

APPENDIX C

DEVELOPING READING FLUENCY **FIELD TESTING**

The *Developing Reading Fluency (DRF)* program was field-tested in three settings: a private clinical setting, school settings, and a home setting and found to be highly effective. The following summary describes the field-testing process and intervention results. It also includes the participants' qualitative responses to the *DRF* program, which demonstrates the social validity of the *DRF* program.

Participants and Settings

DRF was implemented as a supplemental reading intervention program to improve students' reading fluency; the goal was to determine whether the students' reading fluency and comprehension could be successfully improved with brief, intensive lessons using *DRF*.

A total of 6 fourth-grade students (N = 6, F = 2, M = 4) participated in the pilot program. Five of these six participants received instruction in a school setting, and the lessons were led by the school's reading specialist. A sixth student received instruction in his home setting, and the lessons were led by the student's mother. Since the material in *DRF* starts at the fourth-grade level, selected students were in the fourth grade, had average to above-average intelligence, and were performing one to three years below grade level in reading fluency. The students ranged in age from 9 years 2 months to 11 years 3 months. One of the participants was diagnosed with a learning disability, and one was diagnosed with an attention deficit/hyperactivity disorder (ADHD) and a learning disability. The other students were not diagnosed per se, but were considered to be struggling readers. All of the students were attending general education classes.

Selection Criteria

Prior to using *DRF*, all of the participants had been taught phonics and other reading strategies, but they still showed difficulty applying these skills when reading texts containing multisyllabic words. The students also had difficulty attending to and comprehending lengthy or complex sentences. All students were performing more than 1.5 grade levels below expectancy in reading fluency. Table 1 presents the students' demographic information, their reading fluency levels, and their diagnoses when applicable.

Table 1 Student Participants

Student*	Gender	Age	Grade	Reading Fluency Grade Level Prior to Intervention	Disability
Veronica	F	10	4	2.4	LD
Macoy	M	10:8	4	2.2	None diagnosed
Noah	M	11:3	4	2.4	None diagnosed
Heidi	F	9:9	4	2.2	None diagnosed
Max	M	9:9	4	1.7	None diagnosed
Ted**	M	9.2	4	1.4	LD/ADHD

* Student names changed to preserve anonymity.

** Intervention took place in home setting.

Program Implementation

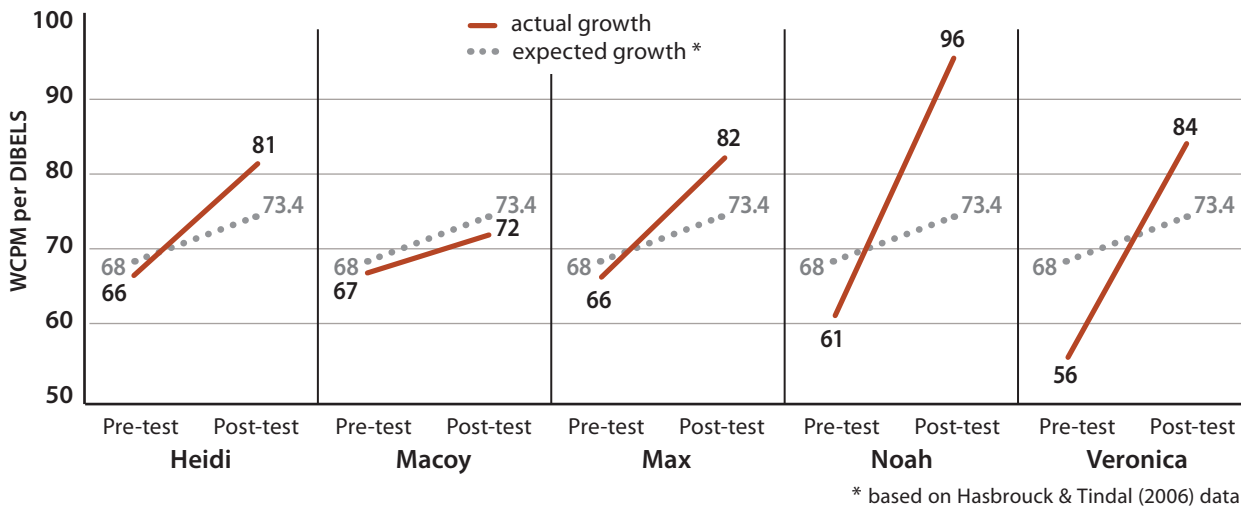
School Setting

In the school setting, four of the five students participated in *DRF* lessons two to three times a week for 30 minutes over a period of six weeks. All of the students participated in Level I of the *DRF* program, which is fourth-grade level text. Students were seen in small groups of two to three students, but they worked individually at personal computer stations. For four of the five students, the number of lessons ranged from 8–10 (depending on the students' schedules). One of the five students (Max) only completed four lessons and participated in *DRF* lessons for four weeks.

To gain a baseline reading fluency score, the *Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2002)* was administered to students in April before beginning. At the end of the 6-week field-test period in June, all of the students were again administered DIBELS to measure their gains in reading fluency. After instruction, all students in the school setting increased their reading fluency. Four out of five students significantly exceeded the expected growth. The fifth student (Macoy) demonstrated growth at the expected level. Student performance and their expected improvement is displayed in Figure 1.

In Figure 1, on p. 156, each student's starting scores and ending scores—measured in words correct per minute (WCPM) using DIBELS—are shown (solid line). The WCPM scores of these students

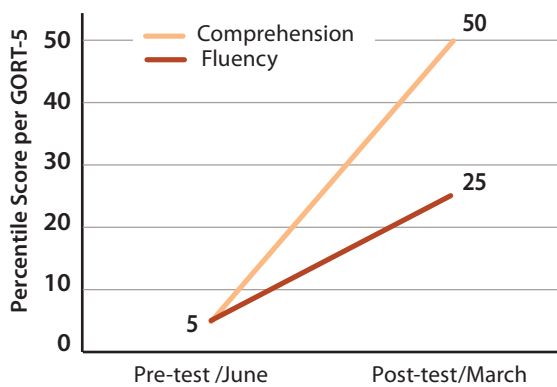
Figure 1 Reading Fluency Progress Using DRF



fell approximately in the 25th percentile range for a fourth-grade student based on data from Hasbrouck and Tindal (2006). Hasbrouck and Tindal completed an extensive study of oral reading fluency and reported that students in the fall quarter of Grade 4 who fall in the 25th percentile range have an average WCPM score of 68 and can be expected to show weekly improvement of .9 WCPM. Figure 1 illustrates the growth slope expected for fourth-grade students whose WCPM scores are at the 25th percentile (dotted line). The line represents WCPM growth expected over six weeks (5.4 WCPM).

The figure also shows that while the student participants started slightly below the WCPM fluency score of 68 (the average WCPM score of fourth-grade students scoring within the 25th percentile for fall quarter), they surpassed the expected six-week gain of 5.4 WCPM, as post-test scores exceeded 73.4.

Figure 2 Ted's Progress Using DRF for 9 Months



Home Setting

DRF was also field-tested in a home setting. Ted's mother was interested in implementing DRF with her son at home. Ted was a bright, fourth-grade student who was very frustrated with reading and avoided it. His reading skills were significantly below grade expectancy during the initial pre-testing. Ted completed 22 lessons over a nine-month period of time. Each lesson took approximately 30 minutes. He started with Level I (fourth-grade reading level). After completing 18 of the 30 Level I lessons (recall

Table 2 Ted's Results: Home Setting

Domain	Pre-test 6-13-2012			Post-test 3-6-2013		
	Grade Level	Percentile	Scaled Score	Grade Level	Percentile	Scaled Score
Rate	2.1	9	6	3.2	25	8
Accuracy	1.0	5	5	4.0	37	9
Fluency	1.4	5	5	3.4	25	8
Comprehension	1.4	5	5	4.4	50	10
Total		3	73		34	94

that these lessons increase in difficulty), Ted decided he wanted to go on to Level II. He completed the first four lessons of Level II (fifth-grade reading level) before a post-test was administered.

The *Gray Oral Reading Tests—Fifth Edition (GORT-5; Wiederholt & Bryant; 2012)* was used as a pre-test and post-test measure. When re-evaluated, Ted's reading fluency had increased from Grade 1.4 to Grade 3.4. Most notably, his reading accuracy increased from Grade 1.0 to Grade 4.0, and his comprehension improved over three grade levels (from Grade 1.4 to 4.4). His Total Reading Score improved from a Scaled Score (SS) of 73, 3rd percentile, to a SS of 94, 34th percentile. These post-test scores placed him in a typical range for reading fluency, based on his grade level, after nine months using *DRF*. Figure 2 and Table 2 present Ted's pre-test and post-test scores.

Social Validity: Students' Testimonies

All fourth graders in the school setting reported that they found the program to be very helpful in improving their reading skills in the classroom and at home. One of the students, Noah, reported that since he began his participation in the program he "began reading a lot more, and longer books, too." He said, "I like this program because it teaches you to read fluently and without reading fluently, you cannot do too much. There's going to be a lot of challenges if you do not know how to read fluently." He also praised the program for helping him "Sound words out." "Because I used to be not good at it and I would refuse. [I can now] sound words how the program does it [by syllables], for example 'A-mer-i-ca.' The most helpful thing about this program is that it trains your eyes not to skip lines. I used

to always do that. It's teaching me how to read more fluently. I think everybody who is having trouble reading should try it [DRF] out."

When asked about her experience with DRF, Heidi reported, "It helped a lot. The part that was helpful was that, if you stumble on the word, just click on it and it just tells you. It is easier to understand the word. It has been easier for me to read. The other day, I got 19 wrong, but the day before it was 27 wrong. I feel really good when I see that I did better. I also thought that breaking up the sentence was good. It is not like one long clump of words. It's evenly spaced out. Anybody who does not know about this, or is not a good reader, should do it because it will work. That was me once." The other students also commented that they enjoyed using DRF and that they could read more effectively after using the program.

After using DRF with his mother at home, Ted reported that his reading was "A ton better." He explained that he learned how to read multisyllabic words and that he began to enjoy reading. His mother found the program easy to use. Ted pointed out that he particularly liked seeing his progress charted at the end of each lesson.

Summary of Field Testing

In summary, *Developing Reading Fluency* is a reading intervention program that has been found to be effective when used in various settings: clinic, school, and home. Students made significant gains in reading fluency in brief periods of time. The lessons in DRF took approximately 30 minutes each and were found to be easy to use by parents and teachers. Students reported that after using DRF, they had learned how to read complex words by breaking them into word parts, and how to read complex sentences by attending to phrase structure. Students reported that by using the DRF program, they learned what to attend to during the reading process; therefore, they could read challenging material more successfully.