

Parents reading with their 10-month-old babies: key predictors for high-quality reading styles

Abstract

Sixty-five parent-infant dyads were observed reading an unfamiliar book at home. Parents' use of language-stimulating and emotionally rich reading styles was measured via a specially developed Book Sharing Scale for Infants. Aspects of child temperament were assessed by the Infant Characteristics Questionnaire (Bates, Freeland & Lounsbury 1979), and parents' responsivity was measured by the Caregiver Interaction Scale (Arnett, 1989). Parents' socio-economic status and education, parents' impression of their child being 'unsociable' and the warmth of the caregiver's interaction were positively predictive of the quality of the reading interaction. This suggests that the extent to which parents employ high-quality reading styles with their 10-month-old babies, depends on socio-demographic variables, children's ability to communicate with their parents and the overall affective quality of their relationship.

Keywords: Shared Book Reading; Infant Characteristics; Parents' Reading styles; Parent-Child Interaction

Shared book reading (also known as joint reading or parent-child book reading) is one of the most frequently studied activities typically recommended to parents and caregivers interested in supporting their children's development. In comparison to other parent-child activities occurring at home, shared book reading (SBR) brings together several language and socio-emotional benefits. During a typical SBR session, parents use more complex sentences, a greater variety of vocabulary (Fletcher and Reese, 2005), and more sophisticated forms of language than during free play (Hoff-Ginsberg, 1991), a modelling task (Sorsby and Martlew, 1991) or mealtime (Munn & Schafer, 1993). Parents' language-advancing and socially encouraging talk during SBR is accompanied by the book's written text which itself is a rich source of linguistic stimulation. In addition, language acquisition is facilitated by joint parent-child attention, which is a known predictor of children's language skills (Karras, Braungart-Rieker, Mullins, & Lefever, 2002). SBR fosters joint attention between parents and children in that both participants are attending to the book, i.e. a specific, educational object, and both are aware of the other's participation in the session (Scofield and Behrend, 2011). The latter aspect can be an important source of emotionally satisfying engagement, as children and parents reading a book together often share memories and connections between their real experiences and the fictional experiences of story characters depicted in the book (Torr, 2007). SBR also provides an unhurried time for parents and children to bond, exchange ideas and emotions, with known longitudinal associations between infant-parent attachment and parental and toddler behaviour during storybook interaction (Frosch, Cox & Goldman, 2001).

Many studies have found that children who are frequently read to at home have higher print knowledge and literacy skills (e.g., Dickinson & Smith, 1994), as well as phonological skills, phoneme blending and receptive vocabulary (e.g., Bus, van Ijzendoorn & Pellegrini, 1995). Research also shows that SBR supports children's development of expressive and receptive language (e.g., Mendelsohn et al., 2001), problem-solving and communication (as measured with the Ages and Stages Questionnaire, Murray & Egan, 2014) and motivation to read for pleasure (Senechal, 2006).

Given these well-documented benefits of SBR, several schemes have been developed to support book reading with young children. Book-gifting schemes such as Bookstart are available across the world and are sponsored by various government and private organisations to support reading at home (see eg Veldhuijzen Van Zanten et al, 2012 in Nova Scotia; Wu et al, 2012 in Taiwan; Needlman, 2005 in USA; Wade and Moore, 1996 & Venn, 2014 in the UK). The rationale for these schemes is that reading for children from infancy will help them

reap the benefits of SBR later on, although there is no longitudinal research to substantiate this belief.

Indeed, although there is a relatively robust evidence base concerning parent-child SBR, this evidence relates to older children (aged two and above, see Conrad et al, 2007 for an overview). There is very little known about how SBR might benefit young babies. Apart from a few reports from interested literacy charities and one ethnographic study (Pahl, Lewis & Ritchie, 2010), reading with babies has not been subject to much attention in the research. From a practical perspective, identifying the factors which support parent-infant reading at home is important to promote reading from young age and nurturing children's reading identities early on. From the research perspective, systematic investigation of SBR with young children affords the opportunity to examine parents' initial strategies of establishing children's reading enjoyment and reading habits at home.

The current study aimed to address this research gap and focused on parents reading with their 10-month-old babies. The aim was to systematically classify parent-infant reading patterns at home and establish potential sources of variability in parents' reading styles. In addition to characterizing the interactions, we aimed to examine whether and how parents' reading styles might vary with different children and parents. Since early observational studies of parent-child SBR at home (Ninio & Bruner, 1978; Goodsitt, Raitan & Perlmutter, 1988), several explanatory factors have been offered for the variability in parents' reading styles. Based on literature concerned with parent-child SBR, we hypothesized three main influencing factors for the variability in parent-infant SBR: parent and child gender, parents' socio-economic status and education (demographic factors), and socioemotional factors of child temperament and parent-child attachment. We present a brief rationale for each factor included in the study.

Demographic factors

There are many potential sources of variability in parents' reading styles, including home literacy contextual factors such as culture, social class and ethnicity (Stein et al., 2008; van Kleeck, 2006; Hammer et al., 2005), or, defined more proximately, parents' beliefs and reading ability (Palacios et al., 1992). The most frequently studied factor in predicting children's language development, and in the quantity and quality of SBR provision at home, is parents' socio-economic class (SES), and in particular, mothers' level of education (e.g., Verhoeven, 2006). Differences in socio-economic status and mothers' education have been found to be related to differences in mothers' child-directed speech. However, differences in

child-directed speech can be attenuated by the context of mother-child interaction. Specifically, in the context of book reading, SES differences in mothers' talk are minimised (Snow et al. 1976), although not eliminated (Ninio, 1980). Payne, Whitehurst & Angell (1994) remind us that there are also differences within the same SES group and that "despite the economic difficulties and other stresses faced by the low income families, many still manage to engage in interactions such as shared picture book reading that are motivated by long-term goals such as school readiness." (p. 438). Mothers' attitudes and perspectives on child-rearing, both of which are related to SES, influence mothers' reading styles (Hoff-Ginsberg, 1991).

Another key demographic factor is parent and child gender. Carter, Mayes and Pajer (1990) found that gender differences exist already in infancy and that they affect parents' behavior with a range of activities. In non text-related based activities, such as play, fathers and mothers interact differently with their children, and children, in turn, respond differently depending on the gender of the parent they interact with (Masur and Gleason, 1980). In book reading with pre-school children, fathers are typically more interactive than mothers (Anderson, Anderson, Kim, Lynch & Shapiro, 2004) and the parent and child gender also influence the number and types of book reading interactions (Barton, 2007). It is also known that parents' responsiveness is related to the quality of the parent-child interaction. Merz et al. (2015) assessed parental responsiveness from videotaped parent-child free play sessions and found that the quality of parental responsiveness significantly predicted all concurrent as well as longitudinal (one year later) measures of children's cognitive skills.

Child temperament

In selecting the potential determinants of variability in the quality of parent-infant book reading, we drew upon a growing body of research evidence that shows that children's temperament influences the verbal stimulation children receive from parents at home. Parents' perceptions of their children's temperament are related to the quality of parent-child interaction (Bost, Choi & Wong, 2010) and child temperament is a major predictor of children's early literacy and numeracy skills and this over and above other external factors affecting children's academic achievement (see Coplan, Barber, & Lagacé-Séguin, 1999). Yet, the relationship between book reading and child temperament is not clear. Westerlund & Lagerberg (2008) correlated scores from questionnaires completed by 1091 Swedish mothers of 17-19 month-olds with the children's expressive vocabulary and Bates' difficultness scale (Bates et al., 1979). They found no association between parents' scores of child difficultness

and children's vocabulary or frequency of reading reported at home. Similarly, Karrass et al. (2003) found no significant correlation between child temperament and the presence or absence of book reading at home, but they speculate that the duration of book reading might play a role. It could also be that the association between book reading and child temperament holds when considering the *quality* rather than quantitative indices of book reading. In contrast, an evaluation of BookStart in the Netherlands found that Dutch children with reactive temperament are more at risk for language delays but outperform less reactive peers if their parents participate in the BookStart programme, which provides parents with high-quality books and ideas on how to share them with their children (van den Berg & Bus, 2014). The authors conclude that the parents of temperamentally reactive children may, through reading book from the BookStart programme, become more motivated to interact with their children, even if the children respond negatively. Similarly, Tsuji (2013) who observed infant behaviours of 261 4-month-old infants when they attended the Bookstart programme in Japan, found that the children showed different styles of attentional looking at a book and that these differences were related to the book-reading environment at home as well as children's temperament.

Parent-child attachment and warmth

Given the known links between book reading and children's socio-emotional engagement, we were keen to determine the effect of the 'warmth' of a parent-child relationship on the book reading session. In previous research, the emotional quality of parent-child interaction has been considered in light of parent-child attachment. Bus and colleagues (1988; 1997; 2003) have studied extensively the relationship between book reading and parent-child attachment and found that the strength of parent-child attachment influences both the frequency and quality of home book reading at home. Bergin (2003) looked at the relationship between the affective quality of parent-child interaction during joint reading with 32 5-6-year olds in Arizona, USA. She found that parents who were affectionate during joint reading had children who were more engaged in reading and had better reading fluency.

Thus far, there are no observational studies of parent-infant interaction during SBR which would describe systematically and in detail parents' reading styles. Even for older children, the major source of research evidence regarding the quality of SBR at home comes from studies which quantify SBR as the number of readings per given time period or the number of books in children's homes (see e.g. Karrass et al., 2002; Senechal, 2006), or which look at the relationship between high-quality parents' reading styles and children's outcomes

(Justice & Ezell, 2000). However, if we are to understand the ways in which parent-infant reading might vary within and across families, we need to focus on more nuanced aspects of SBR rather than how often it occurs. We aimed to examine in detail different facets of parent-infant interaction during book reading and evaluate the distinguishing attributes of what could be described as an emotionally and linguistically stimulating reading session. A literature review yielded no existing assessment measure that would capture within one instrument and in detail the parameters that characterise a language-stimulating as well as emotionally rich book reading session with infants. This led us to the development of a Book Sharing Scale for Infants (BSSI).

Quality of book reading session: The Book Sharing Scale for Infants

In the development of the Book Sharing Scale for Infants, we were mindful of various aspects of parent-infant interaction, which have been implicated in children's language development. Building on previous research, parents' use of labeling, praise and linking to child's own experience were deemed important to be included in the scale (see Huttenlocher et al., 1991; DeLoache, 1983). Parents' use of repetition was also incorporated, given that repeated readings and repeated use of new words help with children's word acquisition (Horst et al., 2011). Several other reading techniques that have been identified as 'language enhancers' in book reading intervention studies were included in the scale, including parents' use of pointing gestures (Yont et al., 2003) and parents' use of child directed speech (Golinkoff et al., 1992). In addition, although seldom a focus of intervention studies, factors like 'having fun together' and making the SBR activity an enjoyable experience, were considered in evaluating the quality of parent-infant interaction during SBR. Physical closeness, opportunity to touch the book, point to pictures, maintain eye-contact and freely vocalise during the interaction is important for young children's enjoyment of any activity (see Kaderavek and Justice, 2002; van Kleeck, 2006), including book-reading. When constructing the scale, we reviewed these individual factors and adjusted them to the children's young age.

Overall, we aimed to determine the extent to which children's and parents' characteristics (children's gender and temperament and parents' socio-economic status, education and gender) are related to the reading styles parents adopt for a shared book reading session (as assessed with BSSI). The research question therefore was: What is the relationship between children's and parents' characteristics and parents' reading styles (as measured by BSSI) at child's 10 months?

Methods

Participants

The participants in the present study are a subsample of participants in the Families Children and Child Care (FCCC) project, a longitudinal investigation of 1201 English families, [http:// www.familieschildrenchildcare.org](http://www.familieschildrenchildcare.org) (see Malmberg *et al.*, 2005). Overall, 65 parent-infant dyads were selected from the FCCC Oxfordshire sub-sample (601 families in total), based on the children's scores on Reynell (to ensure the participating children had the full range of Reynell scores) and the pragmatic criterion of having good-quality video recordings for the observed parent-child book reading session. Reynell Language scale was chosen as the stratification criterion because it is a standardised language instrument, widely recognised as a reliable and valid method for assessing children's language (Bornstein and Haynes, 1998) and because it is a good indicator of children's language development over time. The study focused on 10-month-old infants because of the developmental trajectory of book sharing over the first year, The trajectory was developed by Rossmanith, Costall, Reichelt, López & Reddy (2014) and posits that infants under the age of nine months do not fully grasp the social aspect of shared book reading, while infants between 9 to 12 months 'begin to effectively integrate manual object actions within the socially shared activity' (p.1390).

There were 38 boys (58.5% of the sample) and 27 girls (41.5 %) in the sample, with 40 mothers (61.5 % of the total sample) and 25 fathers (38.5%). Parents were of various socio-economic backgrounds, with 55% of mothers and 40% of fathers classed as working class, 12.5% of mothers and 8% of fathers as intermediate and 32.5 % of mothers and 44% of fathers as managerial and professional socio-economic classⁱ. The sample was relatively well-balanced with regards to parents' educational level, with 15.38% of mothers and 23.08% of fathers educated to higher degree.

Procedure

We used measures already collected for the purpose of the FCCC study and supplemented them with new measures of parent-child interaction during book reading, coded from video recording made when the children were 10 months of age. As part of the larger investigation, trained FCCC fieldworkers conducted a two-hour visit at child's age 10 months. During this visit, measures of family and child's home learning environment were collected, including a videotaped observation of parental caregiving and a range of activities. The latter

consisted of five consecutive 2.5 minute episodes, one of which was also an observation of parent-child book reading (see Malmberg *et al.*, 2007). Each interaction had a standardized introduction by the FCCC fieldworker who handed the book over to the parent with the instruction: 'Here is a book for you to share with your child'. All parents were encouraged to read the book with their baby in a way they feel most comfortable with and they were assured that this was not a measure of their or their child's ability. The book provided was a touch and feel book called "Stroke Henry" (Cambell, 1995) which was unfamiliar to most of the children. The parent-child SBR interaction was evaluated from the receipt of the book and coded using the quality indicators of BSSI. The coded book interaction session lasted 2.5 minutes, which is the standard length of a focused parent-infant interaction (e.g., Weinraub & Frankel, 1977; Beebe, Lachman & Jaffe, 1997). Keeping the book interaction to the same limited length for all parents enabled us to measure parent-child interaction in a consistent way. Statistical software SPSS was used for data analysis, missing data were deleted pairwise.

Demographic factors

Mothers' and their partners' education levels and family socio-economic class were strongly and positively interrelated. Therefore, a composite variable was created by transforming scores from the three collinear variable (mother's and father's occupational status, mother's and father's education and family income) into z-scores and averaging them to make one single construct labelled 'family background'. These indicators capture the shared underlying variance of socioeconomic status as evidenced in meta-analysis (Sirin, 2005), and in previous analyses in the FCCC study (Malmberg *et al.*, 2007; Stein *et al.*, 2008).

Child temperament

Children's temperament was in this study assessed with the Infant Characteristics Questionnaire (Bates *et al.*, 1979), completed by mothers and partners at child age 10 months. The ICQ has 32 items rated on a 7-point scale, with a 4-factor solution: fussy/difficult, unadaptable, persistent and unsociable. The scale has been used extensively in research, and we adopted the labels and factors established by Richardson, Goldschmidt and Willford (2008) in their study of children of similar age (14.6 months). For example the unsociable subscale is composed of items: 'How much does your baby enjoy playing games?'; 'How excited does your baby become when people play/ talk to him?'; 'How much does your baby cuddle and snuggle when held?' and 'How much does your baby smile and

make happy noises?'. The mean score for each of these four subscales as provided by the target parent (i.e. parent who participated in the book reading) was used in the study. The Cronbach's alpha for inter-rater reliability (averaged across fathers and mothers) were: Fussy / difficult = 82.5, Unadaptable (69.5) and Persistent (69.5) and Unsociable (.61). Although Unsociable had the lowest reliability coefficient, we decided to keep it in the study because it was higher than 0.6, which is generally considered as acceptable (Gwet, 2014).

Parent-child attachment and warmth

Parent-child attachment and warmth was assessed using Caregiver Interaction Scale (Arnett, 1989), an observational scale of the quality of parent-child interaction. The FCCC fieldworker completed the scale during a two-hour visit to the child's home at the child's 10 months. CIS is widely recognised in studies concerned with caregiver-child interaction (e.g., Ghazvini & Mullis, 2002; Bradley, Caldwell & Corwyn, 2003, but see Carl, 2007). CIS was developed to measure the relationship between the caregiver and children in any setting, and researchers have used it in a variety of ways (see e.g., Jaeger & Funk (2001). Although the CIS scale was originally intended to assess caregiving quality in non-maternal childcare, its inclusion for assessing maternal care has been seen as appropriate given our familiarity with the scale and consistency of measurement across types of childcare investigated in the FCCC study (Author et al., 2007; 2010).

Three CIS subscales were included in the study: Positive Relationships (8-items); Punitiveness (6-items); and Detachment (4-items). All items were rated on a four-point scale, with 1 = not at all; 4 = very much. As for internal consistency of the scale, the Positive Relationships, Punitiveness, and Detachment subscales had standardised Cronbach Alpha values of .82, .83 and .65 respectively. The positive relationship subscale includes eight items measuring the warmth, level of enthusiasm, and developmental appropriateness of the caregiver's interaction with children (e.g., 'Speaks warmly to babies and toddlers'). The harshness subscale includes six items rating hostile, threatening, and harshly critical behaviour towards children (e.g., 'Seems critical of babies and toddlers'). The detachment subscale is comprised of four items on the extent to which the caregiver was uninvolved with and uninterested in the children (e.g., 'Seems distant or detached from the babies and toddlers'). Mean scores for each subscale were used in this study.

Book Sharing Scale for Infants (BSSI)

Based on the video recordings, fourteen characteristics of a parent's reading style were rated at three levels of quality, from 1= none, 2 = moderate to 3= high. A high score means that the parent was using a reading style, which corresponded to styles described in the literature as beneficial for children's language learning and positive parent-child relationship (see Conrad, 2007). Such a style is both language-stimulating and emotionally rich and includes all characteristics measured by the scale, that is: Introducing baby to the book; Responding to baby's cues, Using prompts; Structuring reading as cuddle time; Praising child's efforts; Encouraging pleasure of reading; Scaffolding child's verbal attempts; Asking the child questions; Imitating animal/ object's sounds; Using age appropriate speech; Using repetition; Linking the content to the child's life. Prior to use, the scale was refined using factor analysis. First, item-whole correlations were examined to determine the pattern of relationships. All questions correlated fairly well (no correlation coefficient greater than 0.9 was found). By using Kaiser's criterion (retaining factors with eigenvalues above 1) and Cattell's scree test, two factors were extracted, accounting for 50.17% of the total variance. These factors were composed of 11 of the original 14 items; three items - 'Pointing'; 'Encouraging independence in book handling' and 'Encouraging dramatisation of the story' - loaded weakly and inconsistently and were therefore excluded from the final analysis. Detailed examination of Factor 1 and Factor 2 revealed that the two factors were theoretically similar and highly correlated ($r = .643$, $p < 0.001$). Therefore, a combined effect was hypothesised. Confirmatory factor analysis was performed to assess the unidimensional validity of the items. Data reduction was performed by averaging children's (z-transformed) scores obtained after rotation on the two factors. A maximum BSSI total score was 3 points for each item, yielding a maximum of 33 points. Correlations between each item and the overall BSSI score ranged from $r = .56$ to $r = .86$. The Cronbach's alpha for the overall BSSI score based on these 11 items was 0.89, indicating strong internal consistency. The chi-square goodness-of-fit test was non-significant, $\chi^2(52) = 59.82$, $p = .213$, indicating that the model provided a good fit to the data. The reliability of scoring was checked by training a second coder, blind to the first scoring, who scored ten randomly-selected video recordings from families not included in the study, selected from the FCCC database by stratification according to children's Reynell language scores measured at child's 36 months. Cohen's weighted Kappa was used as a measure of inter-rater agreement; values of 0.60 and above were accepted. The reliability coder was blind to both the purpose and hypothesis of the study. All BSSI items were reliable at or above the 0.65 level.

Results

Descriptive statistics for the independent and dependent variables are presented in Table 1.

Table 1 to be inserted about here

The first goal of the data analysis was to identify variables that predict the quality of parents' reading (as measured by BSSI). Preliminary analysis consisted of producing a correlation matrix for the independent variables (parent's 'family background', parent and child gender, dimensions of child temperament, and all three CIS subscales) and the dependent variable (BSSI overall score). As can be seen in Table 2, BSSI overall score was positively related to parents' rating of their child being unsociable, with fieldworkers' observation of positive relationships between parent and child, and with the composite variable 'family background.' Parent and child gender did not correlate significantly with the dependent variable.

Table 2 to be inserted about here

There were three variables that predicted BSSI in simple correlations: family background, ICQ subscale 'unsociable' and CIS subscale 'positive relationship' (see Table 2). Those three variables were entered into a stepwise regression model. All three variables remained significant in the final model: together they explained 31.9 % of variance (adjusted $R^2 = .278$; $p=0.05$), as detailed in Table3.

Table 3 to be inserted here

Discussion

Given the central role book reading with infants plays in several intervention and government literacy programmes (e.g., BookStart) and the current research gap concerning the factors which influence effective book reading sessions with infants, the present study aimed to systematically research the relationships which exist between various reading styles and children's characteristics.

Parents' socio-economic status was found to be positively associated with BSSI scores ($r = .392, p < .01$) which indicates that the reading styles of parents with higher socio-economic status are of higher quality (as measured by the BSSI). Peterson's (1994) study with four-year-old children showed that although SES might be one of the predictors of children's narrative skills at school entry, it should not 'be treated as a homogeneous variable' (p.267), because it is a predictor of many aspects. We agree and add that it is not clear whether book reading is a component of social class. However, what this study found is that higher SES (measured as an average of mother's and father's occupational status, mother's and father's education and family income) is positively related to the quality of parents' shared book reading with their infants, as measured by the BSSI. This is an important finding for language researchers and healthcare professionals. Future research may extend this work by incorporating data from culturally different families with different practices, and beliefs about shared book reading and appropriate parent-infant interaction.

The study findings also suggest that parents who perceive their child as unsociable and who generally display a warm and engaging behaviour with their children, were more likely to engage in a language-stimulating and emotionally rich reading style with their babies. This finding corresponds to patterns noted in a large-scale longitudinal study with 554 children receiving Bookstart packs in the Netherlands: van den Berg (2015) found that children with reactive temperament received low verbal stimulation from parents in the first years (given that the children were more prone to anger and frustration), a finding similar to ours.

We further found that parental warmth during parent-child interactions predicts parents' reading style at 10 months. The CIS Positive relationship measures the level of warmth and level of enthusiasm of the caregiver and is composed of items like 'Speaks warmly to the babies and toddlers'; 'Listens or responds attentively when babies/toddlers communicates to him/her'; 'Seems to enjoys the babies/toddlers'. The finding that BSSI was related to CIS 'Positive Relationship' is not surprising, given that the BSSI was originally developed with the aim to capture, among other factors, the extent to which a reading session is enjoyable and a positive experience for parents and the children. Previous research indicates that it is important to consider the nature of interaction between parents and children outside of the book reading context, as it may indicate and affect the quality of their shared book reading (Bus & van IJzendoorn, 1997). The present results suggest that for parents who have a generally warm relationship with their child despite the child's unsocial temperament, the book reading session serves a 'compensation role', with parents trying hard to engage their children in this activity. Since book reading is widely recognised as a developmentally

appropriate and for the child beneficial activity, it is difficult to ascertain how much parents' increased effort is a consequence of the social desirability effects. The study's use of direct observational measures of parent-child interaction in different contexts is helpful in adding to the understanding of the importance of parents' warmth during book reading as well as any other activity with the child at this young age. As Cline (2010) reports, there is a strong need for research and intervention studies to focus on both language-promoting as well as emotional aspects of parents' reading practices. BSSI captures both elements as quality indicators of SBR. The scale might in itself fill an important gap in the literature as it is the first empirically-driven parent-infant shared book reading scale.

Study limitations and future directions

The use of the same book across all parent-child pairs had the advantage of ensuring greater consistency, ease of evaluation and objectivity in scoring. As such, the video data were a valuable resource, allowing for an accurate, consistent and efficient assessment of parents' book reading, important for statistical predictions. However, Shapiro's (1997) recommendation about including a range of books in studying SBR (i.e., books of different genres, specific or general vocabulary content, familiar as well as unfamiliar books) should be considered in future work. This recommendation is particularly relevant given the known parent-child-book interaction (Fletcher and Reese, 1995) and findings such as Goodsitt *et al.*'s (1988) that mothers tended to change their reading styles (they spoke more) to their children while sharing a familiar than a novel book. Research also shows that the genre, media and characteristics of the book parents share with their children influence parents' reading behavior (Nyhout & O'Neill, 2013).

A further research direction is that repeated video recordings might better illuminate the variability in parents' reading styles by providing a measure which is more reliable and more representative. Future models could also include other variables in studying parent-infant book reading, including parental literacy ability, child engagement in task and time on task.

In this respect, it should be also borne in mind that our results are correlational and therefore do not indicate a cause-and-effect relationship. Although this limitation is partly mitigated by the fact that the child temperament is a stable child characteristic (Kagan & Fox, 2006) and that similarly, parenting styles are fairly stable (Darling & Steinberg, 1993; Forehand & Jones, 2002), no causation can be assumed among the variables studied.

Because the BSSI measure was new and was developed specifically for the present study, the findings need to be replicated with other children. Future research could focus on further developing and validating the scale. Lastly, given the recent development of touch-screen technologies and their use for shared book reading with increasingly young children, researchers may consider the inclusion of digital books in evaluating parent-child book reading at home, in addition to board books (see Korat & Or, 2010; Author, 2015).

To conclude, little is known about the sources of variability in parents' reading style when children are at the earliest stages of their linguistic development. This is surprising considering the non-profit and government interest in supporting parent-infant shared book reading. In the present study, parents of unsociable children, that is those who were perceived as with little tendency to interact, seemed to use the book reading session to compensate for children's lack of verbal communication. Also, parents, who were observed as generally warm in their interaction with their children were also more skilled at making the book reading session a success. These findings have implications for researchers, early years practitioners, librarians but also literacy charities (e.g., Book Trust in the UK or Reach Out and Read in the USA) advising parents on what constitutes and what contributes to a successful shared book reading session with young babies. When giving recommendations to parents on how to read with their young children, our results suggest that shared book reading with infants should be presented as predominantly a social activity, that is to say to be perceived as a warm one-to-one activity, and tailored to what parents and children enjoy.

References

- Anderson, J., Anderson, A., Kim, J.E., Lynch, J., & Shapiro, J. (2009, April). Questioning in Shared Book Reading: Gender, Genre and Children's Early Literacy Achievement. *Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.*
- Author, 2007
- Author et al., 2010
- Author, 2015
- Barton D (2007) *Literacy: An introduction to the ecology of written language*, Oxford: Wiley-Blackwell.
- Bates, J. E., Freeland, C. A. B., & Lounsbury, M. L. (1979). Measurement of infant difficultness. *Child development*, 794-803.
- Beebe, B., Lachmann, F., & Jaffe, J. (1997). Mother—infant interaction structures and presymbolic self-and object representations. *Psychoanalytic dialogues*, 7(2), 133-182.
- Berg, H. V. D. (2015). *From BookStart to BookSmart: about the importance of an early start with parent-child reading* (Doctoral dissertation, Department of Learning Problems and Impairments, Education and Child Studies, Faculty of Social and Behavioural Sciences, Leiden University).
- Bergin, C. (2001). The parent-child relationship during beginning reading. *Journal of Literacy Research*, 33(4), 681-706.
- Bingham GE (2007) Maternal literacy beliefs and the quality of mother-child book-reading interactions: Associations with children's early literacy development. *Early Education and Development* 18: 23-49.
- Bradley, R. H., Caldwell, B. M., & Corwyn, R. F. (2003). The child care HOME inventories: Assessing the quality of family child care homes. *Early Childhood Research Quarterly*, 18(3), 294-309.
- Bost, K., Choi, E., & Wong, M. (2010). Narrative structure and emotional references in parent-child reminiscing: associations with child gender, temperament, and the quality of parent-child interactions. *Early Child Development and Care*, 180, 1, 139-156.
- Bus, A. G., Van Ijzendoorn, M. H., & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of educational research*, 65(1), 1-21.
- Bus, A. and van Ijzendoorn, M. (1997) Affective dimension of mother-infant picturebook reading. *Journal of School Psychology* 35: 47-60.

- Bus, A. (2003). Social-emotional requisites for learning to read. In A. Van Kleeck, Stahl, S. A., & Bauer, E. B. On reading books to children: Parents and teachers (Ed.), *On reading books to children: Parents and teachers* (pp. 3–15): Lawrence Erlbaum.
- Bus, A., Belsky, J., van Ijzendoorn, M.H. and Crnic, K. (1997). Attachment and bookreading patterns: A study of mothers, fathers, and their toddlers. *Early Childhood Research Quarterly, 12*, 81-98.
- Carl, B. (2007). Child Caregiver Interaction Scale, A Dissertation Submitted to the School of Graduate Studies and Research in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy, Indiana University of Pennsylvania.
- Carter, A. S., Mayes, L. C., & Pajer, K. A. (1990). The Role of Dyadic Affect in Play and Infant Sex in Predicting Infant Response to the Still Face Situation. *Child development, 61*, 764-773.
- Cline, K. D. (2010). *The instructional and emotional quality of parent-child book reading and Early Head Start children's learning outcomes*. University of Nebraska, The Graduate College at the University of Nebraska.
- Coplan, R. J., Barber, A. M., & Lagacé-Séguin, D. G. (1999). The role of child temperament as a predictor of early literacy and numeracy skills in preschoolers. *Early Childhood Research Quarterly, 14*, 537-553.
- Conrad, N. (2007). Fostering emergent literacy through parent/child reading relationships. *Enduring Bonds, Part Two*, 107-127.
- Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological bulletin, 113*(3), 487-496.
- DeLoache, J. S. (1983). *Joint Picture Book Reading as Memory Training for Toddlers*. Paper presented at the Paper presented at the Biennial Meeting of the Society for Research in Child Development (Detroit, MI, April 21-24, 1983).
- Dickinson, D. K., & Smith, M. W. (1994). Long-term effects of preschool teachers' book readings on low-income children's vocabulary and story comprehension. *Reading Research Quarterly, 105*-122.
- Diener, M. L., Hobson-Rohrer, W., & Byington, C. L. (2012). Kindergarten readiness and performance of Latino children participating in Reach Out and Read. *J Community Med Health Edu, 2*(133), 2.
- Fletcher, K. L., & Reese, E. (2005). Picture book reading with young children: A conceptual framework. *Developmental Review, 25*, 64-103.
- Farrant, B. M., & Zubrick, S. R. (2013). Parent–child book reading across early childhood and child vocabulary in the early school years: Findings from the Longitudinal Study of Australian Children. *First Language, 33*(3), 280-293.

- Forehand, R., & Jones, D. J. (2002). The stability of parenting: A longitudinal analysis of inner-city African-American mothers. *Journal of Child and Family Studies*, 11(4), 455-467.
- Frosch, C. A., Cox, M. J., & Goldman, B. D. (2001). Infant-parent attachment and parental and child behavior during parent-toddler storybook interaction. *Merrill-Palmer Quarterly*, 47(4), 445-474.
- Ghazvini, A., & Mullis, R. L. (2002). Center-based care for young children: Examining predictors of quality. *The Journal of Genetic Psychology*, 163(1), 112-125.
- Golinkoff, R., Hirsh-Pasek, K., Bailey, LM, & Wenger, NR. (1992). Young children and adults use lexical principles to learn new nouns. *Developmental Psychology*, 28, 99-108.
- Goodsitt, J., Raitan, J., & Perlmutter, M. (1988). Interaction between mothers and preschool children when reading a novel and familiar book. *International Journal of Behavioral Development*, 11, 489-505.
- Gwet, K. L. (2014). *Handbook of inter-rater reliability: The definitive guide to measuring the extent of agreement among raters*. Advanced Analytics, LLC.
- Hammer, C., Nimmo, D., Cohen, R., Draheim, H., & Johnson, A. (2005). Book reading interactions between African American and Puerto Rican Head Start children and their mothers. *Journal of Early Childhood Literacy*, 5, 195-227.
- Hoff-Ginsberg, E. (1991). Mother-child conversation in different social classes and communicative settings. *Child development*, 62, 782-796.
- Horst, J. S., Parsons, K. L., & Bryan, N. M. (2011). Frontiers: Get the Story Straight: Contextual Repetition Promotes Word Learning from Storybooks. *Frontiers in Developmental Psychology*, 2.
- Huttenlocher, J., Haight, W., Bryk, A., Seltzer, M., & Lyons, T. (1991). Early vocabulary growth: Relation to language input and gender. *Developmental Psychology*, 27, 236-248.
- Jaeger, E. and Funk, S. (2001). *The Philadelphia Child Care Quality Study: An Examination of Quality in Selected Early Education and Care Settings*. Philadelphia: Saint Joseph's University
- Justice, L. M., & Ezell, H. K. (2000). Enhancing children's print and word awareness through home-based parent intervention. *American Journal of Speech-Language Pathology*, 9, 257-269.
- Kaderavek, J., & Sulzby, E. (1998). Parent-child joint book reading: An observational protocol for young children. *American Journal of Speech-Language Pathology*, 7, 33-47.

- Kaderavek, J., & Justice, L. (2002). Shared storybook reading as an intervention context: Practices and potential pitfalls. *American Journal of Speech-Language Pathology, 11*, 395-406.
- Kagan, J., & Fox, N. A. (2006). Biology, culture, and temperamental biases. In *Handbook of child psychology.*, III:4.
- Kang, J., Kim, Y., & Pan, B. (2009). Five-year-olds' book talk and story retelling: Contributions of mother--child joint bookreading. *First Language, 29*, 243-265.
- Karrass, J., Braungart-Rieker, J. M., Mullins, J., & Lefever, J. B. (2002). Processes in language acquisition: the roles of gender, attention, and maternal encouragement of attention over time. *Journal of Child Language, 29*, 519-543.
- Karrass, J., VanDeventer, M. C., & Braungart-Rieker, J. M. (2003). Predicting shared parent-child book reading in infancy. *Journal of Family Psychology, 17*, 134-406.
- Korat, O., & Or, T. (2010). How new technology influences parent—child interaction: The case of e-book reading. *First Language, 30*(2), 139-154.
- Mendelsohn, A. L., Mogilner, L. N., Dreyer, B. P., Forman, J. A., Weinstein, S. C., Broderick, M., ... & Napier, C. (2001). The impact of a clinic-based literacy intervention on language development in inner-city preschool children. *Pediatrics, 107*(1), 130-134.
- Masur, E. F., & Gleason, J. B. (1980). Parent—child interaction and the acquisition of lexical information during play. *Developmental Psychology, 16*, 404-409.
- Merz, E. C., Zucker, T. A., Landry, S. H., Williams, J. M., Assel, M., Taylor, H. B., ... & School Readiness Research Consortium. (2015). Parenting predictors of cognitive skills and emotion knowledge in socioeconomically disadvantaged preschoolers. *Journal of experimental child psychology, 132*, 14-31.
- Mol SE, Bus AG, de Jong MT and Smeets DJH (2008) Added value of dialogic parent-child book readings: A meta-analysis. *Early Education and Development 19*: 7-26.
- Munn, P., & Schaffer, H. (1993). Literacy and numeracy events in social interactive contexts. *International Journal of Early Years Education, 1*, 61-80.
- Murray, A., & Egan, S. M. (2014). Does reading to infants benefit their cognitive development at 9-months-old? An investigation using a large birth cohort survey. *Child Language Teaching and Therapy, 30*(3), 303-315.
- Needlman, R., Toker, K. H., Dreyer, B. P., Klass, P., & Mendelsohn, A. L. (2005). Effectiveness of a primary care intervention to support reading aloud: a multicenter evaluation. *Ambulatory Pediatrics, 5*(4), 209-215.
- Ninio, A. (1980). Picture-book reading in mother-infant dyads belonging to two subgroups in Israel. *Child Development, 587-590*.

- Ninio, A., & Bruner, J. (1978). The antecedents of labeling. *Journal of Child Language*, 5, 1–15.
- Nyhout, A., & O’Neill, D. K. (2013). Mothers’ complex talk when sharing books with their toddlers: Book genre matters. *First Language*, 0142723713479438.
- Pahl, K., Lewis, M. and Ritchie, L. (2010) *Booksharing in the Home: an ethnographic study*. London: Booktrust.
- Palacios, J., Gonzalez, M., & Moreno, M. (1992). Stimulating the child in the zone of proximal development: The role of parents's ideas. In A. V. M.-D. I. E. Sigel, & J. J. Goodnow (Ed.), *Parental belief systems: The psychological consequences for children* (Vol. 2, pp. 71-94). Hillsdale,NJ: Erlbaum.
- Payne, A. C., Whitehurst, G. J., & Angell, A. L. (1994). The role of home literacy environment in the development of language ability in preschool children from low-income families. *Early Childhood Research Quarterly*, 9(3), 427-440.
- Peterson, C. (1994). Narrative skills and social class. *Canadian Journal of Education/Revue canadienne de l'education*, 251-269.
- Richardson, G. A., Goldschmidt, L., & Willford, J. (2008). The effects of prenatal cocaine use on infant development. *Neurotoxicology and teratology*,30(2), 96-106.
- Rossmannith, N., Costall, A., Reichelt, A. F., López, B., & Reddy, V. (2014). Jointly structuring triadic spaces of meaning and action: book sharing from 3 months on. *Frontiers in psychology*, 5.
- Scofield, J., & Behrend, D. A. (2011). Clarifying the role of joint attention in early word learning. *First Language*, doi: 10.1177/0142723710395423
- Senechal, M. (2006). Testing the home literacy model: Parent involvement in kindergarten is differentially related to grade 4 reading comprehension, fluency, spelling, and reading for pleasure. *Scientific Studies of Reading*, 10, 59-87.
- Snow, C. E., Arlman-Rupp, A., Hassing, Y., Jobse, J., Joosten, J., & Vorster, J. (1976). Mothers' speech in three social classes. *Journal of Psycholinguistic Research*, 5(1), 1-20.
- Sorsby, A., & Martlew, M. (1991). Representational demands in mother’s talk to preschool children in two contexts. *picture books reading and modelling task*. *Journal of Child language*, 18, 373-395.
- Stein, A., Malmberg, L. E., Sylva, K., Barnes, J., & Leach, P. (2008). The influence of maternal depression, caregiving, and socioeconomic status in the post natal year on children's language development. *Child: Care, Health and Development*, 34, 603-612.
- Torr, J. (2007). The pleasure of recognition: Intertextuality in the talk of preschoolers during shared reading with mothers and teachers. *Early Years*,27(1), 77-91.

- Tsuji, H. (2013). An Exploratory Analysis of 4-Month-Old Infants' Behaviours Towards Picture Books in the Bookstart Programme Context. *Asia-Pacific journal of research in early childhood education*, 7(2), 5-28.
- van den Berg, H., & Bus, A. G. (2014). Beneficial effects of BookStart in temperamentally highly reactive infants. *Learning and Individual Differences*, 36, 69-75.
- van Kleeck, A. (2006). Cultural issues in promoting interactive book sharing in the families of preschoolers. *Sharing books and stories to promote language and literacy*, 179-230.
- Van Zanten, V., Coates, S., Hervas-Malo, C., & McGrath, P (2012) Newborn literacy program effective in increasing maternal engagement in literacy activities: an observational cohort study. *Pediatrics*, 12 (100), 1-7.
- Venn, L. (2014) Parental reading motivations and the impact of Bookstart, Book Trust Report.
- Verhoeven L (2006) Sociocultural variation in literacy achievement. *British Journal of Educational Studies*, 54, 189-211.
- Wade, B. & Moore, M. (1996). Home Activities: The Advent of Literacy. *European Early Childhood Education Research Journal*, 4 (2), 63-76.
- Weinraub, M., & Frankel, J. (1977). Sex differences in parent-infant interaction during free play, departure, and separation. *Child Development*, 1240-1249.
- Westerlund, M., & Lagerberg, D. (2008). Expressive vocabulary in 18-month-old children in relation to demographic factors, mother and child characteristics, communication style and shared reading. *Child: care, health and development*, 34(2), 257-266.
- Wu, S. C., Lue, H. C., & Tseng, L. L. (2012). A pediatric clinic-based approach to early literacy promotion-experience in a well-baby clinic in Taiwan. *Journal of the Formosan Medical Association*, 111(5), 258-264.
- Yont, K. M., Snow, C. E., & Vernon-Feagans, L. (2003). The role of context in mother-child interactions: an analysis of communicative intents expressed during toy play and book reading with 12-month-olds. *Journal of Pragmatics*, 35, 435-454.

Table 1: Means and standard deviations for all study variables

Study variables	Mean (SD)
ICQ Fussy difficult	3.38 (0.77)
ICQ Unadaptable	2.59 (0.73)
ICQ Persistent	4.42 (1.11)
ICQ Unsociable	2.52 (0.88)
CIS Positive Relationship	3.49 (0.50)
CIS Punitiveness	1.42 (0.52)
CIS Detachment	1.38 (0.42)
Family SES	-.067 (0.79)
BSSI overall score	26.78 (6.45)

Table 2 : Bivariate relations among the variables

	1	2	3	4	5	6	7	8	9	10	11
1.BSSI Overall Score	1	.123	.027	.080	-	-	.413**	.426**	-.089	-.227	.392**
2.Child Gender		1	.113	.187	-	-	.223	.104	-.190	.026	.277**
3. Parent Gender			1	.059	.133	-	-.057	.117	-.181	-.134	.023
4. ICQ difficult				1	.152	.203	.351**	.140	-.202	.018	.080
5. ICQ Unadptable					1	.156	.112	.083	-.098	-.035	-.034
6. ICQ Persistent						1	.111	-.053	-.055	-.009	-.178
7.ICQ Unsociable							1	.186	-.093	-.198	.413**
8. CIS Positive Relationship								1	--	-	.426**
9. CIS Punitiveness									1	.552**	.758**
10. CIS Detachment										1	.490**
11. Family SES											1

† p < .10. * p < .01. ** p < .001.

Table 3: Final regression model predicting BSSI overall score

Predictor	β	SE β	R ²	R ² Δ	F Δ
FamilySES	1.241	1.227	.183***	.183***	12.301
CIS Positive relationships	4.019*	1.717	.248*	.065**	4.689
ICQ Unsociable	2.205*	.934	.320*	.071*	5.569

*p<.05; ** p<0.01; ***p <0.001.

ⁱ The study adapted the socio-economic class coding from the FCCC study. In the FCCC, the Computer Assisted Standard Occupational Coding (CASOC) was used to assign each participant to an occupation category. Mothers' and fathers' socioeconomic class distribution was measured on a 3-point scale and coded as 1, working; 2, intermediate and 3, managerial and professional.