Reducing the Time Required by Dyslexic Readers to Become Fluent: A Comparison of Two Approaches

Ian Spence

Ben Bronz Academy

Our traditional approach to remedial nonreaders was to immerse them in a many-faceted reading program and start them on one-minute timings in graded sight words, phrases, and passages, beginning at the primer level. It took students an average of 1.8 years to pass 30 sheets to reach a grade 4 level. We recently constructed a set of 16 reading sheets based on the Lindamood phonemic awareness approach. Twelve remedial students who were trained in this approach were able to rise to the grade 4 level in less than one half year.

One-minute timings in reading have been an integral part of the remedial reading program at Ben Bronz Academy since its inception in 1985. Beginning readers started with materials at the primary level, and by practicing and building speed in reading those words, acquired a sight word vocabulary that contributed to their improved reading ability. This study compares progress on sight word sheets to progress on sheets that reflect phonemic decoding proficiency.

The Population

The students in this study attended Ben Bronz Academy, a private school in West Hartford, CT, approved by the state for services to students with learning disabilities in grades 2 to 12. The Academy enrolls 50 students, with the greatest number in grades 6 to 8. It provides remedial programs in reading, writing, mathematics, language, study skills, and cognitive problem-solving techniques, together with content courses in science, social studies, and literature where these basic skills are applied. The goal of the Academy is to help students attain skills needed to maintain good grades in public or private high school or college. Over three quarters of the students are referred and paid for by school districts, with the remainder placed privately. Eighty percent of the students are dyslexic, and 75% enter the Academy decoding more than 2 years below their grade level. Their average length of stay is 2 years, and most return to their school districts reading on or above grade level. The Academy offers a full curriculum, taught by a trained and certified faculty of 25 in an 8-hour school day. Students who are behind in reading may have four or more classes as necessary, and reading is stressed in all content classes as well.

The Reading Program

The reading program includes Direct Instruction classes in decoding, comprehension, and phonemic awareness (Let's Read at Ben Bronz, Stan-Spence, 1994). The decoding and comprehension classes rigorously follow the SRA Corrective Reading scripts (Engelmann, Carnine, & Johnson, 1978). The Decoding series offers word banks and clever stories that use a phonemically consistent vocabulary which gradually builds through three books (Decoding B1 - 60 stories, B2-65 stories, and C - 125 stories). The Direct Instruction component forces maximum student involvement through group response and immediate correction procedures. The Comprehension Series involves the students in many think-respond tasks involving vocabulary, grammar, logic, and memory components. Let's Read at Ben Bronz is also a scripted class which makes use of the published Let's Read materials (Barnhart, 1976), but adds exercises in recognition and transformation of word parts, and word building.

Students are tested upon admission and reading levels are determined by yearly testing on the Wide Range Achievement Test (WRAT) for decoding (Jastak & Wilkinson, 1984), and the Gates-MacGintie Reading Test for Vocabulary and Comprehension (MacGintie, 1978). If their reading scores are more than one standard deviation below expected grade level, the Rosner Test of Auditory Analysis Skills (Rosner, 1971) and the Lindamood Auditory Conceptualization Test, or the LAC, (Lindamood & Lindamood, 1979) will also be administered. Because these tests were instituted six years ago, all of the nonreaders have tested poorly in auditory discrimination.

Fluent Auditory Discrimination (FAD)

The concept of FAD and many of the materials used today were brought to Ben Bronze by Elizabeth Haughton (personal communication, 1995) when she visited us and worked with one of our non-readers. She taught us her approach to phonemic awareness, using the Lindamood and Lindamood (1969) system with a Precision Teaching fluency component. We subsequently developed a hierarchy of skills and supporting materials, and computerized the data-keeping,
charting, and much of the decision making, enabling a teacher and student to complete 20 one-minute exercises and one 5-minute “tracking” practice session in a 40-minute period. We have built a lab with large mirrors and a computer at each station. The FAD sessions are one-on-one.

Lindamood and Lindamood (1969) postulated that some non-readers are unable to break the code because they are not aware of the individual sound components and cannot discriminate them. This method seeks to ensure discrimination and awareness by having students work in front of a mirror, while looking at their mouths forming the sound. They are guided to decoding. Fluency is built through one-minute exercises in see/say consonant sounds and their descriptor, hear/say, hear/write, see/say from mouth (watching someone mouth the sounds silently and the observer says what sound would be produced), and think/do (the other person tells the learner what sound will be produced). A similar series of exercises is used to learn the vowel sounds. These are then manipulated through a “tracking” exercise in which the student hears two sound combinations and must manipulate colored blocks which represent the sounds.

These sound identification tasks are gradually introduced, beginning with only a few combinations. Once the student has become fluent in one-minute timings on those, a couple more are added. The earliest sounds that are introduced include /p/, /b/, /t/, /d/, and /a/ (as in “at”), which generally produce consistent combinations. When /o/ (as in hot) is introduced, we are careful to avoid words such as to, do, so, etc. which do not follow the sign/sound relationship. These flexes come later.

We have broken the Consonant task into 14 levels with two pairs of consonants and one vowel introduced in Level 1, and a pair of consonants in each succeeding level. Mastery for each level is 140 utterances per minute in the See/Say task. Vowels are similarly broken into 12 levels. Figure 1 shows that Rob mastered his consonant sounds in 3.5 weeks, (average 3 weeks). He mastered the Vowel Sounds in 5.5 weeks (average 5 weeks). The tracking task is measured by completions of transformations, and the passing level is set at 12 in one minute. Figure 2 shows that tracking took 4 months (average 5 months).

**METHOD**

*The Precision Teaching Measure*

The measure used in this study is a one-minute sample of reading aloud. This measure has a long history among Precision Teachers. Students usually read aloud for one-minute (because it was easiest to chart), and record their corrects and “learning opportunities” or errors. In the Sacajawea Project, Beck (1991) and his team assembled many graded reading pages, and the children read their way to high scores on independent testing. Johnson (1971) and others used newspapers as reading materials, and many people have adapted the SRA Decoding Series (Engelmann et al. 1978) for timed readings. Several companies have put out materials for the express purpose of timed reading.

Timed reading samples have always been
a part of the curriculum at Ben Bronz Academy. All students complete two or more one-minute timings in reading each day, and enter their results in a computer tracking system that generates Standard Celeration Charts. They are called “fluencies” within the Academy, and that term will be used throughout this paper to describe the complete activity of practicing a single pinpoint for one-minute, recording, and charting the score.

Fluencies in reading are started when students first enter the Academy. Students are placed in materials based on entering WRAT decoding grade scores. The students read the selection for one-minute, with the listener noting learning opportunities. At the end of the minute, students record two scores: words correct and incorrect (learning opportunities). They pass to the next selection when they reach a criterion score. Ben Bronze’s criteria are 70 words correct per minute in Word Sheets, 100 words correct per minute on Phrase Sheets, and 150 words correct in Passages. The students also write the words that were misread on a “Hard Word Page” for extra practice.

When we developed the fluency program in the 1980’s, we took advantage of available materials. We introduced non-readers to the Bucks County Sight Word materials (30 Word Sheets, 24 Phrase Sheets, and 30 Passage Sheets) which range from primer to grade 3. We then moved them to the SRA Decoding Student Books which have Word Boxes for each story, and provide materials from grades 4 through 7. (Decoding B1 is remedial grade 4, 60 stories; Decoding B2 is remedial grade 5, 65 stories; and Decoding C is remedial grades 6 and 7, 125 stories.) For grades 8 through college, we chose the Jamestown Timed Readings (Science) series (1989), which presents 50 stories for each grade.

The reading fluencies are given a place of high status at the Academy. They must be conducted daily, and are scheduled despite assemblies or field trips. Students also must carry out the fluencies at home on school nights, and twice daily on non-school days including weekends and holidays.

For purposes of charting, changes from page to page are indicated by a vertical line (phase change), with the story number at the top of the line. Grade equivalents are printed above the story numbers. To give us an accurate picture of how well the students can read a passage without practicing, they are asked not to practice a passage before their “first read” (the first dot after the phase change). Charts are kept by the students of both their words and passages, however, only passages are shown in this paper.

Subjects

Thirty-five students participated in this study over a period of 7 years. They all ranged in chronological grade level from grades 3 to 9, were of average intelligence, were reading at more than one standard deviation below their grade level, and were below grade 2.8, as measured on the WRAT. They averaged 3.8 years behind (1.1 to 8) in their reading.

Procedure

All of the students participated in the Ben Bronz Reading Program and in the daily fluencies. They all had three or more periods devoted to
remedial reading each day in classes ranging in size from 3 to 6 students. All participated in FAD, with some of the students learning the sounds and tracking in small group classes, and others learning through one or more tutorials per day. Twenty-five students (Sight Vocabulary Group) were placed in the Buck’s County sheets for reading fluencies.

While developing the FAD program, we created 16 pairs of Reading Sheets (Words and Passages). The first sheet begins with the five sounds of the first consonant sheet, and the final sheet contains all of the sounds, with most of the words having pronunciations consistent with the sound/signs learned. The passing criterion of the first eleven sheets is 120 words per minute (because the syntax of the sound-limited sentences is not smooth) and 140 words per minute for Sheet 12 and above. Ten students (FAD Sheet Group) carried out their initial reading fluencies on these FAD reading sheets.

RESULTS

The sight vocabulary group took an average/median of 1.5 years to complete the Buck’s County passages (5 months to 3 years). Their WRAT decoding averages rose from 1.8 years to 4.4 years. Figure 3 shows Matt’s progress. His “first reads” were at 60 words per minute and he often had accelerations of x 1.7, passing a sheet every 8 days and rising to the grade 4 level within seven months. Figure 4 shows Nicolas’ progress through the sheets. Nicolas took 16 months to master the sheets. His “first reads” began at 50 words per minute, and his acceleration was rarely above x 1.5 so that he took three or more weeks to pass a level. His pace picked up just before he entered the Decoding B1 book (lower right chart).

The FAD sheet group took 5-months or less to complete the FAD sheets and enter Decoding B1. WRAT beginning scores were obtained, but only 9 of the 12 had testing at the end of the year because three entered the Academy during the year, and the year-end testing was only a few months later. The nine students had an average WRAT entry score of 1.65 (.3 to 2.7). Their year-end scores averaged 3.0 (2.5 to 3.6).

Rob’s chart is an example of the FAD sheet group. On admission, he tested at Grade K.3 on the WRAT (he could only read the word “in”). As Figure 5 shows, he began with “first reads” of 20 to 30 words correct, with an acceleration x 4.0. He mastered the FAD stories (Levels 1 to 15) in 20 weeks, with a decelerating trend in learning opportunities. This indicates that he retained the sounds learned and applied them fluently. Of greater interest is Rob’s performance once he moved into the Decoding book. As the chart shows, Rob continued to pass stories in the Decoding series at the same rate that he had been passing the FAD reading fluencies. His “first reads” also rose to around 80 words per minute. This indicates to us that the FAD preparation was sufficient prior learning for the Decoding Book. At the end of this charting period, he tested grade 3.6 in WRAT Decoding. At the end of his grade 6 year (two
years later) he was completing fluencies in a grade 9 timed reader, and scored grade 11.8 on the WRAT, with above grade level scores in Comprehension on the Gates-MacGinitie.

The slowest advance in this group was made by Seth. As Figure 6 shows, he began with x 4.0 accelerations, but these flattened in the spring and summer. Like Rob, he accelerated upon entering the Decoding Book, and his "first reads" rose. His entering WRAT score was grade K.9, and his year-end score was 2.8.
DISCUSSION

Because there were thirty sight word sheets and only fifteen FAD sheets, one would expect the FAD students to pass through these sheets in fewer days. However, FAD students produced higher accelerations and passed from sheet to sheet more quickly. These higher accelerations indicate that sharpening their phonetic decoding skills was a more efficient tactic than memorizing new words. The sight word group had become fluent with a far larger vocabulary, so it could be hypothesized that they would move more quickly through the grade 4 materials. However, a comparison of the grade 4 segments of Figures 3, 4, 5, and 6 shows that once they entered the Decoding book, the FAD group passed from level to level as quickly as the sight word group, with their “first read” scores only slightly lower. WRAT test scores showed that the sight word group was at a grade 4 reading level when it entered the Decoding book, while the FAD group was at a grade 3 level.

It is fairly safe to hypothesize that all of the non-readers in this study had not fared well in building a sight-word vocabulary before coming to the Academy. The results of this study suggest that building strong decoding skills is a more efficient approach for this kind of student than attempting to build a sight vocabulary.

The solid gain in WRAT scores by the Sight Word group is to be expected. The WRAT word samples are based on a sight word vocabulary, so if the students have become fluent in reading sight words up to a grade 4 level, they would be expected to read the WRAT words at a grade 4 level.

The FAD group WRAT average score improved to grade 3 in year-end testing, which represents 1.4 years progress in one year, but that means they are testing a year below the materials they are mastering in Decoding B1. This result can be explained because the FAD students have not mastered all of the sight words, and since many of the words on the WRAT lists use irregular spelling, they must be learned as exceptions or sight words. It may be that these students, like Rob, will continue to progress more rapidly and score better in subsequent years. It may also be necessary to institute an independent sight word fluency for these students to augment their decoding skills. Further testing will be done to check these possibilities.

High accelerations and frequent passing from sheet to sheet are motivators for students (Spence 1993). The FAD sheet experience clearly has more potential for motivating students. Part of the reason for slow progress in Bucks graded word lists may have been student feelings of hopelessness because their gains were so gradual.

One weakness of a study of this kind is that the reading materials are not continuous. The Bucks County and Jamestown materials were
developed using a sight word approach while the SRA Decoding series utilized a phonemic/restricted vocabulary approach. There are differing numbers of sheets in each grade. This lack of continuity complicates our developing valid correlations between student growth on these fluencies and growth in scores on the norm-referenced tests.

This study also raises a question about how many sheets are required for optimal progress in each grade. If we are not attempting to build a sight word vocabulary, is it more efficient to use fewer sheets with the aim of introducing all sound and spelling combinations and exceptions? Is this what the Decoding Series does? Could it be done with fewer sheets?

The chart is our most sensitive progress monitor. Keeping it updated is labor intensive. Until three years ago, we did not require students to keep their reading fluency charts updated, and with only the score sheets, we were often lulled into a false sense of progress. Nicolas (Figure 4) is an example of this. He is an earnest, polite boy who is diligent in completing all of his work and he even seeks out people to read to so he can squeeze in an extra one-minute timing. When the charting of his daily progress was neglected for a few weeks, we did not notice his low acceleration.

To ensure having current charts, we computerized the charting. Our students read at the computer, using a built-in timer, then enter their scores which are immediately and automatically charted and available to everyone. The students constantly review their charts, and the teachers look at them daily or weekly, resulting in immediate changes in program when necessary. Because the students complete their one-minute timings at home every day as well as at the Academy, we built the computer program for the Internet, allowing the instant transfer of scores between home and school.

The computerized charts are necessary for three reasons. The biggest one is that the daily chart cannot hold all of the data. Our students read 3 to 5 or more times per day and all of the scores are recorded. If they are all put on a daily chart, the dots and x’s become so piled up that the chart is crowded and celeration lines are difficult to plot. Every score is important. When a student is trying to beat his score, he wants to see every score! We handle this by having the computer show the student a choice of a Sessions Chart (every score shown on its own up-and-down line), or a Daily Chart that shows the best score for the day (or if the student passes to the next sheet, the high score for the one sheet, and the “first read” for the next.)

The second reason that the computerized chart is necessary is to sustain the charting activity across activities and years. The students reported here each have between 800 and 5000 sessions of reading recorded for this chart alone. They also practice at least eight other fluencies (keyboarding, digit pad, arithmetic, vocabulary, spelling, hard words, FAD exercises, etc.), and records are kept on each over years. Recording and charting activity on this level cannot be maintained by a teacher, assistant, or student.

The third reason for computerized data keeping is storage and retrieval. Paper data sheets accumulate quickly and almost never get charted. Paper charts also accumulate quickly and must be stored. Electronic storage is far more efficient and retrievable. Because the computer builds the charts, all of the data is presentable as charts.

FAD is computer dependent. Our lab maintains its pace through the FAD computer program which handles all record keeping, charting, and some of the decision making. In Precision Teaching jargon, the computer handles the “Program” and “Program Event” presenting some of the materials on the screen, presenting the correct timer or score box, announcing achievements, updating the chart, and telling the teacher and student what to do next. This frees the teacher to concentrate on the student response and the arranged event (encouragement, correction, hitting the correct or Lo. key, etc.).

REFERENCES


**APPENDIX**

1. The Bucks County materials were assembled and made available by the Sacajawea Project (Beck, 1991). They are now available (with added materials and a different numbering system) from Sopris West, www.sopriswest.com

2. The Standard Daily Celeration Charts generated on the computer are three cycle by 120 days. They maintain the aspect of the printed chart, with an x2 celeration at the same angle. In Reading and other paper timed tasks, the students enter their scores on the computer at the end of the task. In keyboarding and arithmetic drills, the computer also keeps the count of correct and incorrect keystrokes. The computer chart was developed in 1985, and is the centerpiece of all of the exercises available through CyberSlate. For more information about CyberSlate and its use of the chart, visit www.cyberslate.com