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The scaffolding of emergent literacy skills in the home environment: A case study

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Abstract

The ways in which parent-child interactions can encourage the development of emergent literacy skills in young children remains to be fully explored. The present report describes how one parent scaffolded her young child's emergent writing and letter knowledge in the home. Environmental print provided many rich and meaningful examples for the parent to show that print conveys meaning and is constructed with letters that have names and make sounds. The parent used idiomorphs, a multisensory approach incorporating the tracing of letters and whole body movements, and common household objects to guide the child's learning of letter names, sounds, and shapes. Emergent writing skills were scaffolded by using directional language and by the child copying environmental print. The strategies and examples that are described may give guidance to parents and teachers on how to provide engaging opportunities for literacy learning in the home environment or in an early educational context.

Keywords: emergent writing skills; alphabet knowledge; print motivation; scaffolding; parent-child interaction; multisensory learning; environmental print.

The scaffolding of emergent literacy skills in the home environment: A case study

Parents can play a key role in fostering positive early learning opportunities that have an important impact on their child's emergent literacy skill development prior to school entry (Ehri & Roberts, 2006; Saracho, 1997). While many parents engage in daily storybook reading with children, formal literacy teaching is more relevant in children's literacy acquisition (Hood, Conlon, & Andrews, 2008). Recently, joint writing activities have also been found to be more effective than storybook reading in facilitating the development of emergent literacy skills in young children (Aram & Biron, 2004; Ritchey, 2008). However, far fewer parents engage pre-school children in these types of interactions (Wood, 2002). This suggests that parents may benefit from information on simple literacy teaching strategies and activities that they can confidently implement in the home and which will foster the development of literacy skills.

Vygotsky's (1978) socio-cultural perspective provides a natural framework within which to view parent-child literacy interactions. Within each literacy interaction parents can provide enough guided participation as is necessary to scaffold the child's movement within their zone of proximal development. *Scaffolding* refers to the use of tools or techniques to allow a child to achieve a goal that would otherwise be beyond his or her unassisted efforts (Wood, Bruner, & Ross, 1976). The techniques of materialization and private speech provide examples of how scaffolding can be applied in a literacy activity (Bodrova & Leong, 1998). Materialization refers to the use of concrete objects or actions to represent a concept. Private speech refers to a child providing their own audible instructions during a challenging task. In a study of 5 year old kindergarten children, Bodrova and Leong used materialization by drawing lines to represent units of speech in written form. Private speech was also used by encouraging the child to reread aloud of what had been written so that it prompted the next word the child had planned to write. Both techniques helped the children to move within their zone of proximal development.

Furthermore, Aram and Levin (2002) found that when mothers used guided participation (e.g., word segmenting, retrieval of letter shapes and printing) during joint writing activities with their kindergartner children there was a positive effect on the child's word writing and recognition and phonological awareness.

A scaffolding approach can be facilitated by the use of educational materials designed to teach literacy skills. However, there might be significant advantages to parents by making use of *environmental print*. Young children are aware from an early age that environmental print, such as product labels, clothing, road signs, and advertisements, communicates meaning (Kuby, Goodstadt-Killoran, Aldridge & Kirkland, 1999). The use of environmental print during parent-child interactions thus provides a meaningful way to expose children to literacy concepts like letter shapes and letter sounds (Elliot & Olliff, 2008). The ubiquitous nature of environmental print can give the parent and child many opportunities for spontaneous learning experiences. Moreover, environmental print may encourage parent-child interactions to be more informal and eliminate the need for the parent to purchase or prepare any special educational materials.

The present report describes how a mother scaffolded her child's emergent literacy skills prior to school entry. The descriptions are predominantly focused on the scaffolding methods used by the mother and, when relevant, how they were elicited by environmental print. In addition to the learning of letter names and sounds, we describe the child's writing development. In recent years, attention has shifted towards the important role of writing activities in facilitating the development of emergent literacy skills in young children (Ritchey, 2008; Mayer, 2007). Joint writing activities, for example, have been shown to be more effective in enhancing children's emerging skills in phonological awareness, letter knowledge, word writing, and orthographic awareness than story book reading (Aram & Biron, 2004). Through early writing activities such as drawing and forming letter shapes in a variety of ways, children are able to

increase their awareness and use of print, which, in turn, encourages them to examine their writing and ask “what does this say?” (Clay, 1975).

Description of the Child

Harry was from a middle income family. Both parents (first and third authors) had tertiary education and professional occupations. Family SES using the Hollingshead 4-factor index (Hollingshead, 1975) was 59.5 (maximum score = 66). Harry’s cognitive and physical development was normal. Harry did not experience any letter drills, phonetic instruction, or formal reading teaching prior to school entry.

Parent-Child Interactions and Strategies

The mother made notes of parent-child dialogue during selected guided literacy and joint-writing interactions with Harry from when he was 2 years old until he commenced school at 6 years of age. It was not possible to record every single literacy interaction due to the spontaneous nature of these interactions; however, those recorded were indicative of the general nature of these interactions. The information collected was collated and examined to determine the common techniques used by the mother, to provide examples of the types of environmental print encountered, and to provide representative samples of Harry’s writing development and the dialogue that occurred between the mother and child.

Discovering print and understanding that it has meaning

Harry was introduced to print from 2 years of age through an informal approach that was spontaneously elicited by encounters with environmental print. Piaget (as cited in Biehler & Snowman, 1997) argued that children at this age can begin to attach oral words and symbols to physical objects. Typical examples of the environmental print used were signs; labels on food packaging; brand names on objects; text and labels on clothing; and written materials (e.g., shopping list). In addition, because environmental print is relatively stable (e.g., a STOP sign

does not move and the label on the child's favourite food packaging stays the same each week), Harry was provided with many repetitive and advantageous opportunities to engage with the same print and learn about the letters and words in a meaningful way (Kuby et al., 1999). Adams (1990) argued that children may learn to separate print from its non-print context through such repeated engagements with environmental print.

When Harry was 2 years of age, the mother initiated interactions that focused on scaffolding his ability to differentiate print from pictures and photos on environmental print. One such example occurred when the mother was making Harry a chocolate milk drink using the chocolate powdered product Milo. The mother pointed to the print and said "Look, that says Milo. Look at the 'MMM' for Milo it goes up, down, up down" while tracing the letter M with her fingers. She asked Harry where the cup was on the food packaging. He pointed to the picture of the cup enthusiastically saying "Cup". The mother pointed to the print again running her finger under the letters and said, "There's the letter M for Milo", then they both pointed to the letters and the mother said "Look there's an 'O'. It goes around and around like the wheels of a car." Harry and his mother moved their arms around and around in the air in the shape of the letter O. These types of print identification interactions were repeated on a daily basis and strengthened Harry's print awareness and motivation to explore letters further.

From 2 ½ years of age, Harry began to point out environmental print spontaneously, suggesting that he enjoyed interacting with his mother about environmental print and had learnt to distinguish print from non-print. This differentiation of print and pictures extended to the exploration of story books. Harry pointed to text in a book and said "up downs" and next pointed to pictures and labeled them verbally and correctly. For instance, Harry said "Look dog!" when referring to the picture of a dog then pointed to the corresponding page of print and said "up downs" As this example shows, the mother and child used the term *up downs* to refer to print

during interactions (Neumann, 2007). The term functioned as an idiomorph (Otto, 2008) when Harry did not know what the print “said” but knew it was print rather than pictures. Consistent with Vygotsky’s (1978) theories of scaffolding and use of language as a learning tool, the idiomorph allowed Harry to communicate with his mother about print from an early age, until he became more familiar and able to articulate the verbal labels of print (such as letter and number names). After 4 years of age, the scaffolding “up downs” term was no longer needed as Harry had become familiar with most letter names and would use those to refer to print.

Learning about letter names, shapes, and sounds

After Harry was able to differentiate environmental print from pictures and understood that print had meaning, the mother increasingly focused on individual letters within the print. Exposure to some relevant environmental print prompted the child or mother to point out the print. Thus, interactions were both parent-initiated (e.g., “What does this say?”) and child-initiated (e.g., “What dis [sic] say?”). Once both mother and child were oriented towards the discovered print, its meaning was pointed out by the mother (e.g., “This says Weetbix. You are eating yummy Weetbix for breakfast.”). Finally, the mother examined the individual letters. She tended to focus on capital letters. Adams (1990) noted that capital letters are easier than lower-case letters to visually recognize and differentiate from one another and their shapes are easier to physically form. Also, letters on accessible environmental print (e.g., on cereal boxes, posters or signs) were mostly large and upper case.

The mother used a multisensory approach to scaffold the learning of letter shapes. Such an approach can lead a child to process and retain language knowledge more efficiently (Moats & Farrell, 2005). In one of the earliest recorded applications of multisensory learning, Orton (1928, cited in Birsh, 2005) asked children to trace the letters in words with their finger whilst the word was pronounced. In addition to the tactile tracing of letters, the mother engaged the child’s visual,

auditory, and kinesthetic senses. For the visual sense, the mother encouraged Harry to look at and point to the environmental print (e.g., “Look, Harry, it says *MILK*” while pointing to the label on a milk bottle). For the auditory sense, the child listened to the mother saying the word and making the sound of the first letter (e.g., “That’s the letter *M* for *MILK*. The letter *M* makes a *MMM* sound”). The child was encouraged to say the word, the letter name, and to make its sound. The mother also talked about other words that started with the same letter in order to foster Harry’s phonetic awareness and letter name knowledge (e.g., “*M* is also for Mouse and Moon”). For the kinesthetic sense, Harry was encouraged to move his arm and hand in the shape of the letter as a way to link physical activity to writing. The mother verbally guided the child through the motions by using the terms “up”, “down”, “around”, and “across” as appropriate (e.g., “*M* for *MILK* goes up, down, up, down” while making the shape of the letter in the air). These directional terms were familiar to the child due to general daily interactions, stories, and nursery rhymes (e.g., Jack and Jill went *up* the hill). The same directional terms were also used later when Harry was drawing and writing. Finally, for the tactile sense, the mother encouraged Harry to trace the letter shapes on the environmental print with his finger (e.g., traced the letter *M* on the milk bottle).

The interactions between the mother and child that began with environmental print also transferred to other contexts. During playtime, the mother encouraged Harry to trace plastic and magnetic letters whilst saying aloud the directions of the lines that formed the letter shapes (up, down, across, and around). Harry was also encouraged to form letter shapes when playing with modeling clay or making cookie dough. He self-initiated many letter forming activities himself by using food when eating or playing with household materials. For example, Harry made the letter *E* out of fish fingers, he broke a donut in half and exclaimed that he had made a “*C* for cat”, he made a *V* from fallen tree branches in the garden, and was excited when he made a round “*O*

for octopus” out of some old string he had found. Thus, Harry’s motivation for print was fostered during joint parent-child interactions, but he himself extended these episodes in his own play, utilizing the same speech his mother had previously used. This indicated the value of the initial scaffolding and private speech that the mother provided in assisting Harry to internalise and self-guide his own play with letters and print. During joint story book reading, Harry was encouraged to point out letters that went up, down, around and across (e.g., “F for Fish goes down, across and across”) and to trace them with his finger saying the directions, then signing the letter shapes in the air.

During the period that this report describes, a page containing a printed list of upper-case alphabet letters in Century Gothic font size 72 was used to assess Harry’s letter name and sound knowledge at regular intervals. The mother pointed to the letters in random order and asked Harry the name and sound of the letter. Harry correctly named 16 letters at 3 ½ years, 19 letters at 4 ½ years, and 20 letters at 6 years. Harry’s letter-sound knowledge was 11 letter sounds at 5½ years and 15 letter sounds at 6 years of age.

Joint writing strategies

From as soon he was able to grasp a crayon, Harry was provided with many opportunities to scribble and draw. At 2 ½ years of age, Harry was encouraged to draw large up, down, around and across movements on a vertical chalk board. This pre-writing gross motor activity helped Harry link these physical experiences with his previous encounters with environmental print where he had visually explored and physically traced vertically positioned letters using directional language (up, down, around and across). At 3 years of age this activity was transferred to drawing these line shapes on paper positioned horizontally facilitating his fine motor control development. Writing samples were collected throughout Harry’s development. Examples are presented in Figure 1 in order to show Harry’s development at specific ages (2½, 3½, 4½, 5½ and

6 years of age) and to illustrate some of the key outcomes of the approach that was used. As the samples indicate, Harry progressed through the normal stages of writing development. In some cases, however, the developmental milestones appeared to occur slightly earlier and were more controlled than the age ranges indicated in Baghban's (2007) stages of writing development.

Insert Figure 1 about here

At 2½ years, when controlled scribbling is normally evident (Baghban, 2007), Harry's mother scaffolded the marks he made by using the directional terms of "up", "down", "across", and "around". As can be seen in Figure 1, this assisted Harry to produce scribbling that approximated some simple letters (e.g., A, T, M, and O). By 3½ years of age, these scaffolded interactions resulted in Harry being able to independently draw 7 simple letters that went up, down, around and across (e.g., O, T, and M) as well as his name (see Figure 1 for examples). Scaffolding then focused on more complex letters (e.g., R and P) that were currently in Harry's zone of proximal development. He was also able to draw an S because he had been encouraged to "slide your finger down the snakey letter S" as he traced it with his finger on environmental print such as on a sultana packet or in a story book. Similar to the focus on capital letters when identifying letters in environmental print, the scaffolding of letter formation by the mother also focused on capital letters.

At 4½ years of age, Harry was able to write most of the alphabet letters on request. If he was unsure of how to write a specific letter his mother would scaffold his letter formation using directional instructions. For example, the mother would say "Can you write 'A' for apple. Remember it goes up, down and across". In order to further incorporate multisensory learning, Harry would first sign it in the air with his mother before independently writing it on paper whilst

using the private speech provided earlier by his mother (“up, down, around and across”). Harry was also able to write whole words and sentences using this scaffolded strategy. For example, after completing a joint writing activity (making an alphabet book) Harry wrote “Stop! We are finished” (Figure 1). In writing this, his mother spelt out the letters of each of the words and, for those letters that Harry requested help to write (e.g., the letter “R”), used the directional terms to scaffold his writing (e.g., “up, down, around and across”).

By 5½ years, Harry was showing evidence of independent writing of letter strings with no correspondence to real words (pre-phonetic spelling). In addition, the scaffolding strategy was continued by using the directional terms to guide Harry when writing words. Harry appeared to generalize this approach to numerals that he encountered in environmental print. For example, Harry would say the directions of the number shapes (e.g., “7 goes across and down”) as he wrote them. Harry now formed the idea of what text he wanted to write and asked his mother for guidance on spelling. The dialogue between the mother and child that led to the writing shown in Figure 1 at 5½ years of age was as follows:

Harry: *How do you write “MONSTER”?*

Mother: *An M for MMonster goes up, down, up, down. [Harry drew the M]. An O comes next.*

Harry: *It goes around like the wheels of a car [Harry utilised his own self-guiding private speech to accurately draw the letter O]*

Mother: *An NNN for nut comes next – it goes up, down, up [Harry drew the letter N].*

Then an S for snake [Harry made an SSS sound and drew the letter]. Remember to slide your pencil down Mr Snake’s back. Then a T for Toy tuh, tuh, tuh.

Harry: *It goes down and across [He directionally signed the letter in the air with his arm then drew it on paper].*

Mother: *Then an E for ...*

Harry: *Egg – I know – it goes down across, across and across* [He drew the letter].

Mother: *Then the last letter is an RRR for Rabbit. It's the tricky one. It goes down, around and down. Let's write it in the air.* [He drew the letter in the air and then on paper]

Mother: *That's great writing – you wrote the word "MONSTER"! Let's read it together.*

By 6 years of age,, Harry evidenced phonetic spelling by saying the sound of letters in words and writing them down. He could independently write in sentence form using correct upper and lower case letters (see Figure 1 for an example). His ability to confidently form lowercase letters at the start of year 1 was surprising as his mother had only focused on upper case letters in environmental print. In most situations, Harry no longer needed to sign shapes in the air or say their directions aloud. Harry had internalized the ability to write letters and words. However, Harry could occasionally be heard whispering the directions of some letters when he wrote independently at home. Winsler and Naglieri (2003) described this progression from external speech via whispering and silent lip movements to fully internal or private speech as a characteristic developmental pattern observable as children complete challenging tasks.

Print motivation

Observations indicated that Harry's print motivation during the parent-child interactions with environmental print and joint writing activities was high. He responded enthusiastically during the interactions and used the active multisensory approach to investigate the environmental print he discovered. He also linked the multisensory approach to his drawing and writing, which motivated him to explore reading and writing further. He did not get frustrated when he wanted to write something new because he knew his mother could scaffold his letter formation and spelling using the directional terms up, down, around and across. Several learning experiences were observed during Harry's development to suggest that his enthusiasm and self-

motivation to write may be at least partly attributable to the approach used. For example, the writing sample shown in Figure 2 was collected when Harry was engaged in a child-initiated writing activity (Figure 2). Harry was drawing when he spontaneously began to copy the environmental print brand name label (TEXTA) of the pens that he was using. The sample also indicates that Harry was intrinsically motivated to self-correct his letter shapes as he said aloud the directions of the letter shapes as he drew them. As shown in Figure 2, he persisted with the use of the directional language to guide his letter formation until he got the X at a more correct orientation.

Insert Figure 2 about here

Discussion

The important role that parents can play in scaffolding their child's emergent literacy learning has been well documented (e.g., Otto, 2008). The present study focused on describing strategies used by one parent during interactions that made use of environmental print and joint writing activities. Environmental print was shown to be an extremely useful tool to utilize. The child's guided exposure to environmental print from 2 years of age helped him to develop the visual skills needed to orient towards print (Clay, 1975) and acquire alphabet knowledge. It proved to be an abundant stimulus the parent could use to motivate the child from 2 years of age to become aware of letters. Environmental print is non-costly, highly accessible, and available for use by parents from a range of socioeconomic and cultural backgrounds.

The use of environmental print in combination with a multisensory strategy of physically forming letter shapes proved to be enjoyable for the child. As the child developed, he was motivated to explore print in various formats and used this print knowledge as a foundation to

explore letters and words further (e.g., tracing environmental print with his finger and transferring this knowledge to drawing letter shapes on paper then writing through the scaffolding technique using directional language). The scaffolded guidance in letter and word formation that the parent provided (using the *up down* idiographic language) meant that the child did not become frustrated when writing new words. These tools were also found to enhance the child's kinesthetic memory of the letter shapes and his learning of letter names and sounds (e.g., "B for Baby goes down, around and around"). In accordance with Vygotskian (1978) principles of continual movement in the zone of proximal development, the scaffolding tools of materialization (physically forming the directions of letter shapes through tracing and forming letter shapes in the air) and private speech (saying aloud the directions of letters - up, down, around and across) were no longer used when the skills of writing a particular letter shape had moved into the child's level of independent mastery.

It is likely that the approach described in this case study is reliant on a quality relationship between parent and child. Dodici, Draper, and Peterson (2003) found that the quality of parent-child interactions (e.g., the degree of sensitivity, responsivity, guidance and attention) at 2 years predicted literacy outcomes in the children at 4½ years. Secure attachments, which are characterised by sensitivity and responsiveness, are associated with a greater frequency of shared reading activities such as pointing, labeling, and commenting (Bus, Belsky, van IJzendoorn & Crnic, 1997). The approach outlined in this paper also requires a certain degree of sensitivity, responsivity, guidance and attention. For example, the parent must be alert to the child's attention to environmental print and capitalise on these spontaneous encounters in order to instigate a learning opportunity. However, beyond that, the spontaneous nature of the triggers for the literacy interactions mean that they can occur in the midst of everyday activities (such as mealtimes, shopping, travelling in the car) and so do not present an onerous time burden on even

the busiest of parents. This approach is also suitable for use by parents with low literacy skills themselves, as most adults can identify common environmental print logos and individual letters, which are the essential requirements for the literacy interactions. Parents who themselves are poor readers may not engage in storybook reading or other common early childhood literacy activities due to their own lack of confidence. This approach provides a non-threatening, enjoyable avenue for them to explore print with their child.

In summary, the preliminary evidence obtained suggests that the scaffolding approach, incorporating environmental print and a multisensory approach, is a promising approach for supporting early literacy skills, particularly emergent writing skills, alphabet knowledge and print motivation. It may also have great potential as an early intervention/enrichment literacy program for young children at risk of developing reading and writing difficulties. The multisensory approach used in the present study could be applied in direct instruction methods. The whole body movements, directional signing using the terms “up”, “down”, “around”, and “across”, forming letter shapes in the air, and tracing of letters links physical activity to writing. These methods also increases motivation and engagement and could thus facilitate learning in preschool educational environments. However, further evidence is needed to clarify the cause of the outcomes observed in this case study and to determine what more generalisable or long-term benefits they might have for literacy development in children. A controlled, randomized trial of this approach, with standardized quantitative measures is needed to ascertain the benefits of the approach for scaffolding young children’s emergent writing and literacy skills. Future research could examine the approach as used by the parent in a home environment and by a teacher in a toddler-preschool educational context.

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Figures

Figure 1. Writing examples showing Harry's writing development through scaffolding during parent-child interactions. At 2½ years, Harry drew controlled lines that went up, down, around, and across. At 3½ years, Harry drew recognizable letters under guidance from the parent on the types of movements required for each letter (e.g., "round-and-round goes the letter O"). At 4½ years, Harry wrote "STOP! WE ARE FINISHED" through parent scaffolding of each letter and used finger spacing between words. At 5½ years, Harry drew a picture and asked the parent how to write "SCARY MONSTER". The parent stated each letter in sequence that was required for the correct spelling and scaffolded the formation of the more difficult letters (e.g., letter R). At 6 years, Harry was able to write letters, words, and sentences conventionally without parent mediation.

Figure 2. During an independent, child-initiated writing exercise at 5½ years, Harry spontaneously copied environmental print and used self-correcting skills whilst scaffolding his own writing by saying to himself the letter directions.

2½ Years

A N + M
M + H N + O O

3½ Years

A WIMIT O

4½ Years

STOP!
WE ARE FINISHED

5½ Years

SCARY MONSTER



6 Years

The pigs in the Tub.

T E T

T E T

T E X

T E X T A