were coded as individual (over/toward one child) or group related (over or toward more than one child). Caregivers' interactive skills were assessed using the Caregiver Interaction Profile (CIP) scales. Research Findings: Caregivers generally refer to children's desires, thoughts, and emotions in about 10% of their verbal interactions, with a low incidence rate of nonattuned comments (< 1%). Mind-mindedness was found to be significantly associated with structural quality characteristics and caregivers' interactive skills. Caregivers with greater interactive skills produced fewer individual and more group appropriate mind-minded comments in mixed-age groups. Practice or Policy: We discuss the relevance of mind-minded comments at individual and group level for the future study of mental-state talk in early childhood education and care.

Mind-mindedness refers to the caregiver's ability to view and treat the child as an agent with independent thoughts and feelings (Meins, 2013). Mind-mindedness is the caregivers' propensity to be attuned to the child's mental states, such as thoughts, desires, emotions, and intentions (Meins, 2013) and is a measure of the quality of caregiver–child interactions (Barreto, Fearon, Osório, Meins, & Martins, 2016). A large majority of studies explored this construct in mothers, findings that maternal mind-mindedness is positively associated with maternal sensitivity (e.g., a caregivers' ability to appropriately and promptly interpret and respond to children's signals and emotional needs). Furthermore, parents' mind-mindedness is found to be associated with child secure attachment (Zeegers, Colonesi, Stams, & Meins, 2017), as well as with child social development (Laranjo, Bernier, Meins, & Carlson, 2010; Meins et al., 2012, 2002). Similar results were found in a handful of studies investigating mind-mindedness in parents (Arnott & Meins, 2007; Lundy, 2003), and in adoptive or foster parents (Colonesi et al., 2012; Fishburn et al., 2017). The recent narrative review of McMahon and Bernier (2017) and the meta-analytic review of Zeegers et al. (2017) have summarized the main research findings for mind-mindedness, its relevance for healthy socioemotional development in children. Both reviews have also indicated weaknesses in the current knowledge base and directions for future research. A relevant context for mind-mindedness that has barely been studied is childcare. Professional caregivers

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in child care are, just like parents, expected to “tune in” to what the children are thinking and feeling, which positively influences children’s socioemotional development.

In the last decade, mind-mindedness is further explored in a small number of studies of caregivers from out-of-home contexts, such as schoolteachers and professional childcare caregivers (Colonnesi, van Polanen, Tavecchio, & Fukkink, 2017; Degotardi & Sweller, 2012; King & La Paro, 2015). Although these studies have provided initial evidence about the relevance and the implications of professional caregivers’ mind-mindedness for the quality of child–caregiver relationship, further research is necessary to gain more insight in caregivers’ mind-mindedness in the childcare setting, because early childcare centers are, besides family contexts, an important context in which children develop (McCartney, 2006; Philips & Lowenstein, 2011).

The present study examined caregiver’s mind-mindedness in Dutch early childcare centers and the association between mind-mindedness and structural characteristics of the childcare environment (i.e., caregiver’s age, work experience, education, group size, and group type) in a nationally representative sample. Furthermore, we investigated the relation between caregiver’s mind-mindedness and caregiver interaction skills in childcare (e.g., sensitive responsiveness, respect for child’s autonomy, verbal communication, developmental stimulation, fostering positive peer interactions) that are essential for children’s socioemotional and cognitive development (e.g., Belsky et al., 2007; Mashburn et al., 2008; Vandell, Belsky, Burchinal, Steinberg, Vandergrift, & the NICHD Early Child Care Research Network, 2010).

Professional Caregivers’ Mind-Mindedness

According to Meins (2013) mind-mindedness should be considered to be at the interface of representations and behavior. As such, mind-mindedness can be conceptualized as an interactional construct between caregiver and child and is different from interactional skills such as mental-state language, intrusiveness, developmental stimulation, or stimulating children’s social skills (e.g., Bretherton & Beeghly, 1982; Olson & Astington, 1993; Taumoepeau & Ruffman, 2006, 2008). Mind-mindedness is typically assessed by observing how often the caregiver uses mind-related comments during caregiver–child interactions referring to the cognitions (e.g., “You know this song”), desires (e.g., “You like this game”), and emotions (e.g., “I see you are angry”) of the child. They are, therefore, a manifestation of the caregivers’ ability to understand the perspective of the child and to express their understanding verbally (Meins & Fernyhough, 2015). Mind-related comments can be seen as “appropriate” when they are, according to the observer, an accurate reflection of the child’s inner states (e.g., a caregiver saying, “You really want to play with the doll” when the infant is trying to grasp the doll). On the opposite, mind-related comments are “nonattuned” when the caregiver misunderstands the child’s signals or has an own agenda (e.g., the caregiver saying, “You really like to play with the doll” when the infant does not seem interested in playing with the doll; Meins, 2013). High scores for appropriate mind-related comments as well as low scores for nonattuned mind-related comments provide an indication of the caregiver’s mind-mindedness.

Caregivers’ mind-mindedness during daily interactions in childcare has been investigated in only two studies (Colonnesi et al., 2017; Degotardi & Sweller, 2012) reporting convergent results about the significance of mind-mindedness in the childcare. The study of Degotardi and Sweller (2012) investigated the mind-mindedness of 24 caregivers working with children between ages 9 and 20 months by assessing two indexes of mind-mindedness. The first index (mind-minded talk) was measured by observing the caregiver’s mind-mindedness during a free-play session with one selected child. The second index (mind-minded description) was assessed by the caregiver’s description of the child while watching the video of the free-play session. Concordance was found between the two indexes, and both measures were positively associated to caregivers’ sensitivity and stimulation. These findings are consistent with previous results from home contexts (Bernier, Carlson, & Whipple, 2010; Meins, Fernyhough, Fradley, & Tuckey, 2001; Meins et al., 2002; Rosenblum, McDonough, Sameroff, & Muzik, 2008).

Colonnesi et al. (2017) tested mind-related comments of 34 caregivers (of which 17 were male) interacting, during structured play, with two 3-year-old children using an adapted version of the coding scheme developed for family studies (Meins & Fernyhough, 2010). Results show that, like parents, professional caregivers are able to be attuned to children's mental states. This was the first study testing caregiver's mind-mindedness in a context with more than one child, which is more representative of the childcare setting, though group size was still small (one caregiver and two randomly selected children) with the experimental play task used in this study. Caregiver's mind-mindedness toward two children, but not toward only one child, was related to caregiver's respect for the child's autonomy and children's secure attachment to the caregiver. These findings are in line with previous childcare research demonstrating that caregiver's sensitivity toward a group of children is related to children's attachment security to the caregiver in center-based care, while caregiver's dyadic sensitivity not (Ahnert, Piquart, & Lamb, 2006; Ereky-Stevens, Funder, Katschnig, Malmberg, & Datler, 2018). Given the specific group setting in childcare centers, where children have to share the caregiver's attention with all other children present, measures at group level seem to capture the group context of childcare more adequately than dyadic measures.

Both studies, though conducted with a limited number of participants and only in a play situation, provide preliminary evidence for the assumed association between caregivers' mind-mindedness and caregivers' interaction skills such as sensitivity and stimulation (with babies), respect for autonomy (with toddlers), and child-caregiver secure attachment (with toddlers). Besides these findings, they offer specific information about what should be taken into account when investigating mind-mindedness in childcare, like the significance of observing mind-mindedness toward the group which complements a focus on directing comments toward a single child. As a next step, mind-mindedness in the regular childcare setting and its association with specific interactive skills of professional caregivers toward a group of children warrants further investigation.

The Childcare Context

Caregivers play a pivotal role in determining the quality of children's everyday experiences because of their frequent, direct interactions with the children. Quality of caregiver-child interactions is the cornerstone of process quality and directly affect children's well-being and social-emotional development. Caregivers' mind-mindedness and interactive skills can be regarded as process quality factors because both have a direct influence on children's socioemotional development. Structural quality characteristics, on the other hand, are more distal characteristics of the childcare environment: they are the prerequisites of process quality factors and are assumed to have an indirect influence on children's well-being and social-emotional development (Dowsett, Huston, Imes, & Genettian, 2008; Riksen-Walraven, 2004). Previous childcare research has identified a number of structural quality features that are related to caregiver's interaction quality (i.e., process quality) with young children, including group size, group type (i.e., infant, preschool, or mixed), caregivers' education, and work experience. For this reason it can be expected that structural quality characteristics affect caregivers' mind-mindedness in the childcare setting.

First, there is ample evidence that group size and caregiver-child ratio are associated with quality of caregiver's interactive skills in childcare centers. Caregivers showed higher quality of interactions with children when there were fewer children per caregiver (De Schipper, Riksen-Walraven, & Geurts, 2006; NICHD ECCRN, 1996, 2002). Some studies have not found significant relationships between group size and caregiver-child ratio with process quality, however (see Slot, Leseman, Verhagen, & Mulder, 2015), possibly due to a restriction of range as a result of national regulations of structural characteristics.

Second, previous international research has frequently related higher levels of caregiver education to higher quality of caregiver's interactions skills (e.g., Burchinal, Cryer, Clifford, & Howes, 2002; NICHD ECCRN, 2002; Slot et al., 2015). However, findings are inconsistent (see Early et al., 2007), because Dutch research consistently found no relation between caregiver education and quality of

caregiver–child interactions (e.g., De Schipper, Riksen-Walraven, & Geurts, 2007; Helmerhorst, Riksen-Walraven, Vermeer, Fukkink, & Tavecchio, 2014; Vermeer et al., 2008). This lack of associations with education in the Netherlands is presumably due to the fact that the vast majority of caregivers has received the same level of vocational training and, as a consequence, there is a lack of variation in caregiver education. Similarly, no relation has been found so far between caregivers' educational level and their mind-mindedness (Degotardi & Sweller, 2012). In line with this, no major differences were found for mentalization by head teachers and teacher assistants in the study of Farkas, Strasser, Badilla, and Santelices (2017). Previous research has also shown inconsistent findings between parental mind-mindedness and education. About one half of the studies reported no significant associations, whereas the other one half reported a significant positive association (see McMahon & Bernier, 2017 for an overview).

Another relevant indicator of caregiver qualification is work experience. Dutch caregivers with more than 5 years of work experience in childcare showed higher levels of respect for the child's autonomy, used more verbal communication, developmental stimulation, and fostered interactions between the children more often (Fukkink, Gevers Deynoot-Schaub, Helmerhorst, Bollen, & Riksen-Walraven, 2013). The relation with mind-mindedness, however, is less clear in empirical research. No relation has been found between caregivers' work experience and mind-mindedness by Colonnese et al. (2017), whereas King and La Paro (2015) have found that caregivers with less work experience used more mental-state talk than caregivers with more work experience. The association between work experience and process quality, including caregivers' mind-mindedness, needs further empirical study.

Third, in the Netherlands, three different group types are distinguished in center-based childcare: infant groups (0–2-year-olds), preschool groups (2–4-year-olds), and mixed-age groups (0–4-year-olds). Results of a previous Dutch study has demonstrated that age composition (i.e., group type) had a significant effect on quality of caregiver–child interactions. Caregivers in infant groups scored significantly lower on sensitive responsiveness, respect for autonomy, verbal communication, developmental stimulation, and fostering positive peer interactions than caregivers in preschool and/or mixed-age groups (De Kruif et al., 2009; Helmerhorst, Riksen-Walraven, Gevers Deynoot-Schaub, Tavecchio, & Fukkink, 2015). To date, group type has not been studied in relation to caregiver's mind-mindedness. However, based on the mind-mindedness coding manual of Meins and Fernyhough (2015; used in this study), it could be expected that caregivers produce more mind-related comments to infants than to preschoolers, considering that preschoolers are verbally stronger than infants and thus are more able to express their wishes and thoughts. However, empirical evidence is still lacking. Finally, also the interactional situation may influence the quality of caregiver–child interactions. The outcomes of the study by Degotardi (2010) revealed that caregivers' stimulation and sensitivity during play were significantly higher than during routines (e.g., dressing and mealtime). Play situations are more directed to stimulate interaction and to take the child's perspective, and to display sensitive behavior, whereas routine situations, such as mealtime, seem less complex for children and are primarily based on the compliance and the satisfaction of basic needs of the children, which affects the nature of the interaction (e.g., Hallam, Fouts, Bargreen, & Perkins, 2016; Klette, Drugli, & Aandahl, 2018).

The Present Study

The present study sought to investigate caregiver's mind-mindedness in a representative Dutch sample Fukkink et al. (2013). The first aim was to look into a number of structural quality factors, typically explored in the research on caregiver interactive skills that might affect caregiver's use of mind-related comments: group size, caregiver's education, work experience, group type, and interaction episodes during free play and lunch. In line with previous study outcomes, we expected caregivers to produce more mind-mindedness in smaller groups of children (De Schipper et al., 2006) and when caregivers had more work experience (Fukkink et al., 2013). Although international findings in childcare and parental mind-mindedness studies were inconsistent (NICHD ECCRN, 1996, 2002; Slot et al., 2015), studies in the Dutch childcare have

consistently found no significant association (Fukkink et al., 2013). We therefore expected no association between caregivers' mind-mindedness and education. With regard to work experience, we expected no association with caregiver's mind-mindedness, in line with the study of Colonnaesi et al. (2017). We expected more mind-related comments in groups with infants, based on the mind-mindedness coding manual of Meins and Fernyhough (2015). Finally, for situation, we expected more mind-related comments during free play than lunch to conform previous mind-mindedness studies in the childcare context (Degotardi, 2010).

The second aim was to investigate the relation between caregiver's mind-related comments (using a quantitative measure) and caregiver interactions skills (using a qualitative measure) with children. Based on previous studies (Colonnaesi et al., 2017; Degotardi & Sweller, 2012), we expected to find a positive association between caregiver's mind-mindedness and interaction skills because they are distinct but related measures of the process quality. We tested this in two different situations: free play and mealtime.

The present study builds on previous studies on caregiver's mind-mindedness in early childcare in several ways. First, a distinctive characteristic of childcare is the group setting. Previous studies on professional caregivers' mind-mindedness did not take into account whether caregiver's mind-related comments were directed toward an individual child or to a group of children. Although the study of Colonnaesi et al. (2017) measured mind-mindedness toward two children, this is still not representative for the natural group setting in child care centers in which children function on a daily basis. We therefore assessed mind-related comments over an individual child and over a group of children (more than one child). Secondly, the studies of Degotardi and Sweller (2012) and Colonnaesi et al. (2017) considered caregiver's mind-mindedness during a play situation. The present study aimed to compare caregiver's mind-related comments during two situations (a play situation and mealtime as a routine situation), allowing us to test the impact of the context. Thirdly, the two previous studies merely explored caregiver's mind-mindedness either with infants or with preschoolers. This study is the first to examine caregiver's mind-mindedness in groups with three different age types (infants, preschoolers, and mixed-age groups). Taken together, the present study aims to provide a more comprehensive view of caregiver's mind-mindedness toward individual versus a group of children, during different situations, and with children of different ages, in a relatively large, representative Dutch sample.

Method

Participants

A random sample of 50 childcare centers was selected from a national representative pool of childcare centers in the Netherlands and stratified per region. In addition, four randomly selected back-up samples were included, which could be used in case a childcare center declined participation. Participation rate was 45%. Main reasons for refusal were being too busy, too great of a burden for caregivers and/or children, recent participation in another study, and reorganization. Center directors of childcare centers were approached by telephone with information regarding the study and were asked to participate. If desired, center directors received extra information related to participation on the study per email. Per childcare center, only one group was randomly selected. The final sample of 50 childcare groups consisted of 12 infant groups (0- to 2-year-olds), 12 preschool groups (2- to 4-year-olds), and 26 mixed-age groups (0- to 4-year-olds). This distribution of the three different group types reflected the distribution per group type in the Netherlands.

After selection of the group, caregivers were invited to participate using an informed consent procedure to make video observations. Furthermore, all parents of the children in the selected care groups were asked to give their informed consent for the filming procedures. A total of 99 caregivers participated in the study. Caregivers were all female, mostly born in The Netherlands (93%), had Dutch as their native language (94%), were on average 33.13 years ($SD = 9.92$, range = 18–59), and worked on average 27.70 hours a week ($SD = 6.46$, range = 13–50). On average, caregivers had

8.87 years ($SD = 6.48$, range = 0–31) of working experience in childcare and 3.66 years ($SD = 4.00$, range = 0–22) in the group that was visited for the present study. The vast majority of caregivers (79%) had completed regular vocational education at an intermediate level and 14% had followed higher professional education. Qualification was mostly (88%) the Dutch preservice training ‘social-pedagogic work’, which is not specifically focused on caring for very young children in a childcare setting, but on working with a broad variety of age groups in different domains of care.

Procedure

Each care group was visited by a trained observer that made video recordings of caregivers in interaction with the children throughout the day. All caregivers were filmed in two different situations (play and mealtime), lasting each about 10 minutes. After a brief period of acclimatization, the observer started video recordings. Caregivers were not given any instructions in advance to capture natural interactions in the regular program. Video episodes were later scored by independent observers who did not made the video recordings and were blind to the aims of the study: one trained observer applied the Caregiver Interaction Profile (CIP; Helmerhorst et al., 2014) scales and a second trained observer scored caregiver’s mind-mindedness. Prior to the visit, caregivers were asked to complete a questionnaire to gather individual background information (e.g., age, education, work experience).

Measures

Mind-Mindedness

Six observers (i.e., two senior researchers, and four master students), blind to the other measures, independently coded the videos after training with a minimum of six observations and consultation with a trained coder (inter-rater reliability: intra-class correlations [ICC] > .80 with the scores of a trained coder was required). The videotaped play and mealtime situation of caregiver–child interactions were used for coding caregivers’ mind-mindedness. Every verbal comment (i.e., a discrete sound or single word or a sentence) of the caregiver was transcribed and next coded, while watching the video, following the manual of Meins and Fernyhough (2015) and the Dutch adaptation of (Helmerhorst & Colonnaesi, 2016) to the specific childcare context. Although the original coding scheme was developed with infants younger than age 12 months, no adaptation was found to be necessary with the current sample. Each caregiver was filmed separately, which enabled a focus on individual caregivers. Comments of other caregivers were not coded, neither were the comments of the filmed caregiver to other caregivers that were out of context (e.g., adult talk).

Caregivers’ mind-mindedness comments were classified by the category of internal state to which the caregiver referred: (1) Comments on desires and preferences related to things the child likes, dislikes, loves, wants or hates; (2) Comments on cognitions were associated with what the child thinks, decides, notices, is interested in, expects; (3) Comments on emotions referred to emotional states, like happiness, shyness, stress, or joy; (4) Epistemic states related to teasing and joking; (5) Talking on behalf of the child was coded for any comment that was obviously meant to be said or thought by the child. The five categories of mind-related comments were aggregated to a total mind-mindedness score.

Furthermore, all mind-mindedness comments were dichotomously coded as (a) mental-state comments that were appropriate reflections of the child’s mental state, and (b) mental-state comments that were nonattuned to the children’s mental state. Mind-related comments were appropriate when they were consistent with the child’s current behavior (e.g., the caregiver saying, “You like this book” when children were reading the book with interest), when they were linking the current behavior with a similar event in the past or future (e.g., the caregiver saying, “You know already what will happen in the book” during the reading), or when they were clarifying how to proceed after a lull in the interaction (e.g., “You’ll like the next game”). Mind-related comments were nonattuned

when the attributed internal state appeared at odds with the child's behavior (e.g., the caregiver saying, "You like this book" while the children do not seem to be interested in the book) or when the mental-state comment about the children's past or future behavior was unrelated to the children's current behavior (e.g., the caregiver saying "You know already what will happen in the book" when the children are not looking at the book). In addition, caregiver's comments were qualified as comments toward an individual child (individual mind-mindedness), or toward more than one child (group mind-mindedness). To establish whether the comment was directed to an individual child or to a group of children, we looked at gaze direction, use of plural versus singular nouns in the sentences, and the use of the name of one or more child(ren). Note that in Dutch there are separate words for *you* in the singular person (*je, jij*) and *you* in the plural (i.e., *jullie*). Mind-related comments directed to more than one child but appropriate for only one child did not occur. **Table 1** provides examples of the five different subcategories of caregiver's appropriate and non-attuned individual and group mind-related comments.

Inter-rater reliability was assessed on 28 out of 190 transcripts (15%) using ICCs (two-way random effects model with an absolute agreement definition). The value for appropriate individual mind-mindedness (dyadic) was .95, and for appropriate group mind-mindedness (nondyadic) was .85. The value for nonattuned individual mind-mindedness was .74. Nonattuned group mind-mindedness did not occur. Disagreements were resolved by discussion.

On average caregivers produced 116.86 comments ($SD = 51.12$, range = 28–245) during free play and 84.46 comments ($SD = 35.06$, range = 9–163) during mealtime. To control for differences in caregivers' verbosity, scores for appropriate mind-related comments and nonattuned mind-related comments were calculated as a percentages of the caregivers' total number of comments made during the two video episodes.

Caregiver Interaction Profile Scales

The CIP scales measure the quality of six caregiver interactive skills toward a group of children: (1) *sensitive responsiveness* refers to the extent to which a caregiver recognizes children's individual emotional and physical needs, and responds appropriately and promptly to their cues and signals; (2) *respect for autonomy* refers to the extent to which a caregiver is nonintrusive but instead recognizes and respects the validity of children's intentions and perspectives; (3) *structuring and limit setting* refers to the ability of a caregiver to clearly communicate expectations toward children and structure the situation accordingly and to set clear and consistent limits to the children's behavior; (4) *verbal communication* refers to the frequency and quality of verbal interactions between caregiver and children; (5) *developmental stimulation* concerns the degree to which a caregiver deliberately attempts to foster children's development, e.g., motor skills, cognitive development, and creativity; (6) *fostering positive peer interactions* refers to the extent to which the caregiver guides or facilitates positive interactions between children in the childcare group. Each of the six CIP skills is rated on a single 7-point Likert-type scale, indicating the extent to which a caregiver demonstrates the skill (7 = *very high*, 6 = *high*, 5 = *moderate/high*, 4 = *moderate*, 3 = *moderate/low*, 2 = *low*, 1 = *very low*), with detailed behavioral descriptions for each of the seven scale points. In line with the behavioral descriptions of the scale points, scores of 5 and beyond are considered as "adequate to good", and scores of 3 and below are considered as "inadequate". Based on the four situations, we calculated a mean score per skill. For a more extensive description of the CIP scales see Helmerhorst et al. (2014, 2015).

Six trained observers independently rated the behavior of the caregiver on the six 7-point scales for each of the two videotaped episodes. Observers that rated the video episodes had not visited the care group for data collection. Observer training comprised six 4-hr sessions: per session two scales were discussed and previous scales were repeated by means of example videos. In addition, observers had to rate a total of 36 videos (lasting 8–10 min each) in total and had to meet a criterion of 80% agreement within one scale point with a consensus score provided by experts. After initial training, inter-rater reliability was computed for 20% of the tapes with adequate results (ICC: .87 on average, range .71– 1.0).

Table 1. Types of appropriate and nonattuned mind-related comments: Examples.

Mind-Related Comments	Examples
Desires and preferences	<p>Appropriate Individual. "Perhaps she would like to share it with you"; "Which color would you^s like to have?"; "Do you^s like this one better?"; "Are you^s going to make music?"; "Would you^s also like one, Max?"; "Would you^s like to go to bed?";</p> <p>Appropriate Group. "That is where the boys want to play soccer"; "I'm gonna check what Inge and Roy are going to do"; "Who would like some more yoghurt?"; Anna and Niels, would you^P like something delicious?"; "Do you^P all want the pink color?";</p> <p>Nonattuned Individual. "Would you^s like to go to bed?" (Child starts crying when the caregiver puts the bottle down); "Do you^s like that one a lot?" (The child does not show any interest); "Don't you^s like this one?" (Child nods her head).</p> <p>Nonattuned Group. NA</p>
Cognitions	<p>Appropriate Individual. "Well done, Justin!"; "How old do you^s think you are?"; "Two years, yes indeed."; "How many are there?"; "What color is this?";</p> <p>Appropriate Group. "Very nice, boys!"; "You^P are doing a good job!"; "Who knows what this horse is called?"; "Who else got a brother or sister lately?"; "Well done, girls!"; "Who knows what this is?"; "And what are we going to do next?";</p> <p>Nonattuned Individual. "What is this?" (Child answers: "You do it"); "And then you^s know how to finish this game!" (Child replies: "No!");</p> <p>Nonattuned Group. NA</p>
Emotions	<p>Appropriate Individual. "Well, that was scary."; "Did that scare you, Fiene?"; "Brian came in very enthusiastically: Jocy!" (To another caregiver); "Are you^s having so much fun, Jasmine?"; "Don't you^s feel like playing anymore?" (In response to the child's crying and going back inside).</p> <p>Appropriate Group. "Both children are very happy." (To another caregiver);</p> <p>Nonattuned Individual. "No, nothing is the matter." (In reaction to the child's crying); "Don't be mad!" (In reaction to the child's crying).</p> <p>Nonattuned Group. NA</p>
Epistemic state	<p>Appropriate Individual. "Are you^s imitating me?"; "You^s know exactly what is going on, Anna." (In reaction to a child teasing the caregiver).</p> <p>Appropriate Group. NA</p> <p>Nonattuned Individual. NA</p> <p>Nonattuned Group. NA</p>
Talking on behalf of the child	<p>Appropriate Individual. "Tell her: bye, I'm gonna play"; "Leanne thinks: oh no, that way I will get dirty hands." (To another caregiver); "Tell her: I will get distracted by that."; "No Jelte, I don't want you to do that" (Talking on behalf of Eve).</p> <p>Appropriate Group. NA</p> <p>Nonattuned Individual. NA</p> <p>Nonattuned Group. NA</p>

Note. ^s = singular use of *you*; ^P = plural use of *you*.

Group Size

Group size was defined as the total number of children captured on camera during the episode which recorded the interaction context of either the free play or the mealtime situation. Average group size in infant groups during the free play episodes was 4.27 (Min-Max = 2.00– 7.00, *SD* = 1.66), 7.79 in preschool groups (Min-Max = 3.00– 15.00, *SD* = 2.90), and 6.93 in mixed-age groups (Min-Max = 2.00– 14.00, *SD* = 2.67). Average group size in infant groups during mealtime episodes was 5.11 (Min-Max = 1.00– 9.00, *SD* = 1.87), 8.10 in preschool groups (Min-Max = 4.00– 12.00, *SD* = 2.44), and 7.89 in mixed-age groups (Min-Max = 0.00– 14.00, *SD* = 2.61).

Data Analysis

For a total of eight video episodes (4%; five free play and three lunch) it was not possible to transcribe the episodes and score caregiver's mind-mindedness due to poor sound quality. Results showed that data were missing completely at random, Little's MCAR test $\chi^2(19) = 19.24, p = .116$. Therefore, we used SPSS version 22 Expectation Maximization to estimate missing values for the proportion of caregiver's mind-mindedness (Graham, 2009).

The vast majority of lunch and video episodes could not be scored on the structuring and limit setting scale because the relevant caregiver behavior did not occur during free play and/or mealtime. Hence, the structuring and limit setting scale was excluded from further analyses. Univariate outliers were transformed closer to the center of the distribution to improve normality (Tabachnick & Fidell, 2007). Using Mahalanobis distance, results yielded four multivariate outliers. These outliers were not taken into account for further analyses following Tabachnick and Fidell (2007).

Repeated-measures analyses were used to examine the role of group type (between-factor: infant, preschool and mixed-age) and situation (within-factor: free play and mealtime) on caregiver's individual and group appropriate mind-mindedness. For the infrequent caregiver's individual non-attuned comments, we performed the nonparametric Kruskal–Wallis test. Furthermore, hierarchical regression models assessed several structural factors contributing to caregiver's mind-mindedness. Caregiver characteristics (age, work experience, and education) were entered at step 1 and the group characteristic group size was entered at step 2. We included group size in these regression analyses, which is strongly related to the group type due to Dutch regulations that dictate a maximum group size in different group types with different age groups. We computed separate models for free play and mealtime.

Finally, based on the results of the repeated-measure analysis (significant interaction effect between Mind-Mindedness and Group Type) moderation regression analyses were performed using the macro PROCESS v2.0 (Hayes, 2013) to investigate whether group type moderated the relation between mind-mindedness and caregivers' interactive skills. Moderation (model 1) was used with 5000 bootstrap samples. Moderation occurs when the size or direction of a predictor variable's effect on an outcome variable depends on the value of the moderator variable. Significant moderation effects were probed using the pick-a-point techniques via the PROCESS script for SPSS. Because of multicollinearity between the five CIP scales (see Table 2), we computed an average total score for the CIP scales.

Results

Caregiver's Mind-Mindedness in Center-Based Childcare

Descriptive statistics for the proportions of caregiver's mind-related comments are shown in Table 2. Overall, caregivers produced more individual mind-mindedness than group mind-mindedness, and more appropriate than nonattuned mind-mindedness, during free play and mealtime. Two-tailed correlations between the different mind-mindedness categories in the lunch and free-play situation (not depicted in the table) revealed no significant correlations (correlation coefficients ranged between $r = -.12$ and $r = .00$).

Results of the repeated measures with the two categories of appropriate mind-mindedness (individual vs. group) and situation (free play vs. mealtime) as the within-subjects factors and group type as the between-subjects factor demonstrated a significant main effect for appropriate mind-mindedness categories, $F(1, 92) = 319.03, p = .000, \eta^2 = .77$. No significant main effect for type of situation was found, $F(1, 92) = 0.35, p = .553, \eta^2 = .00$. There was a significant interaction effect between mind-mindedness and group type, $F(2, 92) = 4.563, p = .013, \eta^2 = .09$. Sidak posthoc comparisons showed that, on average, caregivers directed significantly more group appropriate mind-related comments in preschool and mixed-age groups ($M = 1.41, SE = 0.28$ and $M = 1.33, SE = 0.18$, respectively) than in infant groups ($M = 0.32, SE = 0.27, p = .019$ and $p = .007$, respectively). Nonparametric results for caregiver's individual nonattuned mind-mindedness demonstrated a significant difference between infant groups and mixed-age groups for comments toward individual children during free play, in favor of the mixed-age group ($p = .017$).

To investigate factors that contribute to caregiver's mind-mindedness, we first analyzed Pearson correlations between caregiver's mind-related comments and caregiver's age, work experience, education, and group size (see Table 3). Caregiver's individual appropriate mind-mindedness was negatively related to group size during free play. Caregiver's group appropriate mind-mindedness

Table 2. Descriptive statistics and Pearson two-tailed correlations for caregivers’ individual and group appropriate and nonattuned mind-related comments and caregiver’s interactive skills during mealtime (upper diagonal) and during free play (lower diagonal) (*N* = 95).

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Individual appropriate	—	.08	-.17	-.16	-.08	-.09	-.05	.04	-.08
2. Individual nonattuned	.18	—	.12	.00	.03	-.14	.03	-.16	-.07
3. Group appropriate	-.22*	-.11	—	.01	.13	.03	.26**	.04	.13
4. Sensitive responsiveness	.01	.10	.21*	—	.50**	.64**	.29**	.47**	.76**
5. Respect for autonomy	.01	.10	.20†	.65**	—	.40**	.32**	.32**	.64**
6. Verbal communication	-.12	.06	.35**	.63**	.64**	—	.61**	.46**	.83**
7. Developmental Stimulation	-.14	.11	.24*	.57**	.62**	.82**	—	.38**	.73**
8. Fostering positive peer interactions	-.17	.08	.18	.45**	.53**	.56**	.55**	—	.74**
9. CIP total score	-.11	.11	.31**	.79**	.81**	.87**	.86**	.77**	—
<i>M</i> (<i>SD</i>) Free play	9.47 (5.97) ^a	0.43 (0.86) ^a	1.44 (2.31) ^a	4.94 (1.07)	4.71 (0.97)	3.97 (1.14)	3.42 (1.53)	3.05 (1.48)	4.08 (1.02)
<i>M</i> (<i>SD</i>) mealtime	10.33 (5.51) ^a	0.55 (1.12) ^a	0.79 (1.54) ^a	4.67 (1.05)	4.53 (0.89)	3.42 (0.99)	2.29 (1.37)	2.30 (1.37)	3.45 (0.84)

Note. ^a please provide an explanation for the original italics on these data

† *p* < .10, **p* < .05, ***p* < .01.

M = mean and *SD* = standard deviation

during free play was positively related to years of work experience. During mealtime, caregiver’s group appropriate mind-mindedness was negatively related to education.

Table 4 shows results from the regression models for caregiver’s appropriate mind-mindedness. For caregiver’s individual appropriate mind-mindedness during free play, only the second model with caregiver and group characteristics was statistically significant. Group size was the only significant predictor of individual appropriate mind-mindedness. Both models for caregiver’s group appropriate mind-mindedness during free play were statistically significant. However, the fit of the second model significantly improved, compared to the first model, explaining 15% of the variance. Group size and caregivers’ work experience significantly and positively predicted the use of group appropriate mind-mindedness. That is, caregivers produced more group mind-related comments when they had more work experience in childcare, and when the group of children was bigger. None of the models for caregiver’s group appropriate mind-mindedness during mealtime was significant.

Caregiver’s Mind-Mindedness Related to Caregiver’s Interaction Skills

Next, we investigated whether mind-mindedness was associated with quality of caregivers’ interaction skills. Two-tailed Pearson correlations between caregiver’s mind-mindedness and caregiver’s interaction skills (sensitive responsiveness, respect for autonomy, verbal communication, developmental stimulation, fostering positive peer interactions, and CIP total score) are depicted in Table 2. During free play, significant and positive correlations between caregiver’s group appropriate mind-mindedness and sensitive responsiveness, verbal communication, developmental stimulation, and CIP total score were found. During mealtime, significant and positive associations were found between caregiver’s group appropriate mind-mindedness and developmental stimulation.

Table 3. Pearson two-tailed correlations for caregivers’ individual and group appropriate and nonattuned mind-related comments and caregiver and group characteristics during free play and mealtime (*N* = 95).

	Free Play				mealtime			
	Age <i>N</i> = 88	Work experience <i>N</i> = 86	Education <i>N</i> = 89	Group size <i>N</i> = 90	Age <i>N</i> = 88	Work experience <i>N</i> = 86	Education <i>N</i> = 89	Group size <i>N</i> = 93
1. Individual appropriate	-.17	-.07	.04	-.31**	.01	-.03	-.09	-.07
2. Individual nonattuned	-.05	-.06	.10	-.19	.01	-.06	.03	.06
3. Group appropriate	.12	.29*	.05	.17	.15	-.00	-.23*	.13

p* < .05, *p* < .01.

Table 4. Hierarchical regression predicting caregiver's individual and group mind-mindedness during free play and mealtime.

	Individual appropriate						Group appropriate					
	Step 1			Step 2			Step 1			Step 2		
	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β
Free play												
Age	-.12	.08	-.19	-.07	.08	-.12	.00	.03	.00	-.01	.03	-.06
Work experience	-.01	.14	-.00	-.04	.14	-.03	.13	.05	.31*	.14	.05	.33**
Education	-.08	.61	-.02	.12	.60	.02	.20	.21	.10	.14	.21	.07
Group size				-.66	.25	-.30*				.19	.09	.23*
<i>R</i> ²	.04			.12			.10			.15		
<i>F</i>	0.97			2.57*			2.90*			3.40*		
ΔR^2				.08						.05		
ΔF				7.13**						4.50*		
mealtime												
Age	.01	.07	.01	.02	.07	.03	.03	.02	.20	.03	.02	.17
Work experience	-.03	.14	-.03	-.05	.14	-.05	-.03	.04	-.12	-.02	.04	-.08
Education	-.33	.54	-.07	-.28	.55	-.06	-.33	.15	-.24*	-.36	.15	-.26*
Group size				-.16	.25	-.07				.09	.07	.15
<i>R</i> ²	.01			.01			.08			.10		
<i>F</i>	.13			.20			2.36			2.24		
ΔR^2				.00						.02		
ΔF				.41						1.80		

* $p < .05$, ** $p < .01$.

Finally, based on the significant interaction effect between mind-mindedness and group type (repeated-measure analyses), four linear model regression analyses were performed to test whether caregiver's interaction skills (CIP total score) were related to caregiver's use of individual and group appropriate mind-mindedness as a function of group type during the free play and the mealtime situations. A significant interaction effect was found for interaction skills and group type as predictors of caregiver's use of individual appropriate mind-mindedness in the free play situation, $\beta = -.10$, $t(89) = -2.33$, $p = .022$, 95% confidence interval [CI] [-0.18, -0.01]. Caregivers' interaction skills were significantly and negatively associated to individual appropriate mind-mindedness in free play situations in mixed-age groups, $\beta = -.05$, $t(89) = -2.00$, $p = .048$, 95% CI [-0.09, -0.00], but not significantly in infants groups, $\beta = -.05$, $t(89) = -1.42$, $p = .159$, 95% CI [-0.02, 0.12] and preschool groups, $\beta = -.00$, $t(89) = -0.03$, $p = .979$, 95% CI [-0.09, 0.08] (see Figure 1a). The results showed that in free-play situations and in mixed-age groups, caregivers with higher levels of interaction skills used less individual appropriate mind-minded comments.

Also a significant interaction effect was found for interaction skills and group type as predictors of caregiver's use of group appropriate mind-mindedness in the free play situation, $\beta = .52$, $t(89) = -2.21$, $p = .029$, 95% CI [0.05, 0.97]. Caregivers' interaction skills were significantly and positively associated to group appropriate mind-mindedness in free play situations in mixed-age groups, $\beta = .17$, $t(89) = 3.30$, $p = .001$, 95% CI [0.07, 0.27] but not significantly in infants groups, $\beta = -.34$, $t(89) = -1.51$, $p = .134$, 95% CI [-0.80, -0.11] and preschool groups, $\beta = .13$, $t(89) = 1.50$, $p = .136$, 95% CI [-0.04, 0.30] (see Figure 1b). The results showed that caregivers with higher levels of interaction skills use more group appropriate mind-related comments in free play situations and in mixed-age groups.

No significant interactions effects were found for interaction skills and group type as predictors of caregivers' use of appropriate mind-related comment over/toward individual children, $\beta = -.00$, $t(89) = -0.04$, $p = .967$, 95% CI [-0.09, 0.08] or over/toward a group of children, $\beta = .12$, $t(89) = 0.37$, $p = .713$, 95% CI [-0.53, -0.77] in the mealtime situations.

Discussion

Our study aimed to gain insight into mind-mindedness of professional caregivers in childcare. The proportion of about 10% appropriate mind-minded talk in caregiver-child interactions from our study

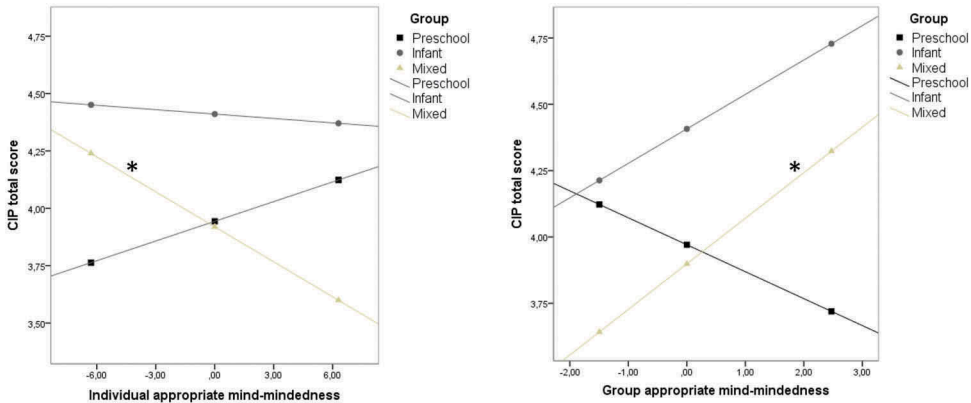


Figure 1. Moderation models of caregiver's individual (a) and group (b) appropriate mind-mindedness related to caregiver interactive skills during free play.

* $p < .01$.

of a regular group setting is comparable with a previous study in which the same coding manual was used (Colonnese et al., 2017; about 10%, including all appropriate mind-related comments). The low incidence rate of nonattuned comments from this study (0.5%) is in line with the results of previous studies in childcare (Colonnese et al., 2017) and parenting (McMahon & Bernier, 2017).

We sought to investigate to what extent caregivers' use of mind-related comments was associated to different structural quality characteristics of the childcare (i.e., group size, caregiver's education, work experience, group type, and situation) and caregiver interaction skills. As expected, caregivers produced more individual appropriate mind-related comments in groups with fewer children. Next, we expected no relation between caregivers' mind-mindedness and work experience, but results showed that group appropriate mind-mindedness during free play (but not during mealtime) was positively correlated with caregiver's work experience. Further, as expected, we found that individual appropriate mind-mindedness was highest in infant groups, whereas group appropriate mind-mindedness was highest in preschool and mixed-age groups (and lowest in infant groups). Finally, we found no differences between caregiver's mind-related comments during mealtime and free play, contrary to our expectations. The strength of the significant associations between the different structural quality characteristics and mind-mindedness was medium. This study is the first to report a link between mind-mindedness and the structural quality characteristics group size, work experience, and group type. These outcomes are in line with our expectations for group size and group type, but not for work experience and situation. These findings suggests that, though there are similarities with caregiver interactive skills, caregivers' mind-mindedness in the child care setting can be viewed as a different aspect of process quality.

Our results confirm the assumed association between caregivers' mind-mindedness and interaction skills. Group mind-mindedness was related to the aggregated score of the CIP scales and we found an association with sensitive responsiveness, verbal communication, and developmental stimulation. The strength of the significant associations was medium for the total CIP score and verbal communication and was small to medium for sensitive responsiveness and developmental stimulation. The strength of these association for professional caregivers is similar to correlations found between parental sensitivity and mind-mindedness ($r = .24$, Zeegers et al., 2017). No significant relationship was found between mind-mindedness and respect for autonomy and fostering positive peer interactions.

Secondly, the mixed correlational pattern fits in with the theoretical definition of mind-mindedness, which includes a linguistic component (i.e., verbal communication) of a caregiver's sensitivity and responsivity (i.e., sensitive responsiveness) to mental states of children during

exploration (i.e., developmental stimulation). We found no associations between mind-mindedness and respect for autonomy, whereas the study of Colonnaesi et al. (2017) did find an association. This difference could be due to the different situations in which caregivers' mind-mindedness was coded. The present study coded mind-related comments during free play, whereas Colonnaesi et al. (2017) used structured play. Fostering positive peer interactions concerns stimulating positive interactions among children, and, hence, is not directly associated with sensitive caregiving and appropriate mind-mindedness between caregivers and children. The pattern with theoretically meaningful correlations for related skills and nonsignificant correlations with unrelated skills supports the convergent and discriminant validity of the mind-mindedness construct in relation to different interaction skills of caregivers in childcare.

Relevance of Group Mind-Mindedness

Our study revealed several key differences between individual and group mind-mindedness, emphasizing the importance of the group setting in childcare research. Caregivers produced more individual mind-mindedness in groups with fewer children, whereas group-related mind-mindedness was more often observed in groups with more children. More specifically, caregivers are able to show mind-mindedness toward individual children in the group and more than one child in the group. Doing so, they verbally express their ability to understand the thoughts, desires, and feelings shared by a group of children. These results corroborate the use of non-individual mind-mindedness in childcare and its relevance (Colonnaesi et al., 2017).

Group and individual mind-mindedness were also found to be qualitatively different. Only group appropriate mind-mindedness during free play was found to be positively associated with caregiver interaction skills and work experience. Moreover, only group appropriate mind-mindedness during free play was moderately but significantly related to caregiver interaction skills, which is in line with findings from other studies in childcare (Colonnaesi et al., 2017; Degotardi & Sweller, 2013) and parenting (Zeegers et al., 2017). This outcome is in line with the group-based CIP measure and group mind-mindedness scores and may thus reflect a common group dimension that is shared between the two measures. Also in the small-scale study of Colonnaesi et al. (2017), only the appropriate mind-mindedness comments to both children was related to respect for children's autonomy of the caregiver ($r = .35$) and the attachment for boys and girls whereas individual mind-mindedness comments were not related.

Furthermore, we found that individual appropriate mind-mindedness was highest in infant groups, whereas group appropriate mind-mindedness was highest in preschool and mixed-age groups (and lowest in infant groups). Our findings showed that caregivers in center-based care, just as parents, use individual mind-related comments to infants and to preschoolers. Comments toward preschoolers, however, are more often directed toward a group of children instead of a single child as is the case with infants. A possible explanation is that caregivers' mind-mindedness is attuned to the social development of the child. In infancy, individual caregiver-child interactions are more common than group interactions, whereas in toddlerhood caregivers are more focused on the group setting, in which inclusion, sharing, and involvement are essential aspects of the interaction settings.

Previous childcare research has provided ample evidence for the importance of the group setting for caregiver interactions. Research by De Schipper et al. (2006), for example, has shown a negative correlation between caregivers' sensitivity and size of the group. The importance of a group dimension in sensitive caregiving is also highlighted in the meta-analysis of Ahnert et al. (2006), who showed that not dyadic measures but group-related measures of sensitivity were robust predictors of the secure attachment of children to their caregivers in center-based care (see also Aarts, Burk, & Riksen-Walraven, 2016; Van Schaik, Leseman, & de Haan, 2018).

Limitations and Future Directions

We acknowledge that the present study was not without limitations and therefore suggest several directions for future research. Although this study sample is representative for the Netherlands, we should keep in mind that the present study findings may not pertain to other countries given the specific characteristics of the Dutch childcare context (i.e., parents of children attending formal childcare are generally highly educated, children attend formal childcare with an average of 19 hours per week, the vast majority of caregivers have received vocational training at intermediate level, the daily program typically consists mostly of free play and less of structured play situations, and the mixed-age groups with children ranging between ages 4 months and 4 years in the same care group are predominant; see Helmerhorst et al., 2014). Replication of the present study in other countries and different cultures is therefore warranted. Previous studies showed lower levels of parental mind-mindedness in a non-Western country (i.e., Hong Kong) than in a Western country (i.e., UK), suggesting differences between more collectivistic and individualistic cultures (Hughes, Devine, & Wang, 2018; Wang, Zhu, & Wang, 2017). Overall, more research is needed to deepen our insight into mind-mindedness in the unique context of childcare.

In the context of childcare, vocational training level and other structural quality characteristics may not be consistent predictors of mind-mindedness (only one negative correlation was found for lunch episodes in our study). The relation between structural characteristics and process quality is modest in general and is even weak or absent in countries where structural quality is regulated by national guidelines (e.g., minimum qualification levels for staff, national guidelines for the caregiver–child ratio) as in the Netherlands (Slot et al., 2015). In our study of Dutch childcare, there is a clear restriction of range for these structural quality characteristics that complicates the empirical study of possible relationships between process quality and structural quality characteristics (such as caregiver–child ratio and qualification levels) (see also Love et al., 2003).

Based on the design of this study, we cannot answer the question whether caregivers produced more mind-related comments toward infants or preschoolers in the horizontal group setting (infant and preschool groups) or in the mixed-age groups, because the birthdates of the children in the mixed-age groups that were captured on screen are not available. As a result, we were unable to identify them as infants or preschoolers. Comparing mind-related comments to either infants or preschoolers in the mixed-age groups would be interesting for future research and would provide more information on whether infants in infant groups or in mixed-age groups receive are treated differently. Future research on caregiver's mind-mindedness should take into account children's development and functioning in the care group (e.g., well-being, self-regulation, (pro)social behavior). This would increase our understanding of the importance of caregiver's mind-mindedness on children's socioemotional development in the childcare setting.

In our study, findings diverged for the videotaped play and mealtime episodes, with relatively little significant findings for the analysis of lunch and clearer patterns for free play. This study suggests that is easier for caregivers to take children's perspectives during play, compared to mealtime. In other words, play situations evoke more mind-related comments than mealtime situations, which is in line with previous research showing that play situations elicit more sensitive responses and stimulation from caregivers (e.g., Hallam et al., 2016; Klette et al., 2018). Play is the predominant context in the mind-mindedness paradigm, however, previous studies on parental mind-mindedness have proposed assessing mind related comments in specific 'attachment-activating contexts' (Bigelow, Power, Bulmer, & Gerrior, 2015; Milligan, Khoury, Benoit, & Atkinson, 2015). Situations in a more challenging context may elicit more cues from children and more non-attuned comments from caregivers (McMahon & Bernier, 2017). Future studies in the child-care context should also examine whether 'attachment-activating contexts' (e.g., when one of the caregivers leaves the room, caregivers' greeting to the children in the morning or saying goodbye to the children at the end of the day, during transition from one activity to another) evoke less or more nonattuned mind-mindedness in caregivers.

Fundamental research into mental-state talk is still developing after nearly two decades, but we also see some practical applications of mind-mindedness in vocational preservice and in-service training of professional caregivers. There is evidence that caregivers in nurseries can be trained to use more mental-state language with children, which generated positive outcomes in children's theory of mind, emotion understanding, and prosocial behavior (Grazzani, Ornaghi, & Brockmeier, 2016; Ornaghi, Grazzani, Cherubin, Conte, & Piralli, 2015). Adapting research measures and elements from parenting interventions may help to teach mind-mindedness in instructional settings with professional caregivers, focusing on the practical application and concrete techniques in a childcare context. Analyzing videotaped interactions in childcare groups may also help caregivers to observe and reflect on mind-mindedness in their daily interactions with young children (Quinn, 2015), including babies from three months on in Dutch childcare. Also the 'speaking for the child' technique of Carter, Joy, Osofsky, and Hann (1991), that has been included in intervention programs for professional caregivers (see, e.g., Groeneveld, Vermeer, van IJzendoorn, & Linging, 2011), seems a promising techniques to create awareness and to provide concrete examples of good practice with mind-mindedness for caregivers. In a later phase of instruction, it is possible to differentiate between appropriate mind-related comments toward individual children and toward the group, and, finally, between appropriate and nonattuned comments. This type of instruction may help caregivers to come to grips with a seemingly intuitive, but actually multifaceted concept of sensitivity.

Conclusion

Our results of a Dutch nationally representative sample show that caregivers generally offer a supportive environment with the use of mind-related comments and sensitive interactions. Professional caregivers in center-based care, just as parents, are able to treat children in the group as independent mental agents, by appropriately referring to children's inner states, such as their desires, thoughts, and emotions during their daily dyadic and group interactions. Mind-mindedness thus is an important element of caregiver-child interactions, as previous studies have shown the contribution with young children's secure attachment relation (Colonnesi et al., 2017; Zeegers et al., 2017) and socioemotional development (McMahon & Bernier, 2017). Our results also suggest that mind-mindedness in center-based childcare is an indicator of the quality of the relationship between the caregiver and the group of children, and is influenced by the number of children, their ages, and specific situations in the childcare program. Future research should further investigate the impact of caregivers' mind-mindedness on children's well-being in the childcare and their socioemotional development.

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