CHAPTER ONE

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What We Know About Environmental Print and Young Children

From Theory and Research to Practice

The strategies, activities, and games offered in this book are not just cute ideas. They represent what we have learned from a growing body of research about how children learn to read and write with the help of logos, labels, road signs, billboards, and other print found in their natural environment. This chapter is divided into three sections. The first section describes the conceptual framework for environmental print. The second part explains what researchers have discovered about children and environmental print. Finally, the third piece describes appropriate ways to use environmental print.

The Conceptual Framework for Using Environmental Print

The 2nd week of the school year has just begun, and Michelle's principal drops by for a short visit. As Beth, the principal, moves slowly throughout the room, she notices some children sorting logos, others are making books using cereal boxes, while others are in a restaurant center playing customers, waiter, and clerk. Beth seems amused but is not sure what is going on or why. She politely asks Michelle to explain. Michelle is quick to point out that some of the children are engaged in environmental print games and activities. While Michelle seems confident in telling what is happening, she is less sure about the second important question that Beth asks: "Why are the children doing this?" Though we don't expect Michelle to launch into the numerous research studies that have been conducted on the efficacy of environmental print, we hope she will be able to tell her principal a bit about the theories that underlie its use and some key findings that support it.

Constructivism and Contextualism

Environmental print is based on the theories of constructivism and developmental contextualism, as well as what we know about early literacy. While there are many "brands" of constructivism, Piaget is most recognized for his general scientific theory about how children construct knowledge (Goretta, 1977; Kamii, 1991; Piaget, 1970). Although he did not propose a specific theory about reading and writing (Kamii, 1991), Piaget's theory of how children construct knowledge provided a much broader framework that allows individuals to understand any process of acquiring knowledge (Ferreiro & Teberosky, 1982). Simply put, children construct knowledge from the inside out by interacting with their environment. This is true for literacy in general and for environmental print more specifically.

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Vygotsky (1978) also recognized the importance of children's construction of knowledge but took a more contextual view. Vygotsky created a theory that allowed for both the natural line that emerges from within the child and the social-historical line that influences the child from without. One of Vygotsky's greatest contributions was his idea of the zone of proximal development. Each child has a *zone of proximal development,* defined as the distance between the child's actual developmental level, as determined by the child's independent problem-solving ability, and the level of potential development, as determined through problem solving with adult guidance or peer collaboration. Since literacy is specific to each language and culture, a young child needs some assistance in making sense of environmental print from a more able peer or teacher.

Bronfenbrenner (1977, 1986) believed that children are influenced by multiple contexts in which there are reciprocal interactions between children and their environments. Children are affected by face-to-face interactions, such as those that occur at home or school. However, children are also influenced by their parents' or guardians' workplace and the social, historical, political, and economic realities of the times. The day-to-day context of children is especially important in using environmental print to plan and implement an integrated curriculum to meet children's needs.

What We Know About Early Literacy

The effective use of environmental print has also developed from what we have learned about early literacy. Ferreiro and Teberosky (1982) studied the literacy knowledge of first-grade children before instruction in reading began and later at various times during the school year. They found that

children's learning processes may take paths unsuspected by the teacher. Even the children with limited exposure to print had accumulated knowledge about print before they came to school.

To further explore the influence of the environment and what children know about print at different ages, Ferreiro and Teberosky (1982) undertook another study of children from lower- and middle-class backgrounds. The middle-class children were 4 and 5 years of age and attended private kindergartens or preschools. The lower-class 4- and 5-year-olds attended kindergarten or preschools attached to public schools. After analyzing their data, Ferreiro and Teberosky attempted to explain the developmental processes of children learning to read and write and to offer their interpretations and implications for instruction. They found that young children progress through various hypotheses about written language until they develop ideas similar to those of older children. It was their observation that children are not passive learners of language but active participants in the language of their environment.

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before they come to school.*

Yetta Goodman (1984b), through years of study on how children construct literacy, also realized that children's inventions and approximations about literacy in a society full of print begin long before the child comes to school. Goodman recognized the importance of social context and a developmental view of learning. She also hypothesized that children develop ideas about literacy just as they develop ideas in other areas of learning. Children actively construct their notions concerning literacy through their participation in a literate society.

More recently, Piper (2003) synthesized the research on early language and literacy development and found six factors related to preschool learning that are of particular importance when children enter school:

1. Children's readiness varies greatly.

2. Children have a large say in what they will and will not learn.

3. Play is important to children's language and literacy learning and development.

4. Parents are facilitators, not instructors.

5. Social interaction is central to children's language and literacy learning.

6. In fact, language learning is best achieved through social interaction.

Environmental print can easily address these six factors related to preschool learning. We have found that environmental print can be used to accommodate different levels of readiness, encourage literacy play, and promote social interaction necessary for literacy learning.

Research on Environmental Print

A joint literacy statement published by six professional national education organizations (Schickedanz, 1986) included a list of what young children already know before they come to school. The professional organizations agreed that many children are reading environmental print, such as road signs, grocery labels, and fast-food signs, before they come to school (Kuby, Goodstadt-Killoran, Aldridge, & Kirkland, 1999).

Reading environmental print is something children often engage in before reading print in books (Aldridge & Rust, 1987; Letchman, Finn, & Aldridge, 1991; McGee, 1986; Miller, 1998; Prior & Gerard, 2004; Wepner, 1985). Marie Clay (1993) found that children explore the details of print in their environment—on signs, on cereal packages, and in television advertisements. They develop concepts about print in their environment and about books. Consequently, more advanced concepts emerge out of children's earlier understandings. This leads to the formation of primitive hypotheses about letters, words, or messages they see.

Children explore the details of print in their environment—on signs, on cereal packages, and in television advertisements.

Jump-Starting the Literacy Process

Clay (1993) wrote about the widely held belief that school is easier for children who had a rich preschool literacy experience than for those who had few such opportunities for learning. She believed that all children are ready to learn something but will start at different places. When children enter school, it is the teacher's responsibility to find out where they are developmentally—what they know and can do—and to build on that foundation, whether it is rich or meager. Clay thought that each child must be allowed to start with what he or she already knows and use that knowledge to support what has to be learned next. Most children already know some environmental print when they enter school.

Adams (1990) suggested that children who grow up in a print-rich environment seem to learn that print is different from other kinds of visual patterns in their environment. They also learn that print is print across any variety of physical media. Children notice that print is all around them and that it forms different categories, such as books, newspapers, lists, and price tags. It appears on signs, boxes, television, or fabric. Soon, children

notice that print is used by adults in different ways. Children quickly realize that print symbolizes language and holds information—for example, the TV schedule tells them whether there is anything interesting on television. They also learn that print can be produced by anyone.

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From major research on early literacy development conducted with Spanish-speaking children in Mexico and Argentina (Ferreiro & Teberosky, 1982), Yetta Goodman (1986) concluded "that the differences in language did not constitute a barrier to the application of basic ideas in a field so language dependent as literacy" (p. 12). Lee's (1989) research on emergent literacy of Mandarin-speaking children in Taiwan supported Goodman's conclusions. Lee found that children in Taiwan were aware of environmental print, just as American children were, even before they received formal reading and writing instruction. These Taiwanese children also relied on contextual clues, with young children (3-year-olds) being less able than older children to read environmental print.

Case Studies on Early Literacy Development

Harste, Burke, and Woodward (1982) attempted to explain further the process of growing print awareness in children by having 4-year-olds perform several tasks, the first of which involved environmental print. The authors made the following conclusions at the end of their research:

- Preschool children discover much about print prior to formal language instruction.
- Formal instruction programs often assume that young children know little of anything about print.
- Teachers should begin formal language instruction by building on the many language strategies that children have already developed on their own.
- Teachers need to assist children in discovering the predictability of written language in a variety of real-world, whole language contexts.

Woodward, Harste, and Burke (1984) affirmed that children's experiences in reading signs and logos are valuable. The authors observed and interacted with children to discover how they deliberated about logos. Their findings were that the children's responses concerning the logos were the direct outcome of their previous experiences.

Bissex (1980) observed her son Paul learning to read and write. The first two words he learned to read were his name and the word "Exit," in the context of a green sign on the side of the road.

Laminack (1991) studied his son Zachary's reactions to many different print forms beginning at 15 months of age.

Miller (1996, 1998) studied her daughter Katie from 3 to 5 years of age and found that she explored environmental print on a daily basis, including junk mail and the newspaper.

Print Knowledge

Yetta Goodman (1984a) noted that even those children whose standardized tests predicted failure in reading demonstrated that they had knowledge about written language. They knew that the print in books and on other objects in the environment communicated written language messages. They understood the meaning of the sign that says "stop," even though sometimes they referred to the word as "don't go" or "brake car" before they learned the words "stop." In another study, Goodman (1980) found that children learn about reading and writing as they participate in environmental print activities.

Contextual Clues

Ylisto (1967) believed that children proceed through a process of learning to read environmental print in five identifiable steps:

1. Seeing a *photograph* of a symbol in its natural setting
2. Seeing a *drawing* of the symbol in its natural setting
3. Seeing the *symbol* printed *in isolation*
4. Seeing the *symbol* printed *in a sentence*
5. Seeing the *symbol* printed *in story context*

In early studies of environmental print conducted by Ylisto (1967) and others (Cloer, Aldridge, & Dean, 1981/1982), the authors concluded that many children learning to read environmental print were unable to successfully read symbols in the later stages when they were presented without contextual clues. However, a more recent study by Kuby, Aldridge, and Snyder (1994) found that kindergarten children increased their noncontextual word recognition when their teachers took time during environmental print instruction to write the words of the logos in manuscript form. As a result, these students were better able to make the transition from logos in context to logos written in manuscript to logos embedded in a sentence and to logos typed.

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Noncontextual word recognition increases when teachers take the time to write the words of logos in manuscript form.

Attitudes Toward Reading

Wepner's (1985) study of 3.5- and 4.5-year-olds from middle-class homes found that those who used logo books for 15 to 20 minutes per week with a researcher were able to identify more logos than others in a control group that did not use the logo books, were more positive about their ability to learn to read than those in the control group, and were more aware of print in their environment than those in the control group. They also displayed more confidence and competence in reading words after the study concluded.

By using print in children's natural surroundings, children learn to recognize logos in and out of context (Wepner, 1985). Wepner also believed that linking logos of places and things with important people in the children's lives helped them develop competence and self-esteem. Children who experience success will approach reading eagerly instead of with fear.

Adult Intervention and Supervision

Several studies (Kuby & Aldridge, 1997; Neuman & Roskos, 1993; Vukelich, 1994) focused on the effects of adult intervention or supervision, or both, using environmental print in learning centers or play episodes with young children. Vukelich analyzed the influence of interactions with environmental print in a literacy play setting among 56 kindergarten children and adult partners. Results indicated that print-enriched play with an adult offered numerous opportunities for children to associate meaning with print.

Neuman and Roskos (1993) used eight Head Start classrooms with 177 children (98% African American; 2% Hispanic) to create three groups exposed to three conditions:

1. A literacy-enriched, generic, office play setting, with an adult encouraged to give active assistance to children's literacy learning.

2. A literacy-enriched office play setting, with a parent-teacher asked to monitor the children in their literacy play without direct intervention.

3. A nonintervention group.

The children's handling, reading, and writing of environmental and functional print were assessed through direct observations. The office play setting was videotaped weekly to examine children's use of functional items and their interactions with peers and parent-teachers. After completing the intervention, each child was administered environmental print tasks. No differences were found for children's understanding of functional print items used in the study (letter, stamp, calendar, telephone book), but the parent-teacher active engagement with children in the office setting significantly influenced the children's ability to read environmental print and label functional items. This research indicates that the office play setting influences children's environmental-word reading and that the role of the interactive parent-teacher significantly contributes to children's learning of print in these contexts. These findings strongly suggest that the office play setting with the interacting adult assists children in learning more environmental print. This study reported the importance of not only exposure but also interactions with a capable adult in learning environmental print words.

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Parent-teacher active engagement with children influences children's abilities to read environmental print and label function items.

Environmental Print and Children With Special Needs

Environmental print instruction has also been investigated for children with special needs. For example, Aldridge and Rust (1987) found that first-grade children in a special education class for children with developmental disabilities benefited from environmental print instruction. Two major findings of this study were that the children were more proactive in seeking out print in their environment, and they saw themselves as readers and writers. In another study with preschool children in an early intervention classroom, Letchman et al. (1991) used environmental print over a 2-year period with 12 children in conjunction with a strong emphasis on letters and sounds. Results showed an increase in the children's attention span, an increase in parental participation with the children and teachers, and active involvement of the children and their families in reading at home.

Using environmental print with children with special needs
can increase child attention, parental participation, and
active involvement of reading at home.

Environmental Print and No Child Left Behind

As we mentioned in the introduction to this book, the National Reading Panel's report on teaching children to read greatly influenced the No Child Left Behind (NCLB) legislation. According to the U.S. Department of Education (2002), preschool literacy experiences that are based on scientific research should focus on oral language, phonological awareness, print awareness, and alphabetic knowledge. Prior and Gerard (2004) found that environmental print instruction can be used in each of these four areas.

As children proceed from kindergarten through third grade, instruction should focus on phonemic awareness, phonics, vocabulary, fluency, and comprehension (U.S. Department of Education, 2002). Environmental print can be a useful tool in these five salient areas necessary for literacy development (Cummins, 2006). Environmental print is an especially appropriate tool for teaching phonemic awareness (Enz, 2006).

Summary of the Research Findings on Environmental Print

We have learned much about the importance of environmental print through research conducted over the past 40 years. Listed here are nine of the most salient findings:

1. Children learn about reading and writing as they participate in environmental print activities (Kuby & Aldridge, 1997).

2. Environmental print is something children often engage in before reading print in books (Prior & Gerard, 2004).

3. Children's prior knowledge is important to reading development. Most children have environmental print knowledge as part of their prior knowledge (Woodward et al., 1984).

4. Preschool children are especially apt at reading the meaning of the environmental print in context, even if they cannot read the logos in manuscript form (Kuby et al., 1994; Prior & Gerard, 2004).

5. Many children learning to read environmental print are unable to make the transition to environmental print words written in standard manuscript or computer generated. However, adult instruction helps children make this transition (Kuby & Aldridge, 1997).

6. Environmental print is a useful tool in meeting the research-based goals of the National Reading Panel (National Institute of Child Health and Human Development, 2000). For preschool children, these goals include oral language development, phonological awareness, print awareness, and alphabetic knowledge. For children in kindergarten through third grade, these goals include instruction in phonemic awareness, phonics, vocabulary, fluency, and comprehension (Cummins, 2006; Enz, 2006; Prior & Gerard, 2004).

7. Children all over the world who speak languages other than English benefit from environmental print and environmental print instruction (Ferreiro & Teberosky, 1982; Lee, 1989).

8. Environmental print instruction can ease the transition into formal reading by building confidence, competence, and self-esteem (Aldridge & Rust, 1987; Wepner, 1985).

9. Environmental print is effective with children who have special needs. Children in special education who have experienced environmental print instruction are more proactive in seeking out print in their environment than are children with special needs who have not experienced environmental print instruction. Further, children exposed to environmental print see themselves as active readers and writers (Aldridge & Rust, 1987).

Appropriate Ways to Use Environmental Print Throughout the Curriculum

From research and our own years of experience with children and environmental print, we make the following recommendations:

1. *Use environmental print to bridge the gap from home to school.* Environmental print is an excellent way to make the home–school connection. Some teachers have students whose second language is English. Some parents may have difficulty speaking, reading, or writing English. Environmental print can be an especially effective tool with these families. For example, most reading experts recommend that parents read to their children every day.

But what about parents who cannot read books? These parents can use environmental print found in the home, neighborhood, and community to work with both the children and the school to become active, contributing members to the classroom community. Further, environmental print is inexpensive and a great means for involving parents, grandparents, and guardians in school participation who might otherwise feel marginalized and remain uninvolved. As we mentioned in the introduction, children are more actively involved in literacy when they can make the home–school connection.

Environmental print is inexpensive and a great means for involving parents, grandparents, and guardians in school participation who might otherwise feel marginalized and remain uninvolved.

2. *Use environmental print to teach letters and words in meaningful context.* Some of the studies cited in this chapter point to children's ability to recognize logos even though they can't recognize the letters or words of the logos when they are typed or written on a chart, chalkboard, or paper. This is where guided instruction comes in. Even a teacher drinking a Coca-Cola soda can point to the can and ask the children, "What does this say?" and then write C-o-k-e on the board and discuss the letters! Of course, there are many more exciting ways presented in this book to use environmental print, but the point we want to make is that this strategy of pointing out letters and words and printing logos on the board (hopefully in stories or some form of meaningful context) is a very simple thing to do.

3. *Use environmental print to teach the areas determined by the National Reading Panel (2000) as necessary for instruction with early readers.* Environmental print can be used to meet the goals of early literacy instruction determined by the National Reading Panel (Enz, 2006). Throughout the book, we suggest activities and strategies that are based on scientific research reported by the National Reading Panel. However, this area is so important we have included a special chapter (Chapter 7) to discuss meeting the goals of the National Reading Panel.

4. *Use environmental print to boost the confidence and self-esteem of all children, especially struggling readers.* As shown in several reported studies, children see themselves as readers and writers and actively seek out print in the environment when environmental print is part of the curriculum. Most of the strategies recommended in this book are appropriate for children who experience early difficulty with reading. Almost all strategies can be used by children with special needs (often with necessary help from a peer or the teacher).

5. *Use environmental print to give students ownership over their learning.* For beginning readers from preschool through first grade, we recommend using an environmental print box or large trashcan for children to place the environmental print they bring to school. At share time, pull out the items the children brought and discuss them. For example, you might ask, "Who brought in the napkin from Pizza Hut? I see Natalie did. Natalie, can you tell us about the experience you had at Pizza Hut?" Then, write this down in the daily news: "Natalie's grandmother took her to Pizza Hut for dinner last night."

Notice that you are helping children make the important transition from the logo to the name in the context of a sentence. However, most children in second grade and higher will have already constructed this on their own. So, for giving older children ownership over their learning using environmental print, we recommend you consult many of the strategies for using environmental print found in this book. Chapter 5, in particular, has numerous strategies for older children.

6. *Use environmental print to integrate curriculum.* Environmental print transcends and has a place in all curricular areas. In the unit "Our Community," environmental print can be used to make maps, determine distance, read signs and logos, sing jingles of local establishments, or learn the history of our area.

7. *Finally, reflect on your use of environmental print and adapt your practice accordingly.* We are always pleased to go into classrooms and see teachers who have used our ideas. We are even more pleased when we see instructors who have invented their own unique ways of using environmental print purposefully. Environmental print, like any other tool, requires a lot of reflection. Remember, it is only one small piece of the curriculum.

The chapters that follow are designed to provide many practical suggestions for using environmental print. Chapter 2 describes language arts activities, while Chapter 3 is concerned with math instruction. Chapter 4 describes ways to use environmental print in health and science. Social studies is the focus of Chapter 5, and art, music, and creative dramatics are highlighted in Chapter 6. Chapter 7 describes important ways to meet the recommendations of the National Reading Panel through the use of environmental print. Finally, the last chapter presents challenges in and opportunities for using environmental print. Environmental print can be used for more than transmission. It has the potential to transform our classrooms, schools, communities, and even the world.