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Published in:
Early Child Development and Care

DOI:
[10.1080/03004430.2015.1024241](https://doi.org/10.1080/03004430.2015.1024241)

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Document Version
Publisher's PDF, also known as Version of record

Publication date:
2016

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Boomstra, N., van Dijk, M., & van Geert, P. (2016). Mutuality in mother–child interactions in an Antillean intervention group. *Early Child Development and Care*, 186(2), 213-228.
<https://doi.org/10.1080/03004430.2015.1024241>

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To cite this article: Nienke W. Boomstra, Marijn W.G. van Dijk & Paul L.C. van Geert (2016) Mutuality in mother–child interactions in an Antillean intervention group, *Early Child Development and Care*, 186:2, 213-228, DOI: [10.1080/03004430.2015.1024241](https://doi.org/10.1080/03004430.2015.1024241)

To link to this article: <https://doi.org/10.1080/03004430.2015.1024241>



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Mutuality in mother–child interactions in an Antillean intervention group

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(Received 19 November 2014; accepted 25 February 2015)

This article describes a study on mutuality in mother–child interaction during reading and playing sessions. Within mother–child interaction, mutuality is seen as important in language acquisition. The study was executed within a group of Netherlands Antillean mother–child dyads who participated in an intervention programme. Mutuality was operationalised as balance in conversation, joint involvement, affection, and more practical elements such as asking questions. Twelve participants were observed at least once. In five cases, repeated measures were also collected. Group data revealed that only few differences exist between the outcomes of the reading and playing sessions. The differences that were found, concerning balance and affection, were favourable to the play situations. However, large inter- and intra-individual differences were found in all observed measures of mutuality, which suggests the importance of idiographic research methods. The practical implication is that researchers and interventionists should be sensitive to individual differences and be careful with applying group data to individuals.

Keywords: mutuality; mother–child interaction; language development; context; dependence; process research

1. Introduction

Currently, it is known that the bond between mother and child is largely co-constructed (e.g. Lollis & Kuczynski, 1997), and that it provides a dynamic context for future interactions, while also being an accumulation of previous interactions (Hinde & Stevenson-Hinde, 1987). The balance of behaviour and emotion between parent and child is considered to be an important indicator of the quality of the parent–child relationship (Kochanska & Aksa, 1995). This balance results in the child’s social adaptation (Kochanska & Aksa, 1995). Parent–child adaptation can be defined in terms of ‘balance of control’ (e.g. Dumas & LaFreniere, 1993), ‘mutuality’ (e.g. Deater-Deckard & O’Connor, 2001), ‘mother-child connectedness’ (e.g. Clark & Ladd, 2000), or ‘dyadic synchrony’ (e.g. Harrist & Waugh, 2002). The term ‘connectedness’ is more often used to describe the emotional, or affective, quality of the interaction (also used in the self-determination theory; e.g. Deci & Ryan, 1985), whereas the other terms are also used to describe the content of the interaction (like joint focus). In this study, the term ‘mutuality’ is chosen because of its focus on the bidirectional and positive

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nature of the interaction (Lollis & Kuczynski, 1997). Also, it is considered to be a crucial element in the child's (social) development (Funamoto & Rinaldi, 2015). Parent–child mutuality can be operationalised in terms of several constructs. For instance, it is seen as the compliance to one another's bids of interaction or as the level of shared positive emotion (Deater-Deckard & Petrill, 2004). This study aims at describing mother–child mutuality during participation in an early childhood intervention called 'More Language More Opportunities' (see Section 1.6). Here, mutuality is operationalised in four constructs: joint attention, affection, conversation between mother and child, and storybook reading qualities, all indicators of educationally effective interactions. Each construct is discussed below, along with its relation to child development.

1.1. *Joint attention*

Joint attention helps children develop language and social skills; it is a precursor to understanding other people's intentions. In this way, joint attention helps children understand the world around them (Oates & Grayson, 2004). There are several levels of joint attention, ranging from the relatively basic sharing of the same object of gaze (shared gaze), through dyadic attention where two interaction partners converse, to triadic attention where both partners share the conversation and an object, as in book reading or playing games (Reddy, 2005). The highest level (triadic attention) is most difficult because it involves common reference and an understanding of the other persons' goals (Oates & Grayson, 2004).

In language acquisition, joint attention is seen as a basis from which children learn language structures and content-related concepts (Moore & Dunham, 1995; Tomasello, 1988). Joint attention refers to the child's ability to coordinate his attention to that of the interaction partner (Bruner, 1975). However, the child may also initiate the object of attention. Research has shown that children whose parents tend to follow the intentional cues of the child have larger vocabularies than children whose parents do so to a lesser degree (Carpenter, Nagell, & Tomasello, 1998). Parents have to be sensitive to the object of child's attention (Bloom, 1998). A responsive exchange within parent–child dyads requires both a child to signal the topic of interest and the parent to respond sensitively to that bid (Tamis-LeMonda, Bornstein, & Baumwell, 2001). Engaging in joint attention is thought to contribute to the process of language development because it facilitates the development of word–object mappings (Dominey & Dodane, 2004). Storybook reading is considered a highly effective way of facilitating language development, precisely because it establishes joint attention (Tomasello & Farrar, 1986).

1.2. *Affection*

Though the direct links between the affective quality of the parent–child interaction during reading and changes in language development have not been studied often, it is plausible that there is a connection between reading, the feeling of a pleasurable experience, and the motivation to read (Baker, Scher, & Mackler, 1997; DeBaryshe, 1995). The affective element of an interaction is important as a part of the actual behaviour during that interaction. For instance, the affective quality of reading interactions was found to be predictive for children's later motivation to read (Sonnenschein & Munsterman, 2002). This could in turn lead to a greater interest in books, and

reading more challenging books (Teale & Sulzby, 1987). More interest could lead to a more diverse vocabulary, which is an important element of language development.

Research has shown that only taking into account the global states of the affection in an interaction is not enough. The rigidity or flexibility in the interaction is found to be influential in, for instance, children's externalising behaviour (Lunkenheimer, Olson, Hollenstein, Sameroff, & Winter, 2011). Positive affect and flexibility typically go together and are seen as benchmarks for adaptive interpersonal interactions (Lunkenheimer et al., 2011). However, negative affect is not necessarily seen as a sign of maladaptive interaction; it might actually represent a healthy dynamical interaction (Granic, O'Hara, Pepler, & Lewis, 2007). The matching of affectionate cues is seen as a way of showing the child that the mother shares the experience, and it helps the child to understand that affection is indeed something that can be shared (Stern, 1985). A mismatch in affection does not have to be similar to non-contingent responses (Nicely, Tamis-LeMonda, & Grolnick, 1999). A response can be contingent while not matching the same affectionate dimension.

1.3. *Conversation*

Joint storybook reading is often seen as an important means of early literacy development (Bus, Van IJzendoorn, & Pellegrini, 1995; Sénéchal & Young, 2008). Concerning the specific added value over other settings that reading together brings to language development, it seems that during book reading parents use more formal language (Hoff-Ginsberg, 1991) and engage in vocabulary teaching (Snow & Goldfield, 1983). Aside from stimulating language development, storybook reading also is seen as a social process, related to affective domains (Saracho & Spodek, 2010).

Recent research shows that adult-child conversation is positively associated with the child's language development; the larger the number of conversations between children and parents, the better the language development of the child (Zimmerman et al., 2009). Here, children's reactions to the story and responses to elicitations of the parent are an important part of the interaction. There should be a balance between the parent wanting the child to sit quietly and listen to the story, and the number of children's queries throughout the story (Saracho & Spodek, 2010).

1.4. *Application of book reading techniques*

Shared book reading is promoted as an activity to enlarge family literacy (Hindman, Skibbe, & Foster, 2014). A specific technique of joint book reading is called 'dialogic reading' (Whitehurst et al., 1988). The goal of dialogic reading is to enhance children's language development by making them active partners in reading dyads. The parents are taught reading techniques to enhance the active involvement of the child, such as asking the child (open-ended) questions, expanding the child's verbalisations, and praising the child for his or her efforts. In line with the construct of the zone of proximal development (Vygotsky, 1978), the parent's scaffolding techniques offer the child an opportunity to increase the complexity of verbalisations (Zevenbergen & Whitehurst, 2003).

In the context of home-based interventions, dialogic reading has been shown to result in positive effects on the language and emergent literacy skills of the children (e.g. Zevenbergen & Whitehurst, 2003). Intervention adherence is related to the language development of the child. For instance, Zevenbergen et al. (1997) showed

that if the parents were more involved in the dialogic reading programme, the children had better language skills and a better understanding of print concepts. The idea of the child being an active participant rather than a passive listener can be extended beyond reading situations. The balance in power and turn taking, where the child gets the opportunity to practice language and social skills, is relevant in other situations as well.

1.5. Teaching activities

The specific context (e.g. teaching activities, caring, or playing) in which the parent–child interaction takes place might influence the quality of the interactions, which in turn contributes to child development (Lindsey, Cremeens, & Caldera, 2010). Hoff (2001) studied the effect of context on children’s language use with changing tasks and changing conversation partners. She found that during storybook reading, more than during mealtime conversation and toy play, children reply to the mothers’ questions more often and use a richer vocabulary. The storybook itself might serve as a scaffold to elicit rich language use. However, the grammatical complexity and the number of utterances did not differ across contexts (Hoff, 2001).

Different contexts also represent different hierarchical structures in the interaction. For instance, whereas teaching situations are often more unequal in power because parents take control, play sessions are often more equal in power because parents have a higher acceptance of the children’s initiations and are less concerned with child compliance (Russell, Pettit, & Mize, 1998). Research has demonstrated that higher levels of mutuality (i.e. a more balanced interaction) are found in play sessions. In teaching sessions, parents are more likely to control the interaction (Lindsey et al., 2010). However, differences between mothers and fathers have been found as well. Fathers have been found to let their children lead the interactions more than the mothers (John, Halliburton, & Humphrey, 2013).

1.6. Research aims

In this study, mutuality in mother–child interaction is operationalised in task behaviour (measuring the extent of joint focus in the interaction), the affective quality of the interaction, the (types of) questions and answers of mother and child, and the balance in the interaction. Book reading is one of the most frequently used tools for interventions focusing on child language development. In the intervention ‘More Languages, More Opportunities’, the context of this study, it takes a central role in helping parents to develop their child’s language. ‘More Languages, More Opportunities’ is an intervention aimed at improving the Papiamentu-Dutch language use of Netherlands Antillean toddlers and their primary caretakers. The intervention stresses the importance of child development by practicing skills together with a more skilled adult. Joint storybook reading is taken as a primary tool in this intervention. The interventionists in this project, called ‘language coaches’, guided the parents to have sensitive interactions with their child. In addition, mothers were stimulated to use rich language during play sessions and everyday activities. This study therefore focuses on the mother–child interaction in reading sessions and compares it with guided play sessions. The assumption is that reading together is a pleasurable, but more teaching-related activity. Playing together is a more free assignment, where both mother and child do not focus on the learning part, but more on spending time together while being involved in a task,

which should result in a more balanced interaction. The main research questions are the following: *What characterises the mutuality within the mother–child interaction in the participating dyads? Is there a difference in mutuality when looking at two different contexts (reading and playing together)?*

Research in (developmental) psychology has primarily focused on group-related outcomes and inter-individual variation (Molenaar & Campbell, 2009). The basic underlying assumption is that the obtained data in this type of research are ergodic: the data have the same statistical distribution over time as across participants (Molenaar & Campbell, 2009). However, the person-specific life-situations, which play a substantial role in the dynamical system of the individual, are not included in these very broad measures. As Molenaar and Campbell (2009) state, the averages of the group do not tend to apply to individual variability because many (psychological) processes are context specific. Therefore, this study also explores intra-individual differences and compares the outcomes of the group measures to those in the process study. This part of the article aims to provide researchers with insight in dynamics within mother–child interaction using non-traditional research techniques.

2. Method

2.1. Participants

Twelve mother–child dyads who participate in the intervention ‘More Languages, More Opportunities’ (of the total group of 23 dyads in the intervention) agreed to participate in this observation study. The children in this study are Antillean toddlers and kindergartners who were born in the Netherlands, and they participated with their mothers. The children are classified as being Netherlands Antillean because of the origin of their parent(s) according to the municipal databases. There were six girls and six boys involved. Nine mothers completed secondary vocational education, two mothers finished secondary education, and one mother completed the higher vocational education. Five mothers work on a part-time basis, three mothers are full-time students, and four are stay-at-home mothers. Age ranges of the participants are summarised in Table 1.

2.2. Procedures

The intervention consisted of biweekly home-visits and group gatherings. Video-observations were made by the language coaches, in the homes of the participants, usually in the living room. First, the language coaches explained to the mother that they wanted to record a situation in which the mother and child read together. It was stressed that mother and child should act as they normally would, and that no judgements would

Table 1. Participants’ information.

| | Mean (SD) | Range |
|-----------------------|---------------|-------|
| Age mother (years) | 30.67 (6.286) | 22–42 |
| Age child (months) | 41.17 (9.703) | 34–68 |
| Number of home-visits | 20 (7.781) | 5–32 |

be made on the basis of the recordings. The duration was also kept open, as well as the book that they could pick to read from. The second situation was playing or making something together. This could range from colouring, to building blocks, puzzling, or playing a game. Mothers were free to choose their own activity. The duration of this situation was also open, but the language coaches stopped filming after approximately 15 minutes. The recordings started with the reading situation, directly followed by playing. The language coaches stayed in the same room, in order to answer questions and to make sure the camera was working. However, they refrained from interacting with mother or child. The camera position was chosen in such a way that both mother and child were clearly visible.

A total of 69 recordings were usable for further analysis. Three recordings failed because the child was too distracted by the camera (once) or due to technical issues (twice). Of the 69 usable recordings, there were 34 reading sessions and 35 play sessions. Seven of the participants agreed to be filmed once or twice, whereas five agreed to be filmed four or more times. The time between the first and last observation ranged from 12 to 34 weeks (with a mean of 21.4 weeks). The repeated observations ($n = 5$) are treated as a *multiple-case study*, which is used to illustrate the process of change in the interaction between sessions. Data of the group of 12 participants are used to give an overall view of the interaction. All recordings were made between March and November 2011.

2.3. Coding scheme

The content analysis of the interaction was based on a coding scheme consisting of existing and new elements (Table 2). The central construct in the coding scheme is the *mutuality* between mother and child, indicating the way in which their behaviour and/or utterances are adapted to one-another. This overall concept was divided into (1) task behaviour, (2) questions and answers, and (3) affection (Figure 1). The affection element was based on a simplified version of the SPAFF coding scheme (Coan & Gottman, 2007; Gottman, McCoy, Coan, & Collier, 1996).

Table 2. Elements of the coding scheme.

| Construct | Codes | Description |
|----------------|--------------------|---|
| Task behaviour | Reading | Mother reads lines from book |
| | Task narrow | Utterance is closely connected to task/story |
| | Task broad | Utterance is more distantly connected to task/story |
| | Off task | No connection to task/story |
| Affection | Joy/affection | Smiling, giving compliments, showing affection |
| | Interest | Asking questions, positive dialogue |
| | Neutral | Reading utterances, running dialogue |
| | Whining/resistance | Mildly negative, refusing to cooperate |
| Questions | Force/aggression | More strongly negative, pushing, hitting, yelling |
| | Closed | Questions which require yes/no answer |
| | Open | Questions which require more elaborate answer |
| Answers | Elaboration | Connecting story/task to children's environment |
| | No answer | No response to question |
| | Indirect | Making thinking sounds/ask for clarification |
| | Non-verbal | Nodding, pointing, shrugging shoulders |
| | Adequate | Giving appropriate answer (type, not content) |

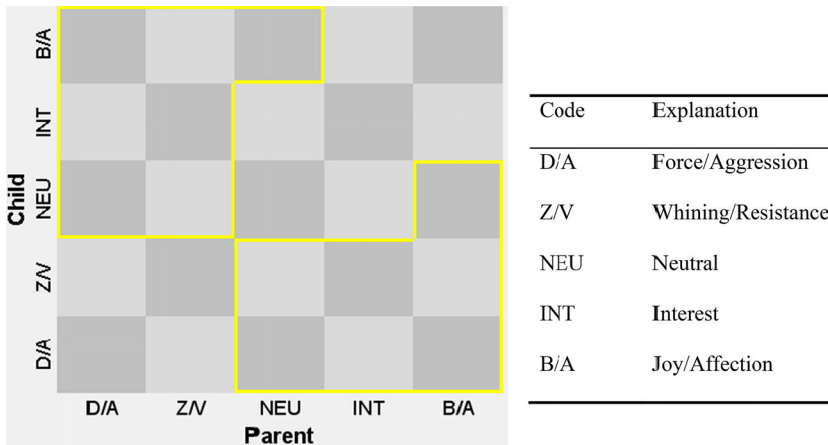


Figure 1. State space of mother-child dyadic affection. The yellow cells refer to a mismatch in affection and show an asymmetry in the interaction.

The dialogic reading techniques (Whitehurst et al., 1988) that are applied in the intervention were (1) asking ‘what’ questions and open-ended questions, (2) following answers of the child with new questions, (3) repeating and/or expanding what the child says, and (4) having fun (because of the importance of the child enjoying the experience, since the attention would otherwise diminish). The wh- questions, and completion and distancing prompts were included and completed with other question categories that reflected the openness in the questioning. This resulted in nine different categories, ranging from closed to open elaborating questions. The questions are rearranged into three broader categories: (1) closed, (2) open, and (3) elaboration. The answer options are included in Table 2. Adequate answers are those that answer the question appropriately (verbally if that is required), disregarding the correctness of the content of the answer.

2.4. Data processing

Five minutes of each situation were selected from the total time and used for further analysis. Most recordings of the reading situations did not last longer than five minutes. The play situations usually did last longer, but one five-minute period was selected, often from the beginning of the situation, at the moment mother and child started focussing on the task. In these segments, all verbal interaction between mother and child was transcribed. Some non-verbal interactions revealing the affective quality were transcribed as well (such as ‘mother and child hug’, ‘mother kisses child’, ‘mother grabs arm of child’). Most transcripts consisted of about 100 utterances by mother and child combined (with two extremes of 48–236 utterances).

For an overall impression of the interaction between mother and child, all 69 transcripts were used (34 reading and 35 play sessions). Percentages were computed to give an impression of how often a particular code was present during the sessions. In addition, individual frequencies were computed to display the range in the sample. In the total sample, paired samples’ *t*-tests were used to compare task situations.

The scores of the multiple-case study (*n* = 5) explored the process of change across time, and these were visualised by means of state space grids (Lewis, Lamey, &

Douglas, 1999). These grids are a relatively simple means of visualising a pattern of interaction and the way this pattern changes over time. The software used to create state space grids is GridWare (Lamey, Hollenstein, Lewis, & Granic, 2004). The result is a graph that displays two ordinal variables of both mother and child in a matrix shape. The trajectory of the affection states (meaning the change of codes over time) in the dyad also reflects the utterances as recorded in the transcripts. Figure 1 shows the possible states in the dyadic interaction. The analysis is based on a measure of flexibility, called ‘Dispersion’. The dispersion is a measure that can range between 0 and 1. When the dispersion is 1, this means that all events take place in different cells. A dispersion of 0 means that all events take place in one single cell. The closer the dispersion is to 1, the more flexible or variable the interaction, where a dispersion of 1 is also referred to as ‘chaos’.

In order to test differences between the two task situations (reading versus playing) for each individual dyad, Monte Carlo analyses were performed. Monte Carlo tests employ a random permutation technique, which is a statistical procedure based on estimating probabilities by randomly drawing samples from a data set based on the null hypothesis. After 10,000 permutations, the results are compared to the empirically found values. If the probability of finding the observed value in the resampling procedure is very low (below 5%), the result is considered to differ significantly from the null hypothesis model (for more information on the use of permutation tests, see Good, 1999; Todman & Dugard, 2001). In the current data, the procedure was used to test whether the three constructs (language interaction, affection, and task behaviour) occur in different frequencies in the two contexts (play versus book reading). This means that the null hypothesis is that these two contexts produce similar results. In order to test this, data of the five dyads were reshuffled over context and over time. All analyses were performed in Poptools (Hood, 2004).

2.5. Reliability

Two coders watched 17% of the recordings independently and coded the transcripts. Table 3 shows the inter-observer reliability on the different constructs of the coding scheme. All scores are satisfactory to good.

3. Results

3.1. Characterisation of the interaction in the group data

In order to compare the mutuality in the mother–child interaction between reading and playing together, the results of the group of 12 dyads are averaged. Table 4 shows the proportion of utterances for each interaction partner, the mean percentages, and range for each mother and child.

Table 3. Inter-observer reliability.

| Construct in the coding scheme | <i>K</i> | <i>N</i> (SD) |
|--------------------------------|----------|---------------|
| Task behaviour | 0.863 | 455 (0.019) |
| Affection | 0.707 | 328 (0.040) |
| Questions | 0.767 | 64 (0.063) |
| Answers | 0.854 | 52 (0.079) |

Table 4. Mean scores of mutuality components of both situations ($n = 12$).

| | Reading | Range | Playing | Range |
|--------------------------|---------|-------------|---------|-------------|
| Percentage of utterances | | | | |
| Mother | 77.4 | 62.9–92.2 | 61.9 | 56.4–75.7 |
| Child | 22.6 | 24.3–43.6 | 38.1 | 24.3–43.6 |
| Task behaviour | | | | |
| Task narrow | 76.78 | 53.3–97.6 | 63.12 | 32.1–92.6 |
| Task broad | 12.99 | 1.1–31 | 29.87 | 3.8–59.6 |
| Off task | 10.23 | 0–23.6 | 7.01 | 0–16.1 |
| Affection | | | | |
| Joy/affection | 2.84 | 0–4.8 | 5.74 | 1.1–15 |
| Interest | 16.39 | 5.8–26.4 | 21.72 | 12.1–28.6 |
| Neutral | 79.24 | 69.4–89.4 | 70.78 | 56.9–81.8 |
| Whining/resistance | 1.53 | 0–5.9 | 1.68 | 0–4.9 |
| Force/aggression | 0 | 0–0 | 0.08 | 0–0.9 |
| Questions | | | | |
| Mother | | | | |
| Closed | 56 | 34.78–77.78 | 57.7 | 29.03–90.91 |
| Open | 40.7 | 22.22–64.29 | 40.1 | 9.09–64.52 |
| Elaboration | 3.1 | 0–9.63 | 2.1 | 0–6.45 |
| Child | | | | |
| Closed | 72.5 | 0–100 | 77.8 | 60.53–100 |
| Open | 27.5 | 0–80 | 21.7 | 0–44.44 |
| Elaboration | 0 | 0–0 | 0.4 | 0–2.56 |
| Answers | | | | |
| Mother | | | | |
| No response | 41.6 | 0–100 | 25.4 | 0–47.92 |
| Indirect answer | 5.4 | 0–10 | 13.4 | 0–47.06 |
| Non-verbal answer | 4.8 | 0–70 | 1 | 0–11.76 |
| Adequate answer | 48.2 | 0–81.82 | 60.2 | 25–100 |
| Child | | | | |
| No response | 6.6 | 0–55.56 | 6.6 | 0–62.50 |
| Indirect answer | 6 | 0–10.53 | 4.1 | 0–20 |
| Non-verbal answer | 12.9 | 0–50 | 5.9 | 0–37.50 |
| Adequate answer | 74.4 | 36.84–87.38 | 80.3 | 0–93.55 |

In total, 1673 of the 8385 utterances (20%) are questions. Mothers ask 1318 questions, children 335. A small percentage of all questions are elaboration questions. Closer inspection of the data shows that these came from only a few mothers. A total number of 1403 (16.7%) of all utterances is an answer. In total, mothers give 456 answers, children 947.

3.2. Comparison between reading and playing

In order to compare the two situations ($n = 11$), the scores of each participant were averaged to result in one score per person or dyad. The results show that there is a difference in the ratio of utterances between the situations [$t(10) = -4.262$, $p = .002$], where the mother's participation (in terms of the number of utterances) in the reading sessions is significantly higher than during playing. In other words, there is a greater balance of turn taking in the play sessions. The second difference is found in the task orientation. Here, mother and child engage less in task-related behaviour beyond the 'here-and-now' (task broad) in reading sessions than during play sessions [$t(10) = -3.597$, $p = .005$].

With regard to the mother–child affection, the results show that the majority of the utterances are classified as neutral to positive. During reading, there are significantly more neutral interactions [$t(10) = 3.256, p < .01$]. Play sessions show more reflections of interest [$t(10) = -2.278, p < .05$] and joy/affection [$t(10) = -2.282, p < .05$]. In 13.1% of all utterances there is a ‘mismatch’ between mother and child in the affective quality of the utterances. This means that where one partner expresses negative affect, the other person is neutral or positive, and vice versa. With regard to the questions that are asked, mothers ask more demanding questions, hence more open and elaborative questions, than children do. There are no significant differences between the situations. More non-verbal answers are given during reading sessions [$t(10) = 2.709, p < .05$] and more adequate answers during play sessions [$t(10) = -2.340, p < .05$].

3.3. Multiple-case study

In the multiple-case study, the individual pathways for the five mother–child dyads that had more than four sessions were explored. First it was verified whether the differences between play and reading were also found for these individuals. Second, a more in-depth analysis of the proportion of verbal interaction and flexibility in the interaction was performed.

3.4. Comparison between reading and playing

As explained in the Method section, Monte Carlo analyses were executed to compute whether the outcomes of each of the five dyads showed differences between reading and play situations. First, the difference in proportion of utterances between mother and child was analysed. Whereas in the group data the mothers had a larger share in the conversation during reading than during playing, this was only reflected in three of the five dyads (A, B, and E, respectively, being significant at $p < .05, p < .05,$ and $p < .01$).

Concerning the affection displayed during reading, three of the five dyads (B, C, and E; $p < .01, p < .05,$ and $p < .05,$ respectively) showed more neutral interaction during playing. Two of the dyads (B and E; $p < .01$ and $p < .05,$ respectively) had more Interest codes during playing than during reading. However, for one dyad (D; $p < .05$) this was the other way around; they had more Interest codes during reading. Only one dyad (C; $p < .05$) showed more joy and affection during playing.

The group analysis showed that, on average, more task-related behaviour beyond the ‘here-and-now’ was found in play situations. This is reflected in three of the five dyads (A, B and C; all $p < .01$). What is not found in the group data, but was significantly different in the multiple-case-study, are differences in the ‘task-narrow’ scores, where during playing this is found more than during reading (also dyads A, B, and C; all $p < .01$). The results show that, in this study, the group data do not necessarily reflect the relations between variables found in individual cases and that not all individual relations are found in the group outcomes.

3.5. Verbal participation

Figure 2a and 2b shows the proportion of the mothers’ utterances to the total number of all utterances in each session. The figures show that the mothers generally have more utterances than the child, in both situations. However, there is a large variation within

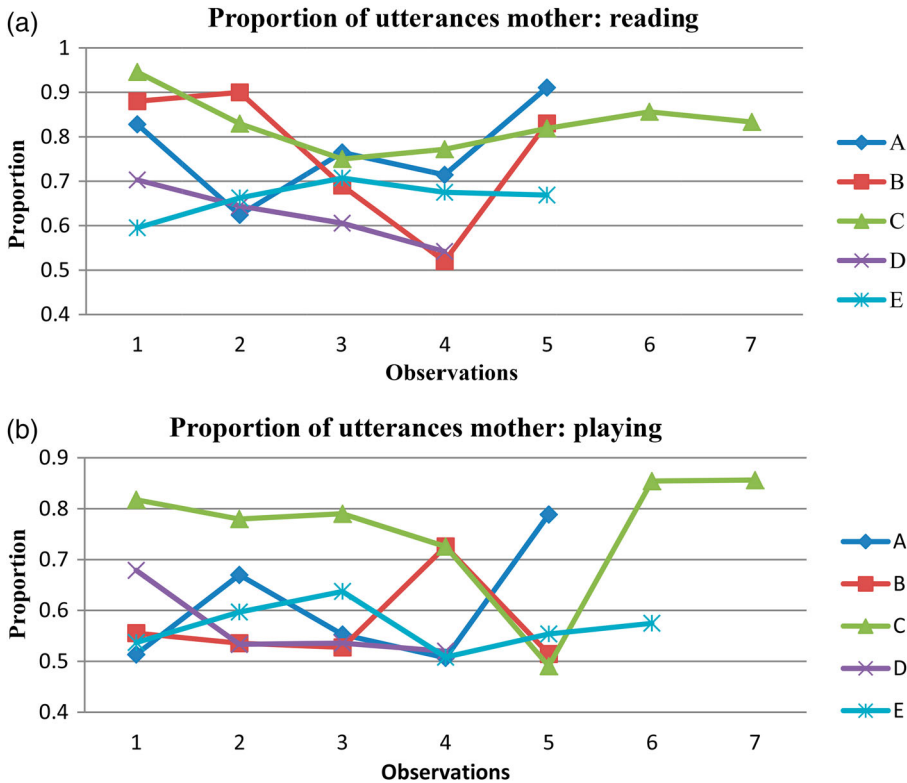


Figure 2. Proportion of utterances of mothers over time during reading (a) and playing (b).

and between mothers. For instance, mother A displays a generally higher proportion of utterances during reading, but she varies across observations between 62% and 91% of all utterances. During playing, the utterances are more evenly divided between mother and child, but the proportion of the mother's utterances is still between 50% and 79%, which is a large range. The figures display varying patterns between dyads and within dyads over time.

3.6. Affection

State space grids are constructed to explore the development of affective expressions within and between observations. In the group data, it became apparent that the interaction between mother and child was mostly neutral to positive. However, this does not give information about the stability of the interactions over time. In Figure 3, the dispersion in all observations of the five dyads with repeated observations is presented. In the reading category, there are four observations (of dyad B) that are somewhat lower in dispersion (below 0.5). In the playing category there is only one (fourth observation dyad D). In other words, in play sessions, the dispersion is generally high. In reading sessions, the dispersion is more variable across the dyads. In general, however, the dispersion is over 0.5, and this shows that there is a relatively high degree of flexibility in the interaction between mother and child, even though most flexibility in affection states changes between neutral and positive affections.

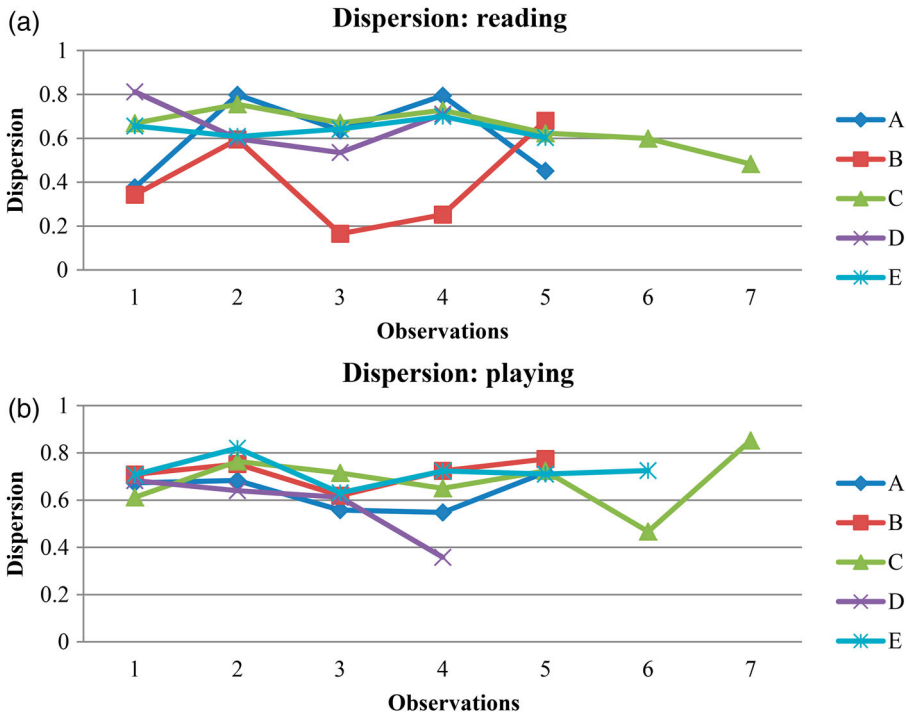


Figure 3. Dispersion of affection within the five dyads of reading (a) and playing (b).

4. Conclusion and discussion

As presented in the Introduction, the balance of behaviour and emotion in mother–child interactions is considered an important indicator of the quality of the parent–child interaction, and it influences child development, for instance, in child’s social adaptation (Kochanska & Aksa, 1995). For this study, the overarching term ‘mutuality’ was chosen to provide information on the interaction between mother and child. ‘Mutuality’ was operationalised in four constructs that are prevalent in the literature: task behaviour (relating to joint focus/joint attention), the affective quality of the interaction, the (types of) questions and answers of mother and child, and the balance in the interaction. The main questions in this article were the following: *What characterises the mutuality within the mother–child interaction in the participating dyads? Is there a difference in mutuality when looking at two different contexts (reading and playing together)?* The results show a greater ‘balance’ between mother and child in the interaction during play sessions than in the interaction during reading sessions, which was expected. However, in both situations, the mothers express more utterances than their children. A reason for this might be that mothers interpreted both situations as being more teaching oriented. During teaching sessions adults usually take a leading role (Lindsey et al., 2010). The repeated observations of the multiple-case-study revealed high session-to-session variability; in some sessions children even expressed more utterances than the mothers. Only one dyad showed a clear development towards a perfect balance in utterances, across both reading and play situations.

Returning to the title of this article, the results showed several indications of mutuality in the mother–child interaction in the Antillean families who participated in ‘More

Language, More Opportunities'. The reported results show that the mothers participating in this intervention are well adapted to their child during reading and play sessions and that they elicit many interactional conditions (e.g. asking questions) that are beneficial for language development. The emotional interaction between mother and child was also variable, which was shown in the levels of dispersion in the multiple-case study. The variability suggests a more context-sensitive basis on which research is executed, consisting of everyday situations that influence the child–caretaker behaviour. Variability reflects the context sensitivity of all human interaction. This is clearly found in dyadic interaction (e.g. Steenbeek & Van Geert, 2007). Therefore, the variability in conditions is a reflection of a very important property of the way interactions work.

The most important result found in the group data was that reading and playing do not seem to differ as strongly as was expected based on the literature. Actually, the most favourable outcomes are found in play sessions. Here, a broader task orientation is observed, which indicates that the mothers look beyond the immediate goals within the task (Rodríguez, Rodrigo, Janssens, & Triana, 2011), as well as more accurate (verbal) answers, and a larger share of utterances containing positive affection. All these elements have proven to be beneficial in child language development (e.g. Sigel & McGillicuddy-De Lisi, 1984; Teale & Sulzby, 1987). Although these data might not be representative for a broad category of preschool intervention programmes, it suggests that the focus on reading in language interventions may not be necessary. Interaction between mother and child during play sessions is potentially beneficial for language development as well. Especially in families where reading is difficult, or not a priority because of the cultural background, intervention programmes should offer coaching in how to use a rich and stimulating language environment during other activities, such as playing together.

Aside from the fact that the mothers asked more questions and answered fewer, the mutuality in affective behaviour between mother and child was striking. There is a balance in affective utterances, where the same quality of the affection generally applies to both mother and child. The vast majority of the utterances are neutral to positive, which provides more space for learning experiences and language practicing (Teale & Sulzby, 1987). Although the dyadic interaction generally occurs in the neutral to positive sphere, the interactions are by no means static. Instead, they are characterised by high degrees of flexibility both within and between observations. If one merely looks at the averages over groups or over time, this process information is easily missed. The multiple-case study revealed that individual cases show diverse developmental trajectories, which supports the notion of idiosyncratic patterns of change (e.g. Molenaar & Campbell, 2009). This endorses the necessity of combining a group approach, by which statements about group characteristics can be made, and an individual approach, by which statements can be made about how processes unfold over time and how this process of unfolding takes place in individuals. Both research approaches are valuable in their own ways, but the danger lies in applying the outcomes in inappropriate ways, for instance by interpreting group outcomes as applicable to individuals. Recent research has shown that dyadic and dynamic measures are relevant in order to shed light on the conceptual links between parental teaching and child (behavioural regulatory) development, because these measures reflect the complex processes underlying the interaction better than more traditional measures (Lunkenheimer, Kemp & Albrecht, 2013).

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Nienke W. Boomstra developed the intervention More Languages, More Opportunities and performed research in that participant group. In March 2014, she defended her Ph.D. thesis, which consisted of different elements of the intervention study, such as implementation analyses and effect studies.

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