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An Analysis of Corrective Reading Research

Abstract: This paper provides an analysis of *Corrective Reading* research. A research review of 28 published studies was completed. Twenty-three studies examined the effectiveness of *Corrective Reading* as delivered by teachers in general education ($n = 4$), special education ($n = 12$), and alternative education ($n = 7$) settings. Five studies examined the effects of *Corrective Reading* as implemented by paraprofessionals or peer instructors in general education ($n = 4$) and special education ($n = 1$) settings. Study characteristics (i.e., program[s] investigated, participants, research design, research purpose, intervention details, outcome measures, and findings) were examined for each of the 28 studies. Twenty-six of the 28 studies found positive results for students instructed with *Corrective Reading*, and 1 study found positive results for peer instructors who delivered *Corrective Reading*. Thus, 27 of the 28 studies (96.4%) found positive results for *Corrective Reading*. Analyses across studies including examinations of dependent measures, research designs, student populations, and instructors and settings are provided; directions for future research are discussed.

Reading is absolutely pivotal to success in school and life. When students do not have appropriate reading skills, the effects are felt not only in schools but in communities and society as well. Precious resources in schools are devoted to remediating the skills of strug-

gling readers, estimated to be as high as 70% of older students (Biancarosa & Snow, 2004).

Deficits in reading achievement are associated with a host of negative outcomes including below grade level performance across the curriculum, grade retention, and failure to graduate (U.S. Department of Education, 2003). Underachievement often produces social functioning difficulties and is associated with behavior problems (Bower, 1995; Walker, Colvin, & Ramsey, 1995). Grade retention due to poor reading is related to an array of problems including negative attitudes toward school as well as poor social and personal outcomes (Jimmerson, 1999). When students fail to graduate from high school, their chances of obtaining postsecondary education are substantially diminished. Even for those who obtain postsecondary education, often as many as 50% need remedial reading courses due to lack of literacy skills (National Center for Education Statistics, 2001). Without further education or training, employment opportunities are reduced. Even as schools, communities, and society respond to struggling readers, demands for complex literacy skills in society and the global economy are increasing (Barton, 2000).

Due to its critical importance for school success, it is no surprise that reading has always been of interest to educators and parents. From the best selling book, *Why Johnny Can't Read* in 1955 (Flesch), to *A Nation At Risk* in 1983

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(National Commission on Excellence in Education), to the more current report by the National Reading Panel in 2000 (National Institute for Child Health and Human Development; NICHD), reading has captured the nation's attention as a compelling topic of discussion. However, interest in reading extends beyond popular culture. In educational research, reading has been the topic of over 100,000 studies since 1966 (NICHD, 2000). Further, reading has been and continues to be the focus of educational policy initiatives at the federal, state, and local levels. However, as highlighted in *No Child Left Behind* (IDEA; U.S. Department of Education, 2002) and the reauthorization of the Individuals with Disabilities Education Act (U.S. Department of Education, 2004), there has been a decided shift in the emphasis on reading, from previous "calls to action" and hand wringing, to the current and more serious call for accountability.

The federal focus on accountability as seen in recent legislative action is comprehensive—from the quality of teachers, to the type of instruction and curriculum used in schools. In particular, there is a decided emphasis on using research-based programs and practices. That is, schools must use programs that have been proven effective through scientifically conducted research. This emphasis on using methods that have scientific proof of effectiveness has set a new standard for K–12 education. Although the field of education has a long-standing tradition of excellence in reading research, often schools do not utilize the results of these research studies when choosing curriculum or models of instruction.

The call for research-based approaches as described in IDEA (U.S. Department of Education, 2004) places an emphasis on using peer-reviewed research as well as scientifically validated programs. Additionally, the eligibility determination criteria for disabilities have been expanded to allow the use of alternative evaluation models such as Response to Intervention (RTI; Fuchs, Mock, Morgan, &

Young, 2003). RTI involves using research-based methods to teach reading while monitoring students' progress. Students who do not progress ("respond") to research-based programs may qualify for additional services or special education evaluation. With the RTI approach, students are first given the opportunity to succeed in reading in general education using scientifically based reading programs. Special education then becomes specially designed instruction for those students who do not respond to the general education curriculum as opposed to students who did not receive effective reading instruction.

The emphasis on accountability and research-based programs naturally leads to the search for scientifically researched reading programs. Direct Instruction is perhaps the best example of a research-based model of instructional delivery and curriculum design. As Tarver (2004) so succinctly stated, Direct Instruction is an "approach that produces success, after success, after success" (p. 1).

Direct Instruction is based on the principles of explicit instruction that have garnered researchers' attention since the early 1980s. Rosenshine (1986) outlined aspects of explicit instruction supported by research: reviewing previous instructional targets, providing explicit goals for instruction, presenting instructional content in small components, delivering explicit explanations of these components, using modeling, making many opportunities available for active student participation, giving frequent feedback, checking for understanding, providing practice opportunities, and monitoring student performance. Explicit instruction has been differentiated from other types of instruction such as guided discovery or constructivist learning by the hallmark features of direct provision of knowledge and information to students, prompting students to participate, and giving students practice and feedback on the learning targets (Harris & Graham, 1996; Stevens & Rosenshine, 1981). Explicit instruction is

clear, straightforward instruction based on well-designed learning targets.

Direct Instruction is a program model designed from the research on explicit instruction. It differs from others in that it includes a model for delivery of instruction *and* complete curriculum design. Direct Instruction programs have been developed to insure that all students can learn through lessons that include explicit and carefully sequenced instruction. Programs designed within the Direct Instruction model include content that has been analyzed according to concepts, rules, strategies, and big ideas that promote generalization. Clear instructional communication is a critical aspect of Direct Instruction. Language used in teaching the content is clear and explicit, reducing student confusion. The formats used in Direct Instruction programs are outlined so that the teaching tasks follow a proven sequence of instruction, from modeling, to guided practice, to implementing independent practice. And the skills taught through Direct Instruction programs are carefully sequenced so that easy tasks are taught first, building on difficulty and complexity, as well as avoiding teaching easily confused skills together. Direct Instruction programs also provide lessons along “tracks” that take students from short instructional sequences of difficult tasks, to well-practiced skills, with distributed practice across new/difficult content and review/easy content.

Corrective Reading is a core reading intervention program (decoding and comprehension) based on Direct Instruction research and principles (Engelmann, Hanner, & Johnson, 1999).

Corrective Reading provides sequenced lessons, from simple to complex; strategy instruction for learning how to learn; well-designed presentation formats that focus on providing appropriate examples; teaching scripts to reinforce a lively and quick instructional style; practice exercises matched to the instructional content; and a system of guidebooks, tests, reading materials, and management tools for

implementation. The decoding and comprehension strands can be taught together or as separate strands, but both proceed from simple to more complex skills, emphasizing student success at each level. *Corrective Reading* addresses the key features of research-based reading instruction and content outlined by the National Reading Panel (NICHD, 2000) and reports on literacy from the Alliance for Excellence in Education (Biancarosa & Snow, 2004) and the National Institute for Literacy (Armbruster, Lehr, & Osborn, 2003).

Corrective Reading has a substantial research foundation. Studies examining the use of *Corrective Reading* in general and special education settings, in alternative environments, and as delivered by paraprofessionals and peers have produced strong positive validation for the use of this approach in reading instruction. Given the emphasis today on accountability and research-based approaches, it is important to conduct an analysis of *Corrective Reading* research. The analysis will provide important information for educational leaders, administrators, and teachers to use when making decisions about the effectiveness of reading programs.

Method

Selection of Studies

All investigations were selected using the First Search, ERIC, PsycINFO, Education Abs, and ProQuest databases. Descriptors included the following: Direct Instruction, direct instruction, explicit instruction, and *Corrective Reading*. Ancestral searches of reference lists were used to identify other possible research articles. In addition, hand searches were done of the following peer-reviewed journals: *ADI News*, *Effective School Practices*, and *Journal of Direct Instruction*.

Coding of Studies

The following information was coded: author(s), year, and program(s) investigated

(e.g., *Corrective Reading* strand or strands used, other non-Direct Instruction programs), number of participants, research purpose, intervention details (e.g., length of treatment, fidelity checks, training provided), outcome (dependent) measures, research design, characteristics of participants, and program delivery method.

Analyses

Analyses were conducted across three areas. First, the effects of the *Corrective Reading* program delivered by teachers were determined. Analyses were conducted based on the setting in which instruction occurred. These settings included general education, special education, and alternative settings. Second, the effects of the *Corrective Reading* program delivered by paraprofessionals or peer instructors were assessed. Analyses were made based on the setting in which instruction occurred—general and special education settings. Third, analyses were conducted across studies. These analyses included determining the type of dependent measures used (e.g., standardized measures), research design (e.g., preexperimental), student populations (e.g., settings, disability categories), and instructors and settings (e.g., peer instructors in special education settings).

Results

Considering Reading First, Reading Next, and the new IDEA guidelines, accountability has never been more relevant. It is with a critical eye that educators should examine the following *Corrective Reading* studies. Twenty-eight studies using the *Corrective Reading* program have been published in peer-reviewed journals. These studies are summarized below.

Corrective Reading as Delivered by Teachers

Twenty-three studies were found that examined the effectiveness of *Corrective Reading* as

delivered by teachers in general education, special education, and alternative education settings (i.e., correctional institutions, alternative schools).

General education settings. Table 1 shows four studies examining the effects of using *Corrective Reading* with general education students at-risk for academic failure as delivered by teachers.

Clunies-Ross (1990) used a quasi-experimental design (nonequivalent pretest–posttest control group) to compare the effects of the *Corrective Reading Comprehension B* program to an interest-based thematic approach in a non-government primary suburban school in Melbourne, Australia. Thirty-one Year 6 general education students were in the *Corrective Reading* group, and 26 general education students were in the comparison group. Results indicated that the *Corrective Reading* group made statistically significant gains on the Syllogistic Reasoning subtest and the Total Test composite of the ACER Tests of Learning Ability for Year 6 Students. In addition, the *Corrective Reading* group made greater gains than the control group on the ACER Verbal Comprehension and General Reasoning subtests, although results did not reach statistical significance.

Kasendorf and McQuaid (1987) used a preexperimental design (one group pretest–posttest) to determine the effects of the *Corrective Reading Decoding* program with students defined as “poor readers” in San Diego County. Thirty-six students ($n = 32$ at posttesting) were randomly selected from 14 4th- through 12th-grade classrooms. Results indicated that students made an average 2.38 grade-equivalent improvement on the Woodcock Johnson Reading Mastery (WJRM) Word Attack subtest and a .75 year gain on the WJRM Passage Comprehension subtest.

Sommers (1995) used a preexperimental design (one group pretest–posttest) to deter-

mine the effects of a Direct Instruction implementation (i.e., *Corrective Reading*, *Corrective Mathematics*, *Expressive Writing*, *Corrective Spelling Through Morphographs*) with 12 at-risk middle school students in Big Piney, Wyoming. Sommers reported the following grade-level gains on the Gates-MacGinitie Reading Tests: eighth-grade students gained 1.77 years (2.5 months per month of instruction); seventh-grade students gained .98 years (1.35 months per month of instruction); and sixth-grade students gained .93 years (1.1 months per month of instruction). (Note: This study is a follow-up of the Sommers, 1991, study; therefore, only the 1995 study is discussed here.)

Vitale, Medland, Romance, and Weaver (1993) used a quasi-experimental design (nonequivalent control group) to compare the effects of *Corrective Reading* with the current Chapter 1 reading program in a large urban school district in the Southwest. Twenty-six low-achieving Chapter 1 students (Grades 4–6) in the *Corrective Reading* group were compared to three contrast groups: comparable Chapter 1 students in the same school, average-performing and gifted Chapter 1 students from a comparable school, and districtwide Chapter 1 students. Results showed that the *Corrective Reading* group experienced greater gains per month than the control groups on the Reading and Vocabulary subtests of the Iowa Test of Basic Skills. The *Corrective Reading* group also demonstrated fewer decoding and thinking errors than the control groups on the program criterion-referenced test.

Special education settings. Table 2 shows 12 studies examining the effects of using *Corrective Reading* with special education students as delivered by teachers.

Arthur (1988) used a preexperimental design (one group pretest–posttest) to determine the effects of using *Corrective Reading* with 6 middle school students with learning disabilities in Massachusetts. Results indicated the following: Test of Language Development—gain

of 19.68 standard score points overall (1.31 of a standard deviation); Test of Reading Comprehension—gain of 15.3 standard score points (1.02 of a standard deviation) on Comprehension Quotient; Test of Written Language—gain of 13.8 standard score points overall (.92 of a standard deviation); Sequential Test of Educational Progress—grade-level gains of at least 2.42 years across reading, vocabulary, written language, and math computation areas; Woodcock–Johnson Psycho-Educational Battery—grade equivalent gains of 1.92 (Reading Cluster) to 1.65 (Written Language); Wide Range Achievement Test—grade equivalent gains of 1.73 (Word Recognition) and 1.52 (Spelling).

Benner, Kinder, Beaudoin, Stein, and Hirschmann (2005) used a quasi-experimental design (nonequivalent control group with two preexisting groups) to compare the effects of the *Corrective Reading Decoding B1* program with another reading intervention consisting of a variety of approaches. Twenty-eight elementary and middle school students (Grades 3 to 8) with high-incidence disabilities were in the *Corrective Reading* group. The comparison group consisted of 23 students who were matched on school attended, gender, and grade. Results showed the *Corrective Reading* group had significantly greater pre- to posttest gains than the comparison group on measures of basic reading skills on the Woodcock–Johnson III and oral reading fluency on the Dynamic Indicators of Basic Early Literacy Skills. The *Corrective Reading* group also had greater pre- to posttest gains on social adjustment as measured by the Child Behavior Checklist: Teacher Form. Finally, there was a statistically significant decrease in the number of treatment nonresponders (students who failed to acquire beginning reading skills within the normal range) for the *Corrective Reading* group.

Campbell (1984) used a quasi-experimental design (nonequivalent pretest–posttest control group) to compare the effects of the *Corrective Reading Decoding B* program to the current

English program. The *Corrective Reading* group consisted of 42 seventh- and eighth-grade students (79% non-white) who were reading more than one standard deviation below the mean (i.e., 19 at the second-grade level; 14 at the third-grade level; 9 at the fourth-grade level). The comparison group consisted of 13

students (62% non-white) who were reading on at least the third-grade level and were considered to be emotionally stable (i.e., 6 at the third-grade level; 7 at the fourth-grade level). Results indicated that the *Corrective Reading* group made greater grade-equivalent and standard score gains than did the comparison

Table 1
Corrective Reading as Delivered by Teachers in K–12 General Education Settings

Study	DI program	N	Participants	Research design
Clunies-Ross (1990)	<i>Corrective Reading Comp. B</i>	57 (31 in <i>Corrective Reading</i> group, 26 in comparison group)	Year 6 general education students	Quasi-experimental—Nonequivalent pretest–posttest control group
Kasendorf & McQuaid (1987)	<i>Corrective Reading Decoding</i>	32	Poor readers in Grades 4–12 who were randomly selected from 14 classrooms	Preexperimental—One group pretest–posttest
Sommers (1995)	<i>Corrective Reading Decoding B & C, Comp. B & C, Corrective Math, Express. Writing, and Corrective Spelling Through Morphographs</i>	112	At-risk middle school students Grades 6–8 Performing approximately 2–3 years below grade level	Preexperimental—One group pretest–posttest
Vitale, Medland, Romance, & Weaver (1993)	<i>Corrective Reading Decoding A & B; Comp. A & B</i>	26 in <i>Corrective Reading</i> (N in other groups not reported)	Chapter 1 students performing approximately 1.5 to 3 years below grade placement Grades 4–6	Quasi-experimental—Nonequivalent control group, four preexisting groups (<i>Corrective Reading</i> ; Chapter 1 same school; Chapter 1, average, and gifted from comparable school; Chapter 1 district students)

group on the Woodcock Reading Mastery Test. In addition, *Corrective Reading* students initially reading at a higher level made greater gains than did students reading at a lower level.

Edlund and Ogle (1988) used a true experimental design (pretest–posttest control group)

to compare three levels of teacher training on the performance of students receiving instruction using Direct Instruction programs and non-Direct Instruction programs (i.e., *Corrective Reading*, *Morphographic Spelling*, and two non-Direct Instruction programs). Six teachers (credentialed in both general and

Research purpose	Intervention details	Outcome measures	Findings
Assess the effects of the <i>Corrective Reading</i> program with general education students	<i>Corrective Reading</i> program implemented two to three times per week over an 8-month period	ACER Tests of Learning Ability for Year 6 Students	<i>Corrective Reading</i> group made greater gains on the Verbal comprehension, General Reasoning, and Syllogistic Reasoning subtests; however, the only difference that reached statistical significance was on the Syllogistic Reasoning subtest. <i>Corrective Reading</i> group also had greater gains that reached statistical significance on the Total Test composite.
Determine the effects of <i>Corrective Reading</i> across 14 classrooms	<i>Corrective Reading</i> provided by general and special education teachers over 7–8 months.	Woodcock Reading Mastery Test	Large improvements were noted in word attack and passage comprehension grade equivalents.
Investigate the effects of using <i>Corrective Reading</i> in a basic skills program for at-risk middle school students	Study took place across a 7-year period. A pull-out model was used to provide intervention throughout the regular school year to at-risk middle school students.	Gates-MacGinitie Reading Tests	Students demonstrated gains in reading performance.
Investigate the effects of <i>Corrective Reading</i> versus Chapter 1 reading interventions	85 days, 1 hr of instruction, 5 days per week. One group received <i>Corrective Reading</i> ; comparison groups received the current Chapter 1 reading instruction.	ITBS Reading Comprehension and Vocabulary subtests, <i>Corrective Reading</i> criterion-referenced tests	<i>Corrective Reading</i> group made greater gains than the control group on standardized measures. <i>Corrective Reading</i> decreased decoding and thinking errors on criterion-referenced tests; comparison group's error rate remained unchanged.

Table 2*Corrective Reading as Delivered by Teachers in K–12 Special Education Settings*

Study	DI program	N	Participants	Research design
Arthur (1988)	<i>Corrective Reading</i>	6	LD Junior high school students Grades 7–8 Age range 12.2 to 14.2	Preexperimental— One group pretest–posttest
Benner, Kinder, Beaudoin, Stein, & Hirschmann (2005)	<i>Corrective Reading</i> <i>Decoding B1</i>	41 (28 in <i>Corrective Reading</i> , 23 in comparison)	LD, BD, Title 1 Elementary school and middle school students Grades 3–8	Quasi-experimental— Nonequivalent control group, two preexisting groups (<i>Corrective Reading</i> , variety of approaches)
Campbell (1984)	<i>Corrective Reading</i>	55 (42 in <i>Corrective Reading</i> group, 13 in comparison group)	Poor readers (more than 1 standard deviation below the mean) Grades 7 and 8	Quasi-experimental— Nonequivalent pretest–posttest control group design
Edlund & Ogle (1988)	<i>Corrective Reading</i> , <i>Morphographic Spelling</i> , and other non-DI programs	6 teachers (2 in 6-week training, 2 in 1-week training, 2 in control) 48 students	Teachers with 6.5 years of special education experience Students with learning disabilities (12- to 19-years-old, IQ range = 90–100)	True experimental— Pretest–posttest control group design
Flores, Shippen, Alberto, & Crowe (2004)	<i>Corrective Reading</i> <i>Decoding A</i>	6	Moderate intellectual disabilities/autism 7 to 13 years IQ range = 38–52	Preexperimental single-case—Multiple baseline across behaviors with embedded conditions

Research purpose	Intervention details	Outcome measures	Findings
Determine the effectiveness of <i>Corrective Reading</i> with junior high school special education students	Provided students <i>Corrective Reading Decoding</i> and <i>Comprehension</i> over a 1-year academic period	Test of Language Development, Test of Reading Comprehension, Test of Written Language, Sequential Test of Educational Progress, Woodcock–Johnson Psycho-Educational Battery, Wide Range Achievement Test	Large gains for standard scores and grade equivalents were seen on all measures.
Compare the effects of <i>Corrective Reading</i> with another reading intervention	One group received <i>Corrective Reading</i> taught by student and cooperating teachers for 4 months; the other group received current reading program.	Woodcock–Johnson Achievement Tests—III, DIBELS, Child Behavior Checklist: Teacher Form	<i>Corrective Reading</i> group did significantly better than the comparison group on all measures; there was a significant decrease in the number of treatment nonresponders.
Assess the effects of the <i>Corrective Reading</i> program versus regular English classes	<i>Corrective Reading</i> program was provided to the experimental group 50 min per day for 6 to 9 months.	Woodcock Reading Mastery Test	<i>Corrective Reading</i> group made greater grade-equivalent and standard score gains than did the comparison group. Further, the students initially at a higher reading level made greater gains than did the students initially at a lower reading level.
Compare the differential effects of amount of teacher training on student performance	Two teachers received 6 weeks of training, 2 teachers received 1 week of training, and 2 teachers received no formal training (studied manual on their own). Students received a variety of instructional materials including <i>Corrective Reading</i> .	Wide Range Achievement Test	Results indicated that students whose teachers had more training had greater standard score increases in reading and spelling.
Investigate the effects of <i>Corrective Reading</i> on learning letter–sound correspondences, blending sounds in CVC words, and decoding	Baseline and intervention conditions using <i>Corrective Reading Decoding A</i> over 11 to 27 training sessions. Fidelity checks were conducted.	Percentage of correct letter–sound correspondences identified in isolation, in a discrimination format, and blended together; percentage correct of letter–sound correspondences blended and telescoped into words (instruction, generalization, and maintenance conditions)	Five of 6 students correctly identified all letter–sound correspondences and blended letter sounds; correctly blended and telescoped words composed of targeted letter sounds; high degrees of maintenance shown.

Table 2, continued

Corrective Reading as Delivered by Teachers in K–12 Special Education Settings

Study	DI program	N	Participants	Research design
Glang, Singer, Cooley, & Tish (1991)	Strands from <i>Corrective Reading Comp. A, Corrective Math</i>	1	Closed head injury (15 months post) 8 years of age, second grader IQ = 81	Preexperimental single-case—Multiple-baseline across behaviors
Gregory, Hackney, & Gregory (1982)	<i>Corrective Reading Decoding B</i>	19 (11 in <i>Corrective Reading</i> , 8 in comparison)	Likely LD from description Mean age: <i>Corrective Reading</i> group = 11 years 9 months; comparison group = 11 years 10 months	Quasi-experimental—Nonequivalent control group, two preexisting groups (<i>Corrective Reading</i> , school's own remedial program)
Lewis (1982)	<i>Corrective Reading Decoding B</i>	41 Study 1: <i>Corrective Reading</i> Group = 7, Control-Group 1 = 6, Control-Group 2 = 7 Study 2: <i>Corrective Reading</i> Group = 7, Control-Group 1 = 7, Control-Group 2 = 7	Likely LD 11–12-year-olds	True experimental—Pretest–posttest control group, three groups (<i>Corrective Reading</i> , <i>Colour Code</i> program, school's own remedial program)
Lloyd, Cullinan, Heins, & Epstein (1980)	<i>Corrective Reading Decoding A & B and Comp. A</i>	23 (15 in <i>Corrective Reading</i> , 8 in control)	LD Elementary aged (9 years 9 months to 10 years 4 months)	True experimental—Posttest only control group, two groups (<i>Corrective Reading</i> , individual and small group instruction in a variety of areas)
Polloway, Epstein, Polloway, Patton, & Ball (1986)	<i>Corrective Reading Decoding A, B, & C</i>	119	Middle and high school LD (N = 78); EMR (N = 41) (LD mean age = 15 years 7 months; EMR mean age = 16 years 0 months) (LD mean IQ = 87; EMR mean IQ = 62.5)	Preexperimental—One group pretest–posttest

Research purpose	Intervention details	Outcome measures	Findings
Determine the effects of <i>Corrective Reading Comp. A</i> with a student with a closed head injury	Instruction from relevant deductions strand of program done twice per week for 6 weeks (13 sessions total).	Percentage of deductions completed accurately	Deductive skill improved from an average of 6.7% in baseline to 80% to 100% during instruction.
Compare the effects of <i>Corrective Reading</i> with another reading intervention in Britain	One group received <i>Corrective Reading</i> ; comparison group received the current remedial reading class; 4 periods per week for 5 months.	Daniels and Diack Test of Reading, behavior surveys, attendance records	<i>Corrective Reading</i> group did significantly better than the comparison group in reading gains, behavior, and attendance.
Compare the effects of <i>Corrective Reading</i> with two other reading interventions in Britain	One group received <i>Corrective Reading</i> ; one group received “novel” program (<i>The English Colour Code</i>); another group received traditional remedial program. Fidelity checks for <i>Corrective Reading</i> teacher were done. Length of program was 7–16 months (Study 1) and 8 months (Study 2).	Neale Analysis of Reading, oral reading miscue analysis (comparison of self-corrections to substitutions)	<i>Corrective Reading</i> group made significantly greater gains than traditional remedial group. Novelty program group made gains similar to <i>Corrective Reading</i> group. <i>Corrective Reading</i> group demonstrated a significant increase in self-corrections on miscue analysis.
Compare the effects of <i>Corrective Reading</i> with another reading intervention	Study took place over 1 school year (a period of 8 months). One group received <i>Corrective Reading</i> ; other group received teacher-developed language instruction based on district guidelines and <i>Houghton-Mifflin</i> reading.	Slosson Intelligence Test, Gilmore Oral Reading Test	The <i>Corrective Reading</i> group scored significantly higher on both measures.
Investigate the effects of <i>Corrective Reading</i> ; determine if handicapping condition interacted with treatment	Study took place over 1 school year; daily, small group instruction. Middle and high school students were taught by teachers using <i>Corrective Reading</i> .	Peabody Individual Achievement Test	Students’ gains were significantly greater with <i>Corrective Reading</i> than in previous year. Students with LD improved at a greater rate than students with EMR.

special education with an average teaching experience of 6.5 years in special education classes) were randomly assigned to one of the following three groups: (a) 6-week training group, (b) 1-week training group, and (c) control group (studied manual on their own). Forty-eight students across six classrooms (aged 12 to 19 years) who had learning disabilities with IQ scores ranging from 90 to 100 participated. Pre- to posttest results on the Wide Range Achievement Test showed that students whose teachers had 6 weeks of training had a standard score increase of 8.37 in reading and an increase of 3.53 in spelling. Students whose teachers had 1 week of training had only a .53 increase in reading and a 3.17-point gain in spelling. Finally, students whose teachers were in the control group had standard score losses of $-.50$ and -1.10 for reading and spelling, respectively. Thus, students whose teachers had more training per-

formed better than those whose teachers had less training.

Flores, Shippen, Alberto, and Crowe (2004) used a single-case design (multiple baseline across behaviors with embedded conditions) to examine the effects of the *Corrective Reading Decoding A* program with 6 students (ages 7 to 13 years, IQ range 38 to 52) who were served in a self-contained setting for students with moderate intellectual disabilities. In this study, the program was used to teach the following isolated sounds: *m*, *a*, *s*, and *t*; the following sound discriminations and blends: *a/m*, *s/t*, and *m/a/s/t*; and the following word decoding tasks: *mat* and *sam*. The results of the study indicated that 5 of the 6 students mastered all of the instructed items in letter-sound identification, continuous sound blending, sounding out, and the decoding of CVC words. In addition, these 5 students demonstrated generalized performance on

Table 2, continued
Corrective Reading as Delivered by Teachers in K-12 Special Education Settings

Study	DI program	N	Participants	Research design
Somerville & Leach (1988)	<i>Corrective Reading</i>	40 (10 in each of four groups: <i>Corrective Reading</i> , psychomotor, self-esteem, control)	LD Mean age = 10 years 11 months	True experimental—Pretest–posttest control group design, four groups (<i>Corrective Reading</i> , psychomotor, self-esteem, control)
Thomson (1992)	<i>Corrective Reading</i>	255 (144 in <i>Corrective Reading</i> , 61 in traditional basal, 50 in whole language)	LD elementary and middle school students	Quasi-experimental—Nonequivalent pretest–posttest control group

sounding out untaught words, although only 2 students *fully* decoded untaught words.

Glang, Singer, Cooley, and Tish (1991) used a multiple-baseline across behaviors design to determine the effects of the “deductions” strand of *Corrective Reading Comprehension A* and *Corrective Mathematics* on an 8-year-old male student with a closed head injury who received special education services for math and had an IQ score of 81. (Note: Only the results of the dependent variable associated with the *Corrective Reading* implementation will be presented.) Results showed that the student’s reasoning skills improved from an average of 6.7% on verbally presented deductions during baseline to a range of 80% to 100% throughout the instructional period.

Gregory, Hackney, and Gregory (1982) used a quasi-experimental design (nonequivalent control group) to compare the effects of *Corrective*

Reading Decoding B with another reading intervention in Great Britain. Eleven students (mean age 11.9 years) were assigned to a *Corrective Reading* group and 8 students (mean age 11.10 years) were assigned to the control group. Results indicated that the *Corrective Reading* group outperformed the comparison group as measured by the Daniels and Diack Test of Reading. Additionally, the *Corrective Reading* group maintained better school behavior and better school attendance than the comparison group as assessed by the Rutter Behaviour Questionnaire.

Lewis (1982) conducted two studies using true experimental designs (pretest–posttest control group, three groups) to compare the effects of *Corrective Reading* with two other remedial reading interventions with 11- and 12-year-old remedial readers in Great Britain. In Study 1, 24 ($n = 20$ at posttesting) stu-

Research purpose	Intervention details	Outcome measures	Findings
Compare the effects of <i>Corrective Reading</i> with three other programs	12 weeks, groups received 1 hr of teacher-directed instruction per week and 15 min of daily homework; parents monitored or taught. Groups: 1. Psychomotor 2. Self-esteem 3. <i>Corrective Reading</i> 4. No intervention	Tests of reading, psychomotor skills, and self-esteem measures	On the reading test, <i>Corrective Reading</i> students scored significantly higher than other three groups; no significant differences on psychomotor or self-esteem measures.
Compare <i>Corrective Reading</i> to a traditional basal approach and a whole language approach	<i>Corrective Reading</i> , traditional basal approach, and whole language approach implemented for 1 academic year	Woodcock–Johnson Individual Achievement Tests and Dolch Story Reading Test	<i>Corrective Reading</i> students had greater standard score gains and larger increases in words read per minute than the other two reading group students.

dents were randomly assigned to one of three groups (i.e., *Corrective Reading*, *The English Colour Code*, current remedial program). In Study 2, 27 ($n = 21$ at posttesting) students were randomly assigned to one of the three groups described above. Results of Study 1 indicated that the *Corrective Reading* group and *The English Colour Code* group made significantly greater gains than the control group on The Neale Analysis of Reading for accuracy and comprehension. Results of Study 2 indicated that the increased gains in Study 1 for the *Corrective Reading* group were partly due to novelty effects. Gains for all three groups in Study 2 were similar with the *Colour Code* group demonstrating the greatest gains. However, the *Corrective Reading* and *Colour Code* groups developed better strategies than the control group in performing oral reading tasks as assessed by miscue analyses.

Lloyd, Cullinan, Heins, and Epstein (1980) used a true experimental design (posttest only, control group) to compare the effects of *Corrective Reading* with another reading intervention in Rockford, Illinois. Twenty-three elementary-aged students with learning disabilities were assigned to three different classrooms. Two experimental classrooms ($n = 15$; mean age for experimental groups 1 and 2 = 9 years 9 months and 9 years 11 months, respectively) received the *Corrective Reading* program and arithmetic training. Students in the control classroom ($n = 8$; mean age 10 years 4 months) received individual and small group instruction in language arts and arithmetic as well as some training in perceptual, perceptual-motor, and other psychological processes. Results indicated that both experimental groups made statistically significant improvements (.75 of a standard deviation) over the control group as measured by the Slosson Intelligence Test and Gilmore Oral Reading Test.

Polloway, Epstein, Polloway, Patton, and Ball (1986) used a preexperimental design (one group pretest-posttest) to investigate the

effects of *Corrective Reading Decoding A, B*, or *C* on middle and high school students with learning disabilities ($n = 78$; mean age 15.7 years; mean IQ 87) or mental retardation ($n = 41$; mean age 16.0 years; mean IQ 62.5). Authors also examined whether or not students' handicapping conditions interacted with the treatment. Results showed that both groups exhibited statistically significant improvements for reading recognition on the Peabody Individual Achievement Test of .570 of a year during the *Corrective Reading* program compared to .109 of a year during the traditional program (i.e., before *Corrective Reading* was implemented). Additionally, there were statistically significant gains for reading comprehension from .128 before *Corrective Reading* to .500 during *Corrective Reading*. Finally, students with learning disabilities showed greater gains than students with mental retardation in reading recognition and comprehension.

Somerville and Leach (1988) used a true experimental design (pretest-posttest control group) to compare the effects of *Corrective Reading* with three other programs in Australia. Forty students (mean age: 10 years 11 months) with reading difficulties were randomly assigned to one of four groups: psychomotor, self-esteem, *Corrective Reading*, and a waiting-list control group. Results indicated that students in the *Corrective Reading* group experienced statistically significant gains in reading performance as measured by tests of reading. No statistically significant differences were found among the groups on measures of psychomotor performance or self-esteem.

Finally, Thomson (1992) used a quasi-experimental design (nonequivalent pretest-posttest control group) to compare 144 students with specific learning disabilities who were instructed using *Corrective Reading* to 61 students who received a traditional/basal approach and to 50 students who were instructed using a whole language approach. Instruction took place in resource rooms and general elementary and middle school class-

rooms in the Manatee County School District in Florida. Although a larger number of the *Corrective Reading* students were lower in intelligence and socioeconomic status and were older than the students in the comparison groups, results indicated that the *Corrective Reading* group had larger standard score gains on the Woodcock–Johnson Individual Achievement Tests and had larger increases in words read per minute (as measured by the timed Dolch Story Reading Test) than the other two groups.

Overall, results were positive for students using *Corrective Reading*. In comparison studies, *Corrective Reading* groups often significantly outperformed control groups on a variety of measures including standardized assessments, program-based criterion-referenced tests, and oral reading fluency probes. Results also indicated that many students experienced positive changes in behavior and increased school attendance.

Alternative settings. Table 3 shows seven studies examining the use of *Corrective Reading* with students in alternative settings as delivered by teachers.

Drakeford (2002) used a single-case design (multiple baseline across participants) to investigate the effects of *Corrective Reading Decoding* and *Comprehension* with 6 incarcerated African-American males (mean age 17 years) who were at or below the 25th percentile according to the Wide Range Achievement Test and the *Corrective Reading* placement test. Students were separated into two groups of three students. Results indicated that the reading fluency of each participant improved once the *Corrective Reading* program was implemented. Increases ranged from 4 to 19 words per minute. There were also improvements in program placement levels and improvements in attitude toward reading for the participants.

Herr (1989) used a preexperimental design (one group pretest–posttest) to investigate

the effects of the *Corrective Reading Decoding* program with 3 adults (i.e., 2 in their mid-20s; 1 in her early 40s) who were low readers in Oregon. Results indicated that pretest to posttest performance showed grade-level improvements on the Wide Range Achievement Test ranging from 1.9 to 6.0 (Participant 1), 2.4 to 5.9 (Participant 2), and 3.3 to 6.0 (Participant 3). Results with the Nelson Reading Test were less impressive with pretest to posttest scores ranging from 2.2 to 3.8 (Participant 1), 2.3 to 3.6 (Participant 2), and 2.7 to 4.1 (Participant 3).

Holdsworth (1984–1985) used a preexperimental design (one group pretest–posttest) to investigate the effects of the *Corrective Reading* program with students who had mild learning difficulties in the United Kingdom. Fifteen students attending a school for those with special education needs were assigned to two groups. Nine students (aged 9 to 11 years) received instruction in *Decoding B* and 7 students (aged 10 to 12 years) were taught using *Decoding C*. Results indicated that students in the *Decoding B* group made a 10.7-month gain in reading accuracy and a 16.0-month gain in reading comprehension as measured by The Neale Analysis of Reading Ability. In addition, results indicated that the students in the *Decoding C* group gained 11.1 months in reading accuracy and 16.0 months in reading comprehension on the same assessment. The results were maintained to a large extent when 5 of the *Decoding B* students returned to their primary schools.

Malmgren and Leone (2000) used a preexperimental design (one group pretest–posttest) to determine the effects of a program consisting of *Corrective Reading*, whole language reading instruction, and oral reading with 45 incarcerated African-American males (mean age 17.07 years). Approximately 44% of these students were receiving special education services (i.e., EBD, $n = 10$; LD, $n = 7$; MR, $n = 3$) and were at least two thirds of a standard devia-

tion below the mean on an overall composite of reading. Results indicated that there were statistically significant pre- to posttest improvements on the following Gray Oral Reading Test (GORT-3) subtests: Rate (4.04 to 5.04), Accuracy (3.87 to 5.13), and Passage Reading (Rate and Accuracy combined, 3.80 to 4.64). (Note: Standard scores on these

subtests have a mean of 10 and a standard deviation of 3.) Although not statistically significant, there was also a pre- to posttest gain for Comprehension (3.00 to 3.84). In addition, 3 students were no longer at or below the 1st percentile on the GORT-3 Oral Reading Quotient, and 4 students

Table 3
Corrective Reading as Delivered by Teachers in K–12 Alternative Settings

Study	DI program	N	Participants	Research design
Drakeford (2002)	<i>Corrective Reading</i>	6	Incarcerated males Average age = 17 years All participants had a history of educational disabilities and/or had received special education services.	Single case—Multiple baseline across participants
Herr (1989)	<i>Corrective Reading Decoding</i>	3	College students with poor reading skills	Preexperimental—One group pretest–posttest
Holdsworth (1984–1985)	<i>Corrective Reading Decoding B and C</i>	15	Students placed in a school for students with special needs in the United Kingdom	Preexperimental—One group pretest–posttest
Malmgren & Leone (2000)	<i>Corrective Reading</i> among other programs	45	Incarcerated males Average age = 17.07 years (Range = 13.92–18.75) 20 receiving special education services: EBD (N = 10); LD (N = 7); and MR (N = 3)	Preexperimental—One group pretest–posttest

scored within two thirds of a standard deviation of the mean.

Scarlato and Asahara (2004) used a quasi-experimental design (nonequivalent control group) to compare the effects of *Corrective Reading Decoding B2* with another intervention. Nine adjudicated male students (aged 16 to

17 years) with either emotional disturbances and/or learning disabilities who were reading below grade-level were assigned to two groups (*Corrective Reading* group, $n = 5$; comparison group, $n = 4$). Results indicated that the *Corrective Reading* group had improved performance on the Woodcock Reading Mastery Test—Revised subtests (i.e., Word

Research purpose	Intervention details	Outcome measures	Findings
Investigate the effects of <i>Corrective Reading</i> with incarcerated males	8 weeks, 1 hr per day, 3 days per week. Teachers delivered the <i>Corrective Reading</i> program to incarcerated youth. Fidelity checks were conducted. Participant 1 completed 24 lessons; Participant 2 completed 19 lessons; Participant 3 completed 18 lessons; Participant 4 completed 22 lessons; Participant 5 completed 19 lessons; and Participant 6 completed 17 lessons.	Measures of oral reading fluency, Rhody-Secondary Reading Attitude Assessment	All participants demonstrated positive gains on oral reading fluency measures; positive trends were noted in attitudes toward reading instruction.
Determine the effects of <i>Corrective Reading Decoding</i> with college students with poor reading skills	Provided reading instruction with <i>Corrective Reading Decoding</i> over a multiyear period	Wide Range Achievement Test, Nelson Reading Test	Participants demonstrated improved grade-level reading.
Determine the effects of <i>Corrective Reading</i> with students with special needs in the United Kingdom	Provided <i>Corrective Reading, Decoding B</i> to 9 students over a period of 4 months and <i>Decoding C</i> to 6 students over 2.5 months	Neale Analysis of Reading Ability	Large improvements in reading accuracy and reading comprehension grade equivalent scores
Determine the effects of <i>Corrective Reading</i> with incarcerated youth	6 weeks, 45 min per day, 5 days per week. Teachers delivered an intensive <i>Corrective Reading</i> program to incarcerated youth. Fidelity checks were conducted.	Gray Oral Reading Test subtests (i.e., Rate, Accuracy, Passage, and Comprehension)	Overall, positive results. Statistically significant gains on Rate, Accuracy, and Passage subtests. Gains made on Comprehension subtest did not reach statistical significance.

Identification, Work Attack, Word Comprehension, and Passage Comprehension) and clusters (i.e., Basic Skills, Reading Comprehension, and Total Reading). The comparison group had decreased performance on all subtests and clusters.

Steventon and Fredrick (2003) used a preexperimental design (single-case, multiple baseline across participants) to assess the effects of adding repeated readings to the *Corrective Reading Decoding B2* program on the

number of words read correctly for 3 African-American males with behavior difficulties. Results indicated that there were increases in the number of words read correctly on practiced passages from baseline to the repeated readings implementation ranging from 21.8 to 37.4 words. However, there were losses for two of the students in the number of words read correctly on unpracticed passages of 1.4 and 9.2 words and an increase of 9.5 words for the third student.

Table 3, continued
Corrective Reading as Delivered by Teachers in K–12 Alternative Settings

Study	DI program	N	Participants	Research design
Scarlato & Asahara (2004)	<i>Corrective Reading Decoding B2</i>	9 (5 in <i>Corrective Reading</i> , 4 in comparison)	Adjudicated youth EBD/LD 16–17 years	Quasi-experimental—Nonequivalent control group, two groups (<i>Corrective Reading</i> , reading specialist group)
Steventon & Fredrick (2003)	<i>Corrective Reading Decoding B2</i>	3	Alternative middle school Participant 1 was 15 years old; Participants 2 and 3 were 13 years old.	Preexperimental single case—Multiple baseline across participants
Thorne (1978)	<i>Corrective Reading</i>	13	Junior maladjusted boys in England Age range = 8 to 12 years	Preexperimental—Pretest–posttest, no comparison group

All students met the 20% rate of improvement over their baseline means.

Thorne (1978) used a preexperimental design (one group pretest–posttest) to investigate the effects of using the *Corrective Reading* program with two groups of maladjusted males ranging in age from 8 to 12 years. Group A included 5 boys, and Group 2 included 8 boys. After 35 lessons, results indicated that Group A exhibited a mean gain of 6.6 months for reading accuracy as

measured by The Neale Analysis of Reading. Group B made an average gain of 6.8 months for accuracy and 6.2 months for comprehension on the same assessment.

Overall, results were positive on standardized measures and measures of oral reading fluency probes for students receiving teacher-delivered *Corrective Reading* in alternative settings. These results should be of particular significance to correctional educators who often have a lim-

Research purpose	Intervention details	Outcome measures	Findings
Compare the effects of <i>Corrective Reading</i> and another intervention	19 weeks of instruction; 5 students received instruction using <i>Corrective Reading Decoding Level B2</i> ; the other group received instruction developed by a reading specialist.	Woodcock Reading Mastery Test—Revised	Majority of students in <i>Corrective Reading</i> group had moderate to large gains on standardized measures; majority of students in comparison group demonstrated moderate to large losses on standardized measures.
Investigate the effects of <i>Corrective Reading</i> with repeated readings	3 students received up to 13 lessons of <i>Corrective Reading</i> with repeated readings (RR). Students orally read passages 3 times prior to timed checkout on the 4th reading. Students then read a novel part of the passage that was timed to assess generalization. Fidelity checks and social validity measures were done.	Correct words per minute (CWPM) and errors per minute on repeated and novel passages from intervention materials and program-specific oral reading checkout rates. Additional criterion: 20% rate of improvement across 2 consecutive intervention days	All students showed gains in average CWPM on RR passages. No clear evidence of fluency gains on novel passages. There were increases in the number of sessions meeting program-specific reading checkout rates for all students. Participants 1 and 3 had mean error rate decreases during RR condition. Participant 2 had mean error rate increases during RR condition.
Investigate the effects of <i>Corrective Reading</i> with maladjusted boys in England	35 lessons of the <i>Corrective Reading</i> program were taught to two groups of boys by the same teacher. A contract-based system was used.	Neale Analysis of Reading	After 35 lessons, Group A made gains in reading accuracy. Group B made gains in reading accuracy and reading comprehension.

ited amount of time to teach students basic reading skills.

Corrective Reading as Delivered by Paraprofessionals or Peer Instructors

Five studies were found examining the effects of *Corrective Reading* as implemented by paraprofessionals or peer instructors in general and special education settings. In addition to these studies, Marchand-Martella and Martella (2002) provided a program overview and highlighted the use of peer-delivered *Corrective Reading* in a research summary of four of the studies described below. Further, Marchand-Martella, Martella, Bettis, and Riley Blakely (2004) described aspects of a high-school-based tutorial program using *Corrective Reading* and peer-delivered instruction.

General education settings. Table 4 shows four studies examining the effects of *Corrective Reading* implementations by paraprofessionals or peer instructors in general education high school settings.

Gersten, Brockway, and Henares (1983) used a preexperimental design (one group pretest–posttest) to determine the effects of the *Direct Instruction for Those With Limited English* program over a multiyear period. Thirty-five students (Grades 3 through 6) with limited English including those from Korea, Vietnam, Japan, Philippines, and Samoa participated. (Note: Only data from these students [$n = 15$, 1980–1981 school year; $n = 20$, 1981–1982 school year] will be presented.) Results on the Comprehensive Test of Basic Skills indicated that the percentile ranks of students in Grades 3–6 during the 1980–1981 school year ($n = 15$) increased from the 4th to the 19th percentile for Total Reading and from the 5th to the 23rd percentile for Total Language. The percentile ranks of students in Grade 3 during the 1981–1982 school year ($n = 10$) increased from the 17th to 47th percentile for Total Reading and from the 16th to the 41st percentile for Total Language. Finally,

the percentile ranks of students in Grades 4 through 6 during the 1981–1982 school year ($n = 10$) increased from the 4th to the 23rd percentile for Total Reading and from the 4th to the 30th percentile for Total Language.

Harris, Marchand-Martella, and Martella (2000) used a preexperimental design (one group pretest–posttest) to determine the effects of a peer-delivered *Corrective Reading* program with repeated readings with 88 at-risk high school students (i.e., two or more grade levels below current placement). Pretest–posttest results on the Gates-MacGinitie Reading Tests showed that the instructional groups' median grade equivalents increased as follows: Vocabulary 4.3 to 6.7 (*Level B1*), 4.7 to 6.9 (*Level B2*), and 4.9 to 6.9 (*Level C*). Median grade levels for Comprehension also increased from pretest to posttest as follows: 3.4 to 5.5 (*Level B1*), 4.3 to 6.3 (*Level B2*), and 3.4 to 5.5 (*Level C*). Additionally, oral reading fluency rates increased from 155 words per minute (wpm) to 254 wpm, while the number of repeated readings to reach criterion decreased from 7.9 to 4.7.

Keel, Fredrick, Hughes, and Owens (1999) used a preexperimental design (pretest–posttest with no comparison group) to investigate the effects of using paraprofessionals to deliver the *Corrective Reading* program to students who were below the 50th percentile on the Iowa Test of Basic Skills. The group included 54 fourth graders and 21 fifth graders. The results indicated that the students in fourth grade exhibited a mean academic rate gain (i.e., months of academic gain divided by the number of months in the program) of .79 before the program, 1.19 during the program, and .60 during 2 years of the program on the Woodcock Reading Mastery Tests—Revised. (Note: There was a loss of 32 students in the 2nd year.) The fifth-grade students made the following gains: .71 prior to the program and 1.46 during the program. (Note: None of these stu-

dents were assessed in the 2nd year.) The normal curve equivalent scores (NCE; NCE scores have a mean of 50 and a standard deviation of 21.06) were as follows: Grade 4—gain of 6.07 from pretest to Posttest 1, gain of 2.19 from Posttest 1 to Posttest 2; Grade 5—gain of 7.9 from pretest to Posttest 1. These gains were statistically significant.

Short, Marchand-Martella, Martella, Ebey, and Stookey (1999) used a preexperimental design (one group pretest—posttest) to determine the advantages of serving as peer instructors using the *Corrective Reading* program. Eleven 11th- and 12th-grade peer instructors provided the program in a one-on-one format to 11 ninth-grade students over an average of 152 days (range 139–160). Results showed that the peer instructors who initially scored below grade level on the Vocabulary pretest (mean grade level 10.5) of the Gates-MacGinitie Reading Tests increased to at or above grade level on the posttest. They exhibited stable performance on the Comprehension subtest. The peer instructors who initially scored at or above their grade level for Vocabulary and Comprehension exhibited stable performance.

Overall, these results show that paraprofessionals and peer instructors can effectively implement the *Corrective Reading* program. More importantly, these studies show that implementing the *Corrective Reading* program with these service providers can greatly improve the reading performance of students and also benefit the instructors (particularly peer instructors) as well.

Special education settings. Table 5 shows one study examining the effects of *Corrective Reading* as delivered by peer instructors in special education settings.

Marchand-Martella, Martella, Orlob, and Ebey (2000) used a preexperimental design (one group pretest—posttest) to investigate the effects of a peer-delivered *Corrective Reading* program with repeated readings to 22 ninth-

grade students (at least 2 years below grade level). Pretest–posttest results on the Gates-MacGinitie Reading Tests showed the following results: students in *Level B1* experienced grade-level performance increases from 2.6 (pretest) to 4.2 (posttest) for Vocabulary and decreased from 2.6 (pretest) to 2.4 (posttest) for Comprehension; students in *Level B2* experienced increases for both Vocabulary and Comprehension from 4.9 (pretest) to 5.0 (posttest) and 3.5 (pretest) to 4.3 (posttest), respectively; students in *Level C* experienced increases from 5.2 (pretest) to 5.3 (posttest) for Vocabulary and from 3.6 (pretest) to 5.1 (posttest) for Comprehension. Pre- to posttest results on measures of oral reading fluency and accuracy showed the following results: Students in *Level B* showed an increase from 72 wpm to 92 wpm with a slight decrease in accuracy (from 96.5% to 94.9%); students in *Level B2* showed an increase in both fluency and accuracy (from 115 wpm to 133 wpm; from 98.3% to 98.9%); and students in *Level C* showed a slight decrease in both fluency and accuracy (from 135 wpm to 133 wpm; from 98.9% to 98.5%). Overall, results showed that students who received the program over 1 academic year showed stable grade-level performance in Vocabulary (i.e., 5.2 on pretest; 5.3 on posttest). However, these students demonstrated an increase in grade-level performance on Comprehension from 3.6 (pretest) to 5.1 (posttest).

Analyses Across Studies

Four analyses were conducted across *Corrective Reading* investigations. In particular, we examined commonalities across dependent measures, research designs, student populations, and instructors and settings.

Dependent measures. The measures used to determine the effectiveness of the *Corrective Reading* program with participants were analyzed. Twenty studies (71.4%; i.e., Arthur, 1988; Benner et al., 2005; Campbell, 1984; Clunies-Ross, 1990; Edlund & Ogle, 1988;

Table 4
*Corrective Reading as Delivered by Paraprofessionals
 or Peer Instructors in K–12 General Education Settings*

Study	DI program	<i>N</i>	Participants	Research design
Gersten, Brockway, & Henares (1983)	<i>Corrective Reading</i> , as part of a larger <i>Direct Instruction for Those With Limited English (DILE)</i> program	35 (15 in 1980–1981 school year, 20 in 1981–1982 school year)	Limited and non-English speaking students including students from Korea, Vietnam, Japan, the Philippines, and Samoa	Preexperimental— One group pretest–posttest (for Grades 3–6 only)
Harris, Marchand-Martella, & Martella (2000)	<i>Corrective Reading: Project PALS</i>	88	High school students at risk for failure (<i>N</i> = 88) 11th- and 12th-grade peer instructors (<i>N</i> = 77)	Preexperimental— One group pretest–posttest
Keel, Fredrick, Hughes, & Owens (1999)	<i>Corrective Reading Decoding A, B1, B2, & C</i>	75	Elementary students at risk for failure Fourth graders (<i>N</i> = 54); Fifth graders (<i>N</i> = 21)	Preexperimental— Pretest–posttest with no comparison group; two groups
Short, Marchand-Martella, Martella, Ebey, & Stookey (1999)	<i>Corrective Reading: Project PALS</i>	11	11th- and 12th-grade peer instructors (<i>N</i> = 11)	Preexperimental— One group pretest–posttest

Research purpose	Intervention details	Outcome measures	Findings
Determine the effects of <i>DILE</i> program (that included <i>Corrective Reading</i>) on students with limited English proficiency	<i>DILE</i> program implemented by bilingual instructional aides. Program components included: (a) the Direct Instruction Model of classroom organization and teaching strategies, (b) use of developmental and remedial Direct Instruction programs for ESL students, (c) structured English immersion, (d) non-graded approach, (e) use of bilingual aides as instructors, and (f) cultural activities.	Comprehensive Test of Basic Skills	Improvement in reading performance was shown for both Total Reading and Total Language.
Investigate the effects of peer-delivered instruction using <i>Corrective Reading</i>	Average of 33 lessons taught across an average of 66 instructional days, 50 min per day, 5 days per week over an average period of 6 school days. Peer instructors delivered instruction to at-risk high school students using the <i>Corrective Reading</i> program. Fidelity checks were conducted.	Gates-MacGinitie Reading Tests; measures of oral reading fluency	Learners demonstrated median grade level gains on standardized measures. Oral reading fluency rates increased greatly while the number of repeated readings to reach criterion decreased.
Investigate the effectiveness of using paraprofessionals to deliver <i>Corrective Reading</i>	Paraprofessionals delivered instruction for approximately 30 min per day across 1 to 2 school years. Fidelity checks were conducted.	Woodcock Reading Mastery Test—Revised	Fourth and fifth graders made statistically significant academic rate gains.
Determine the advantages of serving as peer instructors using the <i>Corrective Reading</i> program	Peer instructors provided one-on-one instruction to learners for 5 days per week for an average of 152 days. Approximately .6 lessons were completed per day, average of 109 lessons were completed. Peer instructors earned college credits for their participation. Peer instructors kept daily journals. Fidelity checks were conducted.	Gates-MacGinitie Reading Tests; direct observations; satisfaction surveys; and journal entries	Peer instructors demonstrated stable performance from pre- to posttest on vocabulary and comprehension measures. Peer instructors scoring below grade level on the vocabulary pretest performed at or above grade level on the posttest. Daily journal entries showed overall positive comments about their partners.

Gersten et al., 1983; Gregory et al., 1982; Harris et al., 2000; Herr, 1989; Kasendorf & McQuaid, 1987; Keel et al., 1999; Lloyd et al., 1980; Malmgren & Leone, 2000; Marchand-Martella et al., 2000; Polloway et al., 1986; Scarlato & Asahara, 2004; Short et al., 1999; Sommers, 1995; Thomson, 1992; Vitale et al., 1993) used standardized measures (e.g., Woodcock Reading Mastery Test—Revised, Gray Oral Reading Test, Wide Range Achievement Test) to ascertain differences in scores from pre- to posttest measures.

The remaining eight studies (28.6%; i.e., Drakeford, 2002; Flores et al., 2004; Glang et al., 1991; Holdsworth, 1984–1985; Lewis, 1982; Somerville & Leach, 1988; Steventon & Fredrick, 2003; Thorne, 1978) used nonstandardized measures including program-based criterion-referenced measures, oral reading fluency measures, and attitude surveys.

Research design. Nineteen of the 28 studies (67.9%) used a preexperimental design (i.e., Arthur, 1988; Campbell, 1984; Drakeford, 2002; Flores et al., 2004; Gersten et al., 1983; Glang et al., 1991; Gregory et al., 1982; Harris et al., 2000; Herr, 1989; Holdsworth, 1984–1985; Kasendorf & McQuaid, 1987; Keel et al., 1999; Malmgren & Leone, 2000; Marchand-Martella et al., 2000; Polloway et

al., 1986; Short et al., 1999; Sommers, 1995; Steventon & Fredrick, 2003; Thorne, 1978).

Five of the 28 studies (17.9%) used a quasi-experimental design (i.e., Benner et al., 2005; Clunies-Ross, 1990; Scarlato & Asahara, 2004; Thomson, 1992; Vitale et al., 1993). Finally, four of the 28 studies used a true experimental design (i.e., Edlund & Ogle, 1988; Lewis, 1982; Lloyd et al., 1980; Somerville & Leach, 1988).

Student populations. Eighteen of the 28 studies (64.3%) included elementary and/or middle school participants (i.e., Arthur, 1988; Benner et al., 2005; Campbell, 1984; Clunies-Ross, 1990; Flores et al., 2004; Gersten et al., 1983; Glang et al., 1991; Gregory et al., 1982; Holdsworth, 1984–1985; Keel et al., 1999; Lewis, 1982; Lloyd et al., 1980; Somerville & Leach, 1988; Sommers, 1995; Steventon & Fredrick, 2003; Thomson, 1992; Thorne, 1978; Vitale et al., 1993). Six of the 28 studies (21.4%) included high school participants only (i.e., Drakeford, 2002; Harris et al., 2000; Malmgren & Leone, 2000; Marchand-Martella et al., 2000; Scarlato & Asahara, 2004; Short et al., 1999). Three of the 28 studies (10.7%; i.e., Edlund & Ogle, 1988; Kasendorf & McQuaid, 1987; Polloway et al., 1986) included middle and high school participants. Finally, Herr

Table 5

Corrective Reading as Delivered by Peer Instructors in K–12 Special Education Settings

Study	DI program	N	Participants	Research design
Marchand-Martella, Martella, Orlob, & Ebey (2000)	<i>Corrective Reading Decoding B1, B2, & C</i>	22	Special education students Ninth graders	Preexperimental— One group pretest–posttest

(1989) included college-aged participants with poor reading skills.

Student populations were also analyzed across disability categories. Seven of the 28 studies (25.0%) included participants with learning disabilities (i.e., Arthur, 1988; Edlund & Ogle, 1988; Gregory et al., 1982; Lewis, 1982; Lloyd et al., 1980; Somerville & Leach, 1988; Thomson, 1992). Seven of the 28 studies (25.0%) included participants with an unspecified disability category (i.e., Clunies-Ross, 1990; Drakeford, 2002; Gersten et al., 1983; Glang et al., 1991; Herr, 1989; Holdsworth, 1984–1985; Marchand-Martella et al., 2000). Five of the 28 studies (17.9%) included participants with multiple disabilities (i.e., Benner et al., 2005; Flores et al., 2004; Malmgren & Leone, 2000; Polloway et al., 1986; Scarlato & Asahara, 2004). Two studies (7.1%; i.e., Steventon & Fredrick, 2003; Thorne, 1978) included participants with behavioral disorders. Six studies (21.4%) included participants considered at-risk for school failure (i.e., Campbell, 1984; Harris et al., 2000; Kasendorf & McQuaid, 1987; Keel et al., 1999; Sommers, 1995; Vitale et al., 1993). The final study (i.e., Short et al., 1999) focused on peer instructors

without disabilities who provided instruction using *Corrective Reading*.

Instructors and settings. Four of the 28 studies (14.3%) examined *Corrective Reading* as delivered by teachers in general education settings (i.e., Clunies-Ross, 1990; Kasendorf & McQuaid, 1987; Sommers, 1995; Vitale et al., 1993). Twelve studies (42.9%) examined *Corrective Reading* as delivered by teachers in special education settings (i.e., Arthur, 1988; Benner et al., 2005; Campbell, 1984; Edlund & Ogle, 1988; Flores et al., 2004; Glang et al., 1991; Gregory et al., 1982; Lewis, 1982; Lloyd et al., 1980; Polloway et al., 1986; Somerville & Leach, 1988; Thomson, 1992). Seven of the 28 studies (25.0%) examined *Corrective Reading* as delivered by teachers in K–12 alternative settings (i.e., Drakeford, 2002; Herr, 1989; Holdsworth, 1984–1985; Malmgren & Leone, 2000; Scarlato & Asahara, 2004; Steventon & Fredrick, 2003; Thorne, 1978). Four of the 28 studies (14.3%) examined *Corrective Reading* as implemented by paraprofessionals or peer instructors in K–12 general education settings (i.e., Gersten et al., 1983; Harris et al., 2000; Keel et al., 1999; Short et al., 1999). One of the 28 studies (i.e., Marchand-Martella et al., 2000) examined *Corrective Reading* as imple-

Research purpose	Intervention details	Outcome measures	Findings
Investigate the effects of <i>Corrective Reading</i> as delivered by peer instructors	Honors English students taught one-on-one, 3 days per week, 80 days; students completed 39–53 lessons of <i>Corrective Reading Decoding</i> programs.	Gates-MacGinitie Reading Tests, measures of reading fluency	Gains in grade equivalent scores improved for <i>B1</i> group in vocabulary, <i>B2</i> and <i>C</i> in vocabulary and comprehension; oral reading fluency increased for <i>B1</i> and <i>B2</i> ; oral reading accuracy increased for <i>B2</i> .

mented by peer instructors in a special education setting.

Discussion

The overall results showed that 26 of the 28 studies (92.8%) found positive results for students who were taught using *Corrective Reading*, and one study found positive results for peer instructors who delivered *Corrective Reading* programs. Only one study (i.e., Lewis, 1982) noted greater effects with another intervention over *Corrective Reading* and attributed *Corrective Reading* gains to novelty effects. For those studies using standardized measures, results indicated that most vocabulary and comprehension scores increased from pre- to posttest with similar increases in oral reading fluency. In fact, many posttest oral reading fluency measures showed learners to be performing above end-of-program expectations. Clearly, *Corrective Reading* has been shown to improve students' reading performance in a variety of different settings. It is also clear that when delivered by peer instructors or paraprofessionals, *Corrective Reading* has been shown to be a positive way to deal with a limited amount of instructional resources for secondary students who are at-risk for academic failure.

The effectiveness of *Corrective Reading* is critical given the high numbers of students who are struggling readers. These students are less likely to finish high school (Biancarosa & Snow, 2004) and are more likely to have social functioning problems and behavior difficulties (Bower, 1995; Walker et al., 1995) as well as reduced employment opportunities in an age where the demands for complex literacy skills are increasing (Barton, 2000). The failure to provide adequate reading support for our students is reflected in the number of postsecondary students who need remedial help. As stated previously, up to 50% of these students need remedial reading courses (National Center for Education Statistics, 2001). When

half of our brightest students need remediation, it is apparent that the system that produced them is broken. Thus, there must be a sense of urgency with these students. We do not have the luxury of waiting around and failing another generation of students. Therefore, the need for an effective remedial reading program is at a premium.

This need is seen in the 2004 IDEA legislation that calls for the use of scientifically based programs. Preferably, students would be provided adequate reading instruction early in their school career. The sad fact is that this does not occur often enough. Thus, many of our students in special education are victims of the educational system. Given the reality of the dismal experiences these students receive, it is especially critical to provide scientifically based programming. Thus, *Corrective Reading* is ideally situated to provide the needed support for these students. The fact is, based on the reviewed research, that *Corrective Reading* is effective in teaching and improving students' reading skills as a core reading program.

Therefore, the effectiveness of *Corrective Reading* is unequivocal. However, while 27 of the 28 studies (96.4%) included in this analysis found positive results for students who were taught using *Corrective Reading* or who taught *Corrective Reading* (peer instructors), a number of implications for future research were determined to exist.

First, given the emphasis on accountability and research-based reading programs, studies that examine the relationship of *Corrective Reading* and student performance on state assessments of reading standards would be worthwhile. For example, from the results of this analysis, it could be hypothesized that students who receive *Corrective Reading* instruction will score higher on state reading assessments. Research like this would provide state offices of education valuable information on what can improve students' state assessment scores, and in particular what approach can help close the

achievement gap. Further, research on *Corrective Reading* could be designed to examine the impact of *Corrective Reading* not only on assessment performance but also in other areas including content subjects (e.g., social studies, science), vocational and technical performance (in school and the community), and adaptive behavior (e.g., obtaining employment, filling out forms).

Second, few studies utilized true experimental designs noted as the “gold standard” in educational research (Slavin, 2003). Given the continued emphasis on using research-validated instruction, future researchers should focus on random selection of participants and determination of group equivalence. Furthermore, longitudinal studies that examine how students who receive *Corrective Reading* instruction might differ from those without *Corrective Reading* may possibly show a host of positive differences, from better employment opportunities, work attitudes, monetary gain, to perhaps more satisfaction in work and life.

Third, *Corrective Reading* is often associated for use with students receiving special education services. Given the recent changes in IDEA (2004), future research should closely examine the use of *Corrective Reading* with students who are at risk for academic failure as these students will no longer be referred to special education without having first received research-validated instruction. Similarly, a critical focus for future research should be on students who are resistant to intervention. Students with behavior disorders should be of particular focus. Researchers should also continue to examine the use of *Corrective Reading* with students in correctional education and other alternative education settings. Furthermore, researchers should assess the effectiveness of *Corrective Reading* across grade levels. Studies involving entire school districts with diverse populations using *Corrective*

Reading would provide information on how this program positively impacts these settings.

Finally, the number of students who may benefit from *Corrective Reading* is growing. Instructional time and resources are at a premium. It is for these reasons that future research should continue to examine the effectiveness of alternative program delivery methods (i.e., paraprofessionals, peer instructors) across a variety of settings (e.g., general education, special education, correctional facilities).

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(Note: * indicates the studies included in the research review)

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