



Launching young readers!

Reading Rockets

Learning to Read and Write: What Research Reveals

By: [National Association for the Education of Young Children \(NAEYC\)](#)



Children take their first critical steps toward learning to read and write very early in life. Long before they can exhibit reading and writing production skills, they begin to acquire some basic understandings of the concepts about literacy and its functions.

Children learn to use symbols, combining their oral language, pictures, print, and play into a coherent mixed medium and creating and communicating meanings in a variety of ways. From their initial experiences and interactions with adults, children begin to read words, processing letter-sound relations and acquiring substantial knowledge of the alphabetic system. As they continue to learn, children increasingly consolidate this information into patterns that allow for automaticity and fluency in reading and writing. Consequently reading and writing acquisition is conceptualized better as a developmental continuum than as an all-or-nothing phenomenon.

But the ability to read and write does not develop naturally, without careful planning and instruction. Children need regular and active interactions with print. Specific abilities required for reading and writing come from immediate experiences with oral and written language. Experiences in these early years begin to define the assumptions and expectations about becoming literate and give children the motivation to work toward learning to read and write. From these experiences children learn that reading and writing are valuable tools that will help them do many things in life.

The beginning years (birth through preschool)

Even in the first few months of life, children begin to experiment with language. Young babies make sounds that imitate the tones and rhythms of adult talk; they "read" gestures and facial expressions, and they begin to associate sound sequences frequently heard – words – with their referents (Berk 1996). They delight in listening to familiar jingles and rhymes, play along in games such as peek-a-boo and pat-a-cake, and manipulate objects such as board books and alphabet blocks in their play. From these remarkable beginnings children learn to use a variety of symbols.

In the midst of gaining facility with these symbol systems, children acquire through interactions with others the insight that specific kinds of marks – print – also can represent meanings. At first children will use the physical and visual cues surrounding print to determine what something says. But as they develop an understanding of the alphabetic principle, children begin to process letters, translate them into sounds, and connect this information with a known meaning. Although it may seem as though some children acquire these understandings magically or on their own, studies suggest that they are the beneficiaries of considerable, though playful and informal, adult guidance and instruction (Durkin 1966; Anbar 1986).

Considerable diversity in children's oral and written language experiences occurs in these years (Hart & Risley 1995). In home and child care situations, children encounter many different resources and types and degrees of support for early reading and writing (McGill-Franzen &

Lanford 1994). Some children may have ready access to a range of writing and reading materials, while others may not; some children will observe their parents writing and reading frequently, others only occasionally; some children receive direct instruction, while others receive much more casual, informal assistance.

What this means is that no one teaching method or approach is likely to be the most effective for all children (Strickland 1994). Rather, good teachers bring into play a variety of teaching strategies that can encompass the great diversity of children in schools. Excellent instruction builds on what children already know, and can do, and provides knowledge, skills, and dispositions for lifelong learning. Children need to learn not only the technical skills of reading and writing but also how to use these tools to better their thinking and reasoning (Neuman 1998).

The single most important activity for building these understandings and skills essential for reading success appears to be reading aloud to children (Wells 1985; Bus, Van Ijzendoorn, & Pellegrini 1995). High-quality book reading occurs when children feel emotionally secure (Bus & Van Ijzendoorn 1995; Bus et al. 1997) and are active participants in reading (Whitehurst et al. 1994). Asking predictive and analytic questions in small-group settings appears to affect children's vocabulary and comprehension of stories (Karweit & Wasik 1996). Children may talk about the pictures, retell the story, discuss their favorite actions, and request multiple rereadings. It is the talk that surrounds the storybook reading that gives it power, helping children to bridge what is in the story and their own lives (Dickinson & Smith 1994; Snow et al. 1995). Snow (1991) has described these types of conversations as "decontextualized language" in which teachers may induce higher-level thinking by moving experiences in stories from what the children may see in front of them to what they can imagine.

A central goal during these preschool years is to enhance children's exposure to and concepts about print (Clay 1979, 1991; Holdaway 1979; Teale 1984; Stanovich & West 1989). Some teachers use Big Books to help children distinguish many print features, including the fact that print (rather than pictures) carries the meaning of the story, that the strings of letters between spaces are words and in print correspond to an oral version, and that reading progresses from left to right and top to bottom. In the course of reading stories, teachers may demonstrate these features by pointing to individual words, directing children's attention to where to begin reading, and helping children to recognize letter shapes and sounds. Some researchers (Adams 1990; Roberts 1998) have suggested that the key to these critical concepts, such as developing word awareness, may lie in these demonstrations of how print works.

Children also need opportunity to practice what they've learned about print with their peers and on their own. Studies suggest that the physical arrangement of the classroom can promote time with books (Morrow & Weinstein 1986; Neuman & Roskos 1997). A key area is the classroom library – a collection of attractive stories and informational books that provides children with immediate access to books. Regular visits to the school or public library and library card registration ensure that children's collections remain continually updated and may help children develop the habit of reading as lifelong learning. In comfortable library settings children often will pretend to read, using visual cues to remember the words of their favorite stories. Although studies have shown that these pretend readings are just that (Ehri & Sweet 1991), such visual readings may demonstrate substantial knowledge about the global features of reading and its purposes.

Storybooks are not the only means of providing children with exposure to written language. Children learn a lot about reading from the labels, signs, and other kinds of print they see around them (McGee, Lomax, & Head 1988; Neuman & Roskos 1993). Highly visible print labels on objects, signs, and bulletin boards in classrooms demonstrate the practical uses of written language. In environments rich with print, children incorporate literacy into their dramatic play (Morrow 1990; Vukelich 1994; Neuman & Roskos 1997), using these communication tools to enhance the drama and realism of the pretend situation. These everyday, playful experiences by themselves do not make most children readers. Rather they expose children to a variety of print experiences and the processes of reading for real purposes.

For children whose primary language is other than English, studies have shown that a strong basis in a first language promotes school achievement in a second language (Cummins 1979). Children who are learning English as a second language are more likely to become readers and writers of English when they are already familiar with the vocabulary and concepts in their primary language. In this respect, oral and written language experiences should be regarded as an additive process, ensuring that children are able to maintain their home language while also learning to speak and read English (Wong Fillmore, 1991). Including non-English materials and resources to the extent possible can help to support children's first language while children acquire oral proficiency in English.

A fundamental insight developed in children's early years through instruction is the alphabetic principle, the understanding that there is a systematic relationship between letters and sounds (Adams 1990). The research of Gibson and Levin (1975) indicates that the shapes of letters are learned by distinguishing one character from another by its type of spatial features. Teachers will often involve children in comparing letter shapes, helping them to differentiate a number of letters visually. Alphabet books and alphabet puzzles in which children can see and compare letters may be a key to efficient and easy learning.

At the same time children learn about the sounds of language through exposure to linguistic awareness games, nursery rhymes, and rhythmic activities. Some research suggests that the roots of phonemic awareness, a powerful predictor of later reading success, are found in traditional rhyming, skipping, and word games (Bryant et al. 1990). In one study, for example (Maclean, Bryant, & Bradley 1987), researchers found that three-year-old children's knowledge of nursery rhymes specifically related to their more abstract phonological knowledge later on. Engaging children in choral readings of rhymes and rhythms allows them to associate the symbols with the sounds they hear in these words.

Although children's facility in phonemic awareness has been shown to be strongly related to later reading achievement, the precise role it plays in these early years is not fully understood. Phonemic awareness refers to a child's understanding and conscious awareness that speech is composed of identifiable units, such as spoken words, syllables, and sounds. Training studies have demonstrated that phonemic awareness can be taught to children as young as age five (Bradley & Bryant 1983; Lundberg, Frost, & Petersen 1988; Cunningham 1990; Byrne & Fielding-Barnsley 1991). These studies used tiles (boxes) (Elkonin 1973) and linguistic games to engage children in explicitly manipulating speech segments at the phoneme level.

Yet, whether such training is appropriate for younger-age children is highly suspect. Other scholars find that children benefit most from such training only after they have learned some letter names, shapes, and sounds and can apply what they learn to real reading in meaningful contexts (Cunningham 1990; Foorman et al. 1991). Even at this later age, however, many children acquire phonemic awareness skills without specific

training but as a consequence of learning to read (Wagner & Torgesen 1987; Ehri 1994). In the preschool years sensitizing children to sound similarities does not seem to be strongly dependent on formal training but rather from listening to patterned, predictable texts while enjoying the feel of reading and language.

Children acquire a working knowledge of the alphabetic system not only through reading but also through writing. A classic study by Read (1971) found that even without formal spelling instruction, preschoolers use their tacit knowledge of phonological relations to spell words. Invented spelling (or phonic spelling) refers to beginners' use of the symbols they associate with the sounds they hear in the words they wish to write. For example, a child may initially write b or bk for the word bike, to be followed by more conventionalized forms later on.

Some educators may wonder whether invented spelling promotes poor spelling habits. To the contrary, studies suggest that temporary invented spelling may contribute to beginning reading (Chomsky 1979; Clarke 1988). One study, for example, found that children benefited from using invented spelling compared to having the teacher provide correct spellings in writing (Clarke 1988). Although children's invented spellings did not comply with correct spellings, the process encouraged them to think actively about letter-sound relations. As children engage in writing, they are learning to segment the words they wish to spell into constituent sounds.

Classrooms that provide children with regular opportunities to express themselves on paper, without feeling too constrained for correct spelling and proper handwriting, also help children understand that writing has real purpose (Graves 1983; Sulzby 1985; Dyson 1988). Teachers can organize situations that both demonstrate the writing process and get children actively involved in it. Some teachers serve as scribes and help children write down their ideas, keeping in mind the balance between children doing it themselves and asking for help. In the beginning these products likely emphasize pictures with few attempts at writing letters or words. With encouragement, children begin to label their pictures, tell stories, and attempt to write stories about the pictures they have drawn. Such novice writing activity sends the important message that writing is not just handwriting practice – children are using their own words to compose a message to communicate with others.

Thus the picture that emerges from research in these first years of children's reading and writing is one that emphasizes wide exposure to print and to developing concepts about it and its forms and functions. Classrooms filled with print, language and literacy play, storybook reading, and writing allow children to experience the joy and power associated with reading and writing while mastering basic concepts about print that research has shown are strong predictors of achievement.

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In kindergarten

Knowledge of the forms and functions of print serves as a foundation from which children become increasingly sensitive to letter shapes, names, sounds, and words. However, not all children typically come to kindergarten with similar levels of knowledge about printed language. Estimating where each child is developmentally and building on that base, a key feature of all good teaching, is particularly important for the kindergarten teacher. Instruction will need to be adapted to account for children's differences. For those children with lots of print experiences, instruction will extend their knowledge as they learn more about the formal features of letters and their sound correspondences.

For other children with fewer prior experiences, initiating them to the alphabetic principle, that a limited set of letters comprises the alphabet and that these letters stand for the sounds that make up spoken words, will require more focused and direct instruction. In all cases, however, children need to interact with a rich variety of print (Morrow, Strickland, & Woo 1998).

In this critical year kindergarten teachers need to capitalize on every opportunity for enhancing children's vocabulary development. One approach is through listening to stories (Feitelson, Kita, & Goldstein 1986; Elley 1989). Children need to be exposed to vocabulary from a wide variety of genres, including informational texts as well as narratives. The learning of vocabulary, however, is not necessarily simply a byproduct of reading stories (Leung & Pikulski 1990). Some explanation of vocabulary words prior to listening to a story is related significantly to children's learning of new words (Elley 1989). Dickinson and Smith (1994), for example, found that asking predictive and analytic questions before and after the readings produced positive effects on vocabulary and comprehension.

Repeated readings appear to further reinforce the language of the text as well as to familiarize children with the way different genres are structured (Eller, Pappas, & Brown 1988; Morrow 1988). Understanding the forms of informational and narrative texts seems to distinguish those children who have been well read to from those who have not (Pappas 1991). In one study, for example, Pappas found that with multiple exposures to a story (three readings), children's retelling became increasingly rich, integrating what they knew about the world, the language of the book, and the message of the author. Thus, considering the benefits for vocabulary development and comprehension, the case is strong for interactive storybook reading (Anderson 1995). Increasing the volume of children's playful, stimulating experiences with good books is associated with accelerated growth in reading competence.

Activities that help children clarify the concept of word are also worthy of time and attention in the kindergarten curriculum (Juel 1991). Language experience charts that let teachers demonstrate how talk can be written down provide a natural medium for children's developing word awareness in meaningful contexts. Transposing children's spoken words into written symbols through dictation provides a concrete demonstration that strings of letters between spaces are words and that not all words are the same length. Studies by Clay (1979) and Bissex (1980) confirm the value of what many teachers have known and done for years: Teacher dictations of children's stories help develop word awareness, spelling, and the conventions of written language.

Many children enter kindergarten with at least some perfunctory knowledge of the alphabet letters. An important goal for the kindergarten teacher is to reinforce this skill by ensuring that children can recognize and discriminate these letter shapes with increasing ease and fluency (Mason 1980; Snow, Burns, & Griffin 1998). Children's proficiency in letter naming is a well-established predictor of their end-of-year achievement (Bond & Dykstra 1967, Riley 1996), probably because it mediates the ability to remember sounds. Generally a good rule according to current learning theory (Adams 1990) is to start with the more easily visualized uppercase letters, to be followed by identifying lowercase letters. In each case, introducing just a few letters at a time, rather than many, enhances mastery.

At about the time children are readily able to identify letter names, they begin to connect the letters with the sounds they hear. A fundamental insight in this phase of learning is that a letter and letter sequences map onto phonological forms. Phonemic awareness, however, is not merely a solitary insight or an instant ability (Juel 1991). It takes time and practice.

Children who are phonemically aware can think about and manipulate sounds in words. They know when words rhyme or do not; they know when words begin or end with the same sound; and they know that a word like *bat* is composed of three sounds /b/ /a/ /t/ and that these sounds can be blended into a spoken word. Popular rhyming books, for example, may draw children's attention to rhyming patterns, serving as a basis for extending vocabulary (Ehri & Robbins 1992). Using initial letter cues, children can learn many new words through analogy, taking the familiar word *bake* as a strategy for figuring out a new word, *lake*.

Further, as teachers engage children in shared writing, they can pause before writing a word, say it slowly, and stretch out the sounds as they write it. Such activities in the context of real reading and writing help children attend to the features of print and the alphabetic nature of English.

There is accumulated evidence that instructing children in phonemic awareness activities in kindergarten (and first grade) enhances reading achievement (Stanovich 1986; Lundberg, Frost, & Petersen 1988; Bryne & Fielding-Barnsley 1991, 1993, 1995). Although a large number of children will acquire phonemic awareness skills as they learn to read, an estimated 20% will not without additional training. A statement by the IRA (1998) indicates that "the likelihood of these students becoming successful as readers is slim to none... This figure [20%], however, can be substantially reduced through more systematic attention to engagement with language early on in the child's home, preschool and kindergarten classes."

A study by Hanson and Farrell (1995), for example, examined the long-term benefits of a carefully developed kindergarten curriculum that focused on word study and decoding skills, along with sets of stories so that children would be able to practice these skills in meaningful contexts. High school seniors who early on had received this type of instruction outperformed their counterparts on reading achievement, attitude toward schooling, grades, and attendance.

In kindergarten many children will begin to read some words through recognition or by processing letter-sound relations. Studies by Domico (1993) and Richgels (1995) suggest that children's ability to read words is tied to their ability to write words in a somewhat reciprocal relationship. The more opportunities children have to write, the greater the likelihood that they will reproduce spellings of words they have seen and heard. Though not conventional, these spellings likely show greater letter-sound correspondences and partial encoding of some parts of words, like *SWM* for *swim*, than do the inventions of preschoolers (Clay 1975).

To provide more intensive and extensive practice, some teachers try to integrate writing in other areas of the curriculum, like literacy-related play (Neuman & Roskos 1992), and other project activities (Katz & Chard 1989). These types of projects engage children in using reading and writing for multiple purposes while they are learning about topics meaningful to them.

Early literacy activities teach children a great deal about writing and reading but often in ways that do not look much like traditional elementary school instruction. Capitalizing on the active and social nature of children's learning, early instruction must provide rich demonstrations, interactions, and models of literacy in the course of activities that make sense to young children. Children must also learn about the relation between oral and written language and the relation between letters, sounds, and words. In classrooms built around a wide variety of print activities, then in talking, reading, writing, playing, and listening to one another, children will want to read and write and feel capable that they can do so.

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The primary grades

Instruction takes on a more formal nature as children move into the elementary grades. Here it is virtually certain that children will receive at least some instruction from a commercially published product, like a basal or literature anthology series.

Although research has clearly established that no one method is superior for all children (Bond & Dykstra 1967; Snow, Burns, & Griffin 1998), approaches that favor some type of systematic code instruction along with meaningful connected reading report children's superior progress in reading. Instruction should aim to teach the important letter-sound relationships, which once learned are practiced through having many opportunities to read. Most likely these research findings are a positive result of the Matthew Effect, the rich-get-richer effects that are embedded in such instruction; that is, children who acquire alphabetic coding skills begin to recognize many words (Stanovich 1986). As word recognition processes become more automatic, children are likely to allocate more attention to higher-level processes of comprehension. Since these reading experiences tend to be rewarding for children, they may read more often; thus reading achievement may be a by-product of reading enjoyment.

One of the hallmarks of skilled reading is fluent, accurate word identification (Juel, Griffith, & Gough 1986). Yet instruction in simply word calling with flashcards is not reading. Real reading is comprehension. Children need to read a wide variety of interesting, comprehensible materials, which they can read orally with about 90 to 95% accuracy (Durrell & Catterson 1980). In the beginning children are likely to read slowly and deliberately as they focus on exactly what's on the page. In fact they may seem "glued to print" (Chall 1983), figuring out the fine points of form at the word level. However, children's reading expression, fluency, and comprehension generally improve when they read familiar texts. Some authorities have found the practice of repeated rereadings in which children reread short selections significantly enhances their confidence, fluency, and comprehension in reading (Samuels 1979; Moyer 1982).

Children not only use their increasing knowledge of letter-sound patterns to read unfamiliar texts. They also use a variety of strategies. Studies reveal that early readers are capable of being intentional in their use of metacognitive strategies (Brown, & DeLoache 1978; Rowe 1994) Even in these early grades, children make predictions about what they are to read, self-correct, reread, and question if necessary, giving evidence that they are able to adjust their reading when understanding breaks down. Teacher practices, such as the Directed Reading-Thinking Activity (DRTA),

effectively model these strategies by helping children set purposes for reading, ask questions, and summarize ideas through the text (Stauffer 1970).

But children also need time for independent practice. These activities may take on numerous forms. Some research, for example, has demonstrated the powerful effects that children's reading to their caregivers has on promoting confidence as well as reading proficiency (Hannon 1995). Visiting the library and scheduling independent reading and writing periods in literacy-rich classrooms also provide children with opportunities to select books of their own choosing. They may engage in the social activities of reading with their peers, asking questions, and writing stories (Morrow & Weinstein 1986), all of which may nurture interest and appreciation for reading and writing.

Supportive relationships between these communication processes lead many teachers to integrate reading and writing in classroom instruction (Tierney & Shanahan 1991). After all, writing challenges children to actively think about print. As young authors struggle to express themselves, they come to grips with different written forms, syntactic patterns, and themes. They use writing for multiple purposes: to write descriptions, lists, and stories to communicate with others. It is important for teachers to expose children to a range of text forms, including stories, reports, and informational texts, and to help children select vocabulary and punctuate simple sentences that meet the demands of audience and purpose. Since handwriting instruction helps children communicate effectively, it should also be part of the writing process (McGee & Richgels 1996). Short lessons demonstrating certain letter formations tied to the publication of writing provide an ideal time for instruction. Reading and writing workshops, in which teachers provide small-group and individual instruction, may help children to develop the skills they need for communicating with others.

Although children's initial writing drafts will contain invented spellings, learning about spelling will take on increasing importance in these years (Henderson & Beers 1980; Richgels 1986). Spelling instruction should be an important component of the reading and writing program since it directly affects reading ability. Some teachers create their own spelling lists, focusing on words with common patterns, high-frequency words, as well as some personally meaningful words from the children's writing. Research indicates that seeing a word in print, imagining how it is spelled, and copying new words is an effective way of acquiring spellings (Barron 1980).

Nevertheless, even though the teacher's goal is to foster more conventionalized forms, it is important to recognize that there is more to writing than just spelling and grammatically correct sentences. Rather, writing has been characterized by Applebee (1977) as "thinking with a pencil." It is true that children will need adult help to master the complexities of the writing process. But they also will need to learn that the power of writing is expressing one's own ideas in ways that can be understood by others.

As children's capabilities develop and become more fluent, instruction will turn from a central focus on helping children learn to read and write to helping them read and write to learn. Increasingly the emphasis for teachers will be on encouraging children to become independent and productive readers, helping them to extend their reasoning and comprehension abilities in learning about their world. Teachers will need to provide challenging materials that require children to analyze and think creatively and from different points of view. They also will need to ensure that children have practice in reading and writing (both in and out of school) and many opportunities to analyze topics, generate questions, and organize written responses for different purposes in meaningful activities.

Throughout these critical years accurate assessment of children's knowledge, skills, and dispositions in reading and writing will help teachers better match instruction with how and what children are learning. However, early reading and writing cannot simply be measured as a set of narrowly-defined skills on standardized tests. These measures often are not reliable or valid indicators of what children can do in typical practice, nor are they sensitive to language variation, culture, or the experiences of young children (Shepard & Smith 1988; Shepard 1994; Johnston 1997).

Rather, a sound assessment should be anchored in real-life writing and reading tasks and continuously chronicle a wide range of children's literacy activities in different situations. Good assessment is essential to help teachers tailor appropriate instruction to young children and to know when and how much intensive instruction on any particular skill or strategy might be needed.

By the end of third grade, children will still have much to learn about literacy. Clearly some will be further along the path to independent reading and writing than others. Yet with high-quality instruction, the majority of children will be able to decode words with a fair degree of facility, use a variety of strategies to adapt to different types of text, and be able to communicate effectively for multiple purposes using conventionalized spelling and punctuation. Most of all they will have come to see themselves as capable readers and writers, having mastered the complex set of attitudes, expectations, behaviors, and skills related to written language.

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Excerpted from a joint position of the International Reading Association (IRA) and the National Association for the Education of Young Children (NAEYC).

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"Oh, magic hour, when a child first knows she can read printed words!" — *A Tree Grows in Brooklyn*, 1943