Picture Book Reading Experience and Toddlers' Behaviors with Photographs and Books

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Abstract

This study investigated the relationship between picture book reading and 15-month-old toddlers' behaviors with photographs and books. During a pretest, 15-month-olds were presented with one photograph every 15 seconds (i.e., eight photographs in total). Immediately after the pretest, toddlers and their teachers read several short picture books (i.e., reading interaction). The same eight photographs were then re-presented in the same format to toddlers (posttest). Toddlers' behaviors were scored from videotapes as manual investigation (e.g., hitting, touching, or grasping motions) or pointing. Parents also completed 12 questions from the *Stony Brook Family Reading Survey*. Following a brief reading interaction, toddlers' use of manual investigations remained the same from pre- to posttest, but toddlers' pointing decreased from pre- to posttest. In general, toddlers whose parents reported that they had lower levels of interest in books were more active with both photographs and books than the toddlers whose parents reported higher levels of interest in books. Toddlers' use of manual investigations with photos during the pretest was significantly higher for those toddlers with less reported interest in books compared with the toddlers with higher levels of reported interest in books (M = 7.83 and 1.29, respectively). As theorized by previous researchers, results indicate a link between picture book reading experience and toddlers' behaviors with photographs. Implications for the type of picture books used during reading interactions with young children are discussed.

Introduction

Symbols are pervasive in our culture and directly influence cognitive development. Gauvain (1995) states that "...symbolic tools and resources are developed and used by cultures to support mental activity. As such, they play a central role in the development and organization of cognitive skill" (p. 33). For this reason, symbolic thinking has figured prominently in theories of cognitive development. Major achievements in symbolic thinking are evident in the second year of life; these achievements are revealed by infants' use of gesture, language, and symbolic play (see, e.g., Acredolo & Goodwyn, 1988; Bretherton, O'Connell, Shore, & Bates, 1984). However, young children's understanding and use of symbols such as pictures, models, and dolls is tentative (see Uttal et al., 1998, for a review). DeLoache and her colleagues (DeLoache, Pierroutsakos, Uttal, Rosengren, & Gottlieb, 1998) have examined factors that influence young children's symbol use such as prior experience with symbols (Marzolf & DeLoache, 1994), the salience of symbols as objects (e.g., DeLoache, 1995), symbol-referent similarity (see, e.g., DeLoache, Kolstad, & Anderson, 1991), and delay intervals (see, e.g., Uttal, Schreiber, & DeLoache, 1995). DeLoache (1987, 1989) has hypothesized that young children have difficulty with the dual nature of symbols; that is, children view symbols as both physical entities and as representations of something else.

Pictures are one of the most prevalent symbolic media in our culture. Even newborns and very young infants perceive pictures. Five-month-olds recognized similarities between a real face and its photograph when researchers used a habituation paradigm (Dirks & Gibson, 1977). Moreover, infants appear to detect similarities between two- and three-dimensional stimuli (DeLoache, Strauss, & Maynard, 1979; Rose, 1977; Slater, Rose, & Morison, 1984). However, when an object and a photograph of the object were presented simultaneously, 9-month-olds consistently reached for real objects before reaching for the photographs (DeLoache, Pierroutsakos, Uttal, Rosengren, & Gottlieb, 1998). Although this literature attests to the early competence of picture perception in infants, children's understanding of pictures as representations develops somewhat later. When presented with highly realistic color photographs of individual objects, 9-month-olds behaved toward photographs as if they were real objects; they were recorded as rubbing, hitting, and even trying to grasp the depicted objects (herein called manual investigations) (DeLoache, Pierroutsakos, Uttal, Rosengren, & Gottlieb, 1998). In contrast, when black-and-white line drawings were presented, 9-month-olds were less likely to use manual investigations

(Pierroutsakos & DeLoache, 2003).

Yet as infants get older, they do not continue to interact with photographs in this manner. Developmental differences were found in children's responses to photographs, with 9-month-olds using manual investigations significantly more than 15- and 19-month-olds (DeLoache, Pierroutsakos, Uttal, Rosengren, & Gottlieb, 1998). In addition, 19-month-olds pointed more than did the younger two groups. Thus, by the age of 19 months, infants rarely attempt to manually explore pictures; instead, they point to pictures.

Pointing to pictures, as opposed to manually investigating pictures, suggests that infants of this age have developed a concept of pictures. DeLoache (e.g., DeLoache & Burns, 1994; DeLoache, Pierroutsakos, & Troseth, 1996) has postulated that infants develop a picture concept consisting of a two-part mental representation: (1) knowledge associated with the depicted object and (2) the tag (picture of). Inclusion of the tag (picture of) in the representation invalidates knowledge about the depicted object involving its physical properties, thus reducing infants' manual exploration of pictures and increasing their pointing.

Pointing in infancy has been hypothesized to be a means of expressing interest and directing attention to an object or event (Franco & Butterworth, 1996; Werner & Kaplan, 1963). In response to infants' pointing, mothers typically provide labels (i.e., a name for an object or event) (DeLoache & DeMendoza, 1987; Masur, 1981; Murphy, 1978; Ninio & Bruner, 1978). DeLoache, Pierroutsakos, Uttal, Rosengren, and Gottlieb (1998) also found that infants' pointing was often accompanied by their own labels for pictures and that "As they pointed, the children often looked up to a parent or the experimenter, apparently attempting to initiate an interaction about the picture" (p. 208). Thus, toddlers' use of pointing signals that they realize the function of "pictures as vehicles for conversation" (DeLoache & Burns, 1994, p. 106).

To try to explain this developmental change, DeLoache, Pierroutsakos, and Troseth (1996) theorized that throughout the first few years of life children are exposed to pictures in books as well as reading interactions with caregivers. According to DeLoache, these experiences facilitate the development of a concept of picture. Consistent with this theory, parents' behaviors during reading often reinforce the representational function of pictures. Examining a mother and her child from the age of 8 months to 18 months, Ninio and Bruner (1978) found labeling to be much more frequent with pictures compared with specific objects. Similarly, DeLoache and DeMendoza (1987) found that mothers of 12-, 15-, and 18-month-olds used labeling 60% of the time when they provided information during picture book reading. Mothers of 9- and 14-month-olds pointed and labeled pictures, whereas mothers of 20- and 24-month-olds pointed and asked questions, typically a "wh-" question (Murphy, 1978). In general, with children under age 18 months, parents overwhelming point to and label pictures during reading interactions (Fletcher & Reese, 2005). Thus, parents demonstrate during picture book reading that pictures are representations for conversation rather than objects to be manipulated.

Theoretically, the impact of picture book reading on infants' concept of pictures is compelling. Yet no empirical research has examined the effects of picture book reading on infants' picture concepts. The goal of this study was to examine the influence of picture book reading on infants' responses to photographs and books. Fifteen-month-olds participated in the current study because these toddlers were likely to use both manual investigations and pointing. We hypothesized that a brief reading interaction would change the frequency of manual investigations or pointing during the posttest. The current study attempted to address the following questions:

- Would toddlers' rates of manual investigation or pointing change after a brief reading interaction?
- Would toddlers use similar behaviors (i.e., manual investigations and pointing) with photographs and picture books?
- Would parental reports about home literacy activities relate to toddlers' behaviors with

photographs and picture books?

Methods

Participants

Toddlers around the age of 15 months were recruited from two child care centers in a medium-size midwestern city that served children from middle- to upper-income families. Thirteen toddlers completed the session. The mean age of the sample was 15.5 months, with a range from 14 to 17 months. There were six males and seven female participants. Twelve of the participants were White, and one child was biracial. Each center served a similar population of children and families. In addition, literacy activities for toddlers in each center were similar: each classroom had a small, easily accessible bookshelf containing age-appropriate books for toddlers.

Materials

Each child was seated in a typical toddler booster seat with a plastic tray placed in front of him/her. A transparency protector was mounted on the tray. This placement allowed the photographs to be placed in front of the children (photos were slid into the transparency protector), yet prevented children from picking up or moving the photos during the session. Children were then presented with eight color photographs. These photographs were pictures of small common plastic toys (i.e., car, man, cat, bottle, shape, ball, bear, and baby). Each photographed toy was approximately 3 cm x 3 cm, and the remaining background of the photo was dark gray. These photographs were laminated into eight individual cards that were 26 cm x 14.5 cm. Two sets of these photographs were made for two different orders of presentation. (Two different orders of photograph presentations were used to reduce any influence of one specific presentation order.)

For the reading interaction, teachers were given a set of five books to read to the children: (1) *Counting Farm*(Henderson, 1995), (2) *Things* (Hughes, 1994), (3) *I See* (Oxenbury, 1985), (4) *I Hear* (Oxenbury, 1985), and (5) *Baby's ABC* (Paterson, 1992). Each book was a simple picture book with simple pictures, but not photographs, of everyday items.

Parents were also asked to complete *The Stony Brook Family Reading Survey* (Whitehurst, 1993). The survey contains 55 questions about reading in the home and school; however, for our purposes, only the first 12 questions were presented to parents. For the current study, 4 questions of the 12 questions were examined from the *Stony Brook Reading Survey* (Whitehurst, 1993): (1) How often do you read with your child? (2) How many minutes did you read yesterday? (3) How much does your child enjoy reading? (4) How often does your child look at books alone?

Procedure

Each phase of the experiment was conducted during one 10- to 15-minute session in the child care center. For all participants, teachers remained seated beside children during the pretest and posttest, and teachers read to children during the reading interaction. Reading surveys were sent home to parents and returned to the child care center with informed consent forms.

Pretest. The procedure was similar to the protocol used in DeLoache, Pierroutsakos, Uttal, Rosengren, and Gottlieb (1998). Toddlers were seated in a booster seat, and teachers sat beside them. Eight photographs were presented at 15-second intervals in one of two orders of presentation. Photographs were slid into a transparency protector. The toddlers could see and

interact with the picture without being able to move the picture during the 15-second interval. The experimenter used a stopwatch for photo presentation. While the children were videotaped, the teachers were instructed to only interact with children if they became upset.

Reading Interaction. Following the pretest, teachers were asked to read five short picture books to children. Sometimes, children remained seated in the booster seat; at other times, children wanted to sit in the laps of their teachers. Before each session, teachers were instructed to point to each picture, read only the text in the book, and not prompt children to respond to the pictures such as saying, "Point to the cat" and "Show me the cat." Videotapes were reexamined to ensure that teachers followed these instructions. No teacher was observed to use these types of prompts; thus, toddlers' behaviors during the reading interactions were spontaneous. The reading interactions lasted, on average, between 4 and 5 minutes.

Posttest. The same procedure used for the pretest was used during the posttest. The toddlers were presented with the same order of photos from the pretest.

Data Reduction

The scoring protocol similar to DeLoache, Pierroutsakos, Uttal, Rosengren, and Gottlieb (1998) was used in the present study. Behaviors from the pre- and posttest were coded as well as the first 2 minutes of the reading interaction. Behaviors were coded for each second of the 2-minute pretest and posttest and for each second during the first 2 minutes of the reading interaction if (1) the infant was looking at the picture with his/her hand or hands on the page, and (2) infants' hands or fingers touched the picture or touched within a 1-cm radius around the picture. Behaviors were considered to have ended when the infant looked away, changed hands, moved his/her hand from the picture, and/or initiated a different type of behavior (e.g., rubbing or hitting). For this protocol, two main behaviors were classified: (1) manual investigations, which included infants' attempts to grasp a picture (curling of the fingers), and any other manual behavior toward the photo such as rubbing pictures or hitting pictures, and (2) pointing, which included the extension of an index finger toward the picture. Two raters scored the same 10 pre- and posttest interactions. Overall percent agreement was 77%, and percent agreement plus or minus one was 92%. For the final dataset, the two raters observed those behaviors that resulted in disagreement and reached a consensus about the toddlers' behaviors. This final dataset was analyzed.

Results

Behaviors with Photographs: Pretest-Posttest

Toddlers used both manual investigations and pointed to photos during the pretest ($r = .76$, $p < .001$), indicating that toddlers around 15 months of age are in a transition phase. Although the use of manual investigations did not change from pre- to posttest ($M = 4.31$ and 6.15, respectively, $t = 1.07$, $p = .30$), the use of pointing significantly decreased from pre- to posttest ($M = 4.77$ and 2.77, respectively, $t = 2.30$, $p < .05$). This finding suggests that following reading toddlers were less likely to point to photos.

Behaviors with Photographs versus Behaviors during Reading

To compare the rates of manual investigation and pointing between photographs and books, we examined behaviors during the pretest with photos and the behaviors used during the 2-minute reading interaction. If children were active during reading, they were likely to use both manual investigations and pointing during the 2-minute reading interaction ($r = .39$, $p = .09$). In general, children were more active with the photographs than the books, using both manual investigations and pointing ($M = 9.08$) more frequently with photographs than books ($M = 3.69$).

This trend was the same for manual investigations with photos and books (M = 4.31 and 1.46, respectively) and pointing with photographs and books (M = 4.77 and 2.23, respectively). Thus, toddlers were more likely to interact with realistic photographs compared with the pictures displayed in the picture books, particularly in their use of manual investigations.

Home Literacy Environment and Toddlers' Behaviors

We hypothesized that differences in toddlers' use of manual investigations and pointing might be related to children's home literacy environments. We calculated a total score (range = 0-12) for each family by adding the numerical scores from the four relevant questions from the reading survey. Approximately half of the parents (n= 6) reported high levels of home literacy activity (total scores of 10, 11, or 12); the other parents (n = 7) reported somewhat lower levels of home literacy activities (total scores of less than 10). Initially, we examined toddlers' overall behaviors (i.e., a total frequency of manual investigations and pointing behaviors) during the pretest and during the reading interaction separately. Albeit nonsignificant, children in families that reported less literacy activity used manual investigations and pointing more frequently compared with children in families that reported more literacy activity for both the photographs during the pretest (M = 8.43 and 3.00, respectively) and during the reading interaction (M = 4.57 and 2.67, respectively).

However, it was noted that two of the questions examined from the survey focused on parental behaviors (How often do you read with your child? How many minutes did you read yesterday?), and two of the questions focused on children's interest in books (How much does your child enjoy reading? How often does your child look at books alone?). In general, there was more variability in parental responses to children's interest in books compared with parental behaviors around literacy. We then examined the total frequency behaviors (manual investigations and pointing combined) with photographs (pretest) and during reading for these two groups of toddlers (i.e., high vs. low interest in books). Toddlers whose parents reported that the children had lower levels of interest in books tended to be more active with photos compared with toddlers whose parents reported that they had higher levels of interest in books (M = 15.1 and 3.86, respectively). Although less marked, the same pattern was found for toddlers in the lower interest group compared with the high interest group during reading (M = 5.33 and 2.29, respectively). When manual investigations and pointing with photos and books were examined for these two groups separately, toddlers whose parents reported that they had less interest in books used manual investigations with photographs more frequently compared with toddlers whose parents reported that they had more interest in books (M = 7.83 and 1.29, respectively, $F(1,12) = 4.67$, $p = .05$).

Discussion

Overall, toddlers around 15 months of age used both manual investigations and pointing when interacting with photographs and picture books. Children of this age are in the process of learning that pictures in books have meaning and that pictures can be labeled (Fletcher & Reese, 2005). Moreover, researchers have demonstrated that 15-month-olds use similar rates of manual investigations and pointing when looking at photographs (DeLoache, Pierroutsakos, Uttal, Rosengren, & Gottlieb, 1998). In the current study, 15-month-olds were more likely to interact with the photographs compared with pictures in books. This result is likely caused by the nature of the pictures. Photographs are more realistic depictions of objects than typical drawings that are found in most books. Consistent with this finding, 9-month-olds were also more likely to use manual investigation with photographs compared with line drawings (Pierroutsakos & DeLoache, 2003).

In contrast to manual investigations, pointing to photographs decreased following the reading interaction, indicating that the reading interaction may have highlighted for these young children

the function of "pictures as vehicles for conversation" (DeLoache & Burns, 1994, p. 106). Along with this explanation, teachers pointed to pictures during the reading interactions—a method that may also have served to highlight the function of pictures. Thus, when presented with photographs in a context that did not involve conversation, toddlers were less likely to use pointing. On the other hand, manual investigations of photographs did not decrease from pretest to posttest. Thus, toddlers' decreased use of pointing likely occurred because the reading interaction made more salient the function of pictures.

However, not all toddlers were active with photographs and pictures in books. It was believed that these individual differences might be related to toddlers' home literacy environments (DeLoache & Burns, 1994). One might expect that those toddlers from homes that reported higher levels of home literacy-related activities would be more active with pictures in books than toddlers from homes that reported lower levels of home literacy-related activities (although some activities were reported), but in fact, there was no difference in the rate of manual investigation and pointing during the reading interactions between toddlers in the two groups. However, toddlers whose parents reported that they had a lower interest in literacy activities used significantly more manual investigations with photographs compared with toddlers whose parents reported that they had higher levels of interest in literacy activities. Thus, toddlers with lower levels of interest in literacy activities might have less mature concepts of pictures compared with toddlers with higher levels of interest in literacy activities.

One limitation of the current study was the use of parental reports about the home literacy environment. Media attention devoted to the importance of reading to children has increased over the past decade. As such, parents might tend to overestimate the frequency of reading to their children. This tendency might explain positive results related to questions about children's *interest* in literacy-related activities and not questions related to the *frequency* of parent's reading to children. In the current study, parental responses to questions about children's interest in literacy activities were correlated with parental responses about questions related to the frequency of reading in the home ($r = .73$, $p < .001$). Therefore, it may be the case that those children with higher reported levels of interest in literacy activities were also read to more frequently in their homes than those children with lower levels of reported interest in literacy activities.

Despite this limitation, our results provide preliminary evidence for a relation between children's literacy experiences and their behaviors with photographs. Although other researchers have discussed the impact of reading to young children on language development (Fletcher & Reese, 2005), less attention has been devoted to the development of early literacy behaviors in toddlers. Behaviors such as "looking at pictures" and "pointing to pictures" are often listed as early literacy skills in children under age 3 (Snow, Burns, & Griffin, 1998). Our results indicate that exposure to books may highlight for toddlers the function and symbolic nature of pictures, and that, in some cases, toddlers' interest in books may be related to how readily they demonstrate mature (pointing, looking) or immature (hitting, grabbing) early literacy skills toward photographs.

One interesting implication of this research is to question the type of pictures presented in books for young children. According to Fletcher and Reese (2005), there are three components in a shared reading interaction—the parent, the child, and the book. Although less attention has been devoted to the impact of books on reading quality (van Kleeck, 2003), researchers have demonstrated that the type of book affects the quality of reading interactions with young children (Fletcher & Reese, 2005). Currently, many board books available for infants contain color photographs of real objects. Yet this research suggests that these books may distract infants during picture book reading. Uttal and his colleagues (Uttal et al., 1998; Uttal, Scudder, & DeLoache, 1997) have suggested that colorful, realistic manipulatives (e.g., small objects for counting) used to teach mathematics might actually hurt children's math performance because of their limited understanding of symbols. The same reasoning may also apply to the use of realistic, color photographs in books for infants. On the other hand, books with realistic, color

photographs may engage very young children to explore pictures and books more frequently than books with other types of artwork. In the current study, toddlers used more manual investigations and pointing with photographs and fewer manual investigations and less pointing with picture books. One direction for future research would be to compare toddlers' behaviors with photographs and books that have photographs.

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References

Acredolo, Linda P., & Goodwyn, Susan W. (1988). Symbolic gesturing in normal infants. *Child Development, 59*(2), 450-466.

Bretherton, Inge; O'Connell, Barbara; Shore, Cecilia; & Bates, Elizabeth. (1984). The effect of contextual variation on symbolic play: Development from 20 to 28 months. In Inge Bretherton (Ed.), *Symbolic play: Representation of social understanding* (pp. 271-297). New York: Academic Press.

DeLoache, Judy S. (1987). Rapid change in the symbolic functioning of very young children. *Science, 238*(4833), 1556-1557.

DeLoache, Judy S. (1989). Young children's understanding of the correspondence between a scale model and a larger space. *Cognitive Development, 4*(2), 121-139.

DeLoache, Judy S. (1995). Early symbol understanding and use. In Douglas L. Medin (Ed.), *The psychology of learning and motivation: Advances in research and theory* (Vol. 33, pp. 65-114). New York: Academic Press.

DeLoache, Judy S., & Burns, Nancy M. (1994). Early understanding of the representational function of pictures.*Cognition, 52*(2), 83-110.

DeLoache, Judy S., & DeMendoza, Olga A. P. (1987). Joint picturebook interactions of mothers and 1-year-old children. *British Journal of Developmental Psychology, 5*(2), 111-123.

DeLoache, Judy S.; Kolstad, Valerie; & Anderson, Kathy N. (1991). Physical similarity and young children's understanding of scale models. *Child Development, 62*(1), 111-126.

DeLoache, Judy S.; Pierroutsakos, Sophia L.; & Troseth, Georgene L. (1996). The three Rs of pictorial competence. In Ross Vasta (Ed.), *Annals of child development* (Vol. 12, pp. 1-48). London: Jessica Kingsley.

DeLoache, Judy S.; Pierroutsakos, Sophia L.; Uttal, David H.; Rosengren, Karl S.; & Gottlieb, Alma. (1998). Grasping the nature of pictures. *Psychological Science, 9*(3), 205-210.

DeLoache, Judy S.; Strauss, Mark S.; & Maynard, Jane. (1979). Picture perception in infancy. *Infant Behavior and Development, 2*(1), 77-89.

Dirks, Jean, & Gibson, Eleanor. (1977). Infants' perception of similarity between live people and their photographs. *Child Development, 48*(1), 124-130.

Fletcher, Kathryn L., & Reese, Elaine. (2005). Picture book reading with young children: A conceptual framework. *Developmental Review, 25*(1), 64-103.

Franco, Fabia, & Butterworth, George. (1996). Pointing and social awareness: Declaring and requesting in the second year. *Journal of Child Language, 23*(2), 307-336.

Gauvain, Mary. (1995). Thinking in niches: Sociocultural influences on cognitive

development. *Human Development, 38*(1), 25-45.

Marzolf, Donald P., & DeLoache, Judy S. (1994). Transfer in young children's understanding of spatial representations. *Child Development, 65*(4), 1-15.

Masur, Elise Frank. (1981). Mothers' responses to infants' object-related gestures: Influence on lexical development. *Journal of Child Language, 9*(1), 23-30.

Murphy, Catherine M. (1978). Pointing in the context of a shared activity. *Child Development, 49*(2), 371-380.

Ninio, Anat, & Bruner, Jerome. (1978). The achievement and antecedents of labeling. *Journal of Child Language, 5*(1), 1-15.

Pierroutsakos, Sophia L., & DeLoache, Judy S. (2003). Infants' manual exploration of pictorial objects varying in realism. *Infancy, 4*(1), 141-156.

Rose, Susan A. (1977). Infants' transfer of response between two-dimensional and three-dimensional stimuli.*Child Development, 48*(3), 1086-1091.

Slater, Alan; Rose, David; & Morison, Victoria. (1984). New-born infants' perception of similarities and differences between two- and three-dimensional stimuli. *British Journal of Developmental Psychology, 2*(4), 287-294.

Snow, Catherine E.; Burns, M. Susan; & Griffin, Peg (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.

Uttal, David H.; Marzolf, Donald P.; Pierroutsakos, Sophia L.; Smith, Catherine M.; Troseth, Georgene L.; Scudder, Kathryn V.; & DeLoache, Judy S. (1998). Seeing through symbols: The development of children's understanding of symbolic relations. In Olivia N. Saracho & Bernard Spodek (Eds.), *Multiple perspectives on play in early childhood education* (pp. 59-79). Albany: State University of New York Press.

Uttal, David H.; Schreiber, Jill C.; & DeLoache, Judy S. (1995). Waiting to use a symbol: The effects of delay on children's use of models. *Child Development, 66*(6), 1875-1889.

Uttal, David H.; Scudder, Kathryn V.; & DeLoache, Judy S. (1997). Manipulatives as symbols: A new perspective on the use of concrete objects to teach mathematics. *Journal of Applied Developmental Psychology, 18*(1), 37-54.

van Kleeck, Anne. (2003). Research on book sharing: Another critical look. In Anne van Kleeck, Steven A. Stahl, & Eurydice B. Bauer (Eds.), *On reading books to children: Parents and teachers* (pp. 271-320). Mahwah, NJ: Lawrence Erlbaum.

Werner, Heinz, & Kaplan, Bernard. (1963). *Symbol formation*. New York: Wiley.

Whitehurst, Grover J. (1993). *The Stony Brook family reading survey.* Stony Brook, NY: Author.

Children's Literature Cited

Henderson, Kathy. (1995). *Counting farm.* Cambridge, MA: Shaw's Candlewick Press.

Hughes, Joleen. (1994). *Things*. Avenel, NJ: Derrydale Books.

Oxenbury, Helen. (1985). *I hear.* London: Walker Books.

Oxenbury, Helen. (1985). *I see.* Cambridge, MA: Candlewick Press.

Paterson, Bettina. (1992). *Baby's ABC.* New York: Grosset & Dunlap.

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