MARY C. SCARLATO, Western Oregon University,
and ERIN ASAHARA, Chesapeake Public Schools, Chesapeake, Virginia

Effects of Corrective Reading *in a Residential Treatment Facility for Adjudicated Youth*

Abstract: Nine 16–17-year-old adjudicated males below grade level in reading participated in this data-based case study. Weekly, 5 students received instruction from *Corrective Reading Decoding* Level B2 (Engelmann et al., 1998) for 180 min, and 4 students received instruction designed by a reading specialist (RS group) for 345 min. After 19 weeks, standardized change scores for the Woodcock Reading Mastery Test—Revised (WRMT—R; Woodcock, 1998) revealed 60% of the *Corrective Reading* participant subtest scores showed moderate to large gains. In contrast, none of the RS participants made gains, and the majority (57%) showed moderate to large losses. Composite scores revealed that 73% of the *Corrective Reading* group scores showed moderate to large gains, and 27% showed zero to no change. In contrast, no RS participants had scores that showed gains, and the majority (75%) showed composite scores with moderate to large losses.

The number of juveniles ordered to residential treatment facilities rose by 56% between 1988 and 1997 (Gallagher, 1999). It is estimated that 30% to 70% of those incarcerated have disabilities (Murphy, 1986; Rutherford, Nelson, & Wolford, 1986), with more recent statistics from the National Center on Education, Disability, and Juvenile Justice (2002) showing a range from 10% in some states to as high as 72% in others. Learning disabilities and emotional/behavioral disorders are the most prevalent disabling conditions with an estimated 45% of incarcerated youth meeting the Individuals With Disabilities Education Act (IDEA) criteria for emotional/behavioral disturbance and 46% meeting IDEA criteria for learning disabilities (Quinn, Rutherford, & Leone, 2001).

Illiteracy is a common characteristic among juvenile delinquents (Bureau of Justice and Statistics, 1997). A national study of reading skills among this population reported that youth in correctional facilities, on average, read at the fourth-grade level (Brunner, 1993). Although illiteracy and low reading performance may not be direct causes of delinquency, increasing literacy through quality education in correctional facilities has been shown to reduce recidivism. For youth involved in effective reading instruction, recidivism was reportedly reduced by as much as 20% (Brunner, 1993).

Little empirical research documents the efficacy of reading intervention with adjudicated youth. A literature search revealed just two studies. Drakeford (2002) used a multiple baseline across participants design to investigate the effects of *Corrective Reading* (Engelmann, 1988) on six adjudicated youth. She found positive gains in oral fluency, grade placement, and attitude replicated across each participant. In another study, Malmgren and

Journal of Direct Instruction, Vol. 4, No. 2, pp. 211–217. Address correspondence to Mary C. Scarlato at scarlatom@wou.edu

Leone (2000) reported significant improvements on three of four reading subtests of the Gray Oral Reading Tests—3 (Wiederholt & Bryant, 1994) after 45 incarcerated youth participated in a 6-week summer intervention with *Corrective Reading*. The need for more information in response to what we believe to be an important research question with far-reaching implications prompted us to conduct this data-based case study examining the effect of a *Corrective Reading* implementation with nine 16–17-year-old adjudicated youth.

Participants

Nine 16–17-year-old adjudicated males with either emotional disturbance and/or learning disabilities participated in this study. (Two others participated in the *Corrective Reading* group; however, because their scores were substantially higher than those of the other participants at the study's onset, they are not included in this analysis.) Each participant was significantly below grade level in reading as measured by the WRMT—R. Preintervention WRMT—R Total Reading Composite standard scores for *Corrective Reading* participants ranged from 55 to 70 and for RS participants, 57 to 73.

Method

Based on student performance on an informal reading inventory, the reading specialist determined whether students were eligible for specialized reading services from her in conjunction with their regular English class reading instruction. The reading specialist found that 4 of the 9 students showed skills that were sufficiently low to qualify for these services; these students were assigned to the RS group. The remaining 5 students were assigned to the *Corrective Reading* treatment group. For both groups, the intervention lasted 19 weeks.

The 4 control group students received reading instruction from the reading specialist twice weekly for a total of 120 min. Additionally, they received RS-designed instruction for 225 min weekly from their English teacher during English class. Thus, these students received a total of 345 min of reading instruction weekly. The reading specialist and English teacher used an eclectic approach. Strategies included (a) exposing students to teacher-read literature, (b) having students read and determine unknown words through teacher identification of words or use of context cues, and (c) completion of literature-related writing assignments.

Those students who did not qualify for RS services but were still significantly below grade level formed the *Corrective Reading* group. These students were provided reading instruction by a different English teacher during their English class for 45 min per day 4 days per week (180 min per week) using *Decoding* Level B2 of the *Corrective Reading* series. This teacher, in her 2nd year of a master's program that provided an initial teaching license and a master's degree in special education, had completed one graduate reading course with a direct instruction focus. The *Corrective Reading Decoding* Level B2 components included word attack exercises, group story reading, individual reading checkouts, and workbook exercises. Word attack exercises required students to state the sounds of letter combinations; apply those sounds to words with difficult consonant blends, compound words, words with silent *e*; and read irregular words. *Corrective Reading* stories were initially about 500 words long and gradually increased in length to approximately 900 words at the end of the program. During the group-read portion of the lessons, students orally read passages and answered comprehension questions. In the workbook exercises they independently wrote responses to comprehension questions.

All 9 students were pre- and posttested using the Word Identification, Word Attack, Word Comprehension, and Passage Comprehension

subtests of the WRMT—R. In addition to subtests scores, combinations of these subtests yielded cluster scores for Basic Skills, Reading Comprehension, and Total Reading. Word Identification measured recognition of sight words. Word Attack assessed the ability to decode unfamiliar words. Word Comprehension measured knowledge of antonyms, synonyms, and analogies. Passage Comprehension assessed use of semantic and syntactic cues as well as word attack to determine answers to comprehension questions. The Basic Skills Cluster score combined the Word Identification and Word Comprehension subtests. The Reading Comprehension Cluster score combined Word Comprehension and Passage Comprehension scores. The Total Reading Cluster score was a composite of these two clusters.

To compare pre- to postintervention WRMT—R scores, we calculated pre- to postintervention change scores. The change score expressed in standard deviations can be called the *standardized change score* and is intended to help describe the size of changes participants experienced. Since the standard deviation of standard scores is 15, the standardized change score is the change score divided by 15. As a guide, we considered a change of less than one quarter of a standard deviation to be "near zero," a change of one quarter to one half standard deviation to be "moderately large," and a change of more than one half standard deviation to be "large."

Results

Table 1 shows pre- and postintervention scores, change, and the standardized change score for *Corrective Reading* and RS group participants on WRMT—R subtests. Table 2 shows the WRMT—R cluster scores for these groups. Comparing pretest scores between the groups shows that although the reading specialist selected students for the RS group who appeared to have lower reading skills on an informal reading inventory, the groups were quite comparable on WRMT—R pretests. The *Corrective Reading* group had somewhat lower average pretest scores on two of the subtests related to decoding (Word Identification and Word Attack), and the RS group had somewhat lower average pretest scores on the two subtests related to comprehension (Word Comprehension and Passage Comprehension).

Comparison of mean pre- and postintervention subtest and composite scores reveals that preintervention means are comparable but postintervention means differ. For the *Corrective Reading* group, the mean changes from pre- to postintervention range from 1.0 to 7.8 while the mean change range from pre- to postintervention for the RS group is between –1.5 and –7.5. Examining the means of standardized change scores shows that 5 of the 7 *Corrective Reading* group means are in the moderate to large gain range and only 2 are in the near zero range. In contrast, the opposite holds true for the RS group's standardized change score means; 5 of the 7 show moderate to large losses and 2 show near zero change.

Sixty percent of the *Corrective Reading* group's participant scores on WRMT—R subtests showed moderate to large gains; 25% showed zero to no change, and 15% showed a near zero loss compared to the norm group. In comparison, none of the RS group's participant WRMT—R subtest scores showed pre- to postintervention gains. Instead, 19% showed zero to no change, 25% showed a near zero loss, and the remaining 57% showed moderate to large losses. Examination of WRMT—R composite test scores also reveals interesting results. Seventy-three percent of the *Corrective Reading* group participant scores showed moderate to large gains, and 27% showed zero to no change while none showed losses compared to the norm group. In contrast, RS group participant scores revealed none with moderate to large gains, 8% with zero to no gain, 17% with near zero losses, and the remaining 75% revealed moderate to large losses. Table 3 summarizes these results.

Table 1

Pretest, Posttest, Change, and Standardized Change Scores for Corrective Reading *and Reading Specialist (RS) Groups on Subtests of the WRMT—R*

	Corrective Reading group						Reading Specialist (RS) group				
	Student 1	Student 2	Student 3	Student 4	Student 5	Mean	Student 6	Student 7	Student 8	Student 9	Mean
Word Identification subtest											
Pre	46	63	59	58	56	56.4	64	52	56	65	59.3
Post	55	70	65	66	65	64.2	58	48	54	58	54.5
Change	9	7	6	8	9	7.8	–6	–4	–2	–7	–4.8
Std. Change	.60	.47	.40	.53	.60	.52	–.40	–.27	–.13	–.47	–.32
Word Attack subtest											
Pre	72	74	75	72	74	73.4	73	72	68	81	73.5
Post	72	81	74	79	81	77.4	71	72	70	75	72
Change	0	7	–1	7	7	3.0	–2	0	2	–6	–1.5
Std. Change	0	.47	–.07	.47	.47	.20	–.13	0	.13	–.40	–.10
Word Comprehension subtest											
Pre	75	80	78	78	76	77.4	75	70	65	76	71.5
Post	72	80	77	84	79	78.4	72	70	60	69	67.8
Change	–3	0	–1	6	3	1.0	–3	0	–5	–7	–3.7
Std. Change	–.20	0	–.07	.40	.20	.07	–.20	0	–.33	–.47	–.25
Passage Comprehension subtest											
Pre	50	78	72	69	70	67.8	70	56	61	82	67.3
Post	59	78	72	77	82	73.6	64	44	52	79	59.8
Change	9	0	0	8	12	5.8	–6	–12	–9	–3	–7.5
Std. Change	.60	0	0	.53	.80	.39	–.40	–.80	–.60	–.20	–.50

Table 2

Pretest, Posttest, Change, and Standardized Change Scores for Corrective Reading *and Reading Specialist (RS) Groups on Cluster Scores of the WRMT—R*

	Corrective Reading group						Reading Specialist (RS) group				
	Student 1	Student 2	Student 3	Student 4	Student 5	Mean	Student 6	Student 7	Student 8	Student 9	Mean
						Basic Skills cluster					
Pre	57	65	63	61	60	61.2	65	60	57	70	63
Post	60	73	67	71	71	68.4	60	57	59	63	59.8
Change	3	8	4	10	11	7.2	–5	–3	2	–7	–3.2
Std. Change	.20	.53	.27	.67	.73	.48	–.33	–.20	.13	–.47	–.21
						Reading Comprehension cluster					
Pre	59	77	72	72	71	70.2	70	60	60	77	66.8
Post	63	77	72	79	79	74	65	53	52	72	60.5
Change	4	0	0	7	8	3.8	–5	–7	–8	–5	–6.3
Std. Change	.27	0	0	.47	.53	.25	–.33	–.47	–.53	–.33	–.42
						Total Reading cluster					
Pre	55	70	67	66	64	64.4	67	57	59	73	64.0
Post	59	75	68	73	73	69.9	59	55	55	64	58.3
Change	4	5	1	7	9	5.2	–8	–2	–4	–9	–5.7
Std. Change	.27	.33	.07	.47	.60	.35	–.53	–.13	–.27	–.60	–.38

Discussion and Conclusions

Despite the various challenges of conducting research in adolescent correctional facilities, the students in the *Corrective Reading* group appear to have made significant progress as a result of this 19-week intervention. The two groups of students entered the study with comparable scores on the pretests. Upon completion of the study, 60% of the students in the *Corrective Reading* group showed moderate to large gains on WRMT—R subtest scores, and 73% showed moderate to large gains on cluster scores. These results were strikingly different from those achieved by the group receiving instruction from the reading specialist and the English teacher with whom she worked. None of the students in this group made moderate or large gains on WRMT—R subtests or clusters.

It is important to note that the *Corrective Reading* group received just 180 min of intervention weekly whereas the RS group received 345 min of reading and writing instruction weekly. These results demonstrate the power of high quality instructional components in contrast to simple allocation of time to instruction.

Although anecdotal in nature, it is also worth noting the attitudinal changes in the *Corrective Reading* students. Students would ask for reading "homework" in the form of worksheets used in class. As weeks progressed, they became more motivated to partner-read and were less self-conscious of errors they might make, knowing they would be corrected and given an opportunity to re-read passages. Additionally, 1 of the students requested before-class instruction with the teacher so that he could preview words that he would be reading chorally in class. Moreover, the teacher reported evidence of improved oral reading fluency as evidenced by increased words per minute read during paired partner-readings.

Although this study is small scale and lacks rigorous controls (e.g., random assignment to

Table 3

Percent of Corrective Reading *and Reading Specialist (RS) Students Showing Each Level of Change in WRMT—R Subtest and Cluster Scores*

	Large gain	Moderate gain	Near zero change	Moderate loss	Large loss
Subtests					
Corrective Reading	30%	30%	40%	0%	0%
Reading Specialist	0%	0%	44%	44%	13%
Clusters					
Corrective Reading	33%	40%	27%	0%	0%
Reading Specialist	0%	0%	25%	50%	25%

groups, matched control groups, equal time allotted for reading instruction in each group), we believe its results suggest important implications. Incarcerated youth have high rates of illiteracy and disability identification. Their success once released is strongly influenced by whether they leave the correctional facility with a changed attitude and skills that can provide them with the potential to succeed in doing things other than what led them to be jailed in the first place. Based on this study's results, it appears that a *Corrective Reading* intervention may have the potential to improve literacy significantly in this population, and as a result, produce life-changing events. Based on these results, larger scale evaluations of *Corrective Reading* with adjudicated youth should occur. These evaluations should employ more elaborate research designs and more rigorous controls. If possible, matched sample or randomly assigned control groups should be established, and training, as was afforded to the teacher of the *Corrective Reading* group, should be provided.

The results of this data-based case study are not only interesting but provide a glimmer of hope for a population with very little hope.

References

Brunner, M. S. (1993). *National survey of reading programs for incarcerated juvenile offenders*. Washington, DC: Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

Bureau of Justice and Statistics. (1997). *Juvenile offenders and victims 1999 national report*. Washington, DC: National Center for Juvenile Justice U. S. Department of Justice.

Drakeford, W. (2002). The impact of an intensive program to increase the literacy skills of youth confined to juvenile corrections. *Journal of Correctional Education*, *53*(4), 139–144.

Engelmann, S. (1988). *Corrective Reading series*. Chicago: SRA/McGraw-Hill.

Engelmann, S., Meyer, L., Carnine, L., Becker, W., Eisele, J., & Johnson, G. (1998). *Corrective Reading decoding strategies*. Columbus, OH: SRA/McGraw-Hill.

Gallagher, C. A. (1999, March). *Juvenile offenders in residential placement, 1997.* OJJDP Fact Sheet. Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

Malmgren, K. W., & Leone, P. E. (2000). Effects of a short-term auxiliary reading program on the reading skills of incarcerated youth. *Education & Treatment of Children, 23*(3), 239–247.

Murphy, D. M. (1986). The prevalence of handicapping conditions among juvenile delinquents. *Remedial and Special Education,* 7(3), 7–17.

National Center on Education, Disability, and Juvenile Justice. (2002). Unpublished national survey data on youth with disabilities receiving special education services in correctional settings. Washington, DC: National Center on Education, Disability, and Juvenile Justice, American Institutes for Research.

Quinn, M. M., Rutherford, R. B., & Leone, P. E. (2001). *Students with disabilities in correctional facilities* (ERIC EC Digest #621). Arlington, VA: ERIC Clearinghouse on Disabilities and Gifted Education.

Rutherford, R. B., Jr., Nelson, C. M., & Wolford, B. I. (1985). Special education in the most restrictive environment: Correctional special education. *Journal of Special Education, 19,* 59–71.

Wiederholt, J. L., & Bryant, B. R. (1994). *Gray Oral Reading Tests* (3rd ed.). Austin, TX: Pro-Ed., Inc.

Woodcock, R. W. (1998). *Woodcock Reading Mastery Test—Revised (NU).* Circle Pines, MN: American Guidance Service Publishing.