



Infants' Experiences of Shared Reading with Their Educators in Early Childhood Education and Care Centres: An Observational Study

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Abstract

Research shows an association between mother-infant shared reading and children's language and literacy development. Educators in early childhood education and care (ECEC) centres frequently interact with groups of similar-aged infants, yet infant-educator shared reading has received little attention. This naturalistic observational study videorecorded 20 focus infants (children aged under 2 years) from 20 separate ECEC centres as they went about their normal everyday activities. Each focus infant was videorecorded for approximately 3 h each (a total of 60 h of data), as part of a larger project investigating the language environment in ECEC infant rooms. The present study investigated whether the infants engaged in book-focused interactions with their educators, and if so, whether the infants participated verbally. Each infant's book-focused interactions were identified and transcribed verbatim, and each infant's room was assessed using the Infant/Toddler Environment Rating Scale Revised Edition (ITERS-R) (Listening and Talking Subscale). Nine of the 20 infants did not participate in any shared reading. The extent to which the remaining 11 infants engaged in shared reading ranged from minimal to extensive. In 85% of ECEC rooms, the ITERS-R score for *using books* was lower than that for *helping children understand language* and *helping children use language*. The findings suggest that many educators may be unaware of the importance of reading with infants. Given the benefits of shared reading for infants' current and future language and literacy development, it is vital that every infant has the opportunity to participate in frequent, sustained, language-rich interactions with their educators.

Keywords Infants · Shared reading · Childcare · Language and literacy · Early childhood education and care (ECEC)

Introduction

Language and literacy development begin early in life (Edwards 2014; Schickedanz and Collins 2013), and many parents read to their child before the age of 2 years (Karrass and Braungart-Rieker 2005; Raikes et al. 2006). Parent-infant book reading can provide infants with a language-rich introduction to books, pictures and written language (Fletcher and Finch 2015; High et al. 2014; Hoff 2010). The active participation of children during book reading is critical to the language and literacy learning opportunities afforded by this activity (Landry et al. 2012; Liu 2014). Infants' active participation may include naming and touching pictures, handling books and flipping pages, chiming in

with familiar rhymes, and verbalising in response to adults' questions and comments (Phillips and Twardosz 2003; Schickedanz and Collins 2013).

In ECEC centres, infants are educated and cared for in groups of similar-aged peers, raising questions about the nature of book reading as experienced by individual infants within the broader ECEC group environment. Previous research found minimal or no reading to young infants in some childcare settings (Honig and Shin 2001; Norris 2017). The present naturalistic study observed whether, and if so to what extent, 20 focus infants (each of whom attended a different ECEC centre) were read to by their educators. The term *shared reading* in this study refers to educator-infant book-focused interactions which include reading aloud from picture books and talking about the meanings of the words and pictures. In this study, the term *infant* refers to a child aged under 2 years.

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Frequency of Parent–Child Reading and Children’s Vocabulary Growth

Research has found an association between the frequency of parent–infant book reading and children’s subsequent development of vocabulary and other language skills (Barnes and Puccioni 2017; Farrant and Zubrick 2013; Lee 2011; Price and Kalil 2018; Shahaeian et al. 2018; Zauche et al. 2016). Richman and Colombo (2007), for example, collected data including a questionnaire and a joint book reading journal from 48 parents of an infant aged from 10 to 17 months. The infants’ vocabularies were assessed by parents using MacArthur Communicative Development Inventories (Fenson et al. 1993). Richman and Colombo (2007) found that the frequency of parents’ shared reading “was significantly associated with expressive vocabulary, even after controlling for age” (p. 251). They also found that other features of the home environment were associated with children’s vocabulary; for example, the variety of books available was related to infants’ expressive vocabulary.

A more recent longitudinal study found an association between the frequency of book reading in infancy and children’s subsequent vocabulary. Farrant and Zubrick (2013) analysed data on the development of 2369 Australian children. They found an association between the frequency of parent–child book reading at approximately 21 and 34 months of age and children’s vocabulary at 58 months of age. Children who experienced an average of less than 10 min reading per day at 21 and 34 months received the lowest 20% of vocabulary scores on the Peabody Picture Vocabulary Test-III (Dunn and Dunn 1997) at 58 months.

Relationship Between Infants’ Vocabulary and Subsequent Reading Development

These findings are significant because the size and diversity of a child’s vocabulary on entry to formal schooling are related to their reading comprehension, oral language skills and print awareness (Farrant and Zubrick 2011; NICHD Early Child Care Research Network 2005). As Snow (2006) explains “one of the most robust long-term predictors of good literacy outcomes that can be measured in early childhood is vocabulary” (p. 281). In particular, the ability to use and understand unusual and specialised vocabulary is integral to future success in academic disciplines such as science, mathematics, and history (Van Kleeck 2014).

In a longitudinal study of 1071 children, Lee (2011) found a significant correlation between the size of infants’

expressive vocabulary at 2 years of age, and their verbal comprehension, expressive language skills, decoding, and word recognition skills at 54 months. The children with the larger vocabulary at 2 years of age also demonstrated better comprehension at both grade three and grade five levels. The relationship between vocabulary and comprehension occurs because the ability to produce and understand words accurately in context requires many complex skills underpinned by background knowledge about the topic or subject matter under discussion.

Shared Reading as a Pedagogical Practice

The activity of adult–child book reading provides an especially rich opportunity for facilitating infants’ language development. Dickinson et al. (2012) assert that “reading storybooks to children maximises the kinds of experiences that predict language learning and may even exceed the power of oral conversations at times” (p. 4). There are several reasons that account for the benefits of shared reading. Picture books are more likely than everyday child-directed speech to contain low frequency words and structures (Cameron-Faulkner and Noble 2013; Massaro 2015). The meanings in picture books are conveyed through the complex interaction between the visual images and the verbal text (Sierschynski et al. 2014). Visual images are open to multiple interpretations and research shows that infants spend most time looking at the pictures in picture books (Evans and Saint-Aubin 2005). The experience of listening to the verbal text read aloud while simultaneously viewing the visual images facilitates children’s comprehension of unusual words and expressions (Ganea et al. 2008; Mol et al. 2008).

Research shows that the language used by mothers and infants during shared reading is richer than that produced in other contexts. Hoff (2010) compared the talk produced by 20 infants aged 1;5 to 2;2 as they conversed with their mothers during three different activities; mealtime, toy play and book reading. She found that the infants used more diverse words and more contingently related responses when interacting with their mothers during book reading, compared with their talk during the other two activities.

The richness and diversity of mothers’ speech during shared reading is associated with infants’ subsequent language development. Liu (2014) conducted a longitudinal study of 22 mother–child dyads during picture book reading when the children were 6 to 12 months and then 5 years of age. She found that the quantity and diversity of words produced by the mothers during picture book reading with their infant were associated with children’s expressive and receptive vocabulary at 5 years of age.

A key feature of shared reading lies in children’s active verbal and non-verbal participation in response to the

meanings they encounter in the focal text. As noted by Wasik et al. (2016) “adult–child interaction during book reading is critical for vocabulary learning to occur” (p. 52). If young children are required to sit quietly during book reading, they may become disengaged, decreasing their opportunity to learn new words, concepts and knowledge, and lessening their enjoyment of books and reading (Cunningham and Zibulsky 2011; Mol et al. 2008).

Educator-Infant Shared Reading in Early Childhood Education and Care Centres

The research discussed above reveals the many developmental benefits of parent-infant shared reading. In typical ECEC centres, children are cared for by multiple educators in groups of varying sizes, with implications for the qualities of the educator-infant interactions that occur. Soderstrom et al. (2018) investigated the relationship between the adult:child ratios, the number of adults present, and the amount of clear words spoken in the presence of 45 infants (aged 12–36 months), in three different childcare settings: home, family daycare, and long daycare centres. In the home setting, infants interacted mainly on a one-to-one basis with one or two adults. This contrasted with both of the other settings, in which the number of adults was variable, and infants experienced fewer one-to-one interactions. This finding is significant, because of the relationship between the quality and quantity of infant-addressed talk, and infants’ language development. Ramirez-Esparza et al. (2014, 2017) found a correlation between one-to-one infant-addressed speech and the size of infants’ vocabulary at 24 months, as determined by the MacArthur Communicative Development Inventories (Fenson et al. 1993). Such findings raise questions about the quality, quantity, and characteristics of child-directed speech in ECEC centres.

In the context of book reading, the opportunity for infants to participate verbally in conversation with their educators is directly related to the extent of their engagement, with implications for their learning. Gardner-Neblett et al. (2017) observed six toddlers (three aged 13–24 months, and three aged 25–30 months) interacting with their educators during shared reading. The infants’ engagement was measured by the duration of their eye gaze on the book and also by their independent book exploration. The researchers compared infants’ engagement in two conditions; interactive reading, where educators asked open-ended questions, provided scaffolding, encouraged turn-taking, and responded to child initiations; and non-interactive reading, where educators simply read the text without surrounding interactions. The researchers found that all six children were more engaged during the interactive reading.

As children’s active participation during shared reading is associated with their language learning opportunities, it is relevant to consider whether educators in ECEC centres are providing the type of individualised attention that encourages infants to participate actively during shared reading. One potential influence on the quality of educator-infant shared reading is group size. Phillips and Twardosz (2003) found an association between group size and fifteen 2 year old children’s verbal and non-verbal participation during storybook reading in childcare. Children’s engagement and verbal participation were compared when teachers read to groups averaging 8 children and groups averaging 3 children. The children in the smaller groups produced twice as many verbal responses as the children in the larger groups. Children’s nonverbal participation included handling the books being read, moving close to and touching the book, responding to the book with actions such as pretend eating and making animal noises, being close to and touching the teacher, and smiling. The smaller group situation also afforded greater opportunity for 2 year old children to participate both verbally and non-verbally during storybook reading (Phillips and Twardosz 2003).

Infants’ age also appears to be a factor associated with the quantity and qualities of educators’ storybook reading in ECEC centres. Honig and Shin (2001) undertook a naturalistic, observational study describing book reading in a long daycare centre. They recorded 24 teachers and 55 infants (aged 4–27 months) reading books. They found that, over the 5 h data collection period, 35 of the 55 infants were not read to at all. Children’s experience of being read to was associated with their ages. One out of 13 infants aged from 4 to 8 months, 7 out of 13 infants aged 9–12 months, 13 of the 15 infants aged 13–17 months, and all 14 infants aged 18–27 months were read to. The periods of shared reading lasted an average of 1.5 min. The researchers found that teacher strategies also differed according to infants’ age. Teachers used more *labelling* and *describing* with younger infants, and more *yes/no questions* with older infants, and there was very little use of *elaborating* with any child.

Research Aims

In sum, research has established that both the frequency and qualities of shared reading in infancy are critical to infants’ current and future oral language skills and reading development. Unlike at home where infants typically interact with a small group of family members, in ECEC centres they are required to interact with multiple adults and children with whom they may or may not be familiar. Similarly, educators are unlikely to have the parents’ intimate knowledge of each infant’s idiosyncratic modes of communication, early words, interests and past experiences, creating challenges for them

to engage infants in meaningful ways during book reading. Given the benefits of shared reading in infancy, it is significant to investigate shared reading as experienced by infants attending early childhood education and care centres. The present observational study therefore seeks to investigate:

- whether infants in ECEC rooms are read to by their educators;
- if so, to what extent do infants verbally participate during the book reading; and
- do the reading experiences of individual infants reflect the overall quality of the language and literacy environment in the room as a whole, as evaluated using the Infant/Toddler Environment Rating Scale: Listening and Talking Subscale (ITERS-R) (Harms et al. 2006).

Methodology

Participants

The participants were 20 focus infants (11 female and 9 male), each of whom attended a different ECEC centre in Sydney, Australia, and the educators working in their ECEC rooms. The infants attended their ECEC centres between three and 5 days a week (seven children for 5 days per week, one child for 4 days per week, and 12 children for 3 days per week). Each infant had been attending for at least 3 months prior to the time of recording. The infants ranged in age from 10:20 (10 months 20 days) to 23:23 (average age 17:20 months). Each centre was accredited by the Australian Government's national accrediting authority, Australian Children's Education and Care Quality Authority. This regulatory authority specifies a ratio of one educator to four infants. The average group size in the ECEC rooms (taken midway through the videorecording) was ten infants (ranging from 5 to 21 infants, standard deviation 4.4). The average number of educators in the ECEC rooms was three (ranging from 2 to 7 educators, standard deviation 1.3). The qualifications of the educators ranged from a 4 years bachelor degree in early childhood teaching, to a diploma in children's services, to a certificate III early childhood qualification.

Data Collection

Videorecording

The data were collected as part of a larger project investigating the language environment experienced by children under 2 years of age attending early childhood education and care (ECEC) centres in Sydney, Australia. A naturalistic observational methodology was employed, in accordance with our focus on understanding the experiences of

each individual child immersed within a complex real-life environment, as she or he participates in a range of social practices, processes and behaviours (Morgan et al. 2017; Soderstrom et al. 2018). Ethics approval to undertake the research was obtained from Macquarie University's Human Ethics Review Committee. ECEC centres located in Sydney were identified from a university database used to place early childhood education practicum students. Email invitations to participate were sent to the identified ECEC centres. Written informed consent was subsequently obtained from infant educators who had indicated their willingness to participate, other educators in the room, the parents of the focus infants, and the parents of all other infants present in the room during the data collection visits.

The educators were asked to engage in their normal everyday activities, interactions and routines, and not to do anything special or different from their usual practices, as we were interested in obtaining data that were as natural and spontaneous as possible. A Research Assistant with early childhood teaching experience employed by Macquarie University visited each centre on four occasions, and videorecorded each focus infant for approximately 3 h on either the second or third visit. Contextual details of the focus children's and educators' activities, and background events, were noted. If any infant demonstrated anxiety or distress as a result of the Research Assistant's presence in the room, she stopped recording immediately; however, this rarely occurred. Videorecording also stopped during nappy changes and naptime.

Evaluating the Language and Literacy Environment of the Infants' Rooms

The Listening and Talking Subscale of the Infant–Toddler Environment Rating Scale (ITERS-R; Harms et al. 2006) was used to evaluate the language and literacy learning environment in each infant's ECEC room. The same Research Assistant who videorecorded the focus infant undertook the ITERS-R evaluation of the room, either on the same day or on a final visit shortly afterwards. Prior to the evaluation visit, the Research Assistant was trained by an experienced Senior Research Assistant who was familiar with the criteria and indicators of the ITERS-R assessment instrument. By the end of the training period, both Research Assistants agreed 90% of the time on the observed behaviours, indicators and ratings. To undertake the evaluation, the Research Assistant sat unobtrusively in the classroom for two hours, and took written notes on each of the indicators to be observed.

The Listening and Talking Subscale consists of three Items. Item 12 *Helping children understand language* contains 14 indicators, including whether staff interact frequently with children, and use simple, descriptive, playful

language. Item 13 *Helping children use language* contains 11 indicators, rating staff engagement in turn-taking conversations and their responsiveness to infants' verbal and non-verbal communications. Item 14 *Using books* contains 14 indicators, rating the number, quality, and availability of books, and the regularity and positivity of book-focused interactions. The Research Assistant rated each Item from 1 (inadequate) to 7 (excellent). The three scores from each ECEC room were added together and averaged to provide an overall rating for each room.

Data Analysis

Each three hours of videorecording was viewed and all book-focused experiences in which the focus infant participated were identified and transcribed verbatim. The transcripts were divided into *messages* following Hasan (1996). A message is approximately equivalent to a clause (for example *let's turn this page; it's a bird; it was a bear, wasn't it; what about this animal; can you see him digging; look at all those carrots*). The concept of *message* as a unit of analysis was originally developed by Hasan (1996) as a key feature of her "discourse semantics network". She defined a message as "the smallest semantic unit that is capable of realizing an element in the structure of texts" (1996, p. 227). Hasan's framework provides a theoretically motivated tool for researchers to analyse the habitual semantic patterning in the everyday speech of mothers from different social and cultural backgrounds and their young children. Her framework has subsequently been employed by educational researchers to investigate various aspects of adult-child discourse (Cloran 2000; Hasan 2005; Torr 2018; Torr and Pham 2016; Williams 2001).

Many infants have not yet begun to produce clausal structures, so for the purpose of this analysis we considered any infant verbal book-focused utterance as constituting a "message" (for example *birdie; yummy; flower; bzzz; uh oh*). An infant's participation was seen as commencing when the infant positioned herself or himself close to an educator who was reading a picture book, while looking attentively at either the book or the educator. The infant's participation was considered to conclude (from the focus infant's perspective) when the infant moved away (even if the educator continued to read to other children) and/or the educator discontinued the reading. This method of defining infants' experience of shared reading in ECEC was chosen, because infants' participation in shared reading in the ECEC context is relatively fluid. Infants may approach and participate in a shared reading activity for a short period of time before moving on to another activity, rather than sitting and listening to a book being read from cover to cover.

To gain a measure of the extent of each infant's verbal participation during shared reading, and the relative

contributions of the other participants, we calculated the following, both as raw counts and as a percentage of all messages comprising the infants' total shared reading experience:

- (1) the total number of messages produced during the shared reading;
- (2) the total number of messages produced by each focus infant;
- (3) the total amount of written picture book text (divided into messages) read aloud by the educator;
- (4) the total number of messages produced by the educator surrounding the read text (i.e. extratextual talk); and
- (5) the number of messages produced by any other infant present.

Please note that while every effort was made to transcribe the infants' and educators' speech verbatim, it was not always possible to do so. Noise levels were often high, and the infants' faces and gestures were frequently obscured by other children as they moved around the room. Furthermore, infants' articulation is sometimes unclear and difficult to transcribe with confidence. For these reasons, the message counts are approximations only.

Findings

Aim 1

Our first aim was to determine whether infants in ECEC rooms were read to by their educators. Of the 20 focus infants, nine infants did not experience any shared reading with an educator during the 3 h data collection period. Table 1 provides an overview of the amount of shared reading experienced by the remaining 11 infants, including the number of messages of written text read aloud, the number of messages produced by educators surrounding the read text, and the number of infants' verbal messages.

The data indicate that the 11 infants' shared reading experiences differed considerably in terms of the total amount of read text listened to by the infants, and the relative contributions of educators and infants to the talk surrounding the reading. The total number of messages comprising each infant's experience ranged from 25 messages (Alex) to 606 messages (Freddy), with an average of 206 messages per total shared reading experience of each infant.

The amount of written picture book text read aloud by educators (and thus within the infants' hearing) also differed. One educator did not read at all (to Erica), simply labelling the pictures. Another read very minimally (to Sam, who heard 3% $n = 2$ messages of read text). Emma's educator, on the other hand, spent almost two thirds of the

Table 1 Number and proportion of messages produced by infants and educators during shared reading

Focus infant	Age	Total number of messages comprising the shared reading	Number of focus infant's messages %(n)	Number of messages of educator's read text %(n)	Number of educator's infant-addressed messages (excluding read text) %(n)	Other infants' messages %(n)
Harry	10:21	54	13 (7)	22 (12)	65 (35)	0 (0)
Johanna	16:24	412	16 (67)	13 (53)	66 (270)	5 (22)
Erica	17:26	39	28 (11)	0 (0)	72(28)	0 (0)
Sam	19:07	70	19(13)	3(2)	79(55)	0 (0)
Freddy	19:11	606	18 (107)	27 (165)	51 (309)	4 (25)
Aiden	19:12	110	21 (23)	18 (20)	59 (65)	2 (2)
Emma	20:28	296	7 (22)	61 (181)	31 (91)	1 (2)
Carlos	21:13	357	12 (42)	17 (59)	62 (223)	9 (33)
Carla	21:30	175	13 (22)	23 (41)	59 (104)	5 (8)
Alex	22:17	25	16 (4)	20 (5)	48 (12)	16 (4)
Zumin	23:23	123	7 (8)	19 (23)	49 (60)	26 (32)
Total		2267	326	561	1252	128
Mean		206	30	51	114	12
Standard deviation		188	32	64	104	134

shared reading time (61% $n = 181$) reading aloud from the text. Example 1 presents an excerpt of Erica's shared reading experience. Please note that in the following examples the setting is described in square brackets, the interactive talk is in italics, and the educators' read text is in upper case. The infants' ages are presented in months and days (MM:DD).

Example 1

[An educator is sitting on the floor with three children including Erica (17:26). They are surrounded by an assortment of soft toys, noise making toys, board books, a rag book and a photo album. The educator is attempting to interact with each child in turn, including a child who is playing with a noise-making plastic toy. The room is very noisy. A child is crying loudly nearby. Erica is handling the rag book, talking purposefully to herself, although her words are difficult to hear and interpret.]

Educator: [addressing Erica] *Look at this one. Look at the monkey. Does that say quack quack quack* [making a "quacking" action with her fingers]. *Quack. Quack. Quack.*

Erica: *?quack.*

Educator: *This is a monkey. Oh look at what we have. We have calf. It said moo moo. The cow says moo moo moo.*

Erica: [verbalising, and pointing at something not visible to camera].

Educator: *Oh! What's this?*

Erica: *?rabbit*

Educator: *Bunny. It's a bunny.*

Erica: [bouncing] *Hop. Hop.*

Educator: *Yes. It hops.*

Example 2 presents, by way of contrast, an excerpt from Emma's shared reading experience.

Example 2

[Emma (20:28) is playing with another child when she sees an educator sitting on the floor leaning against a cupboard and preparing to read with two other children. Emma quickly runs across the room to join the group. The educator holds several books in her lap. Emma picks up one book and hands it to the educator, who begins to read. The children lean in as close as possible to look at and touch the pictures. The educator reads five books one after another, with very little text-based discussion. The talk that occurs is mostly procedural; for example the educator says "another book" each time she finishes reading a book.]

Educator: *Let's have a look.* THE LITTLE FOX WHO LOST HIS TAIL. LITTLE FOX WOKE UP FEELING A LITTLE BIT DIFFERENT. HE LOOKED AROUND AND SAW THAT HIS TAIL HAD DISAPPEARED. HE THOUGHT IT MIGHT BE HIDING IN THE CUPBOARD [educator lifts flap] BUT THAT WAS JUST A DUSTY OLD BROOM. HE CHECKED IN THE ATTIC. MAYBE HE LEFT HIS TAIL THERE. BUT ALL HE FOUND WERE SOME FUNNY OLD HATS. [Addressing one of the children] *You right Lonnie?* WHERE COULD LITTLE FOX'S TAIL HAVE GONE? [Looking at Emma] *Oh, no, poor little fox. Where could his tail*

have gone? HE WAS SURE HE SAW SOMETHING IN THE LOUNGEROOM. [Educator lifts flap.] BUT IT WAS ONLY AN AUTUMN TREE. HE EVEN TRIED MAKING A FEATHER DUSTER TAIL BUT THAT WASN'T RIGHT AT ALL. [Addressing a child standing a small distance from the group] *Can you see Sasha? Do you want a help?* THE LITTLE FOX SEARCHED ALL DAY FOR HIS TAIL, THEN HE WALKED OFF INTO THE NIGHT. LITTLE FOX CAME TO A POND, AND WHEN HE LOOKED IN THE WATER, WHAT DO YOU THINK HE SAW? [Educator lifts flap.] HIS TAIL! IT WAS BEHIND HIM ALL ALONG. THE END.

During every shared reading activity, the educators contributed proportionally more extra-textual messages than the focus infants. The educators' infant-addressed messages (excluding the read text) ranged from 12 messages (Alex's educator), to 309 messages (Freddy's educator), constituting 57% and 51% respectively of the shared reading messages. However, the number of educators' infant-addressed messages as a *proportion* of the total shared reading activity ranged from 31% by Emma's educator (91 educator messages) to 79% by Sam's educator (55 educator messages).

Aim 2

Our second aim was to determine whether, and if so to what extent, the 11 focus infants who did experience shared reading contributed verbally during the activity. The number of messages produced by the infants ranged from Alex's 4 messages (16% of his total shared reading experience) and Zumin's 8 messages (7% of her total shared reading experience), to Freddy's 107 messages (18% of his total shared reading experience), with an average focus infant contribution of 30 messages.

Aim 3

Our third aim was to consider the language and literacy learning environments in each of the 20 infants' ECEC rooms, as evaluated according to the three items in the ITES-R Listening and Talking Subscale; Item 12 *Helping children understand language*, Item 13 *Helping children use language* and Item 14 *Using books*. As noted previously, the scoring criteria for Item 14 *using books* focus on two main aspects of the environment: the number, quality, variety and accessibility of the books in the room; and the frequency, quality, warmth and group size of staff book reading events. Table 2 presents the assessment of the ECEC rooms of the nine infants who were not read to.

Two infants, Zara and Maria, were in rooms receiving a rating of 2.67 (*inadequate*) and 3.33 (*minimal*) respectively, indicating that there was little educator-infant talk of any kind (Items 12 and 13). While some books in good repair may have been available in these rooms, the educators read infrequently and did not actively encourage infants' participation in book-focused activities (Item 14). For seven of the nine infants, there was an apparent disparity between a positive ITES-R rating for their room as a whole, and the absence of shared reading for the individual focus infant. Braiden and Naomi were in rooms rated 5.33 (*good*) while Finn, Anna, Hilary, Elisa and Hugo were in rooms rated 6 (*very good*) or 7 (*excellent*). It is important to note that, while it was possible that other infants in the room did experience shared reading, our focus was specifically on the experience of each individual focus infant within the broader ECEC environment.

Table 3 presents the ITES-R ratings for the ECEC rooms of the infants who were read to. Aiden's room scored 4.00 (*minimal to good*), and Sam's and Emma's rooms scored 5.67 (*good*). The remaining eight children's rooms were rated as either 6 (*very good*) or 7 (*excellent*).

Table 2 Infants who did not experience shared reading: age, gender and ITES-R score for their rooms

Name	Gender	Age	ITEM12 Helping children understand language	ITEM 13 Helping children use language	ITEM 14 Using books	Average score: Listening and Talking subscale
Finn	M	15:00	7	7	4	6.00
Braiden	M	15:28	5	7	4	5.33
Anna	F	18:03	7	7	4	6.00
Zara	F	19:12	4	3	1	2.67
Maria	F	19:18	4	4	2	3.33
Hilary	F	21:15	7	7	7	7.00
Elisa	F	21:15	7	7	4	6.00
Hugo	M	22:16	7	7	4	6.00
Naomi	F	23:08	6	6	4	5.33
Average			6.0	6.1	3.7	

Table 3 Infants who experienced shared reading: age, gender and ITERS-R score of their rooms

Name	Gender	Age	ITEM 12 Helping children understand language	ITEM 13 Helping children use language	ITEM 14 Using books	Average score Listening and Talking subscale
Harry	M	10:21	7	7	7	7.00
Johanna	F	16:24	7	7	4	6.00
Erica	F	17:26	7	7	7	7.00
Sam	M	19:07	7	6	4	5.67
Freddy	M	19:11	7	7	4	6.00
Aiden	M	19:12	5	5	2	4.00
Emma	F	20:28	7	6	4	5.67
Carlos	M	21:13	7	7	4	6.00
Carla	F	21:30	7	7	7	7.00
Alex	M	22:17	7	7	4	6.00
Zumin	F	23:23	7	6	4	6.00
Average			6.8	6.5	4.6	

The findings presented in Tables 2 and 3 demonstrate that in 17 of the 20 rooms, the score for *using books* (item 14) was lower than for *helping children understand language* (item 12) and *helping children use language* (item 13). In the rooms in which infants were not read to, the average score for *using books* was 3.7 (compared with 6.0 and 6.1 for the other two items) and in the rooms in which infants were read to, the average score for *using books* (4.6) was also lower than for the other two items (which averaged 6.8 and 6.5 respectively). The only exception to this pattern was for the three rooms that received an *excellent* (7) rating for all three items (Harry, Erica, and Carla).

Discussion

This naturalistic observational study was designed to provide a snapshot of the shared reading opportunities and experiences of 20 individual focus infants as they spent time with their educators, other adults and peers within their ECEC rooms, engaging in their normal everyday activities. Our focus on shared reading is significant because longitudinal research reveals a strong predictive relationship between the frequency and qualities of shared reading in the first 2 years, and infants' subsequent language development, including vocabulary (Farrant and Zubrick 2011, 2013; Karass and Braungart-Rieker 2005; Lee 2011; Price and Kalil 2018; Raikes et al. 2006). The size of a child's vocabulary at 2 years of age can predict their subsequent language and literacy achievement as far as fifth grade level, even when factors such as SES, gender, ethnicity, and birth order are controlled for, according to a study of 1073 infants (Lee 2011).

The first finding, that nearly half the focus infants did not participate in any shared reading during the three hours of

data collection, has implications for the quality of the language and literacy learning opportunities in their ECEC centres. The opportunity to engage in one-to-one language-rich interactions around books is especially important for infants whose home environment does not include reading (Taylor et al. 2016), and/or extended conversational exchanges with caregivers (Burchinal et al. 1996; Vernon-Feagans and Bratsch-Hines 2013). Given the benefits of shared reading for children's learning, educators are responsible for programming, planning for and facilitating every infant's exploration of books and other multimodal texts.

The second finding relates to the opportunities available to infants to participate verbally in conversational exchanges with their educators during book-focused experiences, for example by naming the pictures, or engaging in verbal exchanges with their educators. This study did not attempt to analyse infants' non-verbal engagement during shared reading, such trying to touch and grab the picture book, and sit on the educator's lap. As stated by Huebner and Meltzoff (2005), "reading aloud with children is particularly effective when the shared reading is highly interactive" (p. 297). This study revealed that the educators talked more than the infants, determining what would be discussed and when, thus impacting on infants' ability to participate verbally. This is problematic because research shows that young children's active verbal participation during shared reading is more likely to facilitate their vocabulary development compared with simply listening to adults reading (Dickinson et al. 2012; Mol et al. 2008; Wasik et al. 2016; Zauche et al. 2016).

Our third finding relates to disparities between the ITERS-R rating of some ECEC infant rooms, and the shared reading experiences of the individual infants within those rooms. Seven of the infants who did not experience any shared reading, and four of the infants who experienced

minimal reading, were in rooms that were rated as *very good* or *excellent* for their capacity to facilitate infants' receptive and productive language development and use of books. This suggests that, even in high quality classrooms, there is a risk that some infants are not benefitting from language-rich interactions with their educators during picture book reading. This finding resonates with those of Pelatti et al. (2014), who investigated the language and literacy learning opportunities of individual children within a larger preschool group. They found that some children within the same ECEC classroom were not provided with the same learning experiences as others, with implications for the children's subsequent academic achievement. The ITERS-R, and other global forms of quality assessment, need to be supplemented with detailed observations of, and planning for, individual children (Melhuish 2001).

Our analysis of the evaluations of the ITERS-R Listening and Talking Subscale: Item 12 *Helping children understand language*; Item 13 *Helping children use language*; and Item 14 *Using books* revealed that (with the exception of the three rooms that received the maximum score for all three items), *using books* always received a lower rating than the other two items. This finding suggests that educators may not be aware of the language learning opportunities afforded by reading and talking about picture books with infants. This is concerning, as sharing picture books provides many rich language learning opportunities, as well as enhancing infants' background knowledge, early exposure to print, and understanding of how to "read" pictures. Infant educators have both the opportunity and the responsibility to enrich children's lives through frequent, sustained literary experiences with picture books.

Limitations and Directions for Future Research

As a naturalistic study, the findings are descriptive and cannot be generalised to other infants and settings. Further detailed research will be needed to determine the extent to which these findings are typical of the language environments in ECEC infant rooms in general, and if so, the reasons behind educators' decision-making. Furthermore, in this study we focused on the amount of shared reading, not the qualities or content of the talk surrounding the text. A more detailed analysis of the language used during shared reading will need to be undertaken, to understand more about the learning opportunities afforded by this practice.

Another limitation is that this study did not distinguish between infants' shared reading experiences when interacting with educators with different qualifications. Previous research has demonstrated an association between infant educators' qualifications and the qualities of the language and literacy

environment they provide, including their use of commanding and reasoning talk (Hu et al. 2019). It is possible that differently qualified educators may differ in terms of the value they place on shared reading as a pedagogical practice. The effect of educators' qualifications will be an important direction for future research.

Another important area for research is the effect of group size on the qualities of shared reading in ECEC rooms. When educators attempt to read to groups of infants and toddlers, it becomes necessary for them to use language to manage and control behaviour (Torr 2018; Torr and Pham 2016), thus impacting on their ability to engage each infant in language-rich sustained conversations about the meanings expressed through the words and pictures. Phillips and Twardosz (2003) found that a reduction in group sizes during shared reading was associated with an increase in the verbal participation of 2 year olds. Ramirez-Esparza et al. (2014, 2017) concluded that "there is an advantage to speech directed to infants in a one-on-one social context, allowing adults to respond to infants contingently in bi-directional interactions" (Ramirez-Esparza et al. 2017, p. 2).

Little is known about the influence of peers and older preschoolers on infants' verbal engagement with picture books, an important area for future research (Lee 2013). Some of the differences in the shared reading experiences of the infants may be attributable to the picture book text itself (Massaro 2015; Tare et al. 2010). For example, picture books containing repetitive rhyming features may encourage more verbal participation from infants. There is still much to learn about infants' experiences of books and reading in both home and ECEC settings, including how infants "read" and interpret picture books, and which types of picture book most encourage infants' engagement and participation (Fletcher et al. 2005).

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Compliance with Ethical Standards

Conflict of interests The author declares that she has no financial or non-financial competing interests in relation to this manuscript.

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