

**EFFECTIVENESS  
REPORT**

# Using Books to Raise Student Achievement

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



**A**re 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.

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# 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.*

# Introduction

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

## 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, Slegers, & 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).

## 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, Slegers & 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, Slegers & 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 do not produce causal evidence. For instance, data exists to suggest that (a) fifth graders who scored at the ninetieth percentile on standardized



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

Learning Environment & Description	Method	Icon
<p><b>Control Group: Explicit Instruction</b> Teachers are information-providers to help students gain knowledge through a step-by-step process.</p>	<p><b>Basal readers</b> <i>Saxon Phonics Supplemental Program; Scott Foresman Basal Reading Series; Scholastic Literacy Place; Open Court; Harcourt Basal Reading Program</i></p>	
<p><b>Treatment Group #1: Mastery-in-Practice</b> Work independently and silently to practice skills sequentially for an extended period of time.</p>	<p><b>NCLB workbooks</b> <i>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, &amp; C: Books 1,2,&amp; 3</i></p>	
<p><b>Treatment Group #2: Schema-Activated Constructivism</b> While engaged in independent reading, students encounter problematic literacy situations and teachers model how to overcome the challenge.</p>	<p><b>Sustained Silent Reading (SSR) with Praise-Add Cognitive Challenge-Raise Abilities (PAR)-based teacher monitoring</b> Students read expository or narrative books of choice and teachers give personalized, individualized instruction when students need help.</p>	
<p><b>Treatment Group #3: Situated Practice</b> Learners practice a specific reading skill immediately after having been taught that skill by their teacher.</p>	<p><b>Sustained Silent Reading (SSR) with a priori teacher instruction</b> Students select trade books of choice and read silently and independently. Prior to reading, teachers explicitly tell students which reading skill they should practice.</p>	
<p><b>Treatment Group #4: Transformed Practice</b> Poses problematic situations during reading that students must solve.</p>	<p><b>Two non-fiction books read back-to-back</b> Students read two non-fiction texts of their choice, on the same subject, back-to-back.</p>	
<p><b>Treatment Group #5: Critical Framing</b> Students position their literacy practices within a social, political, and historical context.</p>	<p><b>Reading and discussion of two teacher-selected fiction books back-to-back</b> 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.</p>	

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

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.)

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

*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.*

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*.

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  $r^2$ ) 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
<p><b>Control Group (20 Minutes of Additional Explicit Instruction on Basal Reading Activities)</b> Teachers are information-providers to help students gain knowledge through a step-by-step process.</p>	<ul style="list-style-type: none"> <li>• Significantly <i>decreased</i> the overall reading abilities of all subjects when compared to other treatments (7.9% decrease).</li> <li>• Only method that <i>did not increase</i> students' mean fluency rate above the national average for their grade levels.</li> </ul>
<p><b>Mastery-in-Practice (NCLB Workbooks)</b> Work independently and silently to practice skills sequentially for an extended period of time.</p>	<ul style="list-style-type: none"> <li>• Significantly <i>less effective</i> than all other methods in helping students identify details.</li> <li>• Significantly <i>less effective</i> than all other methods of increasing students' higher-level comprehension.</li> <li>• Significantly <i>lower</i> in increasing positive attitudes toward reading for all ability groups.</li> </ul>
<p><b>Schema-Activated Constructivism (SSR With PAR-based Teacher Monitoring)</b> While engaged in independent reading, students encounter problematic literacy situations and teachers model how to overcome the challenge.</p>	<ul style="list-style-type: none"> <li>• <i>Best method</i> of increasing above, on, and below grade level readers' vocabulary abilities.</li> <li>• Equaled nonfiction books as the best treatments to significantly <i>increase</i> all readers' scores on comprehension transfer test (Stanford Nine Comprehension Subtest).</li> <li>• <i>Best</i> for below, on, and above grade level readers on transfer vocabulary test (Stanford Vocabulary Subtest).</li> <li>• <i>Best</i> in keeping students from decreasing in overall reading ability, as <i>no student decreased</i> while engaged in this treatment.</li> <li>• Significantly <i>increased</i> less able readers' scores on the comprehension transfer test (Stanford Achievement Test).</li> <li>• <i>Most effective</i> in increasing fluency for all readers.</li> <li>• <i>Most effective</i> in increasing the amount of vocabulary learned during the reading of a two-minute timed reading for all students.</li> </ul>

Condition	Key Findings
<p><b>Situated Practice (SSR With a Priori Teacher Prompting)</b> Learners practice a specific reading skill immediately after having been taught that skill by their teacher.</p>	<ul style="list-style-type: none"> <li>• Significantly <i>less effective</i> than other experimental or control treatments in increasing all students' fluency.</li> <li>• Significantly <i>less effective</i> in increasing above grade level readers' overall literacy abilities.</li> <li>• Only learning environment in which more students <i>lost overall reading ability</i> than gained it after the intervention.</li> </ul>
<p><b>Transformed Practice (Nonfiction Trade Books on the Same Subject Read Back-to-Back)</b> Poses problematic situations during reading that students must solve.</p>	<ul style="list-style-type: none"> <li>• First in significantly <i>increasing</i> the overall reading abilities of all students.</li> <li>• First in significantly <i>increasing</i> the specific literacy competencies of learning vocabulary.</li> <li>• First in significantly <i>increasing</i> the application of applying higher-level comprehension skills for all students.</li> <li>• Most significantly <i>increased</i> on grade level readers' abilities to recall new vocabulary words learned immediately after reading.</li> <li>• Most significantly <i>increased</i> above grade level readers' scores on the comprehension transfer test (Stanford Achievement Test).</li> <li>• Significantly <i>increased</i> all readers' abilities to retain main ideas and increased all ability levels to recall details.</li> <li>• First in significantly <i>advancing</i> students who increased half grade levels by study's end.</li> <li>• Tied with schema-activated constructivism (SSR with PAR-based teacher monitoring) in its ability to most significantly <i>increase</i> all readers' scores on the transfer comprehension test (Stanford Nine Comprehension Subtest).</li> <li>• <i>Largest net gain</i> in overall reading ability by mid-year, as 10% of students in this treatment increased in overall reading ability.</li> </ul>
<p><b>Critical Framing (Reading and Discussing Two Teacher-Selected, Matched-to-Thematic-Units Fictional Trade Books)</b> Students position their literacy practices within a social, political, and historical context.</p>	<ul style="list-style-type: none"> <li>• Equal to transformed practice in its ability to significantly <i>increase</i> all subjects' abilities to recall vocabulary immediately after reading, demonstrating to close the vocabulary achievement gap for below grade level readers.</li> <li>• Equal to transformed practice reading in significantly <i>reducing</i> the number of students who decreased from above to on grade level, and from on to below grade level in overall reading abilities.</li> </ul>



## 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.

### **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

*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.*

*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.*

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.

## 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
<b>Basals</b>					
State Test	7.9%	74.7%,	17.4%,	2.78	+9.5% increase** (Ranked 2nd)
Vocabulary	3.08 (2.8)**	3.47 (2.8)	2.47 (2.6)	.79	
Main Idea	.84 (.37)**	.94 (.33)	.91 (.29)	1.94	
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)	
<b>Workbook</b>					
State Test	3.6%	87.9%	8.5%	2.78	+4.9% increase** (Ranked 5th)
Vocabulary	2.29 (2.5)**	3.9 (2.5)	3.8 (2.5)	.79	
Main Idea	.66 (.71)**	.63(.49)	.62 (.49)	1.94	
Detail	.6 (.86)**	1.85 (1.07)	1.6 (1.03)	.72	
Applications	.45 (.50)**	.66 (.47)	.59 (.56)	6.23=mean (Ranked 5th)	
<b>SSR w/PAR</b>					
State Test	0% no decrease**	92.8%,	7.2%	2.95	+7.2% increase** (Ranked 3rd)
Vocabulary	0% decrease**	2.99 (2.13)	2.47 (2.6)	.88	
Main Idea	0% decrease**	.87 (.34)	.97 (.16)	2.22	
Details	0% decrease*	2.24 (1.03)	2.0 (1.2)	.76	
Applications	0% decrease	.77 (.42)	.66 (.48)	6.81=mean (Ranked 2nd)	
<b>SSR w/a priori teacher instruction</b>					
State Test	3.4%	93.4%	3.2%**	2.73	-0.2% decrease** (Ranked 6th)
Vocabulary	3 (2.9)**	2.93 (2.67)	3 (2.7)	.66	
Main Idea	.69 (.48)**	.72 (.47)	.42 (.52)	1.51	
Details	1.69 (1.5)**	1.66 (1.25)	.67 (.99)	.70	
Applications	.77 (.44)*	.75 (.43)	.92 (.29)	5.6=mean (Ranked 6th)	
<b>Nonfiction</b>					
State Test	1.3%*	87.4%,	11.3%	3.11	+10% increase** (Ranked 1st)
Vocabulary	2.8 (3.5)**	2.11 (3.2)	1.2 (1.9)	.91	
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)	
<b>Fiction</b>					
State Test	1.3%*	91.4%, 3.26(3.0)	7.3%, 2.47(3.0)	3.12	+6% increase** (Ranked 4th)
Vocabulary	3.1 (3.5)**	.82(.39)	.77(.42)	.80	
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.

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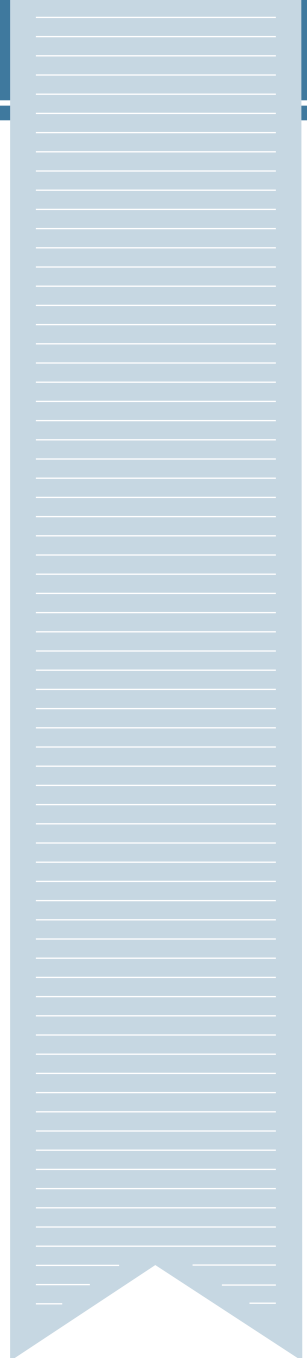
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