Scholastic Classroom Books Compendium of Research

Scholastic Research & Results

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Classroom Books Compendium of Research

"Research supports the notion that the books children choose to read and enjoy the most come from their classroom library. We need to recognize that the classroom library is the most significant library in children's lives."

—**Dr. Linda Gambrell**,
Eugene T. Moore School of Education, Clemson University,
President of the International Reading Association (2007-08)

Table of Contents

Compendium Introduction

Recent studies on literacy show that the best readers tend to read the most while the poorest readers tend to read the least. Converging evidence from these correlational studies supports the theory that high exposure to print and increased reading volume have a positive impact on reading achievement.

Reading widely and frequently has significant dividends for all students—not just the smart kids or able readers. To become proficient readers, it is clear that students must first be taught the skills and strategies of reading in a systematic way and then practice those skills by reading a lot. Why? Because reading volume—the amount of reading that students do in and out of school—has significant impact upon word recognition, spelling, vocabulary development, reading comprehension, and general knowledge.

All students benefit from reading practice, and books are the tools that provide students with the opportunities to practice. Access to quality books influences how much students read. When students are provided with well-designed classroom libraries, they interact more with books, spend more time reading, exhibit more positive attitudes toward reading, and exhibit higher levels of reading achievement (NAEP, 2002). By providing all students with access to engaging books and time to read them, educators can reduce the variability in cognitive differences among students caused by the lack of print exposure and reading volume.

Researchers and practitioners alike recognize the importance of reading volume and access to books as avenues to improved reading achievement. However, if educators are to reach the goal of every child reading with competence and confidence, they must posses more than an awareness of research-based practices. They must possess in-depth knowledge of the research findings and a clear understanding of how to apply them effectively in the classroom.

To expand your knowledge of the importance of classroom libraries and reading volume on reading achievement, Scholastic has compiled key findings from a review of the professional literature, an effectiveness report, and seminal articles on these topics into a research compendium. The information in the following three sections will take you beyond basic awareness to a deep understanding of the importance of reading volume and access to books.

Section I: Classroom Library Research

This section of the compendium provides a window into the body of knowledge surrounding classroom libraries and reading volume and then translates that knowledge into effective classroom practice.

In ***Research and Results*** (p. 6), Scholastic shares key findings gathered from its review of the professional literature on exposure to print, reading volume, and use of trade books in the classroom. These findings show that wide and frequent reading of trade books is essential to literacy growth for all students.

In ***The Importance of the Classroom Library*** (p. 11), Susan B. Neuman demonstrates that classroom libraries are a vital component in improving reading achievement for elementary students, particularly those from low socioeconomic environments. In this report, Neuman outlines research findings on the importance of classroom libraries and gives specific ideas on how to apply the findings to the classroom.

The Benefits of Classroom Libraries That Include Trade Books

RESEARCH FOUNDATION

- A common feature of effective reading programs is student access to a wide variety of appealing trade books and other reading materials. (Cullinan, 2000)
- Highly effective literacy educators create print-rich classroom environments filled with lots of high-quality, diverse reading materials. (Morrow & Gambrell, 2000)
- Access to an abundance of books within the classroom results in increased motivation and increased reading achievement. (Guthrie, Schafer, Von Secker, & Alban, 2000)
- Books are a vital component of a print-rich classroom environment. (Wolfersberger, Reutzel, Sudweeks, & Fawson, 2004)
- Large classroom and school libraries that provide ample collections of instructional-level texts play a key role in literacy learning. (Mosenthal, Lipson, Sortino, Russ, & Mekkelsen, 2001)
- When classrooms provide a rich literacy environment, including books that represent a wide range of difficulty and genres, they can compensate for less than ideal home environments. (Snow, Barnes, Chandler, Goodman, & Hemphill, 1991)
- Students in classrooms with well-designed classroom libraries 1) interact more with books, 2) spend more time reading, 3) demonstrate more positive attitudes toward reading, and 4) exhibit higher levels of reading achievement. (National Assessment of Educational Progress Report, 2002)

RESEARCH IMPLICATIONS

Children learning to read need access to meaningful and personally interesting books. Without real engagement with meaningful books, children will not become readers. Effective teachers of reading understand the critical relationship between access to books and reading achievement. They recognize that the availability of reading material is related to how much children read, and that how much children read is related to how well they read. Because a rich and supportive literacy environment is critical to reading success, they provide their students with a rich and extensive classroom library filled with a diverse selection of interesting trade books.

Effective teachers of reading incorporate diverse trade books into their reading curriculum, introducing their students to the wide range of genres, authors, and topics. These teachers know that students who read a diverse range of reading materials are more proficient readers than those who read a narrower selection of texts. A well-stocked classroom library ensures that students will have access to a wide selection of diverse trade books.

The Benefits of Trade Books For Culturally Diverse Students and English Language Learners

RESEARCH FOUNDATION

- Trade books are powerful instructional tools for meeting the needs of a variety of students with diverse learning styles. (Flippo, 1999)
- The same language-rich, language-integrated environment that helps native speakers acquire literacy...will also help ESL students add English to their home language. (Piper, 1998)
- Language flourishes best in a language-rich environment. Second language learners need to be exposed to meaningful literacy activities....It is vital for teachers to make reading and writing appealing and significant to the children. (McLaughlin, 1995)
- When the content of texts is familiar and interesting to English language learners, they are more successful in reading. (Brisk & Harrington, 2000)

RESEARCH IMPLICATIONS

Effective teachers of reading understand that children from culturally diverse backgrounds learn best when the classroom environment is respectful of their linguistic, social, and cultural heritage. These teachers surround their students with culturally appropriate and relevant trade books that capitalize on the background knowledge and experiences that their students bring to school. By connecting these children with meaningful multicultural books they can relate to, teachers validate and build on their students' cultural and world knowledge. A rich classroom collection of multicultural trade books, acknowledges the background experience of culturally diverse students, bridges the gap between home and school, and enhances their engagement in reading.

Research suggests that the acquisition of English as a second language is enhanced by native language use. Thus, effective teachers provide English language learners with trade books in both languages.

Reading Practice With Trade Books Increases Reading Achievement

RESEARCH FOUNDATION

- Increased frequency, amount, and diversity of reading activity increases reading achievement. (Guthrie et al., 1996)
- The volume of independent, silent reading students do in school is significantly related to gains in reading achievement. (Cunningham & Stanovich, 1996)
- Adolescent and young adults' engagement in reading, including the amount of time they spend on reading and the diversity of materials they read, is closely associated with performance and reading ability. (Krisch et al., 2002)
- Students who read widely and frequently are higher achievers than students who read rarely and narrowly. (Guthrie et al., 1999)
- Fourth graders in the United States do better academically when they…have greater access to books and other reading materials in their environment. (National Center for Education Statistics, 2000)
- Reading volume…significantly affects…general knowledge of the world, overall verbal ability, and academic achievement. (Shefelbine, 2000)
- Literally hundreds of correlational studies find that the best readers read the most and that poor readers read the least. These correlational studies suggest that the more children read, the better their fluency, vocabulary, and comprehension. (National Reading Panel, 2000)
- Teachers who encourage wide reading and provide students with increased opportunity to read in the classroom have more engaged readers, which is significant because the amount of engaged reading predicts reading achievement. (Guthrie, Schafer, & Huang, 2001)
- The amount of reading that children do influences their achievement, as long as the children are guided and monitored during that reading…and they read books at an appropriate level of difficulty. (Stahl, 2004)
- It is during successful, independent reading practice that students consolidate their reading skills and strategies and come to own them. Without extensive reading practice, reading proficiency lags. (Allington & McGill-Franzen, 2003)
- Good reading programs always provide access to good literature and encourage children to read as much as possible material with which they are comfortable. (Foorman, Fletcher, & Francis, 2002)
- It is known that successful reading development is predicated on practice in reading, and obviously the less a child practices, the less developed the various reading skills will become. (Lyon, 2002)

RESEARCH IMPLICATIONS

Children who read voluntarily and extensively practice their reading skills, and reading practice is essential for children to become proficient readers. Research demonstrates a strong correlation between high reading achievement and large amounts of independent reading. Effective reading programs should therefore include independent reading of a wide variety of reading materials, including trade books.

Effective teachers of reading recognize that students need to read a lot to practice and refine their reading skills, and they provide their students with blocks of time within the school day to read books beyond their textbooks. They also encourage their students to read outside of the school day and year, as research shows that even proficient readers eventually exhibit academic declines if they do not read in their free time. They promote independent reading outside of the school by such means as daily at-home reading assignments, setting high expectations for their students, providing summer reading lists, encouraging parent involvement, and working with community groups to provide access to books.

While the best predictor of reading success is the amount of time spent reading, reading achievement is also influenced by the frequency, amount, and diversity of reading activities. Effective teachers of reading engage their students in reading for a variety of purposes— for pleasure, for exploration, and for information to perform a task. These teachers recognize that not all students enter reading through the same door, so they provide them with a wide range of meaningful reading activities, including those that promote social interaction with their peers.

Effective teachers of reading know that diverse readers span a range of reading interests and abilities and need access to a wide variety of engaging books in their immediate environment to meet their reading needs. They stock their classroom library with a large number of trade books, reflecting different genres, topics, authors, and reading levels. By providing access to a rich classroom library, teachers promote greater amounts of reading, increased reading frequency, and more diverse reading experiences among their students, thus helping them to attain greater levels of reading achievement.

The Benefits of Trade Books in Relation to Reading Comprehension

RESEARCH FOUNDATION

- Students who read actively and frequently improve their comprehension of text as a consequence. (Cipielewski & Stanovich, 1992)
- The amount of reading is a strong predictor of reading comprehension, outweighing intelligence, economic background, and gender. (Reutzel & Gikkubgsworth, 1991)
- An abundance of interesting books in the classroom promotes the use of comprehension strategies. (Guthrie et al., 2000)
- Students who are exposed to real texts—books and stories rather than short passages in basal readers—and who respond to what they read perform better on standardized tests of reading achievement. (Wenglinsky, 2003)
- Extensive reading of developmentally appropriate material of many kinds, both in and out of school, results in substantial growth in vocabulary and comprehension abilities and in the information base of students. (Squires, 2004)
- Reading a lot serves to develop vocabulary, background knowledge, familiarity with complex syntactic structures, and word recognition. (Cunningham & Stanovich, 1997)

RESEARCH IMPLICATIONS

Because effective teachers of reading recognize that teaching skills and strategies in the context of real reading assists their students in polishing and integrating their newly acquired reading skills, they give their students extended reading practice with books of their own choosing. These teachers understand that to improve reading skills, students need direct instruction followed by meaningful practice with appropriate text. Thus they allocate a substantial amount of time each day for free voluntary reading. To facilitate their students' independent reading, they stock their classroom with engaging trade books, representing a wide variety of genres, topics, authors, and reading levels to accommodate individual reading needs.

The more children read, the more they build their background knowledge, which in turn strengthens their ability to comprehend. Effective teachers of reading facilitate the expansion of background knowledge by providing frequent and varied opportunities for their students to interact with a variety of trade books.

Effective teachers of reading know that comprehension is enhanced by reflection and social interaction. Therefore, they provide their students with multiple opportunities to respond to their reading and interact with their peers through a variety of activities such as book clubs and discussions. Student interaction in discussions promotes their ability to think critically and promotes a deeper understanding of what they have read.

The Benefits of Trade Books in Relation to Vocabulary

RESEARCH FOUNDATION

- Vocabulary growth is heavily influenced by the amount and variety of material children read. (Snow, Burns, & Griffin, 1998)
- Children expand their vocabularies by reading extensively on their own. The more children read, the more their vocabularies grow. (Armbruster, Lehr, & Osborn, 2001)
- Children learn an average of 4,000 to 12,000 new words each year as a result of book reading. (Anderson & Nagy, 1992)
- Independent reading is a major source of vocabulary growth. (Nagy & Anderson, 1984)

RESEARCH IMPLICATIONS

According to the research, the majority of vocabulary growth occurs not as a result of direct instruction, but as the result of reading voluminously. Effective teachers of reading know that for students to own a word, they need to see the word used in meaningful contexts a multitude of times. By reading voluminously, students are exposed frequently and often to words in meaningful contexts, thus increasing their opportunities to learn new words. Even a moderate amount of daily independent reading of trade books has a positive impact on increasing vocabulary. Students at all levels who read independently acquire new words as the result of reading more.

Effective teachers of reading facilitate increased vocabulary growth by promoting increased independent reading of trade books, both in and out of school. As books are rich in academic words, the extended reading of trade books not only increases vocabulary in terms of quantity, but it also enhances vocabulary in terms of quality.

Increased vocabulary knowledge helps students understand what they read, and reading comprehension is enhanced when students understand the meaning of words. Thus there is a reciprocal benefit to independent reading of trade books—vocabulary growth and reading comprehension.

The Benefits of Reading Trade Books Aloud

RESEARCH FOUNDATION

- The most important activity for building the knowledge and skills…required for reading is that of reading aloud to children. (Adams, 1990)
- Reading to children…increases their knowledge of the world, their vocabulary, their familiarity with written language…and their interest in reading. (Armbruster, Lehr, & Osborn, 2001)
- Reading out loud to children is a proven way to develop vocabulary growth and language expansion and plays a causal role in developing both receptive and expressive language capabilities. Reading out loud can also enhance children's background knowledge of new concepts that may appear in both oral and written language. (Lyon, 2002)
- Children…who are read aloud to daily score significantly better on measures of vocabulary, comprehension, and decoding ability. (Bus, van IJzendoorn, & Pelligrini, 1995)
- You can help your students become more fluent readers by providing them with models of fluent reading. (Armbruster, Lehr, & Osborn, 2001)

RESEARCH IMPLICATIONS

Research shows that the opportunity for students to listen to books read aloud benefits their oral and written language and is strongly correlated to successful literacy development. Effective teachers of reading know that reading aloud encourages reading engagement, builds comprehension and vocabulary, and promotes fluency development. Thus they read aloud frequently in class. A rich classroom library representing a variety of reading levels supports teachers in reading aloud books that promote reading growth.

Effective teachers of reading know that reading aloud books that are more difficult than their students are able to read independently bridges the gap for those students with limited language experiences in their background. Thus, a rich and varied classroom library filled with diverse trade books representing a variety of different reading levels, genres, authors, topics, and cultures can be an equalizer for students of diverse backgrounds and limited language experiences.

Reading aloud to students allows teachers to model reading strategies. Effective teachers of reading understand that the modeling of reading strategies through reading aloud supports readers in learning how to make meaning from diverse types of text, such as informational and narrative texts. To this end, these teachers read aloud from a varied array of trade books that introduce students to the different genres and types of text. A well-stocked classroom library filled with a wide variety of trade books provides depth and breadth in terms of the number and type of books for modeling strategies by reading aloud.

The Role of Motivation in Trade Books

RESEARCH FOUNDATION

- There are three potential stumbling blocks that are known to throw children off course on the journey to skilled reading. The third obstacle…[is] the absence or loss of an initial motivation to read or failure to develop a mature appreciation of the rewards of reading. (Snow, Burns, & Griffin, 1998)
- Access to books through classroom and school libraries… motivates students to read. (Gambrell, Codling, & Palmer, 1996)
- Motivation and reading development are fostered when children are immersed in a book-rich environment, engaged in interactions with others about books, and given the responsibility for making decisions about what, when, and how they read. (Gambrell, 1996)
- Student ownership of literacy is increased when students have access to a diverse range of interesting and appealing books representing a variety of genres. (Au & Asam, 1996)
- The availability of quality, young adult literature that is relevant, interesting, and challenging to young adolescents, increases the likelihood that students will become actively engaged as readers. (Strauss & Irwin, 2000)

RESEARCH IMPLICATIONS

Research demonstrates that the availability of books is a key factor in reading development. When students are immersed in book-rich environments, motivation to read is high. Effective teachers of reading increase their students' motivation to read by increasing the number and diversity of high-interest trade books available in the classroom. These teachers promote student choice in the selection of books to read and assist their students in finding books matched to their appropriate level of challenge.

A key to teaching all children to read is engagement in an exciting literate atmosphere that stimulates and supports reading. Effective teachers recognize that students need both skill and desire to read if they are to develop as proficient readers. They facilitate engagement in reading by modeling their own love of reading, reading aloud, book talking, providing access to a wealth of trade books, engaging students in a variety of activities with diverse texts, including daily independent reading of self-selected trade books, and providing book-related incentives that recognize students for their reading and emphasize the value of reading.

The Benefits of Trade Books in Relation to Fluency

RESEARCH FOUNDATION

- Fluency develops as a result of many opportunities to practice reading with a high degree of success. (Armbruster, Lehr, & Osborn, 2001)
- Independent reading is a major source of reading fluency. (Allington, 2001)
- Adequate progress in learning to read beyond the initial level depends on sufficient practice in reading to achieve fluency with different kinds of texts. (Snow, Burns, & Griffin, 1998)

RESEARCH IMPLICATIONS

Research suggests that the independent reading of trade books is essential to increasing fluency. Effective teachers of reading know that fluency develops from an abundance of reading practice with books the reader can read with success. Through the process of reading an abundance of books at their independent reading level, students become more fluent at reading, thus gaining competence and confidence as readers. To encourage reading practice, effective teachers of reading initiate an independent reading program and provide their students with access to enjoyable trade books at their independent reading level. A well-stocked classroom library provides students access to trade books representing a variety of genres, topics, authors, and reading levels, thus ensuring each student the opportunity to experience reading success.

Effective teachers of reading understand that when reading to develop fluency, students need to read books that are neither too hard nor too easy for them. Text that is too hard impedes comprehension, and text that is too easy does not promote vocabulary growth. Effective teachers know the reading levels of their students and the reading levels of the trade books in their classroom, so that they can match their students to texts that can be read with success, thus assisting their students to grow as readers. Matching students to text is critical to establishing an optimal learning environment for reading.

Effective teachers of reading recognize that fluency varies with the type and readability of the text. These teachers strive to provide their students with a wide range of reading experiences with books representing a variety of genres and writing styles. A large and varied classroom library supports student interaction with diverse books.

For *Research and Results* references, please see page 89.

The Importance of the Classroom Library

by Susan B. Neuman

INTRODUCTION

Recent studies on literacy confirm what educators have known for years: the more contact children have with books, the better readers they become. Teachers can promote better reading performance by reading to children daily and by having them interact with books through the extensive use of classroom libraries. This paper outlines some of the most recent research on classroom libraries and gives specific ideas on how to apply these important findings in the classroom:

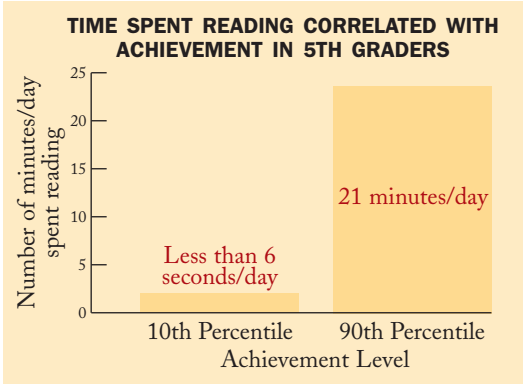
- the benefits of surrounding children with books,
- the important role for the classroom library in developing literacy,
- characteristics of an effective classroom library,
- reading activities to improve literacy.

A large, varied, and often-refreshed collection of books in the classroom is a vital ingredient in improving reading performance.

THE MORE TIME CHILDREN SPEND READING, THE BETTER READERS THEY BECOME

For virtually all children, the amount of time spent reading in classrooms consistently accelerates their growth in reading skills (Anderson, 1996; Anderson, Wilson & Fielding, 1988; Cunningham & Stanovich, 1998). One study (Anderson & Nagy, 1992) estimates that children learn an average of 4,000 to 12,000 new vocabulary words each year as a result of book reading. Another study (Anderson et al., 1988) found that the highest achievers in 5th grade classrooms were likely to read over 200 times as many minutes per day (21 minutes) as the lowest achievers (who read for less than one tenth of a minute per day). Such striking findings might be related to the number of "rare" words outside of their current vocabulary that children encounter in reading versus other language activities. For example, Cunningham and Stanovich (1998) report that children's books have 50% more rare words in them than adult prime-time television or the conversation of college graduates.

Together, these studies provide convincing evidence that the amount of reading is a major factor in growth in literacy. Unfortunately, however, socioeconomic factors lead to tremendous disparities in access to books at home (Smith, Constantino, Krashen, 1996). As a result, the International Reading Association strongly advocates for school library media centers and classroom libraries to provide books for all children.



Anderson et al., 1988

THE CLASSROOM LIBRARY HELPS DEVELOP LITERACY

Recent research emphasizes the importance of the classroom library, particular in children's literacy development. In one large-scale study (Neuman, 1999), classroom libraries with high-quality books were placed in over 350 schools to enhance the language and literacy environment of 18,000 economically disadvantaged children.

Findings revealed that with books in close proximity to classroom activity:

- **Time spent reading increased by 60%** compared to a control group.
- **Literacy-related activities more than doubled**, from an average of 4 interactions per hour to 8.5 interactions per hour.
- **Letter knowledge, phonemic awareness, concepts of print and writing, and narrative competence rose 20%** more than the control group after a year, followed by continued gains 6 months and 12 months later.

In one study, classroom libraries increased reading by 60%.

MANY AND VARIED BOOKS MAKE CLASSROOM LIBRARIES MOST EFFECTIVE

Quality classroom libraries are not simply collections of children's trade books located in the back corner of the room. There are certain characteristics and design features that strongly influence whether or not classroom libraries may be used to their full potential to improve children's reading performance.

A large supply of books

In order to attract and hold children's interest, classroom libraries must be stocked with many good books. According to the American Library Association (Hack, Hepler, & Hickman, 2001), classroom libraries should include about 300 titles, single and multiple copies, as part of a permanent collection, with supplements from a well-stocked school library. The International Reading Association recommends that classroom libraries start with at least 7 books per child and purchase two additional new books per child each year. The Maryland Reading Task Force of the Maryland State Department of Education (1998) recommends each elementary school provide a library media center containing a minimum of 20 titles per student. Each classroom collection should contain a minimum of 500 titles, which could be partially drawn from the library media center.

OPTIMAL NUMBER OF BOOKS IN A CLASSROOM LIBRARY

- 300–600, depending on grade level and number of copies of each title

NUMBER OF BOOKS TEACHERS SHOULD EXPECT CHILDREN TO READ DURING THE SCHOOL YEAR

- 1st Grade/Picture Books 100-125
- 2nd Grade and up/Chapter Books: 50-75

Fountas and Pinnell (1996) recommend a collection of about 300-600 books, depending on the grade level and number of copies of each title. Their calculations estimate that teachers should expect first graders to read about 100-125 books during the school year, and older children, who are likely to read longer books, 50-75 books for the year.

A wide variety of books, replenished regularly

Classroom libraries need to include a wide variety of books that span a significant range of difficulty. Some of the books should be relatively easy, and some should be challenging for all children. These books may be divided into a "core" collection and a "revolving" collection (Galda & Cullinan, 2001). Just like a public library, the core collection is the permanent collection, available throughout the year. The revolving collection, on the other hand, changes every few weeks, based on the topics to be studied in class, the children's current interest, and special holidays throughout the year.

Variety of genres

Children also need to be exposed to a range of language, topics, genres, and perspectives (McGee & Richgels, 1996). They need books that reflect the diverse, multicultural nature of our society, books where they can learn about themselves and others. The literature selection should include:

- **Traditional stories:** Familiar stories that are found in every culture, including fables, folk tales, myths, and legends.
- **Fantasy:** Stories that contain characters who may have superhuman powers that spark children's imaginations.
- **Realistic fiction:** Stories with characters, settings, and events that could plausibly happen in true life.
- **Historical fiction:** Stories set in the past, accurately reflecting the time period in which they occur.

- **Biographies and autobiographies:** Books about the lives of everyday of famous people.
- **Information:** Books that provide realistic, accurate, and authentic information.

High-quality books

To spark children's interest and enthusiasm about reading, books must catch children's attention, captivate their imaginations, and make them want to return to their pages again and again. Only high-quality books will achieve these goals (Neuman, 1999). Rather than some old tattered books from garage sales, books need to look physically attractive, with fresh covers and interesting, bright illustrations. Brand-new books should be added to replenish the classroom library on a regular basis.

An attractive setting

Children are more likely to visit classroom libraries and actively participate in them when they are physically attractive. A number of design features have been identified (Morrow & Weinstein, 1986; Neuman & Roskos, 1992):

- **Partitions:** Bookshelves or other barriers on at least two sides help to set the library apart, giving children a sense of privacy and providing a quiet, cozy setting for reading.
- **Ample space:** There should be room to accommodate about four or five children at a time.
- **Comfortable furnishings:** Pillows, carpeting, bean bag chairs, plants, and flowers all help to create a comfortable atmosphere for reading.
- **Open-faced and traditional bookshelves:** Open-faced bookshelves display the covers of the books, and naturally attract children to the library; traditional bookshelves, carts, and baskets hold multiple copies of books for children to read to each other.
- **Literacy displays and props:** Books posters from the public library, and author's display, message center (for favorite reviews of books), listening corner, puppets, and flannel board encourage children to use the library in may different ways—for quiet reflection and reading, reenactments of stories, and conveying messages to one another.

CHARACTERISTICS OF A LITERACY-BUILDING CLASSROOM LIBRARY

- 300-600 books
- Wide range of reading difficulty
- Permanent "core" collection and regularly replenished "revolving" collection
- Variety of genres
- New books with appealing covers
- Attractive, inviting setting

REGULAR READING IMPROVES LITERACY AND COMPREHENSION

Time for reading

Children need time to read independently every day. Most authorities recommend about 20 minutes of uninterrupted time per day to "get lost in a book" (Allington, et al., 1996). Elster (1994) suggests that teachers establish a daily "sustained engagement time" when all children are expected to be engaged with books in whatever manner most comfortable to them, whether browsing through books, looking at pictures, or reading the library books alone or with their classmates.

During independent reading time, reluctant readers may be more likely to select a book if teachers highlight particular books during daily read-aloud sessions, or read favorite books at least three times prior to placing them in the classroom library (Martinez & Teale, 1988). Neuman and Soundy (1991) found that storybook partnerships - reading books with buddies – provided a special enticement for sustained reading time and conversations around books.

Conversations about books

To foster a love of books, children need opportunities to talk about them. Studies suggest that informal conversations around books, such as book talks or book chats, enhance children's motivation to read. Wells and Chang-Wells (1992) found that children develop more complex understandings of stories by talking about their books with others. During book chats, children tell about an interesting event or fact in their book, information about the author, and why others might like to read it in 5-to-10 minute conversations before the whole group. In the course of retelling, children develop new knowledge and understandings, as well as gains in comprehension.

IN CONCLUSION

Research confirms what has often been written: **Children learn to read by reading.**

Teachers can promote children's involvement with reading by reading to them daily and by having them interact with books through the extensive use of classroom libraries. With hundreds of good books to read and time to read them, children will get on the right road to reading achievement.

About the Author

Having returned to the University of Michigan in Ann Arbor in 2004 after a two-year hiatus where she served as the U.S. Assistant Secretary for Elementary and Secondary Education, **Dr. Susan B. Neuman** is a Professor in Educational Studies specializing in early literacy development. Previously, she directed the Center for the Improvement of Early Reading Ability (CIERA). Her research and teaching interests include early childhood policy, curriculum, and early reading instruction, PreK–Grade 3.

Dr. Neuman recently received an honorary doctorate from the California State University, Hayward, where she also conducted her master's work in reading and curriculum. She received her doctorate at the University of the Pacific in Stockton, California in 1977, and her B.A. at American University. Prior to coming to Michigan, she was a Professor at Temple University, the University of Massachusetts–Lowell, and Eastern Connecticut State University.

For *The Importance of the Classroom Library* references, please see page 91.

Section II: Effectiveness Report

Are you looking to close the reading achievement gap for your students? Simple as it seems, books may be the answer. Adding 20 minutes of daily reading with individualized teacher modeling and independent book choice can transform students into motivated and successful readers.

Recent research conducted by Dr. Cathy Collins Block, Professor of Education at Texas Christian University, and her colleagues examined the effects of these and other classroom practices on the vocabulary, fluency, comprehension, reading attitudes, and overall literacy of elementary grade students.

Data from this research revealed that the most consistently positive effects resulted from the reading of two student-selected nonfiction trade books back-to-back. This learning environment produced a 10% net gain in overall achievement, as well as the highest scores on vocabulary, comprehension, fluency, and reading attitude measures.

Scholastic has a long history of developing diverse and engaging trade books for all students. Selecting carefully from these books, Scholastic incorporates a variety of genres, levels, and topics in classroom libraries designed to motivate and support every student and teacher in today's classrooms. As this important new research reveals, daily independent reading with Scholastic Classroom Books can improve the reading skills of lower achieving students and help close the literacy achievement gap.

by Dr. Cathy Collins Block

2nd, 3rd, 4th, and 6th Grade Study 2003–2004

When Twenty Minutes of Literacy Instruction is Added to the Day:

Which Learning Environments Increase Students' Overall Achievement, Vocabulary, Comprehension, Fluency, and Affective Development?

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Abstract

Despite their increasing concerns and efforts, educators have not closed the literacy achievement gap (Cowen, 2003). This study was designed to determine the effects of several learning environments created to attain this goal: (1) explicit instruction, (2) mastery-in-practice, (3) schema-activated instruction, (4) situated practice, (5) transformed practice, and (6) critical framing. Results hold significance in light of *No Child Left Behind* legislation. Many schools are adding twenty minutes to their basic literacy program, but data has not been available to determine which learning environments produce largest achievement gains during these time periods. Over seven hundred elementary and middle school students were randomly assigned to experimental or control groups. Experimental subjects participated in all treatments, while control subjects engaged in twenty minutes of additional anthology-based instruction. Each treatment sustained for six weeks, and the study continued for two-thirds of a school year. Subjects completed criterion-referenced and standardized pre- and post-tests. Data resulted in twenty statistically significant effects of specific learning environments for above, on, and below grade-level readers. The most consistently positive effects resulted from transformed practice theory (reading two student-selected, nonfictional books on the same subject back-to-back). This learning environment produced a 10% net gain in overall achievement, and the highest scores on vocabulary, comprehension, fluency, and attitude measures. Data also documented that when less able readers received 20 minutes of supplemental instruction in their optimal learning environment, their literacy growth equaled that of their more able peers.

A full description of this research appears in Block & Reed (2004), and is in preparation for an upcoming edition of Reading Research Quarterly.

Background

LITERACY LEARNING ENVIRONMENTS

Within the last decade, educators have documented that six theoretically guided learning environments typify literacy instruction in North America and most English-speaking nations (Block, 2003; de Kock, Sleegers, & Voeten, 2004). Literacy learning environments are defined as the "totality of external factors, conditions and influences, including instruction that can facilitate literacy development" (Harris & Hodges, 1995, p. 73). Aspects of literacy learning environments include (a) the materials used for instruction and the role they play, (b) the division of roles between teacher and learner, (c) learning goals, and (d) the teacher's method of instruction (Anderson, 1989; Joyce & Weill, 1996; Lowyck, 1995; Shuell, 1996). Despite their increased concerns and efforts, educators have not identified the most effective learning environment that closes the literacy achievement gap (Cowen, 2003). In 1994, 40% of fourth graders, 30% of eighth graders, and 25% of twelfth graders read below grade level (Williams, Reese, Campbell, Mazzeo, & Phillips, 1995). Nine years later, 69% of fourth, eighth, and twelfth graders could not read grade-level content with high levels of comprehension (NCES, 2003).

Despite their increased concerns and efforts, educators have not identified the most effective learning environment that closes the literacy achievement gap.
—Cowen, 2003

COMPETING VIEWS FOR HELPING STRUGGLING READERS

Some researchers hypothesize that these low levels of achievement result from learning environments that contain few high-quality children's literature selections. They argue that without abundant book choices struggling students will not invest enough interest or motivation to learn how to read better (e.g., Alvermann & Hagood, 2000; Alvermann, Moon & Hagood, 1999; Alvermann, 2002; Block, Gambrell, & Pressley, 2003). Other educators suggest that less able readers do not have enough time to practice reading (e.g., Duke, 2003), and/or do not receive enough instruction in learning how to read (e.g., Chall, 1967, 1989; Reutzel & DeBoer, 2002). They posit that poorer readers conceptualize reading as merely a matter of decoding to a significantly greater degree than more proficient readers (Block, Rodgers, & Johnson, 2004). This misconception might alter if struggling readers learned in an environment that

contained more authentic, lifelong reading materials (Cunningham & Allington, 1999; Goodman, 1986; Weaver, 1998). Others claim that effective learning environments must strike a balance between direct teaching and reading practice by combining explicit instruction with real-world literacy experiences (Adams, 1990; Boyer, 1996; Clay, 2001; Cowen, 2003; Pressley, 1998; Xue & Meisels, 2004). Alternatively, advocates of explicit instruction believe that most readers must receive more sequential, teacher-guided interventions before literacy levels will increase (e.g., Adams, 1990; Chall, 1989; Flesch, 1955, 1981). At the same time, these researchers seek research-based evidence as to which learning environments encourage today's students to become more metacognitive, strategic readers. These scientists hypothesize that if more emphasis were placed on self-regulation in a learning environment, students would more automatically transfer comprehension and metacognitive processes to novel texts (de Kock, Sleegers & Voeten, 2004; Pearson & Duke, 2003).

This study was designed to examine the effects of six theoretically based learning environments that frame contemporary literacy instruction.

RESEARCH QUESTIONS

As the variety of textual formats and processing demands increase, research must determine which learning environments provide greatest support for literacy growth and hold the greatest potential to close the literacy achievement gap. This study was designed to examine the effects of six theoretically based learning environments that frame contemporary literacy instruction. Three hypotheses were tested.

Research Question #1: Can the addition of a specific, 20-minute, theoretically grounded learning environment (or a 29% increase in total time spent on literacy instruction each day) assist educators to close the literacy achievement gap and increase students' reading achievement?

Research Question #2: What are the effects of six theoretically grounded, 20-minute instructional learning environments in Grades 2, 3, 4, and 6 on the vocabulary, comprehension, fluency, and affective development of students below level, on level, and above level?

Research Question #3: Can alternative assessments provide additional information to judge the success of various learning environments? (Alternative assessments were defined as (a) identifying which treatment produced the largest net gain, as well as the percentage of students to increase, decrease, or remain at their entering-the-study reading levels, (b) which treatment resulted in the highest percentage of students increasing specific competencies in their reading abilities, and (c) comparing effectiveness rankings of each learning environment for various student groups, including above, on, and below grade level readers.)

THEORETICAL BACKGROUND

This study examines the effects on student literacy levels of six learning environments that typify today's instruction (Shuell, 1996). These learning environments include: explicit instruction, mastery in practice, transformed practice, critical framing, schema-activated constructivism, and situated practice (de Koch, Sleegers & Voeten, 2004). A summary of each learning environment appears in **Table 1** at right, which can be used as a quick reference throughout this article.

PRACTICAL PERSPECTIVES

The rationale for this study was founded on several practical perspectives. First among them was that the learning environments in this study dominate literacy instruction today. Since 2000, U.S. schools have increased the amount of time relegated to literacy learning from 70-90 minutes, and most often, that increase occurred by adding one of the learning environments described in this study. This augmented instructional time was predicated on data demonstrating that the amount of time children spend in voluntary reading correlates with reading achievement (Taylor & Pearson, 2002; Taylor, Frye, & Marujama, 1990). However, correlation data does not produce causal evidence. For instance, data exists to suggest that (a) fifth graders who scored at the ninetieth percentile on

TABLE 1: Reference Guide for the Six Learning Environments Used in This Study

Learning Environment & Description	Method	Icon
Control Group: Explicit Instruction Teachers are information-providers to help students gain knowledge through a step-by-step process.	**Basal readers** *Saxon Phonics Supplemental Program; Scott Foresman Basal Reading Series; Scholastic Literacy Place; Open Court; Harcourt Basal Reading Program*	
Treatment Group #1: Mastery-in-Practice Work independently and silently to practice skills sequentially for an extended period of time.	**NCLB workbooks** *Chills: 12 Chilling Tales and Exciting Adventures with Exercises to Help You Learn; Shocks: 15 Startling Stories to Shock and Delight with Exercises for Comprehension and Enrichment; Quick Reads, Levels A,B, & C: Books 1,2,& 3*	
Treatment Group #2: Schema-Activated Constructivism While engaged in independent reading, students encounter problematic literacy situations and teachers model how to overcome the challenge.	**Sustained Silent Reading (SSR) with Praise-Add Cognitive Challenge-Raise Abilities (PAR)-based teacher monitoring** Students read expository or narrative books of choice and teachers give personalized, individualized instruction when students need help.	
Treatment Group #3: Situated Practice Learners practice a specific reading skill immediately after having been taught that skill by their teacher.	**Sustained Silent Reading (SSR) with a priori teacher instruction** Students select trade books of choice and read silently and independently. Prior to reading, teachers explicitly tell students which reading skill they should practice.	
Treatment Group #4: Transformed Practice Poses problematic situations during reading that students must solve.	**Two nonfiction books read back-to-back** Students read two nonfiction texts of their choice, on the same subject, back-to-back.	
Treatment Group #5: Critical Framing Students position their literacy practices within a social, political, and historical context.	**Reading and discussion of two teacher-selected fiction books back-to-back** Students are provided two teacher-selected narrative texts related to the thematic unit under study. Teachers then hold whole class discussions to discuss what was learned.	

standardized tests read approximately 200 times more than peers who scored at the tenth percentile (California Department of Education, 1996) and (b) more frequent readers become better self-monitors of their reading (Pearson & Fielding 1991). We also know that seven comprehension skills and fifteen metacognitive processes are not fully developed through traditional basal reading instruction. What we do not currently know is the reason for these findings.

EFFECTS OF TRADE BOOK READING ON LITERACY ACHIEVEMENT

Trade books were used throughout this research. For the purpose of this study, trade books are defined as fictional or nonfictional books that were not written to become basic textbooks. In a more common vernacular, most students call trade books "library books." Two reviews of the use of trade books as tools to close the literacy gap concluded that 8% of the variance in later language and literacy measures could be explained by the variation and frequency of experiences that subjects had with trade books during their preschool years. This finding held regardless of students' socioeconomic status (Block, Oaker, & Hurt, 2002; Block & Mangieri, 2003; Hammett, Van Kleeck, & Huberty, 2003). One explanation for this early trade-book effect is that students gain knowledge about the organization of narrative and expository texts through early book-reading experiences (e.g., Stein & Glenn, 1982.)

For the purpose of this study, trade books are defined as fictional or nonfictional books that were not written to become basic textbooks.

Despite studies dating from the 1950s (which documented that students often prefer nonfiction to fiction, e.g., Monson & Sebesta, 1991; Norvell, 1950; Purves & Beach, 1972), expository texts seldom make their way into literacy classrooms as a supplemental program. Even teachers who provide time for sustained silent reading require that students read fictional instead of informational texts (Worthy, Turner, & Moorman, 1998). As a result, today's students do not frequently have time in their basic reading program to read nonfictional trade books (Moss & Hendershot, 2002). Fink (1995/1996) found that even readers with dyslexia reported high levels of voluntary reading when available books contained content related to their passionate personal interests. Their preferred books were biographies, science, history, math, religion, and

business-related trade books. Could similar motivation and engagement be obtained for other readers if they experienced learning environments that used nonfictional texts? There are other advantages to including more well-written, expository trade books in literacy instruction. First, today's nonfiction books are of higher quality than in the past. Despite their improved quality, however, we do not know a lot about their effects on students' literacy achievement. Second, expository texts may be especially valuable for those who struggle to comprehend poorly written or badly organized content-area textbooks (Block, 2004). Third, as Alexander (1997) argued, knowledge-seeking through expository text may be just as motivating as the 'lived through' story experience of fictional texts for students at all ability levels, and having more time to read such books in school may ease the difficulties many students experience in transitioning from basals to content-area texts.

Expository texts may be especially valuable for those who struggle to comprehend poorly written or badly organized content-area textbooks.

Method

PARTICIPANTS

The study occurred within five elementary or middle schools in four districts in the southwestern United States. Schools were selected because they represented the range of public school institutions that characterize education in the United States. Schools were located in a(n): (1) high socioeconomic suburban neighborhood; (2) middle-class community; (3) inner-city, low socioeconomic locale; and (4) small town where many parents were unemployed or lived on limited incomes. These sites represented the spectrum of public schools in many English-speaking nations.

Before the study began, principals randomly assigned second, third, fourth, and sixth graders to experimental or control groups. Principals also randomly assigned teachers to experimental or control classes. All teachers volunteered to participate. In total, 26 classrooms and 738 students participated (i.e., 146 second graders, 123 third graders, 151 fourth graders, and 318 sixth graders). Of that group, 438 were

experimental and 300 were control subjects; 168 were of Hispanic descent, 345 were Caucasian Americans, 180 were Americans of African descent, 28 were from homes with an Asian culture, and 17 represented multiple nationalities.

PROCEDURES

The study occurred from September 23, 2003 to May 24, 2004. Experimental teachers implemented the same basal reading curriculum as the control teachers in their building for 70 minutes, and then engaged in an experimental treatment for 20 minutes daily. During times in which experimental treatments occurred, control teachers continued basal reading instruction (following teacher manual guidelines). The average time spent in reading instruction in each school was 70 minutes a day prior to this study, but increased to 90 minutes daily during the study. This was a 29% increase in time designated for literacy instruction. For basal reading instruction, all students in District A used the Saxon Phonics Supplemental Program and the Scott Foresman Basal Reading Series; District B used Scholastic Literacy Place; District C used Open Court; and District D used the Harcourt Basal Reading Program.

Experimental teachers implemented the same basal reading curriculum as the control teachers in their building for 70 minutes, and then engaged in an experimental treatment for 20 minutes daily.

During treatment periods, experimental subjects engaged in one learning environment for six weeks, until all students had participated in all environments. Treatments were randomly assigned and learning environments were counterbalanced so that every school contained all treatments every month of the school year. At every grade level, during every month of the study, one or more experimental groups in each school were engaged in one of the treatment conditions. (See Table 1 for Description of Treatments.)

ASSESSMENTS

All subjects received pretests and posttests. Continuous measurement occurred over time. During and after each treatment, experimental and control students completed book tests, designed by the researchers. Subjects averaged 10.2 total tests, or approximately 2 tests for each six-week treatment. Each test contained six questions that measured vocabulary, main ideas, details, higher-level

comprehension, fluency, and reading attitude as a result of that week's learning environment. Control subjects' book tests were based on the last basal story read that week. The book test's items measured reading attitude and fluency with a student self-report measurement. In addition, subjects were administered a standardized fluency post-test. In this measure, students read a grade-leveled trade book of choice for two minutes and counted the number of words read. (Researchers later computed the average rate for one minute's reading). Students were also required to write a retelling (immediate recall measure) and the vocabulary words remembered from this timed reading (immediate vocabulary learned or recalled measure).

Prior to the study, teachers submitted a list of subjects' last year's criterion-referenced reading achievement scores. At study's end, teachers reported the same post-assessment data (received from the statewide reading achievement test administered as a regularly scheduled component of their school district's reading program). These data determined if students had increased or decreased in overall reading ability. The Stanford Nine Achievement Test's Vocabulary, Comprehension, and Spelling Subtests were also administered as pre- and posttests, with alternate versions given one week after each treatment's end.

FIDELITY OF IMPLEMENTATION

To assess the fidelity of interventions, experimental and control teachers kept daily logs to record the exact time that students participated in experimental or control treatments. Researchers observed teachers each week to ensure that procedures for each treatment were being implemented properly and to answer questions. Experimental and control students maintained a book log in which they listed the titles of the books or workbook/basal stories (and number of pages) read each day. Teacher and student logs were checked weekly and collected at study's end.

Experimental teachers received 40 hours of training, and four weeks of practice implementing experimental learning environments before the study began. One month after the study's completion, experimental and control teachers were interviewed to obtain qualitative data.

Data Analysis

Pre- and post-assessments were analyzed through 6 (treatments: learning environments) x 3 (ability: below, on, and above grade level reading abilities) x 2 (time) analyses of variance (ANOVAs) for a repeated measures design. Chi-square and t-tests for a repeated measures design were also computed, with time being the repeated factor. Hedges (1982) statistic (reported as r2) was used to compute Effect Sizes. Due to the repeated measures design, 107 subjects with incomplete data were eliminated. No significant differences existed between the pretest Stanford Comprehension and Vocabulary Subtest scores from the original sample and the sample that had complete data (p= .24). Through examination of teacher and student logs, all subjects with complete data experienced 150-155 days of experimental or control treatments; and, when engaged in learning environments two, three, four, and five, read more than seven pages per day. This criterion was established to verify that when students were in authentic, text-based learning environments, they read more continuous text than in workbook-based environment. No *NCLB* workbook story contained more than seven pages of continuous text on a single topic.

Results

Table 2, at right, highlights the most critical effects of each experimental treatment, including vocabulary, comprehension, and fluency outcomes, as well as student movement from below grade level to on *or* above grade level performance and relative ranking for overall reading ability. More detailed findings can be reviewed in Appendices A and B.

TABLE 2: Learning Environment Effects on Student Achievement and Ability to Close the Achievement Gap

Condition	Key Findings
Control Group (20 Minutes of Additional Explicit Instruction on Basal Reading Activities) Teachers are information-providers to help students gain knowledge through a step-by-step process.	▶ Significantly *decreased* the overall reading abilities of all subjects when compared to other treatments (7.9% decrease). ▶ Only method that *did not increase* students' mean fluency rate above the national average for their grade levels.
Mastery-in-Practice (NCLB Workbooks) Work independently and silently to practice skills sequentially for an extended period of time.	▶ Significantly *less effective* than all other methods in helping students identify details. ▶ Significantly *less effective* than all other methods of increasing students' higher-level comprehension. ▶ Significantly *lower* in increasing positive attitudes toward reading for all ability groups.
Schema-Activated Constructivism (SSR With PAR-based Teacher Monitoring) While engaged in independent reading, students encounter problematic literacy situations and teachers model how to overcome the challenge.	▶ *Best method* of increasing above, on, *and* below grade level readers' vocabulary abilities. ▶ Equaled nonfiction books as the best treatments to significantly *increase* all readers' scores on comprehension transfer test (Stanford Nine Comprehension Subtest). ▶ *Best* for below, on, *and* above grade level readers on transfer vocabulary test (Stanford Vocabulary Subtest). ▶ *Best* in keeping students from decreasing in overall reading ability, as *no student decreased* while engaged in this treatment. ▶ Significantly *increased* less able readers' scores on the comprehension transfer test (Stanford Achievement Test). ▶ *Most effective* in increasing fluency for all readers. ▶ *Most effective* in increasing the amount of vocabulary learned during the reading of a two-minute timed reading for all students.

TABLE 2: Continued

Condition	Key Findings
Situated Practice (SSR With a Priori Teacher Prompting) Learners practice a specific reading skill immediately after having been taught that skill by their teacher.	▶ Significantly *less effective* than other experimental or control treatments in increasing all students' fluency. ▶ Significantly *less effective* in increasing above grade level readers' overall literacy abilities. ▶ Only learning environment in which more students *lost overall reading ability* than gained it after the intervention.
Transformed Practice (Nonfiction Trade Books on the Same Subject Read Back-to-Back) Poses problematic situations during reading that students must solve.	▶ First in significantly *increasing* the overall reading abilities of all students. ▶ First in significantly *increasing* the specific literacy competencies of learning vocabulary. ▶ First in significantly *increasing* the application of applying higher-level comprehension skills for all students. ▶ Most significantly *increased* on grade level readers' abilities to recall new vocabulary words learned immediately after reading. ▶ Most significantly *increased* above grade level readers' scores on the comprehension transfer test (Stanford Achievement Test). ▶ Significantly *increased* all readers' abilities to retain main ideas and increased all ability levels to recall details. ▶ First in significantly *advancing* students who increased half grade levels by study's end. ▶ Tied with schema-activated constructivism (SSR with PAR-based teacher monitoring) in its ability to most significantly *increase* all readers' scores on the transfer comprehension test (Stanford Nine Comprehension Subtest). ▶ *Largest net gain* in overall reading ability by mid-year, as 10% of students in this treatment increased in overall reading ability.
Critical Framing (Reading and Discussing Two Teacher-Selected, Matched-to-Thematic-Units Fictional Trade Books) Students position their literacy practices within a social, political, and historical context.	▶ Equal to transformed practice in its ability to significantly *increase* all subjects' abilities to recall vocabulary immediately after reading, demonstrating to close the vocabulary achievement gap for below grade level readers. ▶ Equal to transformed practice reading in significantly *reducing* the number of students who decreased from above to on grade level, and from on to below grade level in overall reading abilities.

Discussion and Conclusions

The purpose of this research study was to examine the power of several methods of reading instruction designed to close the achievement gap. The need for these data has high significance in light of *No Child Left Behind* legislation. An ever-increasing number of school districts are adding 20 additional minutes of reading instruction to their programs. Findings can also assist teachers to select the most advantageous methods of increasing all students' literacy achievement. Data demonstrated that merely adding 20 minutes of explicit instruction to the day will not result in significant increases in reading ability for students who do not value interacting daily with books. Additional time with the basal did not demonstrate to be a powerful enough intervention to increase below, on, or above grade level readers' achievement across the board, unless trade books were used in specific ways during this time. A combination of direct instruction and wide reading demonstrated to significantly increase students' vocabulary, comprehension, fluency, and reading attitudes.

Additional time with the basal did not demonstrate to be a powerful enough intervention to increase below, on, or above grade level readers' achievement across the board, unless trade books were used in specific ways during this time.

BEST LITERACY ENVIRONMENTS FOR RAISING READING ACHIEVEMENT

For total group, reading abilities can most rapidly grow under two conditions: transformed practice with nonfiction trade books and sustained silent reading with the PAR approach. If teachers cannot monitor a trade book silent reading period, students should be guided to select two expository texts of personal interest and read them back-to-back. This will create a highly effective transformed practice learning environment, which has the best chance of accelerating students' automatic, higher-level applications of vocabulary, comprehension, and fluency abilities, as well as more positive attitudes toward reading. If teachers can monitor a silent reading period, by using PAR-based scaffolds, students can be free to choose any expository or narrative text, as they will demonstrate comprehension growths that are equal to those in transformed practice environments. Scaffolding and self-selection were more valuable to comprehension growth than matching a leveled text to students' reading level.

Data also demonstrated that supplemental explicit instruction and mastery-in-practice learning environments do not close the achievement gap if used 20 minutes a day, but rather keep below grade level readers in the bottom performance quartile.

The learning environment that evidenced the greatest total net gain over the course of the study was transformed practice (reading two nonfiction trade books of student choice back-to-back), and it also produced most significant differences when all effects were totaled and a mean effectiveness ranking was computed. Transformed practice with trade books and schema-based constructivism were the only learning environments that raised below grade level readers' scores above the average readers' scores on several measures and closed the literacy gap for these students.

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Implications for Future Practice

Significant treatment effects were evidenced after only six weeks in this study, indicating that the first implication for future practice is that if students are placed in a learning environment that is most effective for them, gains should be evident very rapidly, especially for below grade level readers. When schema-activated constructivism reading periods are not possible, an equally effective supplemental program for most students was transformed practice (reading of two nonfiction books of student choice back-to-back).

These data also speak to the selection of instructional methods. As our profession continues to advance its research foundations for practice, it will become increasingly important that we become more intentional in selecting highly effective learning environments. Based on the numerous incidents when students who were reading below grade level outperformed higher achieving peers (when the former were placed in their most effective learning environment), more

classrooms should include schema-activated constructivistic and transformed practice learning environments for below grade level readers.

The data in this study demonstrated that authentic practice in a student-relevant context for 20-minute daily practice periods was necessary for students' achievement to significantly increase. Thus, such constructivistic learning environments should be more widely implemented in today's schools. These conditions are needed for students to learn to independently apply the knowledge gained through explicit instruction. While explicit instructional learning environments have proven to improve students' basic literacy skills, adding an additional 29% more time towards this learning environment did not transfer to the development of higher-level skills. Rather, all forms of extra explicit instruction caused the greatest number of students to decrease in their overall reading abilities.

Data from this study also add to the body of knowledge concerning internal motivation. Findings indicate that when teachers suggest text to students, it is not readability level as much as personal passion towards the topic to be read that builds students' internal motivation. Similarly, it is not the lengthening of silent reading time that will increase students' internal value for reading (for students who do not already value reading), but the personalized scaffolding that teachers provide. Because of this, the practice of individual scaffolding by the teacher should be included more frequently in supplemental learning environments for below grade level readers if we are to close the literacy achievement gap.

As reported in *Education Week*, December 8, 2004, school district personnel are going to receive more federal money to support supplemental learning environments (Wade, 2004). To date, few states have scientifically validated evidence that documents that the money they are spending for after school tutoring and during school supplemental services is significantly effective. Data from this study can be used to develop such evidence.

APPENDIX A:

Treatment Effects on Ability to Move Students From Below to On or Above Grade Level on Benchmark Tests and Book Tests

Treatment	% That Decreased in Overall Reading Ability Level & Means & S.D.s for Number of Items Answered Correctly on Posttests	% That Remained the Same, and Mean & S.D. for Number of Items Answered Correctly	% That Increased in Overall Reading Ability, and Mean & S.D.	Mean Number of Responses Generated Unprompted (Per Student)	Cumulative Net Gain or Loss in Achievement for Total Student Population
Basals					
State Test	7.9%	74.7%,	17.4%,	2.78	+9.5%
Vocabulary	3.08 (2.8)**	3.47 (2.8)	2.47 (2.6)	.79	increase**
Main Idea	.84 (.37)**	.94 (.33)	.91 (.29)	1.94	(Ranked 2nd)
Details	2.24 (1.17)	2.35 (1.01)	2.1 (1.21)	.72	
Applications	.80 (.41)	.85 (.36)	.88 (.33)	6.23=mean (Ranked 5th)	
Workbook					
State Test	3.6%	87.9%	8.5%	2.78	+4.9%
Vocabulary	2.29 (2.5)**	3.9 (2.5)	3.8 (2.5)	.79	increase**
Main Idea	.66 (.71)**	.63(.49)	.62 (.49)	1.94	(Ranked 5th)
Detail	.6 (.86)**	1.85 (1.07)	1.6 (1.03)	.72	
Applications	.45 (.50)***	.66 (.47)	.59 (.56)	6.23=mean (Ranked 5th)	
SSR w/PAR					
State Test	0% no decrease**	92.8%,	7.2%	2.95	+7.2%
Vocabulary	0% decrease**	2.99 (2.13)	2.47 (2.6)	.88	increase**
Main Idea	0% decrease**	.87 (.34)	.97 (.16)	2.22	(Ranked 3rd)
Details	0% decrease*	2.24 (1.03)	2.0 (1.2)	.76	
Applications	0% decrease	.77 (.42)	.66 (.48)	6.81=mean (Ranked 2nd)	
SSR w/a priori teacher instruction					
State Test	3.4%	93.4%	3.2%**	2.73	-0.2%
Vocabulary	3 (2.9)**	2.93 (2.67)	3 (2.7)	.66	decrease**
Main Idea	.69 (.48)**	.72 (.47)	.42 (.52)	1.51	(Ranked 6th)
Details	1.69 (1.5)**	1.66 (1.25)	.67 (.99)	.70	
Applications	.77 (.44)*	.75 (.43)	.92 (.29)	5.6=mean (Ranked 6th)	
Nonfiction					
State Test	1.3%*	87.4%,	11.3%	3.11	+10% increase**
Vocabulary	2.8 (3.5)**	2.11 (3.2)	1.2 (1.9)	.91	(Ranked 1st)
Main Idea	.81 (.40)**	.94 (.43)	.85 (.35)	2.57	
Details	1.69 (1.4)**	2.16 (1.16)	1.2 (1.2)	.86	
Applications	.81 (.40)**	.91 (.31)	.67 (.47)	7.45=mean (Ranked 1st)	
Fiction					
State Test	1.3%*	91.4%, 3.26 (3.0)	7.3%, 2.47 (3.0)	3.12	+6% increase**
Vocabulary	3.1 (3.5)**	.82 (.39)	.77 (.42)	.80	(Ranked 4th)
Main Idea	.40 (.51)**	2.06 (1.13)	1.5 (1.17)	1.97	
Details	1.67 (1.4)**	.81 (.44)	.63 (.49)	.78	
Applications	.60 (.51)			6.67=mean (Ranked 3rd)	

**P<. 01 **P<. 001 ***P= .003 ****P<. 05*

APPENDIX B: Effects of Treatments on Silent Reading Fluency Rates

Grade Level	Average Rates of Student Silent Reading Fluency Based on Words Correct Per Minute**	Mastery-in-Practice (Basal) Control	Explicit Instruction (NCLB Workbooks)	Schema Activated (SSR With PAR-based Teacher Monitoring)	Situated Practice (SSR with a Priori Teaching Prompting)	Transformed Practice (Reading two Non-Fiction Books Back-to-Back)	Critical Framing (Reading and Discussion of Teacher Selected Fiction books)
2nd	70	113.90***	120.91***	96.05***	130.72***	112.72***	114.55***
3rd	120	95.53	130.33***	167.16***	104.86	157.92***	149.91***
4th	150	104.51	187.45***	142.03	105.32	126.55	140.36
6th	245	133.23	226.54	233.35	NA	203.73	191.66
Mean Fluency Rate By Treatment	146	117.59	153.10***	170.89***	NA	145.88	161.71***

**Research compiled by Rachel R. Escamilla, School of Education, Texas Christian University.*

***Taken from research reported in Carver, R.P. (1989). Silent Reading Rates in Grade Equivalents.* Journal of Reading Behavior 21(2), 155-166.

****Higher than the* Average Rates *(Fluency Rates) at that grade level.*

About the Author

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Cathy has written numerous college textbooks, is an author of the Stanford Early School Achievement Test (The Psychological Corporation), and has written more than 80 research articles. She served on the National Faculty for the University of Notre Dame. She was the Chairperson of the National Commission to Infuse Thinking Development Into the Curriculum (Washington, D.C., 1991–92). Cathy has also served as a consultant to numerous school districts in the United States, Canada, Germany, Hungary, Russia, and Finland, as well as several corporations and government agencies including the U.S. Department of Commerce, *Wishbone* PBS Series, Walt Disney, and IBM.

In addition to coauthoring the Scholastic Literacy Kits and being a program author on Scholastic Literacy Place®, Cathy is an author on the new Scholastic Early Childhood Program for PreKindergarten and Powerful Vocabulary for Reading Success (Grades 3–6).

For the *Effectiveness Report* references, please see page 91.

Section III: Professional Articles

In this section you will find professional articles focusing on the power of reading to improve reading comprehension and the critical role that motivation and background knowledge play in enhancing reading achievement. By reading these articles you will learn how to reduce the achievement gap by increasing students' reading experiences, developing their intrinsic reading motivation, and building their background knowledge through exposure to informational books.

In ***What Reading Does for the Mind***, (p. 38) Anne Cunningham and Keith Stanovich describe the profound and cascading effects that print exposure and reading volume have on reading achievement. According to the authors, the very act of reading increases students' cognitive ability by building their vocabulary and academic knowledge. Because students actually become smarter by reading a lot, teachers must provide all children with as many reading experiences as possible.

Students will not read widely and frequently unless they are motivated to do so. In ***Raising Students Who Want to Read***, (p. 51) Phyllis C. Hunter discusses the role of motivation in creating proficient readers. In this article, you will discover nine principles you can follow in order to help students become motivated readers.

In the ***Importance of Informational Literacy***, (p. 59) Nell Duke points out that while the majority of reading and writing adults do is to acquire information, many Americans are unprepared to read effectively for information. This article presents a rationale for including the reading of informational books across the school day and suggests ways to do so.

In ***Nonfiction in the Classroom Library: A Literacy Necessity***, (p. 63) authors Terrell A. Young and Barbara Moss demonstrate that classroom libraries are integral to successful teaching and learning and present evidence that supports the inclusion of informational books within the classroom library. In this article you will learn how classroom libraries help teachers meet student needs and how to promote the reading of informational books.

When students read informational trade books, they build general academic and domain specific knowledge. In ***Choosing and Using Information Trade Books***, (p. 71) E. Wendy Saul and Donna Dieckman examine the issues surrounding the use of informational trade books in the classroom and offer evaluative criteria for choosing quality information trade books. By reporting what researchers say about the use of informational trade books in the classroom, Saul and Dieckman present a strong case for classroom libraries overflowing with high quality informational trade books.

What Reading Does for the Mind

by Anne E. Cunningham and Keith E. Stanovich

Reading has cognitive consequences that extend beyond its immediate task of lifting meaning from a particular passage. Furthermore, these consequences are reciprocal and exponential in nature. Accumulated over time—spiraling either upward or downward—they carry profound implications for the development of a wide range of cognitive capabilities.

Concern about the reciprocal influences of reading achievement has been elucidated through discussions of so-called "Matthew effects" in academic achievement (Stanovich, 1986; Walberg & Tsai, 1983). The term "Matthew effects" is taken from the Biblical passage that describes a rich-get-richer and poor-get-poorer phenomenon. Applying this concept to reading, we see that very early in the reading process poor readers, who experience greater difficulty in breaking the spelling-to-sound code, begin to be exposed to much less text than their more skilled peers (Allington, 1984; Biemiller, 1977-1978). Further exacerbating the problem is the fact that less-skilled readers often find themselves in materials that are too difficult for them (Allington, 1977, 1983, 1984; Gambrell,Wilson, & Gantt, 1981). The combination of deficient decoding skills, lack of practice, and difficult materials results in unrewarding early reading experiences that lead to less involvement in reading-related activities. Lack of exposure and practice on the part of the less-skilled reader delays the development of automaticity and speed at the word recognition level. Slow, capacity-draining word recognition processes require cognitive resources that should be allocated to comprehension. Thus, reading for meaning is hindered; unrewarding reading experiences multiply; and practice is avoided or merely tolerated without real cognitive involvement.

The disparity in the reading experiences of children of varying skill may have many other consequences for their future reading and cognitive development. As skill develops and word recognition becomes less resource demanding and more automatic, more general language skills, such as vocabulary, background knowledge, familiarity with complex syntactic structures, etc., become the limiting factor on reading ability (Chall, 1983; Sticht, 1979). But the sheer volume of reading done by the better reader has the potential to provide an advantage even here if—as our research suggests—reading a lot serves to develop these very skills and knowledge bases (Cunningham & Stanovich, 1997; Echols,West, Stanovich, & Zehr, 1996; Stanovich & Cunningham, 1992, 1993). From the standpoint of a reciprocal model of reading development, this means that many cognitive differences observed between readers of differing skill may in fact be consequences of *differential practice* that itself resulted from early differences in the *speed* of initial reading acquisition. The increased reading experiences of children who master the spelling-to-sound code early thus might have important positive feedback effects that are denied the slowly progressing reader. In our research, we have begun to explore these reciprocal effects by examining the role that reading volume plays in shaping

the mind and will share many of our findings in this article.

We should say at the outset that the complexity of some of the work we will describe in this article was necessitated in large part by the fact that it is difficult to tease apart the unique contribution that reading volume affords. One of the difficulties is that levels of reading volume are correlated with many other cognitive and behavioral characteristics. Avid readers tend to be different from nonreaders on a wide variety of cognitive skills, behavioral habits, and background variables (Guthrie, Schafer, & Hutchinson, 1991; Kaestle, 1991; Zill & Winglee, 1990). Attributing any particular outcome to reading volume is thus extremely difficult.

THEORETICAL REASONS TO EXPECT POSITIVE COGNITIVE CONSEQUENCES FROM READING VOLUME

In certain very important cognitive domains, there are strong theoretical reasons to expect a positive and unique effect of avid reading. Vocabulary development provides a case in point. Most theorists are agreed that the bulk of vocabulary growth during a child's lifetime occurs indirectly through language exposure rather than through direct teaching (Miller & Gildea, 1987; Nagy & Anderson, 1984; Nagy, Herman, & Anderson, 1985; Sternberg, 1985, 1987). Furthermore, many researchers are convinced that reading volume, rather than oral language, is the prime contributor to individual differences in children's vocabularies (Hayes, 1988; Hayes & Ahrens, 1988; Nagy & Anderson, 1984; Nagy & Herman, 1987; Stanovich, 1986).

The theoretical reasons for believing that reading volume is a particularly effective way of expanding a child's vocabulary derive from the differences in the statistical distributions of words that have been found between print and oral language. Some of these differences are illustrated in **Table 1**, which displays the results of some of the research of Hayes and Ahrens (1988), who have analyzed the distributions of words used in various contexts.

The table illustrates the three different categories of language that were analyzed: written language sampled from genres as difficult as scientific articles and as simple as preschool books; words spoken on television shows of various types; and adult speech in two contexts varying in formality. The words used in the different contexts were analyzed according to a standard frequency count of English (Carroll,

Table 1
Selected Statistics for Major Sources of Spoken and Written Language (Sample Means)

	Rank of Median Word	Rare Words per 1000
I. Printed texts		
Abstracts of scientific articles	4389	128.0
Newspapers	1690	68.3
Popular magazines	1399	65.7
Adult books	1058	52.7
Comic books	867	53.5
Children's books	627	30.9
Preschool books	578	16.3
II. Television texts		
Popular prime-time adult shows	490	22.7
Popular prime-time children's shows	543	20.2
Cartoon shows	598	30.8
Mr. Rogers and Sesame Street	413	2.0
III. Adult speech		
Expert witness testimony	1008	28.4
College graduates to friends, spouses	496	17.3

Adapted from Hayes and Ahrens (1988).

Davies, & Richman, 1971). This frequency count ranks the 86,741 different word forms in English according to their frequency of occurrence in a large corpus of written English. So, for example, the word "the" is ranked number 1, the 10th most frequent word is "it," the word "know" is ranked 100, the word "pass" is ranked 1,000, the word "vibrate" is 5,000th in frequency, the word "shrimp" is 9,000th in frequency, and the word "amplifier" is 16,000th in frequency. The first column, labeled Rank of Median Word, is simply the frequency rank of the average word (after a small correction) in each of the categories. So, for example, the average word in children's books was ranked 627th most frequent in the Carroll et al. word count; the average word in popular magazines was ranked 1,399th most frequent; and the average word in the abstracts of scientific articles had, not surprisingly, a very low rank (4,389).

What is immediately apparent is how lexically impoverished is most speech, as compared to written language. With the exception of the special situation of courtroom testimony, the average frequency of the words in all of the samples of oral speech is quite low, hovering in the 400-600 range of ranks. The relative rarity of the words in children's books is, in fact, greater than that in all of the adult conversation, except for the courtroom testimony. Indeed, the words used in children's books are considerably rarer than those in the speech on prime-time adult television. The categories of adult reading matter contain words that are two or three times rarer than those heard on television.

These relative differences in word rarity have direct implications for vocabulary development. If most vocabulary is acquired outside of formal teaching, then the only opportunities to acquire new words occur when an individual is exposed to a word in written or oral language that is outside his current vocabulary. That this will happen vastly more often while reading than while talking or watching television is illustrated in the second column of Table 1. The column lists how many rare words per 1,000 are contained in each of the categories. A rare word is defined as one with a rank lower than 10,000; roughly a word that is outside the vocabulary of a fourth to sixth grader. For vocabulary growth to occur after the middle grades, children must be exposed to words that are rare by this definition. Again, it is print that provides many more such word-learning opportunities. Children's books have 50 percent more rare words in them than does adult primetime television and the conversation of college graduates. Popular magazines have roughly three times as many opportunities for new word learning as does primetime television and adult conversation. Assurances by some educators that "What they read and write may make people smarter, but so will any activity that engages the mind, including interesting conversation" (Smith, 1989) are overstated, at least when applied to the domain of vocabulary learning. The data in Table 1 indicate that conversation is not a substitute for reading.

It is sometimes argued or implied that the type of words present in print but not represented in speech are unnecessary words—jargon, academic doublespeak, elitist terms of social advantage, or words used to maintain the status of the users but that serve no real functional purpose. A consideration of the frequency distributions of written and spoken words reveals this argument to be patently false. **Table 2** presents a list of words that do not occur at all in two large *corpora* of oral language (Berger, 1977; Brown, 1984), but that have appreciable frequencies in a written frequency count (Francis & Kucera, 1982). The words *participation, luxury, maneuver, provoke, reluctantly, relinquish, portray, equate, hormone, exposure, display, invariably, dominance, literal, legitimate*, and *infinite* are not unnecessary appendages, concocted to exclude those who are unfamiliar with them. They are words that are necessary to make critical distinctions in the physical and social world in which we live. Without such lexical tools, one will be severely disadvantaged in attaining one's goals in an advanced society such as ours. As Olson (1986) notes:

> It is easy to show that sensitivity to the subtleties of language are crucial to some undertakings. A person who does not clearly see the difference between an expression of intention and a promise or between a mistake and an accident, or between a falsehood and a lie, should avoid a legal career or, for that matter, a theological one.

The large differences in lexical richness between speech and print are a major source of individual differences in vocabulary development. These differences are created by the large variability among children in exposure to literacy. **Table 3** presents the data from a study of the out-of-school time use by fifth graders conducted by Anderson, Wilson, and Fielding (1988). From diaries that the children filled out daily over several months' time, the investigators estimated how many minutes per day that individuals were engaged in reading and other activities while not in school. The table indicates that the child at the 50th percentile in amount of independent reading was reading approximately 4.6 minutes per day, or about a half an hour per week, over six times as much as the child at the 20th percentile in amount of reading time (less than a minute daily). Or, to take another example, the child at the 80th percentile in amount of independent reading time (14.2 minutes) was reading over twenty times as much as the child at the 20th percentile.

Table 2

Examples of words that do not appear in two large corpora of oral language (Berger, 1977; Brown, 1984) but that have appreciable frequencies in written texts (Carroll, Davies & Richman, 1971; Francis & Kucera, 1982):

display	literal
dominance	legitimate
dominant	luxury
exposure	maneuver
equate	participation
equation	portray
gravity	provoke
hormone	relinquish
infinite	reluctantly
invariably	

Anderson et al. (1988) estimated the children's reading rates and used these, in conjunction with the amount of reading in minutes per day, to extrapolate a figure for the number of words that the children at various percentiles were reading. These figures, presented in the far

Table 3

Variation in Amount of Independent Reading

%	Independent Reading Minutes Per Day	Words Read Per Year
98	65.0	4,358,000
90	21.1	1,823,000
80	14.2	1,146,000
70	9.6	622,000
60	6.5	432,000
50	4.6	282,000
40	3.2	200,000
30	1.3	106,000
20	0.7	21,000
10	0.1	8,000
2	0.0	0

Adapted from Anderson, Wilson and Fielding (1988).

right of the table, illustrate the enormous differences in word exposure that are generated by children's differential proclivities toward reading. For example, the average child at the 90th percentile reads almost two million words per year outside of school, more than 200 times more words than the child at the 10th percentile, who reads just 8,000 words outside of school during a year. To put it another way, the entire year's out-of-school reading for the child at the 10th percentile amounts to just two days reading for the child at the 90th percentile! These dramatic differences, combined with the lexical richness of print, act to create large vocabulary differences among children.

EXAMINING THE CONSEQUENCES OF DIFFERENTIAL DEGREES OF READING VOLUME

It is one thing to speculate on how these differences in reading volume may result in specific cognitive consequences in domains like vocabulary; it is another to demonstrate that these effects are occurring. In our research, we have sought empirical evidence for the specific effects of reading volume, effects that do not simply result from the higher cognitive abilities and skills of the more avid reader. Although there are considerable differences in amount of reading volume in school, it is likely that differences in *out*-of-school reading volume are an even more potent source of the rich-get-richer and poor-get-poorer achievement patterns. Therefore, we have sought to examine the unique contribution that independent or out-of-school reading makes toward reading ability, aspects of verbal intelligence, and general knowledge about the world. As part of this research program, our research group has pioneered the use of a measure of reading volume that has some unique advantages in investigations of this kind (Cunningham & Stanovich, 1990; Stanovich and West, 1989).

In all, we developed two measures of adults' reading volume and one for children's reading volume. Briefly, the children's measure, named the Title Recognition Test (TRT), requires children to pick out the titles of popular children's books from a list of titles that includes equal numbers of made-up titles. This task is easy to administer to large numbers of children, it does not make large cognitive demands, and its results are reliable—it is not possible for children to distort their responses toward what they perceive as socially desirable answers. Because the number of wrong answers can be counted against correct ones, it is possible to remove the effects of guessing from the results (see Cunningham & Stanovich, 1990; 1991; and Stanovich & West, 1989 for a full description of these instruments and a dis-

cussion of the logic behind them). The adults' measures, named the Author Recognition and Magazine Recognition Test, have the same task requirements and are described fully in Stanovich and West (1989).

A score on the Title Recognition Test, of course, is not an absolute measure of children's reading volume and previous literacy experiences, but it does provide us with an index of the *relative* differences in reading volume. This index enables us to ask what effects reading volume (rather than general reading comprehension and word decoding ability) has on intelligence, vocabulary, spelling, and children's general knowledge. In short, it enables us to ask the question, does reading—in and of itself—shape the quality of our mind?

The titles appearing on the TRT were selected from a sample of book titles generated in pilot investigations by groups of children ranging in age from second grade through high school. In selecting the items that appear on any one version of the TRT, an attempt was made to choose titles that were not prominent parts of classroom reading activities in these particular schools. Because we wanted the TRT to probe out-of-school rather than school-directed reading, an attempt was made to choose titles that were not used in the school curriculum.

In our technical reports on this work, we have used a powerful statistical technique known as *hierarchical multiple regression* to solve the interpretive problem that avid readers excel in most domains of verbal learning and that, therefore, our measures of reading volume might be spuriously correlated to a host of abilities (Cunningham & Stanovich, 1990, 1991; Stanovich & Cunningham, 1992, 1993; Stanovich & West, 1989).We have found that even when performance is statistically equated for reading comprehension and general ability, reading volume is still a very powerful predictor of vocabulary and knowledge differences. Thus, we believe that reading volume is not simply an indirect indicator of ability; it is actually a potentially separable, independent source of cognitive differences.

READING VOLUME AS A CONTRIBUTOR TO GROWTH IN VERBAL SKILLS

In several studies, we have attempted to link children's reading volume to specific cognitive outcomes after controlling for relevant general abilities such as IQ. In a study of fourth-, fifth-, and sixth-grade children, we examined whether reading volume accounts for differences in vocabulary development once controls for both general intelligence and specific verbal abilities were invoked (Cunningham & Stanovich, 1991). We employed multiple measures of vocabulary and controlled for the effects of age and intelligence. We also controlled for the effect of another ability that may be more closely linked to vocabulary acquisition mechanisms: decoding ability. Decoding skill might mediate a relationship between reading volume and a variable like vocabulary size in numerous ways. High levels of decoding skill, certainly a contributor to greater reading volume, might

provide relatively complete contexts for figuring out the meaning of words during reading. Thus, reading volume and vocabulary might be linked via their connection to decoding ability: Good decoders read a lot and have the best context available for inferring new words. This potential linkage was accounted for by statistically controlling for decoding ability prior to investigating reading volume. But we found that even after accounting for general intelligence and decoding ability, reading volume contributed significantly and independently to vocabulary knowledge in fourth-, fifth-, and sixth-grade children.

These findings demonstrate that reading volume, although clearly a consequence of developed reading ability, is itself a significant contributor to the development of other aspects of verbal intelligence. Such rich-get-richer (and of course their converse, poor-get-poorer) effects are becoming of increasing concern in the educational community (Adams, 1990; Chall, 1989) and are playing an increasingly prominent role in theories of individual differences in reading ability and growth (Anderson, et al., 1988; Chall, Jacobs, & Baldwin, 1990; Hayes, 1988; Hayes & Ahrens, 1988; Juel, 1988, 1994; Stanovich 1986, 1989, 1993).

In a study we conducted involving college students, we employed an even more stringent test of whether reading volume is a unique predictor of verbal skill (Stanovich & Cunningham, 1992). In this study we examined many of the same variables as in our study of fourth- to sixth-grade students. However, we decided to stack the deck against reading volume by first removing any contribution of reading ability and general intelligence. By structuring the analyses in this way, we did not mean to imply that reading volume is not a determinant of reading comprehension ability. Indeed, we argue that there *are* grounds for believing that reading volume facilitates growth in comprehension ability. However, we wanted to construct the most conservative analysis possible by deliberately allowing the comprehension measure to steal some variance that is rightfully attributed to the measure of reading volume. The results of our study again attest to the potency of reading volume. We found that reading volume made a significant contribution to multiple measures of vocabulary, general knowledge, spelling, and verbal fluency even after reading comprehension ability and nonverbal ability had been partialed out.

One way of demonstrating the conservative nature of these analyses is illustrated in a longitudinal study that we have conducted (Cipielewski & Stanovich, 1992). We addressed the question of whether reading volume can predict individual differences in *growth* in reading comprehension from third grade to fifth grade. We found that reading volume predicted variance in fifth-grade reading comprehension ability after third-grade reading comprehension scores had been removed. Thus, in removing the contribution of reading comprehension in our adult studies, we are undoubtedly removing some of the variance in variables such as vocabulary and general

knowledge that is rightfully attributed to reading volume.

READING VOLUME AND DECLARATIVE KNOWLEDGE

In other studies, we have focused even more directly on content knowledge by addressing the issue of "Where Does Knowledge Come From?" Stanovich and Cunningham (1993) examined general ability, reading volume, and exposure to other media sources as determinants of individual differences in content knowledge. This study contained a particularly stringent test of the role of reading volume and individual differences in knowledge acquisition among 268 college students. We administered five different measures of general knowledge to the students. Then we stacked the deck against reading volume once again by statistically entering four measures of general ability before looking at the contribution of reading volume: high school grade-point average, performance on an intelligence test, an SAT-type mathematics test, and an adult reading comprehension test. This set of tasks surely exhausts the variance attributable to any general ability construct; and, as one would expect, we found that general ability accounted for a substantial proportion of variance in the composite measure of general knowledge. Next we entered a composite measure of exposure to television, but it did not account for any additional variance. However, a composite index of reading volume accounted for a substantial 37.1 percent of the variance when entered after the four ability measures and television exposure.

This pattern was replicated in each of the five measures of general knowledge we employed, including a homemade instrument we called the Practical Knowledge Test. This task was designed to address the criticism that our other measures of general knowledge were too academic—that they tapped knowledge that was too esoteric or elitist and that was not useful in daily life. We didn't think this was true; many items on these measures were mundane and concrete questions such as, "In what part of the body does the infection called pneumonia occur?" Nevertheless, in the Practical Knowledge Test, we made an effort to devise questions that were directly relevant to daily living in a technological society in the late twentieth century; for example, What does the carburetor in an automobile do? If a substance is carcinogenic, it means that it is _____? After the Federal Reserve Board raises the prime lending rate, the interest that you will be asked to pay on a car loan will generally increase/decrease/stay the same? What vitamin is highly concentrated in citrus fruits? When a stock exchange is in a "bear market," what is happening? and so forth.

The results indicated that the more avid readers in our study—regardless of their general abilities—knew more about how a carburetor worked, were more likely to know who their United States senators were, more likely to know how many teaspoons are equivalent to one tablespoon, were more likely to know what a stroke was, and what a closed shop in a factory was, etc. One would be hard-pressed to

deny that at least some of this knowledge is relevant to living in the United States in the late 20th century.

In other questions asked of these same students, we attempted to probe areas that we thought might be characterized by *mis*information. We then attempted to trace the "cognitive anatomy" of this misinformation. One such question concerned the sizes of the world's major religions and was designed to assess awareness of the multicultural nature of the modern world. The question was phrased as follows: "The 1986 *Encyclopedia Britannica* estimates that there are approximately nine hundred million people in the *world* (not just the United States) who identify themselves as Christians. How many people in the world (not just the United States) do you think identify themselves as _____?" Space was then provided on the form for the subjects to make estimates of the number of Moslems, Jews, Buddhists, Hindus, etc.

We will focus here on the estimates of Moslem and Jewish people because of our a priori hypothesis that availability effects caused by televised coverage of Israel in the U.S. had skewed the perception of this ratio. While our sample's median estimate of the number of Jewish people (20 million) was quite close to the actual figure of 18 million according to the 1990 *Universal Almanac*, the number of estimated Moslems—a mean of 10 million—was startlingly low (817 million is the estimate in the *Universal Almanac*). For each participant in our study, we calculated the ratio of the Moslem to Jewish estimates to see how many students were aware of the fact that the number of Moslems is an order of magnitude larger (the actual estimated ratio is approximately 33:1 according to the *World Almanac;* 45:1 according to the *Universal Almanac*). The median ratio in our sample was 0.5. That is, 69.3 percent of our sample thought that there were more Jewish people in the world than Moslems.

This level of inaccuracy is startling given that approximately 40 percent of our sample of 268 students were attending one of the most selective public institutions of higher education in the United States (the University of California, Berkeley). We have explored the correlates of this particular misconception in a variety of ways. We looked at the performance on this question as a function of students' level of reading volume and television watching. We observed a clear effect of reading volume on the scores on the question and a significant effect of television viewing, but the effects were in opposite directions! Reading volume was associated with higher scores on the question, but television exposure was associated with lower scores. Scores among the group high in reading volume and low in television exposure were highest, and the lowest scores were achieved by those high in television exposure and low in reading volume. Our analyses confirmed that these relationships were not due to differences in general ability.

Similarly, we have analyzed a variety of other misconceptions in a number of other different domains—including knowledge of World War II, the world's languages, and the components of the federal budget—and all of them replicate the pattern shown for this question. The cognitive anatomy of misinformation appears to be one of too little exposure to print (or reading) and over-reliance on television for information about the world. Although television viewing can have positive associations with knowledge when the viewing is confined to public television, news, and/or documentary material (Hall, Chiarello, & Edmondson, 1996; West & Stanovich, 1991; West et al., 1993), familiarity with the primetime television material that defines mass viewing in North America is most often negatively associated with knowledge acquisition.

In another study, Stanovich, West, and Harrison (1995) examined a much older population in order to investigate the extent to which age-related growth in knowledge can be accounted for by differences in reading volume. Although much research effort has been expended on describing cumulative growth in crystallized intelligence (e.g., acquired knowledge such as vocabulary and general information), we know little about the experiences that relate to knowledge growth in older individuals. For example, educational experience (years in school) is a predictor of intellectual functioning in older individuals (e.g., Schwartzman, Gold, Andres, Arbuckle, & Chaikelson, 1987). It is assumed that education (which is received early in life) in part determines the extent and quality of many intellectual activities later in life. And it is presumably this intellectual activity as one ages that is so crucial to the preservation of cognitive capacities. Thus, while considerable development of cognitive skills and abilities can result from formal educational experiences, it is the lifetime *use* of these skills that is assumed to have the beneficial effect.

In this study, Stanovich, et al. (1995) examined the performance of college students and senior citizens on general knowledge, vocabulary, working memory, syllogistic reasoning, and several measures of reading volume. The older individuals outperformed the college students on the measures of general knowledge and vocabulary, but did significantly less well than the college subjects on the working memory and syllogistic reasoning tasks. This dissociation between fluid intelligence (all-purpose general problem-solving capacity) and crystallized intelligence (general knowledge and vocabulary) is a standard finding in the literature (Baltes, 1987; Horn & Hofer, 1992; Salthouse, 1988). However, a series of analyses indicated that when measures of reading volume were used as control variables, the positive relationships between age and vocabulary and age and declarative knowledge were eliminated (in contrast, the negative relationships between age and fluid abilities were largely unchanged). Thus, the results of this study are consistent with the conjecture that—in the domain of verbal abilities—

reading a lot can even help to compensate for the normally deleterious effects of aging! (See also, Smith, 1996.)

HOW DO WE BECOME AVID READERS?

Moving back again to the other end of the age spectrum, we switch focus to the question: Given that lifelong reading habits are such strong predictors of verbal cognitive growth, what is it that predicts these habits? We've been looking at reading volume as a predictor of reading comprehension and cognitive ability, but what predicts reading volume or avid reading?

It is generally agreed that comprehension ability and reading volume are in a reciprocal relationship. In an attempt to tease apart this reciprocal relationship, we explored the linkages between children's first-grade reading and cognitive abilities and eleventh-grade outcomes in a unique ten-year longitudinal study (Cunningham and Stanovich, 1997). Most of our earlier studies involved assessing contemporaneous relations, but in this study, we examined the performance of a sample of students who had been tested as first graders (see Stanovich, Cunningham & Feeman, 1984). About one half of these students were available ten years later for testing as eleventh graders. At this time, we administered a set of reading comprehension, cognitive ability, vocabulary, and general knowledge tasks, as well as several measures of reading volume. Additionally, some standardized test scores from the intervening period were available. We were therefore able to examine what variables in the first grade predicted these cognitive outcomes in the eleventh grade. We interpreted the reading volume measures administered in the eleventh grade as cumulative indicators of variance in reading volume that had taken place many years earlier. Thus, we viewed the measures as in some sense retrospective indicators tapping the cumulative experiences and habits of the students some distance in time before actual assessment. As a result, we were able to examine how far this retrospective feature could be stretched.

We addressed the question of whether the *speed* of initial reading acquisition in the first grade could predict later tendencies to engage in reading activities even after differences in general cognitive abilities were controlled, as some models of Matthew effects in educational achievement would predict (Chall, Jacobs & Baldwin, 1990; Juel, 1994; Stanovich, 1986). We statistically removed the contribution of eleventh-grade reading comprehension ability, in order to remove the direct association between reading volume and current reading ability. Then we examined the contribution of three standardized measures of first grade reading ability (decoding, word recognition, and comprehension) and observed that all three measures predicted eleventh-grade reading volume even after eleventh-grade reading comprehension ability had been partialed out! In contrast, we observed that first grade intelligence measures do not uniquely predict eleventh-grade reading volume in the same way. Thus, this study showed us that an early start in reading is important in predicting a lifetime of literacy experience— and this is true *regardless* of the level of reading comprehension ability that the individual eventually attains.

This is a stunning finding because it means that students who get off to a fast start in reading are more likely to read more over the years, and, furthermore, this very act of reading can help children compensate for modest levels of cognitive ability by building their vocabularly and general knowledge. In other words, ability is not the only variable that counts in the development of intellectual functioning. Those who read a lot will enhance their verbal intelligence; that is, reading will make them smarter.

THE RECIPROCAL EFFECTS OF READING VOLUME

We can begin to sketch a view of the reciprocal influences of early reading acquisition and reading volume as determinants of later reading comprehension and other cognitive abilities. Early success at reading acquisition is one of the keys that unlocks a lifetime of reading habits. The subsequent exercise of this habit serves to further develop reading comprehension ability in an interlocking positive feedback logic (Juel, Griffith, & Gough, 1986; Juel, 1988; Snow, Barnes, Chandler, Goodman, & Hemphill, 1991; Stanovich, 1986, 1993). Although it is difficult to tease apart, we have attempted to trace the increasing divergence in children's reading ability, as well as other cognitive outcomes, by examining both sides of the important role of reciprocal causation. Our longitudinal study has permitted us to observe these effects, whereby children who get out of the gate quickly—who crack the spelling-to-sound code early on—appear to enter into a positive feedback loop. One of the benefits of these reciprocating effects may be a level of participation in literacy activities that leads to a lifetime habit of reading and thus sets the stage for future opportunities—opportunities not enjoyed by children who enter into this feedback-loop more slowly.

A positive dimension of our research is that all of our studies have demonstrated that reading yields significant dividends for everyone—not just for the "smart kids" or the more able readers. Even the child with limited reading and comprehension skills will build vocabulary and cognitive structures through reading.

We can thus elicit two crucial messages from our research findings. First, it is difficult to overstate the importance of getting children off to an early successful start in reading. We must ensure that students' decoding and word recognition abilities are progressing solidly. Those who read well are likely to read more, thus setting an upward spiral into motion.

Second, we should provide all children, regardless of their achievement levels, with as many reading experiences as possible. Indeed, this becomes doubly imperative for precisely those children whose verbal abilities are most in need of bolstering, for it is the very act of reading that can build those capacities. An encouraging message for teachers of low-achieving students is implicit here. We often despair of changing our students' abilities, but there is at least one partially malleable habit that will itself develop abilities—reading!

About the Author

Anne E. Cunningham is visiting associate professor in cognition and development in the graduate school of education at the University of California, Berkeley. Her research examines the cognitive and motivational processes that underlie reading ability and the cognitive consequences of reading skill and engagement.

Keith E. Stanovich is professor of applied psychology at the University of Toronto/Ontario Institute for Studies in Education. His recent awards include the Sylvia Scribner Award from the American Educational Research Association and the Oscar S. Causey Award from the National Research Conference for his distinguished and substantial contributions to literacy research.

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For *What Reading Does for the Mind* references, please see page 92.

Raising Students Who Want to Read

by Phyllis C. Hunter

Let me begin by stating my thesis immediately. No reading program is complete if it doesn't include motivation. It's that simple. Of course I agree that a comprehensive reading program needs to cover the basics: phonemic and phonological awareness, phonics, vocabulary development, comprehension strategies, fluency, and automaticity. But even with all of that, a program will be incomplete if it doesn't incorporate motivation.

Good teachers already know that. A few years ago the National Research Council confirmed that one of the main stumbling blocks that can prevent children from becoming skilled readers is a lack of motivation (Snow et al., 1998).

In the next few pages, I will discuss what I mean by motivation and the difference between intrinsic and extrinsic motivation. As you'll see, I believe they are interrelated, but a key goal is to develop students' intrinsic motivation. Next I'll lay out nine principles that teachers can follow in order to help students become motivated readers. Along the way I'll include tips, in the form of resources, that I've found to be helpful.

MOVING FROM EXTRINSIC TO INTRINSIC MOTIVATION

As we think about ways to motivate students, we need to distinguish between two different kinds of motivation. When students are motivated to read because they enjoy reading and think reading is valuable, we call that intrinsic motivation. When they're motivated by outside factors, like rewards or deadlines, we call that extrinsic motivation (e.g., Ryan & Deci, 2000). I think everyone would agree that the goal is to have kids become intrinsically motivated to read. But if we want them to get there, we have to help them along. In many cases, we have to start with extrinsic motivation and outline a path that lets students see that they can generate some intrinsic motivation themselves—that they can set their own best effort and operate at the top of their potential.

Extrinsic motivation is basically an incentive program: "If you do this, you get this," or "If you do this, you get to see this." Extrinsic motivation has its place, and it does work. We, as adults, are all motivated by a paycheck at the end of the month. We may not be working only for the paycheck, but it's still motivating to know that it's coming. Similarly, we have to think about what will motivate students.

At a certain point, though, it's more effective to help students shift toward intrinsic motivation. At first, when the focus is on extrinsic motivation, the students are doing the work to please you, or because you say the result is going to be good. But as they continue to work, they can develop more of their own intrinsic motivation. One way to encourage that is to let children see their progress. If a teacher charts their progress, students become motivated by their own achievements and successes; it's motivating to see your performance going up, rather than staying the same. For example, if the teacher says, "We're going to check our progress at the end of the week," or "Hey, it's

Wednesday, and we were hoping to get through this topic by Friday," that will help to motivate the students on Thursday. But if nobody is encouraging the students to meet a timeline or to put in their best effort, they will be less likely to push themselves and grow.

Students can operate at the top of their game or somewhere in the middle. I think that the teacher is an important factor in getting them to operate at the top of their game. There are a hundred ways to tell students that they've done something well, to spotlight their successes, and to encourage them to be aware of their own progress: "You know, this is where you were three weeks ago, and here you are now." Or, "You've added this many words to your vocabulary. Do you know that people need to know 25,000 words to be good readers? Now, you're one step closer to that. We're biting off one piece at a time."

The goal is to get students—at all levels of ability—to see that they have to begin somewhere. And to get them to say, "Today, I begin."

WHAT TEACHERS CAN DO

Practically speaking, the obvious question is "How do we do that?" How can teachers help their students develop the motivation to become skilled readers who love to read? Over the years, a lot of research has been conducted in real classrooms with real kids to try to answer these questions (e.g., Gambrell & Marinak, 1997; Guthrie & Wigfield, 2000; Smith & Wilhelm, 2002; Snow, 2002; Turner, 1997). When you put all of this research together, it points to several concrete things that teachers can do:

1. Match students to "just right" texts on their reading level that they can read without difficulty.
2. Provide a wide variety of texts that are interesting and appropriate for students' age ranges and personally relevant to individual students.
3. Empower students by allowing them to select their own texts.
4. Let students know what to expect. They can get excited about what's coming.
5. Encourage students to take an interest in monitoring their own reading progress.
6. Talk, talk, talk about books—discuss the characters, settings, and plots of stories and the content of nonfiction books.
7. Support students with immediate, continuous feedback and encouragement.
8. Use technology to excite students' interest.
9. Set expectations for success.

Let me explain each of these ideas in more detail.

1. Match students to "just right" texts on their reading level that they can read without difficulty.

Educational psychologists say that the most powerful learning happens when it's in the "zone of proximal development"—that is, when something makes you use skills that you haven't quite mastered yet, but you're just on the verge of grasping (e.g., Vygotsky, 1978). In teaching children to read, we need to match each student to text that is just challenging enough: not too easy for that particular student, but not too hard either.

By carefully matching the reading level of each text to a student's ability, teachers can make reading challenging but attainable. That way, the teacher pushes the student to grow, while still making sure that it's possible for the student to succeed (e.g., Gambrell, Palmer, & Codling, 1993; Morrow, 1996). It can be a recipe for success in learning new skills, and it can help keep students motivated, too.

Tip: *Reading Is Fundamental is a nonprofit organization. Its Web site is chockfull of resources for teachers and families. You'll find book lists, tips, articles, and advice to promote reading success.* http://www.rif.org/

2. Provide a wide variety of texts that are interesting and appropriate for their age range and personally relevant to individual students.

Reading is motivating if you're reading about something that you're very interested in. Michael Smith and Jeff Willhelm (2002) have written about how books need to grab poor readers' interest in the first few paragraphs, or else the kids may give up on the book. Personally, I've never met a middle schooler, high schooler, or fourth grader who didn't want to read about something that was important in his or her life. If you're a skateboarder and you happen to come across a book about skateboarding, you usually want to take a look at it. If you're about to get your driver's license, you want to read the DMV handbook. If the subject of a book or a text is in your life, that's tremendously motivating.

In any classroom, you'll find that the students have an enormous range of interests. That means that the teacher needs to be able to offer them a wide variety of books (e.g., Gambrell, 1996). The more diverse the options, the more likely it is that every student can find something that interests him or her individually. Caswell and Duke (1998) indicate that increasing students' access to informational texts can motivate students who prefer reading this type of text over narrative texts or have strong interests in informational topics.

Because teachers know their students and have some idea about each student's personal interests, teachers can provide the connecting piece. They can make the "just-in-time recommendation" to match just the right book to just the right student. The right connection can transform a student from a reader who can read and doesn't into a reader who can read and does. Or it can take a student who doesn't read very well and never picks up a book, and

change that student into a reader who wants to read more because the topic of the book is so compelling.

Tip: *How do you find the right books? The International Reading Association has partnered with different groups including the Children's Book Council, the National Council for Social Studies, and the National Science Teacher's Association to come up with Kid's Choice lists, Teacher's Choice lists, Notable Science Trade Books, and Notable Social Studies Trade Books. These are all organized by grade range and reading level with summaries. You can get all of the lists online. Start with* www.reading.org/choices *and find links to all of the other lists. Read Across America also has book lists in its resources kit. Check:* http://www.nea.org/readacross/resources/#kit

3. Empower students by allowing them to select their own texts.

Students need to know that they have some power over their education. When they aren't given any choices, it certainly doesn't inspire them to be proactive about their participation, because they feel it's already a done deal: "I'm gonna get what I'm gonna get, no matter what I do or what I say." On the other hand, though, if students can make choices, then they feel empowered. When kids were asked what motivates them to read, this is what they said: "Let kids pick out books at the library or the bookstore. It's almost a sure thing they'll want to read them. If you pick them out, they won't."

We need to empower kids in their own literacy. Giving students choices within their activities and assignments—for example, by letting them choose which books to read—can make a big difference in getting them involved and engaged. Research shows that letting students select their own books helps to increase interest value, and that helps boost motivation (e.g.,Wigfield, 1994).

Tip: *Kids like to know what other kids like and think. They also like knowing their opinion is valued. Nickelodeon's Kids' Choice Awards are popular for that reason. There are programs that let kids vote for favorite books, such as Maryland's Black-Eyed Susan Award* (www.tcps.k12.md.us/memo/besall.html). *You can use this as a model, even if you're not in Maryland.*

4. Let students know what to expect.

If they know something about what's coming up, they can get excited about it. Take for example, going to a restaurant. Sure, you might be motivated to go to a restaurant if you were hungry, but wouldn't you be more motivated if you knew what was on the menu? Perhaps seeing that restaurant on the Food Network or knowing that your favorite movie star likes to dine there would further motivate you to go. The more you know about what to expect, the more motivated you are to go. If you've taken the trouble to identify student interests and pull together books that meet them, let the students know what's coming up. They'll have a sense of control, and they'll be eager to read.

5. Encourage students to monitor their own reading progress.

As I mentioned earlier, another way to give students power over their education is to give them tools to track their own progress. Charts or reading logs can help students keep track of the number of books they've read, the new words they've learned, or the amount of time they've spent (e.g., Braunger & Lewis, 1998). Those kinds of tools help make the process more concrete for children and give them a way to see their progress with their own eyes. When students are able to point to something and say, "Look at how much I've done," they feel proud of what they've accomplished—and they should. Even more important, that rush of pride can also motivate them to keep trying, so that they accomplish even more.

Tip: *"Book It" is a reading-incentive program. You set the reading goals, and when students have met them, you give them a certificate for pizza. In the teacher section on the Book It Web site you'll find reproducible pages to use for keeping track of student reading—by the book, by the number of minutes read, or by the number of pages read. For information, go to:* www.bookitprogram.com

6. Talk, talk, talk about books—discuss the characters, settings, and plots of stories and the content of nonfiction books.

Talking about books can be one of the most powerful motivators of reading. Oprah's Book Club is the perfect example. It has transformed thousands of individual viewers into a community of readers by making reading a social activity. She builds "buzz" around a book simply by talking about it. As a result, thousands of her viewers read and even form their own book groups. Talk about being a great motivator of reading!

When reading is a social activity, a deep and complex understanding of what is read can grow from those discussions (Langer, 2000). Discussion gives students the opportunity to share their unique perspectives and personal experiences. In addition, Block and Pressley (2002) indicate that "the group discussion is the catalyst for raising questions that the students might not have formulated on their own. It is these questions and the diversity of ideas and knowledge that capture the students' interest and propel their desire to read and learn." You can have students talk about books in small groups or organize whole-class discussions.

7. Support students with immediate, continuous feedback and encouragement.

If you want students to monitor their own progress, give them plenty of feedback on how they're doing along the way. Sometimes, students need more encouragement to pump them up when they're first starting something than they do later on, once they're into it. It's important to be overtly complimentary when kids begin something new—not in an insincere manner, but by saying plainly, "I'm glad that you're starting this," or "It's going well."

As students progress further, the teacher's feedback needs to become very specific. Just telling them, "You're doing great" all the time might make them feel good, but it's not very helpful. It's much more effective to tie your feedback to a student's achievements and make reference to specific things that he or she has done. As an educator, I found that I needed to be very specific about the student's performance and the recommendations I made. The more specific I got, the better off the students were. For example, you might say: "When you talked about the chapter you just read, you connected it to something that happened to you. That was really good. It's great to connect what you read to your own life." Or "It was interesting how you connected the character to your own life—it shows me that you have a deep interest in what the character is doing."

8. Use technology to excite students' interest.

Students have a steady diet of technology in their out-of-school activities (Roberts et al., 1999), and it's second nature to the kids of today. They are using DVDs, CDs, and earphones are growing out of their ears. I think we can capitalize on that, because it's obviously something that they like. It's the old adage of "It's interesting to me if it's in my world." In the classroom, technology is a motivating agent because it is familiar, forgiving, and exciting. Haven't you seen kids fight over a computer? Technology is fun for them. It doesn't feel like drudgery. It's not the same thing as "Get out your piece of paper, fold it down the middle, and number the lines from 1 to 20."

There are many ways that teachers can build technology into literacy education. They can have students work with interactive reading software. They can use video to introduce students to topics and get them pumped up before they start reading more about it. Even if a student isn't especially motivated to read, if the technology gets the student going because he or she gets to work on a computer, it motivates them to continue.

9. Set expectations for success.

Establishing goals is an important part of motivation. We need to encourage students to think big and be confident—to ask "What am I aiming for?" and "How can I do this?" Of course, the goals need to be realistic, so that students can reach them. But when students achieve their goals, it's tremendously motivating.

It can be an effort to focus on positive goals and achievements, especially when a teacher is dealing with a student who's struggling. However, it's certainly worth the effort, because it's far more motivating for students to think about how much better they could be than to think about how awful they are. When a teacher focuses on failure, the student thinks, "I'm not good at this, and I'm never going to be good." On the other hand, when a teacher sets attainable goals and focuses on successes all along the way, then even if the student fails to meet a particular goal on the first try, he or she

thinks, "I wasn't good today, but I know that I can be better because I've been getting better every day. Today I might have had an off day, but two days from now I'll probably do well." It's motivating to get things right, and it's also motivating when you get things wrong but someone says "This is the way to get it right. You know that you can perfect this." In my own childhood, I had a seventh-grade teacher who was very effective in motivating me. The reason she was so effective is that I always got A's before I met her, but then she started to give me B's, and I couldn't understand it. And she said, "Well, you know what? Yes, your work is good, but it's not as good as you could do." After that, I was very motivated to live up to her expectations for me—to prove that I could do the work as well as she thought I could.

CONCLUSION

Effective readers aren't just people who've learned how to read. They're students who are motivated to read, because they've discovered that reading is fun, informative, and interesting. Motivated readers want to read. And the more they read, the more they can develop their skills. If there are signs of reading difficulty, we can intervene to get students back on track.

Sometimes, people say that certain kids haven't learned to read because they aren't motivated. I disagree. We can't blame the kids for being unmotivated. Instead, we must figure out how we can help to motivate them. Some people will say, "Well, if the kids aren't motivated, what can we do?" The answer, as I've tried to show in this paper, is that we can do a lot. Yes, there are going to be some kids who are more difficult. There are going to be some kids who are stone-like in their attitude. We've all run across that kind of student. But it's our job to help turn them around. When I think about some of the great teachers whom I've known, one of the things they have in common is that all of them have been able to figure out how to motivate their students to do the harder things. That's good teaching.

You'll notice that I didn't say it was *easy* teaching; I said it was *good* teaching. Getting students excited about reading is more than half the battle. When kids are motivated to read, they'll be willing to work hard to improve their skills. That means that even kids who have had trouble reading in the past can still have the chance to succeed.

After all, it's never too late to become a lifelong reader. Today can be the first day of your students' reading life.

About the Author

Phyllis C. Hunter, President of Phyllis C. Hunter Consulting, Inc., was appointed by Congress and President Bush to the board of the National Institute for Literacy, and has served as an advisor on the President's Educational Transition Team. On November 15, 2002, she was honored with the Marcus Foster Memorial Award for Distinguished Educator of the Year by the National Alliance of Black School Educators. As a reading consultant who specializes in scientific research-based programs, Mrs. Hunter has traveled the nation providing on-site technical assistance to states implementing comprehensive reading programs. Mrs. Hunter proclaims that reading is the new civil right!

The Phyllis C. Hunter Classroom Libraries is her most recent publication that was created in conjunction with Scholastic Inc. The libraries are based on scientific research, Mrs. Hunter's own years of classroom experience, her connection with schools across the country, and her work as a national literacy specialist.

In Texas, Mrs. Hunter was an administrator with the Houston Independent School District for seven years. She was responsible for several innovative reading initiatives, such as *A Balanced Approach to Reading*.

In August 1998, Lauren Resnick, Director of the Learning Research and Development Center at the University of Pittsburgh, appointed Mrs. Hunter a National Fellow of the Institute for Learning.

Mrs. Hunter's tenure in education includes a principalship with California's Hayward Unified School District. Formerly an elementary, middle, and high school teacher, she has also held the positions of curriculum specialist, certified speech and language therapist, specialist in special education, and coordinator of a mentor-teaching program.

As an executive board member of Consortium for Policy Research in Education, Mrs. Hunter helps to improve student learning through research on education reform, policy, and finance. As a board member of the International Reading Association's Urban Diversity Initiatives Commission and the National Center for Family Literacy, Mrs. Hunter impacts reading instruction worldwide. She continues to advise many policy makers through her work on national boards, such as CORE and the National Center for Family Literacy.

Mrs. Hunter received a master's degree from the University of Wisconsin. She also earned a mid-management certification in Educational Administration from the University of California, and has acquired further studies at the Johns Hopkins University.

For the *Raising Students Who Want to Read* references, please see page 93.

The Importance of Informational Literacy

by Nell K. Duke

Informational literacy is so crucial to success in American higher education, citizenship, and work that our current era is widely known as the "information age." Consider these findings:

- Studies have long shown that the majority of the reading and writing adults do is nonfiction (Venezky, 1982).
- Approximately 96% of sites on the World Wide Web contain nonfiction, informational text (Kamil and Lane, 1998).
- Academic achievement in a range of school subjects and academic fields relies heavily on informational reading and writing.

Unfortunately, many Americans are unprepared to read effectively for information. Consider these related statistics:

- Nearly 44 million American adults cannot extract even a single piece of information from a written text if any inference or background knowledge is required (Levy, 1993).
- Large proportions of American students have weak informational reading and writing skills (e.g., Applebee, Langer, Mullis, Latham, and Gentile, 1994; Daniels, 1990; Langer, Applebee, Mullis, and Foertsch, 1990).
- Low income and minority children are particularly likely to struggle with informational literacy tasks (Applebee, Langer, Mullis, Latham, and Gentile, 1994; Langer, Applebee, Mullis, and Foertsch, 1990).
- Some education researchers have attributed the "fourth grade slump" in overall literacy achievement in large part to problems with informational literacy (Chall, Jacobs, and Baldwin, 1990).
- Students' difficulties in science may be related to their difficulties with informational text because science achievement is associated with the ability to read informational text but not with the ability to read narrative text (Bernhardt, Destino, Kamil, and Rodriguez-Muñoz, 1995).

There is no question that we must find new and better ways to develop students' informational skills, and increase the push for informational literacy for all children. But preparation for the future is not the only reason to increase our focus on informational literacy in school. Recent research provides many other arguments for incorporating more informational reading and writing into our curricula.

INTEREST AND PREFERENCE

Many students actually prefer informational text to other forms, such as storybooks. In one paper, my colleague Linda Caswell and I (Caswell and Duke, 1998) describe how two struggling reader-writers found a "way in" to literacy through nonfiction texts that they had not found through story forms. These boys' interests were in topics typically addressed by nonfiction texts—topics like space, volcanoes, chemistry, and dinosaurs. Reading informational texts provided the motivation the boys needed to persevere through their decoding difficulties and inspired them to do the volume reading necessary for reading success.

Interest in informational text is not limited to boys. A study by researchers Sharon Kletzien and Robert Szabo (1998) indicates that elementary-school children of both genders will choose informational text over narrative text nearly half the time, provided they are given access to quality trade books of both types. Children in the primary grades and male students were even more likely to prefer informational texts. This was contrary to what the students' teachers predicted. They thought, as many of us would have, that the students would overwhelmingly prefer narrative texts.

As many teachers already realize, and a growing body of research has shown, when students are interested in what they read, their reading develops better and faster. In a fascinating study, researcher Rosalie Fink studied successful adult dyslexics. These people had experienced substantial reading difficulties throughout their schooling and into adulthood. Yet they had become extremely successful in a range of fields, including law, medicine, biochemistry, graphic arts, neurology, education, and business. They included a member of the prestigious U.S. National Academy of Sciences and a Nobel Laureate! What all of these adults had in common was "a passionate personal interest, a burning desire to know more about a discipline that required reading" (1995/1996, p. 274). These people's interest-based reading experiences, which often involved informational texts, were critical to their becoming successful adults despite their reading difficulties

APPLYING AND BUILDING WORLD KNOWLEDGE

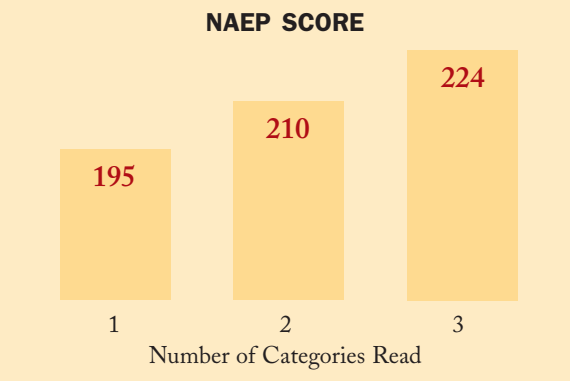
Nonfiction, informational texts also allow readers to apply and build world knowledge. We have long known that having high background knowledge for a topic greatly supports reading on that topic (e.g., Wilson and Anderson, 1986). When students read informational text, they have opportunities to apply their background knowledge and, more importantly, to build additional knowledge. Think of the knowledge adults gain from informational reading every day — from computer manuals, city guides, financial documents, campaign literature, do-it-yourself books, newspaper articles, and countless other texts. While these kinds of reading may not be glamorous, other forms of informational reading are. Adults pursue passionate interests through informational literacy, reading on topics from the Civil War to contemporary rock music, from an exotic travel destination to the plants in their own backyard, from personal hobbies to famous people.

Children too can gain essential knowledge and pursue personal interests through informational texts. In fact, some teachers feature an Expert of the Week or Expert Exhibitions for students to display knowledge they gain from informational texts. Former Massachusetts Teacher of the Year Steven Levy builds on and expands his students' world knowledge through projects on the history of their town, where bread comes from, and "why our shoes are made on the other side of the world." Nonfiction, informational texts are central to these projects.

INCREASING OVERALL READING ACHIEVEMENT

Another reason to take up the challenge of developing students' informational literacy is that it may improve their overall reading achievement. The struggling reader-writers described earlier in this paper saw their abilities to read many kinds of text, including stories, improved by their experience with informational forms. Larger-scale research has also suggested the value of informational reading experience for overall reading development. Results of the 1992 National Assessment of Educational Progress (NAEP) indicate that fourth graders who report reading informational texts and magazines, as well as storybooks, have higher overall reading proficiency than those who read only storybooks or even two out of three of these forms (reported in Dreher, 1998/1999).

Fourth-graders' reading proficiency related to the diversity of their reading materials



Fourth graders were asked which of three categories of materials they read: storybooks, magazines, and nonfiction. Students who read all three categories achieved the highest NAEP scores.

SUPPORTS FOR INCORPORATING NONFICTION, INFORMATIONAL TEXT INTO THE CLASSROOM

Increasing awareness of the importance of informational literacy has led to more supports for informational literacy instruction. Here are a few of the strategies that have been successful in many schools:

- **More and better nonfiction books.** Nonfiction for children used to be largely restricted to textbooks, dry and abstruse. But in recent years there has been an explosion of outstanding nonfiction trade books and magazines for children. Even our youngest students can enjoy nonfiction texts on topics from how ice cream is made to what ants do in the winter, from the life and work of American heroes to characteristics of homes around the world. There are also a host of excellent magazines for children—old favorites like *Ranger Rick* and *Cobblestone*, and newer publications like Consumer Reports' magazine for children *Zillions*, Smithsonian's children's magazine *Muse,* and the ever-popular *Sports Illustrated for Kids*.
- **Helpful Professional Books.** Several books offer valuable advice about incorporating informational texts into the classroom, such as first-grade teacher Christine Duthie's (1996) book *True Stories: Nonfiction Literacy in a Primary Classroom* or Rosemary Bamford and Janice Kristo's (1998) *Making Facts Come Alive*. Among other things, these resources suggest ways to teach students to handle

difficult features of nonfiction texts, through techniques such as K-W-L, webbing, and text structure instruction.

- **Existing Classroom Activities.** Many classroom practices we are already using can easily incorporate nonfiction texts (Kays and Duke, 1998). These include read-alouds, listening centers, classroom displays, writer's workshops, author's studies, themes and projects, content-area instruction, home reading programs, and many others. Most importantly, we can incorporate nonfiction texts into the materials available to students for sustained silent reading and other self-selected reading times. This allows students themselves to find texts that build on their particular interests and knowledge—an opportunity we should all have.

About the Author

Dr. Nell K. Duke is an associate professor of teacher education and educational psychology and associate director of the Literacy Achievement Research Center (LARC) at Michigan State University. Duke received her Bachelor's degree from Swarthmore College and her Master's and Doctoral degrees from Harvard University. Duke's work focuses on early literacy development, particularly among children living in poverty. Her specific areas of expertise include development of informational literacies in young children, comprehension teaching and learning in early schooling, approaches to addressing the needs of struggling reader-writers, and issues of equity in literacy education.

Duke is the recipient of the International Reading Association Outstanding Dissertation Award, the National Council of Teachers of English Promising Researcher Award, the International Reading Association Dina Feitelson Research Award, and the National Reading Conference Early Career Achievement Award.

For the *The Importance of Informational Literacy* references, please see page 93.

Nonfiction in the Classroom Library: A Literacy Necessity

by Terrell A. Young and Barbara Moss

"Classroom libraries are a literacy necessity; they are integral to successful teaching and learning and must become a top priority if our students are to become thriving, engaged readers" (Routman, 2003, p. 64). As Routman notes, it is difficult to overestimate the importance of classroom libraries. Studies of early readers and interviews with avid readers have found that children who love to read almost always have access to books at home. Since many students today do not have that access, it is paramount that *all* children be provided with books in the classroom (Fractor, Woodruff, Martinez, & Teale, 1993).

Classroom libraries provide students with immediate access to books; they can provide teachers with the opportunity to put the right book in a student's hands at a moment's notice. Students who have ready access to books in their classrooms have better attitudes about reading, reading achievement, and comprehension than their peers with less access to books in the classroom. Moreover, students are likely to spend more time reading when they are in classrooms with adequate classroom libraries (Allington & Cunningham, 1996; Krashen, 1998; Routman, 2003). For example, Morrow (2003) and Neuman (1999) note that students read 50-60 percent more in classrooms with libraries than in classrooms without them.

This increase in voluntary reading can contribute to gains in reading achievement. In a study of 32 schools in Maryland, for example, Guthrie, Schafer, Von Secker, and Alban (2000) found that an abundance of trade books in the classroom predicted gains on statewide reading, writing, and science tests. According to Krashen (2004), more books in the classroom leads to more voluntary reading, which, in turn, results in higher achievement. This increased volume of voluntary reading is critical because students who score well on standardized reading tests read far more outside of school than students who perform poorly on such tests (Anderson, Wilson & Fielding, 1988).

> Providing interesting books for children is a powerful incentive for reading, perhaps the most powerful incentive possible. This conclusion is consistent with research showing that extrinsic incentives for reading have not been successful, while improving access to books has been successful in encouraging reading. (Ramos & Krashen, 1998, p. 614)

Providing interesting books for children is a powerful incentive for reading, perhaps the most powerful incentive possible.

Of late, more and more experts have noted the importance of providing students with access to nonfiction texts. Such books can effectively address student interests in ways that stories cannot and they can increase student domain knowledge in a variety of areas, thereby leading to increased levels of background knowledge. Furthermore, reading more nonfiction can lead to higher reading achievement (Kletzien & Dreher, 2004; Routman, 2003). By contrast, students with little experience with nonfiction have difficulty comprehending such texts and fail to determine the important information within (Stoodt-Hill & Amspaugh-Corson, 2005).

This article will consider the place that nonfiction can and should assume in the classroom library. It will answer the following questions: How can nonfiction in the classroom library help teachers meet student interests? How can teachers build a collection of nonfiction books?, and What strategies can teachers use to promote reading of nonfiction titles?

A PLACE FOR NONFICTION

Shelley Harwayne (1999), the well-known literacy consultant and administrator, notes, "No matter the grade level, when I walk in and out of classrooms, I expect to see classroom libraries brimming with nonfiction texts" (p. 24). All too often, however, classroom libraries contain little nonfiction literature (Duke, 2000; Duke & Bennett-Armistead, 2003; Kletzien & Dreher, 2004; Stead, 2002). According to Daniels (2004),

> Language arts teachers have done a great job of hooking kids on all kinds of novels…but students also need to engage with the nonfiction genres that represent 84% of adult, real world text (and a similar percentage of the reading passages of high stakes standardized tests). (p. 44)

In examining the content of elementary classroom libraries across a large school district in Canada, Doiron (2003) found that children were presented with predominantly fictional paperbacks as reading choices. Interestingly, counts from the school library's automated circulation records indicated that students were choosing twice as many information books as novels from their school library, but that access to such books was limited in their classroom libraries.

This finding points up the critical importance of expanding the "canon" of library books to provide access to nonfiction texts if teachers are to effectively bridge the gap between students' in- and out-of-school reading. In addition, nonfiction trade books can deepen student engagement with science, social studies, music, and art. They can provide students with the chance to examine issues related to these content areas in depth, which is seldom possible with the broad range of topics covered by today's textbooks. Furthermore, they can promote student engagement with a variety of text types, a practice that may be associated with improved reading achievement (Campbell, 1995). Finally, access to nonfiction trade books can provide students with essential exposure to the expository text that will constitute most of the reading they will do as they move through the grades and into adulthood.

READING INTERESTS

Student reading interests need to be considered when selecting books for classroom libraries (Routman, 2003). "In most classrooms, the opportunity for student book choice based on interest occurs far too infrequently" (Reutzel & Fawson, 2002, p. 99). Routman (2003) notes that access to interesting books is critical to struggling readers: "A wide variety of captivating choices increases reading motivation. Engagement is not to be taken lightly: Reading comprehension test scores are more influenced by students' amount of engaged reading than any other single factor" (p. 69).

Elementary school children of both genders choose nonfiction over fiction text nearly half the time, provided they are given access to quality trade books of both types (Kletzien & Szabo, 1998). Children in the primary grades and male students were even more likely to prefer informational texts. This was contrary to the predictions of the student teachers. They thought, as many of us would have, that the students would overwhelmingly prefer narrative texts. Sebesta and Monson (2003) note that children's reading interests diverge by 4th grade, with boys showing stronger preferences for nonfiction; by middle school, both genders show an increased interest in nonfiction.

HOW MANY BOOKS?

There is no readily agreed-upon formula for an adequate number of classroom library books. Some experts recommend at least eight per child (Fractor, Woodruff, Martinez, & Teale, 1993), while others suggest 10-12 titles per child (Reutzel & Fawson, 2002). Allington and Cunningham (1996) recommend 700-750 books for primary-grade classrooms and 400 for upper-grade rooms. We recommend that teachers gradually work towards these goals since it is more important to have high-quality books than to simply have a great number of books.

Regardless of the number of books in the classroom library, it is imperative that nonfiction be prominently displayed. Indeed, as Moss (2003) notes,

> About half the collection should be devoted to engaging information books and biographies, and this percentage should increase as children move through the grades. Some books should be pertinent to classroom topics of study, while others should have a broader appeal. Students can use these books for voluntary reading, in inquiry student, reference, or browsing. (p. 63)

HOW CAN TEACHERS OBTAIN BOOKS FOR CLASSROOM LIBRARY COLLECTIONS?

We have noted that school districts in some parts of the United States provide teachers with funds for purchasing classroom library collections, yet provide little funding for school libraries. In other areas, school libraries are funded well but little or no money is available for purchasing classroom library books. In too many cases, teachers must acquire the books themselves. Here are a few suggestions for obtaining books without spending too much. First, teachers can use bonus points from classroom book clubs to obtain nonfiction books for the classroom collection. Second, garage sales often have great books at bargain prices. Third, many parents are willing to donate their children's books for classroom use. Poor quality or gently used books from garage sales and student donations often can be traded in bookstores for better quality used books. Fourth, some teachers have "wish lists" that parents who wish to purchase classroom reading materials can consult. Finally, some parent organizations and teacher unions provide small grants to buy books.

WHAT KINDS OF INFORMATION BOOKS SHOULD I INCLUDE IN BUILDING A NONFICTION COLLECTION?

As is true with fiction books, teachers need to carefully evaluate nonfiction books before including them in the classroom library. When evaluating a nonfiction trade book, teachers should consider the five A's: 1) the *authority* of the author, 2) the *accuracy* of the text content, 3) the *appropriateness* of the book for its audience, 4) the literary *artistry*, and 5) the *appearance* of the book (Moss, Leone, & DiPillo, 1997).

- *Authority* relates to the author's qualifications for writing the book. The best authors consult authorities in a variety of fields to ensure credibility.
- *Accuracy* of content, along with visual features, form the linchpin of good nonfiction.
- The best nonfiction books are *appropriate* to their intended audiences. They do not talk down to readers, but are successful in making complex concepts comprehensible.
- Literary *artistry* refers to the need for quality nonfiction texts. The best nonfiction books contain engaging information presented through the use of such narrative devices as similes and metaphors, "hooks," and other devices.
- A book's *attractiveness* matters to today's students, who are accustomed to an array of visual media and expect to see materials with a strong visual impact. Attractive presentation of information can mean the difference between a book students will select and one they will reject.

A quality nonfiction classroom library collection should include a range of titles provided for a range of purposes. Many school libraries contain large sets of "series" nonfiction titles, ranging from the *Smithsonian Kids' Field Guides* to *American Indian Biographies* (Capstone/Blue Earth). While some series nonfiction books titles are excellent, others are written in a pedestrian, formulaic way and fail to meet many of the criteria outlined in the five A's. For teachers who need help in evaluating the quality of these series, the American Library Association Web site provides reviews of nonfiction series books (*www.ala.org/ala/booklist/youthseriesroundup/SeriesRoundup.htm*) that can help teachers select series books for their classrooms.

A variety of other sources can guide teachers to excellent nonfiction titles. Two awards that specifically honor outstanding nonfiction titles are the National Council of Teachers of English's Orbis Pictus Award, and the American Library Association's Robert F. Siebert Award. Nonfiction titles are regularly included on lists of best books, including the ALA Notable Book lists, and are often recipients of other book awards, including the Coretta Scott King Award, the Pura Belpre Award, and the Newbery and Caldecott Awards. Many of these titles can be found as offerings from book clubs, such as Scholastic, Trumpet, and Troll Carnival.

A nonfiction collection also should include reference books that students can use to locate information, for general knowledge-seeking, or to connect with classroom units of study. Atlases, world record books, dictionaries (both traditional and visual), dual language dictionaries, encyclopedias, specialized visual encyclopedias, thesauruses, dictionaries of synonyms, and books of lists can be indispensable resources for students.

Small specialized text sets of books should have a special place in the classroom library. These can be books related to a topic of study in the classroom, current events, or an area of great interest to individual or groups of students. These text sets should include books from a variety of genres, including picture books, realistic and/or historical fiction, biography, information titles, poetry, and perhaps traditional literature. For example, a text set related to Mexico and Mexican American life would be of particular interest to students in classrooms with large Mexican American populations. It might consist of such Mexican folktales as *Just a Minute: A Trickster Tale and Counting Book* (Morales, 2003); contemporary stories of Mexican American life, like *In My Family* (Garza, 19960; nonfiction accounts detailing Mexican American celebrations of customs, such as the Day of the Dead (*Day of the Dead: A Mexican-American Celebration*, Hoyt-Goldsmith, 1994); or books or poetry, like *Angels Ride Bikes and Other Fall Poems* (1999), a bilingual poetry collection in which Francisco X. Alarcon revisits memories of growing up in Los Angeles.

Other specialized collections might include fiction/nonfiction pairs. By combining fiction and nonfiction titles, children can deepen their understanding of both genres. See **Table 1** for sample pairs.

It is extremely important that nonfiction collections span a range of reading levels. Because nonfiction books tend to be more difficult than fiction, it is essential that teachers meet the range of reading abilities found in the classroom. For this reason, Stead (2002) recommends varying reading levels for books on given topics.

The largest portion of the nonfiction collection, however, should be devoted to books for student voluntary reading. These titles should span a wide range of interests and reading abilities and should include books that appeal to students of both sexes. Biographies of contemporary as well as historical people should be part of the voluntary reading collection, as should books about perennial topics of interest. Obviously, these areas of interest will depend upon the students and their ages, levels of maturity, geographic location, cultural heritage, and much more. Children in Maria Bowden's 4th-grade San Diego classroom, for example, enjoyed nonfiction titles about volcanoes, various animals, skydiving, black holes, motocross, titles from the *Ripley's Believe It or Not* series, biographies of baseball players and musicians, and articles from *Kids Discover* magazine.

SAMPLE FICTION/NONFICTION PAIRED BOOKS

Fiction/Poetry Title	Nonfiction Title
Bunting, Eve. *How Many Days to America?* (Clarion, 1988)	Lawlor, Veronica. *I Was Dreaming To Come to America* (Viking, 1995)
Lindbergh, Reeve. *A View From the Air* (Viking, 1992)	Burleigh, Robert. *Flight: The Journey of Charles Lindbergh* (Philomel, 1991)
French, Vivian. *Growing Frogs* (Candlewick Press, 2000)	Godwin, Sam. *The Trouble With Tadpoles: A First Look at the Life Cycle of a Frog* (Picture Window, 2005)
Rylant, Cynthia. *Poppleton in Fall* (Scholastic, 1999)	Ehlert, Lois. *Leaf Man* (Harcourt, 2005)
Livingston, Myra Cohn. *A Circle of Seasons* (Holiday House, 1982)	Morrison, Gordon. *Oak Tree* (Houghton Mifflin, 2000)
dePaola, Tomie. *The Art Lesson* (Putnam, 1989)	Cummings, Pat. *Talking With Artists* (MacMillan, 1992)
Wilder, Laura Ingalls. *Little House on the Prairie* (Harper, 1953)	Erickson, Paul. *Daily Life in a Covered Wagon* (Preservation Press, 1994)
King-Smith, Dick. *Babe, The Gallant Pig* (Random House, 1983)	King-Smith, Dick. *All Pigs Are Beautiful* (Candlewick Press, 1993)
White, E.B. *Charlotte's Web* (Harper, 1952)	French, Vivian. *Spider Watching* (Candlewick Press, 1994)
Oppenheim, Joanne. *Have You Seen Birds?* (Scholastic, 1986)	Sill, Cathryn. *About Birds* (Peachtree, 1991)
McPhail, David. *Lost!* (Little, Brown, 1990)	McPhail, D. *In Flight With David McPhail: A Creative Biography* (Heinemann, 1996)
Van Allsburg, Chris. *Two Bad Ants* (Houghton Mifflin, 1988)	Dorros, Arthur. *Ant Cities* (Crowell, 1987)
Cole, Joanna. *Give a Dog a Bone: Stories, Poems, Jokes and Riddles About Dogs* (Scholastic, 1996)	Selsam, Millicent. *How Puppies Grow* (Four Winds, 1971)

Table 1 Adapted from Moses, 2003

It is important to provide students with books in their home language when possible. Nonfiction books as well as stories can help support students in their native languages. Such biographies as *Diego* (Winter, 1991) and alphabet books like *Calavera Abecedario: A Day of the Dead Alphabet Book* (Winter, 2004) can provide support for students who need to read in their first language.

Moreover, it is important to have multiple copies of some books so small groups of students can experience the same text together, as well as books that are appropriate for students who struggle with reading. Nonfiction titles from the "Step Into Reading" series can be useful for primary grade struggling readers, as can many of the leveled books recommended in Fountas and Pinnell's (1999) *Matching Books to Readers: Using Leveled Books in Guided Reading, K-3*. Such titles as *You Wouldn't Want To Be an Egyptian Mummy! Disgusting Things You'd Rather Not Know* (Stewart, 2001) entice the most reluctant

readers by using humor and engaging illustrations. Some books will represent the core or permanent collection, while others are part of a revolving collection related to holidays, particular units of study, or students' current interests (Galda & Cullinan, 2002).

EFFECTIVE LIBRARY AREAS

Simply having great books in the classroom is not enough to entice students to read them. Motivating students to actually read the books in the classroom library involves creating effective library areas as well as displaying books in enticing ways. Think about a recent trip to the bookstore. Adults and children are drawn to cozy reading environments and books that are enticingly displayed.

Effective library areas share certain characteristics that encourage voluntary reading (Allington & Cunningham, 1996; Chambers, 1996; Hadaway, Vardell, & Young, 2002; Morrow, 2003; Routman, 2003):

- Attractive and accessible area.
- Area large enough to hold five or six students at a time.
- Cozy seating.
- Wide variety of literature, including picture books, nonfiction, and such magazines as *National Geographic World, Sports Illustrated for Kids*, and *Ranger Rick.*
- Books written in students' home languages.
- Featured books displayed on open-faced shelves.
- New books regularly introduced.
- A listening center so that students can read along with selected books.
- A simple procedure for checking books out.

It is important to consider how the books are organized and made accessible to students. All too often, the few nonfiction trade books found in classroom libraries typically rest on a single shelf labeled "nonfiction," reflecting the misperception that all nonfiction books are alike. Nonfiction represents a broad spectrum of book types and topics, and so such organization is inadequate (Stead, 2002). Students need access to biographies, concept books, life cycle books, photo essays, and survey books on topics ranging from animals to zeppelins, and the organization of books should reflect the diversity of nonfiction books available. Teachers can make it easier for students to find nonfiction by involving them in organizing and maintaining the classroom library, even when existing systems work well (Routman, 2003; Stead, 2002).

Stead (2002) recommends using separate baskets, shelves, or tubs to hold books grouped by various topics. A sampling of books for young children about the solar system might include *The Planets* (Gibbons, 1993), *The Moon Book* (Gibbons, 1997), *So That's How the Moon Changes Shape* (Fowler, 1991), and *The Magic School Bus Lost in the Solar System* (Cole, 1992). Students can sort the nonfiction library books by topic to determine the best label for each nonfiction grouping. Through these experiences, students can increase their understanding

of the diversity of the nonfiction genre and begin to understand that not all nonfiction books are the same. The tubs, baskets, or shelf space can be labeled and assigned numbers. Corresponding numbers can be placed on stickers for each book to make it easy for students to find and reshelve books. Teachers often note the reading levels of books to ensure that all students have access to "just right" books that meet their needs and abilities. Indeed, Calkins (2001) recommends color-coding a third of the books to help students choose "just right" books and, at the same time, allow the children to make decisions about which books are best for them.

THE ROLE OF THE TEACHER

For avid readers, access to books is all that is necessary to promote reading. Other students, however, need multiple experiences with books before they will read them (Bruning & Schweiger, 1997; McGill-Franzen, Allington, Yokoi, & Brooks, 1999). Likewise, Morrow (2003) notes that "without the teacher who introduces the materials and features books in their daily routines," classroom libraries will not succeed (p. 864).

Clearly, the role of the teacher is essential. When it comes to nonfiction books, teachers may themselves unconsciously promote fiction titles at the expense of nonfiction. It is important for teachers to ask themselves:

> Do we see reading for pleasure as predominantly reading stories and novels? Can we not get pleasure from reading good quality information books? Do we see information books solely as resources we go to when we do research or have an information problem? (Doiron, 2003)

Teachers can promote the books in the classroom library in many ways. Through read-alouds, book talking, readers' theater, display, and other activities, teachers demonstrate their own enthusiasm for nonfiction and show students how engaging such texts can be.

CONCLUSION

Children's reading engagement plays a key role in their academic success. Both comprehension and achievement improve when students increase their reading volume (Allington, 2006). Classroom libraries have the potential to increase student access to books and to stimulate their desire to read. Often, these collections are not considered a home for nonfiction books. The availability of intriguing and engaging nonfiction trade books, however, makes it easier than ever for teachers to incorporate these books in their classroom library collections and teaching routines. Classroom libraries overflowing with quality nonfiction titles enable students to spend more time reading, rather than completing activities related to reading (Routman, 2003), which is critical to the goal of creating successful readers for the 21st century.

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For *Nonfiction in the Classroom Library: A Literacy Necessity* references, please see page 94.

Choosing and Using Information Trade Books

by E. Wendy Saul and Donna Dieckman

A burgeoning interest in informational literature has created new opportunities for reading educators and subject specialists to work together. Numerous scholars have cited the need to provide to students more experience with informational texts, particularly in the early grades (e.g., Anderson & Guthrie, 1999; Dreher, 2000; Duke, 2000; Duke & Kays, 1998; Freeman & Person, 1992; Kletzien & Dreher, 2004; Lemke, 1990; Pappas, 1991). Although informational text could include trade books, textbooks, and the Internet, in this article we focus particularly on trade books used to communicate information about the natural or social world. Trade books offer students qualitatively different opportunities to construct knowledge when compared to textbooks. As Labbo (1999) stated,

> Trade books that relate to particular content areas offer qualitatively different opportunities for children to construct knowledge than do textbooks. For example, many trade books use the sort of informal language patterns that resonate with children. Specialized vocabulary terms, which frequently are defined formally in textbooks, are often contextualized in descriptions, rich examples, and illustrations in trade books. The richness of trade books can also filter to other aspects of classroom life. For example, trade books may be used as a springboard for unit studies, or they may serve as a focal point for a classroom center. Perhaps most important, trade books have the potential to offer young students an entryway into the wonders of science, history, math, geography, or any of the other content areas. (para. 1)

We begin by addressing two key questions: (a) Why is there a call for more informational text and (b) what is meant by informational text? We then examine issues related to book choice and purpose—what criteria have been used to judge book quality and to what extent does book choice determine the kinds of instructional opportunities and possibilities available to teacher and student. We conclude by offering a list of recommended practices that simultaneously address literacy and content area learning through trade books.

WHY THE CALL FOR MORE INFORMATION-RELATED READING?

Several studies in the United States have found that reading choices in schools are clearly skewed toward fiction, particularly in the early grades. Duke (2000), for instance, reported that only 3.6 minutes per day was spent on informational text in the classrooms she observed. Pressley, Rankin, and Yokoi (1996) identified a similar lack of informational reading in the primary school, noting that only approximately 6% of reading time was informational content. Other studies describe literacy instruction in the United States as typically involving a steady diet of fiction and literary interpretation (Hoffman, Roser, & Battle, 1993; Meltzer, 1994; Morrow & Pressley, 1997; Venezky, 2000).

In seeking to understand this preference for fiction, Donovan and Smolkin (2001) found that teachers' preference for fiction grew out of an unfamiliarity and lack of comfort with information texts. When choosing children's litera-

ture, practitioners tended to assume that information texts were too difficult and too boring for children.

However, there is considerable evidence to suggest that these assumptions are incorrect, and that some students in fact prefer nonfiction to fictional topics (e.g., Caswell & Duke, 1998; Kletzien & Szabo, 1998; Pappas, 1993). The call for a more balanced reading diet, then, is in part based on research that, in the aggregate, shows that schools have not offered students much in the way of informational reading.

The current emphasis on testing has also generated greater attention to nonfiction text. For example, in an analysis of reading passages on standardized tests, Calkins, Montgomery, Santman, and Falk (1998) found that 50–85% of the texts are informational. Thus, many educators argue that student performance on standardized tests will improve if teachers attended more to a genre that is so frequently tested.

Since the passage of the No Child Left Behind legislation (2002), which ties adequate yearly progress to reading test performance, literacy instruction in the United States has received significantly more school time and money compared with science, social studies, art, music, and physical education. Some content area specialists have turned to the literacy community to assist them in combining content learning and reading development, while others, especially in the science community, continue to view increased attention to text with caution. Many of these specialists recall with dismay the days when science instruction was the textbook, and they worry that the new focus on literacy will take away from the kinds of experience-based learning and firsthand investigations they see as necessary to an understanding of content. With some justification, science specialists argue that "science is not written but can be written about" (Yager, 2004, p. 95) or that we need to "read the world before reading the word" (Dyasi & Dyasi, 2004, p. 420).

This call for collaboration between content and literacy specialists, as worrisome as it may be to some, has triggered multiple attempts to combine literacy and content area learning, especially in science (see *www.nsf.gov* for abstracts of the following and other science and literacy-related projects). For instance, Pappas, a literacy researcher, and Varelas, a science education researcher, have worked for several years with a team of classroom teachers to investigate and promote strategies that encourage young children's conversations about texts. John Guthrie and colleagues have developed a program called Concept-Oriented Reading Instruction (CORI) that combines trade literature with science teaching. Furthermore, Saul and Dieckman have established and maintain a database of more than 4,500 recommended science-related trade books. Another crossdisciplinary team,

composed of Hand, Prain, and Keys, has focused its efforts on student writing about science. Likewise, Palincsar and Magnusson have created journal-like entries by a fictional scientist that are designed to support and improve students' understanding of physical science concepts. Pearson and Hiebert are leading an effort to create science readings designed to complement the Great Exploration in Math and Science (GEMS) curriculum from the Lawrence Hall of Science at University of California, Berkeley. Science educator Karen Worth and her colleagues at the Education Development Center are in the process of creating professional development materials to support science and literacy connections.

In addition, during the past few years, many books on how to select and use informational text have been written (e.g., Duke & Bennett-Armistead, 2003; Duthie, 1996; Harvey, 1998; Kletzien & Dreher, 2004; Kristo & Bamford, 2004; Saul, Reardon, Pearce, Dieckman, & Neutze, 2002). Thus, it is clear from recent projects and publications that selection of texts is a central concern among researchers and content specialists who aim to support simultaneous literacy and content learning.

WHAT *IS* INFORMATIONAL LITERATURE?

In responding to a call for more engagement in informational text, a fundamental problem exists: Opinions differ about what is meant by informational literature. For this reason, the seemingly overwhelming support for more informational reading and more instruction about how to read information text does not, in fact, express agreement or clear advice from researchers and theoreticians. Given differences in definitions of informational reading, care must be exercised by practitioners in generalizing from one study to another. Moreover, when teachers are encouraged to include more informational reading in their teaching, they need to consider what kinds of texts best serve their own and their students' goals and interests.

Kletzien and Dreher (2004), for instance, described informational texts as narrative, expository, or a combination of the two, noting that "much informational text for young children is in a story or narrative format" (p. 13). These researchers used the term *expository-informational* text to refer to titles that are report-like and use expository text structures. They pointed out that the term *informational* text is often used interchangeably with *expository* text, which includes text written to inform, explain, describe, and present information or to persuade. Some informational texts for children, however, include both narrative and expository writing, such as Joanna Cole's Magic School Bus books. Kletzien and Dreher favored a broad definition of informational text, reflecting the various kinds of books that deliver information. They advocated a better balance between informational text of all kinds and books designed to engage students in other sorts of reading.

More frequently, the term *informational* text is used synonymously with nonfiction. According to Freeman and Person (1992), some specialists

"take umbrage with the term [nonfiction] and feel it connotes an inferior relationship to fiction" (p. vii) and would therefore substitute the term *information books*. However, Freeman and Person, like Alvermann, Swafford, and Montero (2004), have chosen to use the words *nonfiction* and *informational literature* interchangeably. *Nonfiction* is also the term recognized in the Dewey Decimal and Library of Congress systems. Thus, when librarians are asked to identify informational books to support classroom instruction, they tend to look to the nonfiction sections of the library, which include biographies, autobiographies, and informational narratives.

Kristo and Bamford (2004), on the other hand, differentiated nonfiction and informational texts. The former is "the literature of fact...well-written, well-illustrated books on topics related to science, history, math, and the fine arts" (pp. 12–13). The latter includes a wide array of "expository or non-narrative writing...not only books, but brochures, articles, recipes, newspapers, and selections from Web sites" (p. 13).

Duke and Bennett-Armistead (2003) used the term *informational text* to mean one type of nonfiction, the purpose of which "is to convey information about the natural or social world, typically from someone presumed to know that information to someone presumed not to, with particular linguistic features such as headings and technical vocabulary to help accomplish that purpose" (p. 16). Included in this category are most reference texts, as well as question-and-answer formats and "all about" books.

In her work exploring the global structure of informational books Pappas (1986, 1987, 2005) identified linguistic elements that characterize the genre. *Informational books*, as she uses the term, have certain obligatory elements: The topic is introduced or the topic of the book is presented; attributes of the class or topic of the book are described; characteristic, habitual, or typical processes or events regarding the topic or class are expressed; and a summary statement about the information covered in the book is made. Optional elements include comparison, historical vignette, recapitulation of ideas already presented, illustration extension (e.g., labels, captions, text to support graphical displays), and addendum.

Pappas, Varelas, Barry, and Rife (2004) sought informational books that meet these criteria because such books work well as thinking devices; they invite students to propose ideas, negotiate, debate, and develop understanding. Rather than using informational literature to cover the facts, these researchers recommended books that have proved effective in helping students create intertextual connections; that is, books that enable readers to connect the text they are reading to other texts or experiences, both verbal and nonverbal. According to Lemke (1985, 1989), intertextuality is critically important because people can make sense of things only in comparison to other things like them. Pappas (1986, 1987, 2005) and Duke and Bennett-Armistead (2003) excluded more narrative forms of

discourse, including biography and autobiography, from their definitions of informational text, although Pappas clearly sought books characterized by "continuous discourse" whereas Duke and Bennett-Armistead focused on non-continuous forms including reference books; that is, books broken into chunks that can be read without referring to the rest of the text.

Given this range of definitions, we encourage practitioners to ask those encouraging them to use more informational text in their literacy or content area programs to begin the discussion by asking what is meant by informational reading. And, if necessary, ask follow-up questions such as these: Are you referring to expository text? By informational text do you mean what the library calls "nonfiction"? Is the goal of such reading to promote dialogue? To teach text features? It is only by pressing such issues that a teacher is able to understand what the call for using more informational text really means in terms of classroom instruction.

TEXT CHOICE: LOOKING AT BOOKS

Choosing informational books to use in teaching clearly involves more than settling on a definition; book selection also involves evaluation of texts. It is interesting that most among those who have created evaluative criteria begin with the book as an object. Although differences in nomenclature exist, Kletzien and Dreher (2004), Kristo and Bamford (2004), Moss (2003), Saul et al. (2002), and Sudol and King (1996) consistently highlighted three concerns as worthy of attention: content, writing, and design. These aspects cannot, in the end, be separated from one another. The quality of a book has to do with how these elements work together. For purposes of evaluation and discussion, however, some parsing of these elements is useful.

Content: Accuracy is an important issue for content and literacy experts alike. Accuracy is not simply getting the facts right but also involves perspective—what is included or left out, the approach to the topic, the depth and breadth of information presented, and the means an author uses to establish authority. Authorial credibility needs to be established rather than simply asserted. How do authors come to know what they present as fact? The book selection process in this sense models information seeking and evaluation: Who is quoted? Who is a reliable source? Bias in terms of race, class, and gender is also considered an important issue related to accuracy.

Writing: The craft of writing is also an issue to be considered in choosing books. A well-crafted book engages the reader through the effective use of voice and literary device; the term *artistry*, according to Moss (2003), sometimes is used to cover such issues. *Passion* is also a term used in regard to writing, not in the sense of effusiveness, but rather an author's commitment to the topic as evidenced through detailed treatment or emotionally moving descriptions. Sudol and King (1996) referred to the cohesion of ideas, which is another important element of writing. "In cohesive text ideas are unified and logically ordered from

beginning to end. 'Unity' and 'coherence' are vital concerns, within both the paragraph and text as a whole" (p. 422).

Design: The importance of graphic elements can hardly be overstated. Layout, visual organization, and the integration of text and illustration create what is variously called attractiveness, format, design, or "kid-appeal" (Moss, 2003, p. 41). According to Moss, "layouts clearly influence children's responses to nonfiction" (p. 41).

Informational trade books are commonly evaluated with these criteria in publications that review books such as The American Library Association's *Booklist* or the well-regarded *School Library Journal*. These criteria are also echoed in the standards used by award committees. The National Science Teachers Association (NSTA) and the National Council on Social Studies (NCSS) both produce a list of recommended trade books in collaboration with the Children's Book Council (CBC).

For NSTA (2005b), the following criteria are used:

- The book has substantial science content.
- Information is clear, accurate, and up-to-date.
- Theories and facts are clearly distinguished.
- Facts are not oversimplified so that the information is misleading.
- Generalizations are supported by facts and significant facts are not omitted.
- Books are free of gender, ethnic, and socioeconomic bias. (p. 1).

The NCSS–CBC selection committee looks for books that emphasize human relations, represent a diversity of groups, are sensitive to a broad range of cultural experiences, present an original theme or a fresh slant on a traditional topic, are easily readable and of high literary quality, and have a pleasing format and, when appropriate, have illustrations that enrich the text (2005a).

It is important to recognize that the criteria used to evaluate content-related books tend not to be genre-specific. For example, although primarily concerned with issues related to accuracy, the NSTA and NCSS committees view accuracy as a concept that holds across genres. For this reason, they include biographies, autobiographies, informational narratives, and even realistic fiction in their list of recommended titles.

Other experts interested in content area books tend to laud titles designed to motivate reading and participation in their fields of study. For instance, Garfield (1984), an information scientist and founder of the journal *The Scientist*, recommended science books likely to excite children, books that embody a sense of adventure. He stated that "there will not then be a long transition from *Call of the Wild* or *The Time Machine* to *Microbe Hunters* (p. 431). It is interesting that Garfield, trained both as a scientist and librarian, viewed his goal as preparing for and encouraging pleasure reading as opposed to textbook reading.

MOTIVATION AND ENGAGEMENT

Motivation and engagement are recurrent themes in the work of those who write about selecting informational texts. The old adage of the children's librarian—to find the right book for the right child at the right time—stems from the belief that children learn to read by reading and that they are more likely to read when they find an interesting and engaging book. Librarians have undertaken many surveys of children's preferences during the past 100 years, all of which are aimed at building library collections that encourage the self-selection of books.

Engagement is also a goal of the literacy community. Scholars interested in informational reading have built their work upon the idea that information books appeal to students' curiosity, and curiosity is a powerful motivation for reading (e.g., Baker & Wigfield 1999; Dreher, 2003; Guthrie, Cox, et al., 1998). Guthrie, Van Meter, et al. (1998) documented significant reading gains as a result of the CORI program. The books used in CORI are chosen primarily for their ability to engage students. Dreher pointed to the fact that "the extensive use of high quality information books as part of concept-oriented reading instruction has promoted intrinsically motivated reading activity among at risk students (e.g., Guthrie, Anderson, Alao & Rinehart, 1999)" (p. 28).

Morrow and Pressley (1997) found an interesting motivation-related side effect in their study using three groups of third graders to examine the effects of adding a literacy component to hands-on science instruction. A control group was compared with a class that used only literature to teach science and a class that integrated literature with science. In the literature/science classrooms, students elected to read science on their own more often than students in the literature-only or the control group. "One of the most interesting outcomes," according to these authors, "was that a majority of students in the literature/science group reported that they liked science and the majority of literature-only and control students reported that they did not like science" (p. 72). This finding lends credence to the important role literature might have in promoting greater interest in content area hands-on study.

Roma Gans, a pioneering reading educator, asserted the importance of interest and motivation long ago in her book, *Guiding Children's Reading Through Experiences* (1941) and later in her article "Common Sense in Teaching Reading" (1964). In such pieces she argued that teachers should make children want to learn by introducing them to reading materials on hobbies and subjects of interest. She believed that interest was an important factor in comprehension, and with this in mind (and together with scientist Franklyn Branley) she created the Let's Read and Find Out science series, still marketed commercially.

Alexander's (1997) notion of "knowledge seeking" (p. 83) is what Dreher (2003) called "an important but neglected area in the study of motivation to read" (p. 28). Students' own

questions are the loom upon which an understanding of content is woven (Saul & Jagusch, 1991). Before students compose meaningful questions about a topic, they need to read and write widely in their area of interest. Citing Short, Harste, and Burke (1996), Moss (2003) stated that "Learners need time to 'muck around' in their topics" (p. 162).

TEXT CHOICE: THE BOOK AS AN INSTRUCTIONAL TOOL

In the previous section, books were viewed primarily as sources of inspiration, motivation, and stimulation. Students go to books, these authors argue, because excellent books are engaging. Reading skills improve because students attracted to these books read more and with greater attention because the books at hand are interesting and inviting. Issues that typically surface in reading instruction—for instance fluency, automaticity, or decidability—were not addressed directly. In the next section we look at book choice as it relates to fluency and comprehension instruction.

Fluency

The term *text choice* can refer to two separate acts: (a) a student self-selecting materials to read, or (b) an adult choosing books for a collection or for instruction. The student self-selection of books is connected to the knowledge-seeking aspect of motivation referred to above by Alexander (1997). Text choice on the part of adults, especially in schools, is largely determined by teaching purposes. An adult looking for books in which students can practice fluency, for instance, might choose different texts than a teacher seeking books for a read-aloud or to support content understanding.

In 1991, Marie Clay (1991) coined the term "just right text" to identify books that a given reader finds 90% decodable and can comprehend with little difficulty. Hiebert (1998) noted that it is challenging to find high-quality literature that young children can read at their instructional level. The real literature that teachers want to use is not written with literacy instruction in mind and often presents special challenges to emergent readers. But turning to the traditional readability formulae to guide text selection is not an answer either, because these formulae are based on a very limited number of factors.

Hiebert (1998) argued that (a) "Instructional texts need to be chosen to highlight features that promote particular processes for particular beginning readers" (p. 210); (b) "Features of a text that may distract beginner readers from attending to and applying key skills and strategies need to be considered in selecting texts for instruction" (p. 211); (c) "The scaffolds of illustrations and predictable syntax should be varied, even at the earliest stages of reading acquisition" (p. 212); and (d) "It takes children who have had few prior book experiences numerous experiences with texts to focus on critical features and to remember them" (p. 213).

There are those who argue against the efficacy of text designed for readability. In the mid-1980s, several researchers analyzed attempts to substitute high-frequency and easily decodable words in text. For example, Beck, McKeown, Omanson, and Pople (1984) and Brennan, Bridge, and Winograd (1986) found that children understood original stories better than their rewritten, "easier" counterparts. Several explanations for this finding were posited: The original stories used structures that more closely fit readers' expectations; they also had descriptions and actions that were memorable for readers and they made sense. Would we find the same result in a similar pairing of original and rewritten informational texts that these researchers found by comparing original and rewritten stories?

Kamil and Lane (1997) examined an instructional program that taught students different genres of text, how to make use of features in informational text, how to assess informational text in critical ways, and how to make use of multiple sources of information. The authors concluded that "Much of what the students read was well above their grade placement. Despite this, students learned strategies for dealing with complicated information text that, at least as judged by readability, should have been beyond their capabilities" (para. 26).

For instance, by using various textual clues (e.g., seeing numbers in a book about whales), students were able to determine the area of the text in which the information they wanted or needed was located and then ask for help in reading the text. In other words, they were learning how to navigate text, which is an important skill for locating information. In addition, they also learned to discriminate various textual features when engaged in reading for authentic purposes. Said differently, although the classroom activities described in this study did not focus on the teaching of decoding, "students of widely differing abilities were able to make use of this information in reading and writing while making at least average, or above average progress" (Kamil & Lane, 1997, para. 36).

Thus, whereas some researchers believe that a controlled vocabulary and text structure help build fluency and encourage students to move on to less contrived texts, others are concerned about how artificially created works affect students' ability to make meaning. Cole (1998), for example, differentiated between beginner-oriented texts, which are written primarily for reading instruction with consideration of vocabulary, sentence length, and other factors to control the difficulty of the text, and aesthetic texts, which are texts written without the constraints of controlling for readability.

Donovan, Smolkin, and Lomax (2000) further developed this point: "the more complex 'aesthetic' texts, which are the least accessible due to the complexity of language, structure and content, or literature of any genre that children may be most interested in and motivated to stick with (e.g., Caswell & Duke, 1998; Fresch, 1995) may be well above the levels they should be reading to enhance their

reading achievement in terms of accuracy, fluency, and comprehension" (p. 312). A limited diet of texts and the optimal level of difficulty, they argued, "might not serve children best in the long run, especially considering that reading interests and attitudes often determine whether children carry their reading habits outside the schoolhouse door" (p. 330). Perhaps a sensible approach is to use a variety of text types in the classroom. Texts at the appropriate level of difficulty could be used primarily for guided or shared reading and to support the goals of fluency and automaticity. Trade books, on the other hand, could become the basis for read-alouds, independent reading, and other activities that support both content learning and literacy development. We have found no research to support the practice of limiting students' access only to text determined to be at their instructional reading level.

Comprehension

Discussions of fluency must be tied finally to an interest in teaching comprehension both as lower order skills (e.g., recall and mastery, summarizing, and explaining) and as higher order skills (e.g., integrating, synthesizing, and evaluating). We take this position knowing that, as Lemke (2002) observed, "there is no sharp boundary between comprehension and interpretation" (p. 3). In other words, how the process of transmitting and understanding information and ideas through text works is not a simple process easily defined and acted upon.

Pearson and Fielding (1991) pointed out that reading comprehension depends a great deal on knowledge of the world. From this position it could also be reasonably argued that additional real-world experience and authentic exposure to vocabulary serve well as effective means of increasing students' ability to read, write, and speak. In this sense, teachers should consider using content-related books that connect to and build upon students' experiences and trying whenever possible to link reading materials with new experiences.

Although literacy might be improved by building experiential background knowledge, an understanding of content can also be improved through exposure to text. Duke and Bennett-Armistead (2003) claimed, for instance, that including more informational text in the primary classroom can "build background knowledge. And the more background knowledge children have, the stronger their comprehension is likely to be" (p. 22). Nonfiction can also draw children more fully into the real world, expand their knowledge, enhance comprehension, teach concepts, and introduce vocabulary about things they may never experience in real life. In this way, text serves an important role in building background knowledge (Chambers, 1995).

Informational books can provide an important and unique opportunity to practice comprehension strategies. Both Pressley (2002) and Pearson, Roehler, Dole, and Duffy (1992) have identified strategies that proficient readers use while engaged with text. Research clearly

indicates that the explicit teaching of these strategies improves reading comprehension (Duke & Pearson, 2002; National Institute of Child Health and Human Development, 2000). Given the lack of student exposure to informational text, practitioners should be encouraged to look for books they can use to model strategies that help students read content-rich literature, including how to:

- use existing knowledge to make sense of text;
- ask questions before, during, and after reading;
- create images of or visualize what they read;
- determine what's important in the text they read;
- monitor comprehension throughout the reading process;
- repair comprehension once the reader realizes it's gone awry;
- draw inferences during and after reading; and
- synthesize information while they read.

Yore et al. (2004) summarized what Goldman and Wiley (2002) identified as mental processes a science-savvy reader engages in while reading. These skills, taken together, constitute what they call a critical stance toward information reading. These skills include:

- activating prior knowledge of the specific topic, genre, and evidence;
- analyzing and synthesizing the new information;
- evaluating the new information with respect to criteria for scientific evidence;
- integrating the text-based message with prior conceptions (Yore et al., pp. 348–349).

They further develop the concept of critical stance, contrasting it with an approach that is "relatively passive and oriented toward acceptance and memorization of presented facts, procedures, and principles" (p. 349). According to Goldman and Bisanz (2002), a noncritical approach can be viewed as particularly troublesome, especially now when students regularly turn to webpages easily accessed but not vetted or substantiated by any known authority. Whether or not one agrees with the authors' assertion that webpages are less authoritative than books, the key point made by Goldman and Bisanz, that we need to help students develop critical skills, is surely well taken.

The teaching of critical thinking in the reading curriculum and in content area study deserves considerable attention. Competent students must be able to do more than reproduce facts and answer questions accurately. Although content area educators still want students to learn what is factually accurate (or, perhaps more accurately, up to date), experts in science, social science, art, music, and physical education also wish to engage students in learning the skills and dispositions that characterize their respective fields and are often included in the standards established by their professional organizations.

For instance, NCSS (2005a) described its primary goal as "help[ing] young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world" (p. 1). Similarly, NSTA (2005b) clearly supported learning as an active process that is centered on critical analysis and experience: "Inquiry into authentic questions generated from student experiences is the central strategy for teaching science" (p. 1). From this perspective, a question arises about the role text might play in teaching content area knowledge. Yore (2004) has argued that scientists read with a pencil in hand, trying to assess the validity and coherence of claims and quality of evidence. How do we teach students to read as scientists do, for instance?

Text features and structures

Other attempts to support expository reading have focused on the teaching of text features and text structures as part of the informational reading comprehension program. Harvey (1998), for instance, argued that text features alert readers to important information. She encouraged teachers to point out how fonts, titles, headings, italics, bullets, and labels can be used to special effect. Verbal cues and markers (e.g., words such as "most important" or "on the other hand") are also noteworthy. In addition, attention might be directed to how text illustrations, photographs, charts, diagrams, and maps as well as various text organizers (e.g., index, table of contents, appendix, glossary) are used in nonfiction text. Students should be encouraged to note that these text features appear only in certain kinds of informational text and that information can be gathered from various genres.

It is also essential for teachers to realize that the kinds of text features Harvey (1998) identified are designed to be functional. Publishers who gratuitously include such features and teachers who stress their presence without their functionality are missing the authentic purposes for which they were intended. Duke (2004), for instance, has noticed that groups of young students working to comprehend informational text for an authentic purpose "look noticeably different than those reading it simply because the teacher assigned it. The first set of students reads more strategically and pays more attention to components of the text, such as headings, vocabulary, and summary statements" (p. 43). Thus, practitioners who assume that authentic purpose promotes comprehension will be drawn to books in which text features serve a useful purpose. On the other hand, it is wise to avoid text features that serve no function. For example, teachers might ask themselves and their students whether a table of contents and index are really needed in a 16-page book with little text.

Explicit teaching of expository text structures is another frequently recommended practice (e.g., Duke & Bennett-Armistead, 2003; Harvey, 1998). Using trade books, one can locate examples of particular text structures that

students are often encouraged to use in their own writing; for instance cause/effect, problem/solution, question/answer, and compare/contrast (Harvey). Whether teaching these features leads to better test performance or, more importantly, increased knowledge and skills has yet to be determined.

In summary, one's approach to teaching informational reading depends largely on the extent to which reading is viewed as a well-defined, technical process or as a somewhat ill-defined activity that involves students in complex tasks such as critical thinking. The approach chosen is also determined to some extent by one's general philosophy of literacy instruction or that used by the school or school system in which one works. If a teach–test–reteach model of instruction is promoted, it is necessary to break tasks into discrete parts that can be effectively identified and tested. Focusing on text features, such as the table of contents, indexes, glossaries, and graphical features (e.g., headings, bold print), fits well into such a model. And, clearly, if instruction is designed to focus on such features, the books that embody them are the ones most likely to be purchased and used, whether or not they meet the standards of quality literature identified earlier.

Contrast this vision to that presented by Hand et al. (2003), who pointed out that the professional organizations that represent the literacy field recognize reading as "a process of inferring meaning from a variety of texts with varying degrees of credibility and validity" (International Reading Association/ National Council of Teachers of English, 1996, as cited in Hand et al., p. 612). From this perspective, reading is "an interactive and constructive process for making meaning constrained by criteria for good inferences in a socio-cultural context" (Hand et al., p. 612). Selecting books that children can decode is not enough. We need to find ways to engage young readers in the process of interacting with text. Our goal should be to help them to view informational reading as a process of transaction rather than simple transmission (Saul, 2005).

CONCLUSION

Although researchers emphasize different opportunities and possibilities available through the reading of informational text, most agree that students should be in classrooms that permit access to a wide array of high-quality information books. Duke and Bennett-Armistead (2003), Dreher (2003), Moss (2003), and Kristo and Bamford (2004) all commented specifically on the need to acquaint students with more high-quality informational text. Variety is viewed as essential in terms of subject matter, readability level, genre, and so forth.

Researchers also agree that even young students are capable of learning from informational text and greater exposure to informational texts generally increases students' capacity to work with such text (Duke & Kays, 1998; Pappas, 1991, 1993). In addition, many children enjoy information text (Duke & Kays;

Duthie, 1996; Guthrie et al., 1999; Kamil & Lane, 1997) and many prefer it (Pappas, 1991). Caswell and Duke (1998) have argued that informational reading can serve as a catalyst for literacy development among certain struggling readers and diverse learners. They stated, "By expanding the repertoire of texts available to children, we may enhance all children's literacy experiences and increase the likelihood of 'turning on' as many children as possible to literacy" (p. 116).

The existing literature also recommends specific practices useful in the teaching of informational literature. Children should be given the opportunity to browse and choose from the wide variety of information books (Kletzien & Dreher, 2004; Moss, 2003) and limiting access on the basis of student reading level can be problematic, especially during independent reading time (Donovan et al., 2000).

Undoubtedly, high-quality information books should be used for read-alouds. Moss (2003) also noted that reading aloud is the simplest, least expensive, most often recommended practice to improve student reading achievement. For example, in *Becoming a Nation of Readers* (Anderson, Hiebert, Scott, & Wilkinson, 1985), reading aloud to children was cited as the single most important activity for building knowledge required for success in reading. Through read-alouds students also learn content, as evidenced in their journal responses. Chambers (1995), Duke and Kays (1998), and Pappas (1993) all noted that reading aloud helps children to learn the rhythms and structure of language. Reading aloud can also be used to promote high-level questions and thinking (Hoffman et al., 1993; Vardell & Copeland, 1992), and teachers can use information books to model such questioning and thinking (Armbruster, Lehr, & Osborn, 2001; Moss, 1995).

There is considerable value in connecting information books to students' real-world experiences. Pappas et al. (2004) and Lemke (1990) stressed the potential and value of reading aloud as a way to promote intertextual connections. As students connect their book experiences to real-world experiences with reading and writing, content is both taught and reinforced. (Anderson & Guthrie, 1999; Duke, 2004; Freeman & Lehman, 2001; Freeman & Person, 1998; Guthrie, Cox, et al., 1998; Hand et al., 2003; Kamil & Bernhardt, 2004; Pappas et al., 2004; Pressley et al., 1996).

Students learn academic languages as they become engrossed in and engaged with books. This acquisition of academic language occurs through immersion as well as practice and overt instruction. Teachers would do well to embed the language associated with specific academic discourses into classroom reading and discussions (Gee, 2004).

Explicit instruction in the characteristics and uses of informational text are recommended. Specifically, teachers should promote discussions about language uses and genre. Comprehension strategies can also be explicitly

and fruitfully taught (Donovan et al., 2000; Duke & Bennett-Armistead, 2003; Gee, 2004; Harvey, 1998) though such skills should be presented in context rather than in isolation (Kletzien & Dreher, 2004).

An apparent relationship exists between the kinds of texts to which children are exposed and the kinds they choose to write and are able to write well (Chapman, 1995; Kamberelis, 1999, cited in Duke & Bennett-Armistead, 2003, p. 129). Informational texts can be used to help children to recognize and to use the distinguishing characteristics and features of quality writing (Duke & Bennett-Armistead, 2003; Duthie, 1996; Freeman & Person, 1998; Harvey, 1998; Kletzien & Dreher, 2004; Stead, 2002). Particular practices appear especially useful in teaching such skills. Studies of highly regarded authors and their work, also known as author studies, are often suggested (Duke & Bennett-Armistead; Moss, 2003); attention to the craft of writing is also recommended (Alvermann et al., 2004; Portalupi & Fletcher, 2001).

This is a propitious moment for those of us concerned with literacy and content learning. An interest in finding and creating text that supports real-world investigations and experiences is being welcomed across the curriculum, and convincing teachers, parents, and school systems of the importance and viability of connecting literacy and content learning should not be difficult, given the evidence at hand. But the expectations for synergy and complementarity between content instruction and reading are also high.

Thus, we end this article with a cautionary note: We believe that the prospects of finding a book, series of books, or genre that can meet all of the informational reading needs of students are unrealistic. We are fortunate to have articulate stakeholders, ready to express their hopes for what information books might and might not be able to offer students. Let us listen to the multiplicity of voices and make sure that school dollars spent to support informational reading are used to address that multiplicity of needs.

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For *Choosing and Using Information Trade Books* references, please see page 95.

Foundation Papers

RESEARCH AND RESULTS, ALPHABETICAL BY CATEGORY

(pgs. 6-10)

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