Multisensory Programs in the Public Schools: A Brighter Future for LD Children

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A longitudinal study followed the progress of a group of elementary SLD students as they were instructed using the Alphabetic Phonics (AP) curriculum. After a three year period, the AP curriculum produced positive results in reading comprehension for most SLD students, particularly those who began the program in first and second grade. Students in resource and self-contained settings made significant gains in reading comprehension, although the two types of students exhibited different patterns of progress. Students of different ability levels responded differently to the AP curriculum. Average and above average students made significant progress in reading comprehension, but below average students did not advance substantially in relation to their ability level. At the end of three years, classroom teachers had a significantly more positive view of students' word attack, oral reading, and silent reading comprehension skills.

As a major component of Hillsborough County's (FL) exceptional student program, the Specific Learning Disabilities (SLD) program serves students from kindergarten through twelfth grade. Approximately 260 SLD teachers provide instruction for over 4,200 students identified as having specific learning disabilities. Prior to 1981 SLD teachers used a variety of academic approaches, including perceptual motor activities, individual instruction, supplemental classroom instruction, and individualized centers. When needs assessments consistently indicated a desire for a standard elementary language curricu-

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lum, research was conducted to review and identify an appropriate program. Comparisons of existing programs led the SLD staff to select Alphabetic Phonics (AP), a sequential language curriculum that combines reading, writing, and spelling, using a systematic multisensory approach.

Like Stanovich (1986), the SLD staff was convinced that differences in decoding abilities account for a large proportion of variance in reading abilities, and that reading programs which emphasize direct teaching of phonics are most appropriate for SLD students (Williams 1987). An outgrowth of the basic Orton-Gillingham model, Alphabetic Phonics is one of several (e.g., Distar, Project Read) programs that stress decoding via phonics. Originally developed by Waites and Cox (1976) for students attending a hospital language laboratory, the AP program has been applied successfully in public schools with small groups of students in grades 3 through 6 (Vickery, Reynolds, and Cochran 1987).

To determine and clarify the effects of the Alphabetic Phonics curriculum on SLD students in Hillsborough County (FL), a multi-year program evaluation was designed and carried out. The purpose of this article is to describe the implementation of the AP program and report the results of the three-year study.

Program Description

Alphabetic Phonics, the foundation of the elementary (grades 1–6) SLD curriculum, is taught through a variety of delivery systems and is available for students who are eligible for SLD services in resource and self-contained settings. The diagnostic prescriptive model is carried out in a small group setting with flexibility in adapting to individual needs. Using the clinical model, the SLD teacher provides direct instruction to students and also assists general education teachers.

Teacher Training

The district level SLD staff was initially trained by a consultant with AP program expertise. Then, through a series of inservice workshops, the AP method was introduced to 129 SLD teachers. Adaptations of the Alphabetic Phonics curriculum were formulated for its use in a public school setting. For example, the Project Read comprehension activities were initiated after Schedule IIa, and basic sight words had to be introduced along with all instruction because students were exposed to them in their regular education classes. Absolutely no rules or techniques within the AP curriculum were changed. A skills guide, including scope and sequence and individual educational plans, was developed by a team of core teachers. Training occurred during

monthly SLD team meetings throughout the 1981 school year. Additional summer inservice sessions for recently hired teachers and teachers requesting more information were provided annually. Individual classroom observations were conducted by two district level elementary resource specialists. The classroom observation(s) evaluated the classroom climate, visual aids, and specific instructional procedures performed by the teacher. Proficiencies on specific curriculum techniques provided teachers with feedback on their skills. Peer coaching was used along with pairing exemplary teachers with new teachers to encourage feedback and the use of appropriate teaching techniques. Videotapes of demonstration lessons and a resource book were developed for teacher reinforcement.

Instructional Procedures/Materials

The Alphabetic Phonics curriculum provides a linguistic structure, incorporates the alphabetic phonic writing system of the English language, and aids the student in developing automatic mastery of the communicative process for the reception and expression of symbolic language. Highly structured and sequential, the program is introduced through direct teaching in small groups. A one-hour lesson has ten different activities which alternate among visual, kinesthetic, and auditory modalities. The lesson is presented in the same sequence daily. The ten activities range from 2 to 10 minutes in length to accommodate the short attention span of learning-disabled students. Resource students received approximately one hour of instruction daily and self-contained students received two hours of instruction with integrated language arts.

Reading comprehension is initially taught through structured oral listening activities. Direct, systematic reading comprehension instruction is provided through the Project Read program which emphasizes multisensory instruction. Students receive intensive reading comprehension instruction after basic decoding has been mastered (completion of Schedule IIa). Framing Your Thoughts, a component of Project Read, is used for instruction in written expression and emphasizes the concept of sentence structure as essential to interpreting the English language.

Evaluation Methodology

A longitudinal study followed the progress of the same group of SLD students at yearly intervals from fall 1984 to fall 1987. Questions addressed by the study included the following:

1) After a three-year period of Alphabetic Phonics instruction, relative to their expectancy level, did SLD students make significant progress in reading?
2) Did SLD students who began the Alphabetic Phonics program in earlier grades exhibit greater gains than those who started in later grades?
3) Did SLD students in different instructional placements (i.e., resource or full-time) exhibit different patterns of growth over the three-year period?
4) Did SLD students in different IQ categories exhibit different patterns of growth over the three-year period?
5) At the end of a three-year period of Alphabetic Phonics instruction, did classroom teachers have a more positive view of SLD students' classroom reading behaviors?

Subjects

In November 1984, 251 randomly selected first year SLD students in grades one through four were identified as potential subjects for the study. These students were newly placed in the SLD program and were set to begin instruction in the Alphabetic Phonics curriculum. The only exception in making the final selection of subjects occurred in grade one where only students repeating first grade were included. This population included 234 mild to moderate learning-disabled resource students and 17 severely learning-disabled fulltime students. In all, 251 students and their SLD teachers were selected for the three-year study. After students were identified, they were classified into one of three IQ categories: below 90, between 90 and 110, and 111 and above.

In fall 1987, a total of 138 students in grades 3 through 7 completed the study: two students in grade 3; 24 students in grade 4; 46 students in grade 5; and 33 students in each of grades 6 and 7. As expected, most students (90) were classified as intellectually average. Seventeen full-time placement and 121 resource (i.e., partially mainstreamed) students were included in the study. During the three-year period, 113 of the original 251 students were lost from the study. Most losses involved students who were withdrawn from school or dismissed from the SLD program.

Instruments and Procedures

Throughout the study, two instruments (a standardized reading test and a teacher checklist) were used for data gathering. When the study began, the *Stanford Diagnostic Reading Test* (1976) was identified as an appropriate instrument for determining students' decoding and reading comprehension abilities. The multiple test levels which range

from the primary grades (*Red*) to college entrance (*Blue*) allowed for multi-year comparisons, and the subtest categories specifically addressed the Alphabetic Phonics curriculum objectives of phonetic analysis, structural analysis, and reading comprehension. In addition, the *Stanford* was especially designed for the purpose of program evaluation, standardized on a national population, and met professional standards for validity and reliability.

In November 1984, SLD teachers administered to all students in the study three subtests of the *Red* level (Form A) which assessed phonetic analysis, word recognition, and reading comprehension. In November 1985, students were administered either the *Red* or *Green* level, depending on the grade in which they were enrolled. In November 1986, all students but one were administered the *Green* test level. (One student had been retained and was administered the *Red* test level.) In November 1987, students were administered either the *Green* or *Brown* level, again depending on the grade in which they were enrolled.

A locally-developed four-point teacher rating scale was used to assess classroom teacher perceptions of students' reading-related behaviors. On four occasions (November 1984, May 1985, November 1986, and November 1987) each student's current classroom teacher was asked to complete the checklist based on his/her observations of the SLD student.

Data and Analysis

Following each test administeration, test booklets were scored and raw scores reported for each subtest for each student. Using the *Stanford* norming group's subtest mean and standard deviation scores by grade, raw scores were converted to standardized T-scores. To coincide with the T-score conversion system for IQ, the reading scale used 100 as its mid-point. After all conversions for reading subtests were accomplished, a comparison was made between each student's IQ score and each reading subtest T-score so that a discrepancy score could be derived for each student for each subtest. After each testing period, a by-student listing of T-scores and discrepancy scores was prepared and shared among members of the research team. Using this listing, the team determined the percentage of the SLD group that scored at expectation; that is, within −5 T-score points of IQ—the same criterion used to justify the dismissal of students from the SLD program.

Using the t-Test statistic for paired observations, comparisons were made of the baseline and third-year discrepancy scores. In response to the research questions, analyses were performed for the total group, IQ category subgroups, placement subgroups, and grade level subgroups.

The Wilcoxon Rank Test for Paired Observations was used to compare checklist ratings for the total group's baseline and third-year results. For all analyses, significance levels were set at .05.

Results

After a three-year period of Alphabetic Phonics instruction, relative to their expectancy level, did SLD students make significant progress in reading? Did SLD students who began the Alphabetic Phonics program in earlier grades exhibit greater gains than those who start in later grades?

Table I shows the percentage of the total group and each grade level subgroup who met or exceeded their ability level for the pre-(1984) and post-(1987) test administrations. As shown, after three years of Alphabetic Phonics instruction, 48 percent of the total group performed as expected (i.e., within 5 points of the IQ) in phonetic analysis and half the group performed as expected in reading comprehension. The phonetic analysis and reading comprehension figures represent, respectively, 5 and 17 percent increases over the three-year period.

Differences among grade levels are obvious. The greatest increases occurred for the group of students who began the Alphabetic Phonics curriculum as first graders. Two-thirds of these students (now in grade 4) performed at expectation in phonetic analysis, a 30 percent increase from the baseline year. More than half these students performed at expectation in reading comprehension, a 37 percent increase from the baseline year. Almost half the students now in grade 5 (who began the program in grade 2) performed as expected in both phonetic analysis and reading comprehension. In phonetic analysis the proportion of the group that performed as expected increased by 13 percent from pre to post and, in reading comprehension, by 26 percent.

Table I
Proportion of Alphabetic Phonics Group Who Met or Exceeded Expectations for Pre- and Posttest Administrations

	Percent of group who scored at or above expectation in:			
	Phonetic Analysis		Reading Comprehension	
Grade in 1987–88	1984	1987	1984	1987
Grade 3 (N = 2)	50%	100%	0%	100%
Grade 4 (N = 24)	37%	67%	21%	58%
Grade 5 (N = 46)	35%	48%	22%	48%
Grade 6 (N = 33)	61%	36%	48%	55%
Grade 7 (N = 33)	39% (1985)	42%	42% (1985)	39%
Total (N = 138)	43%	48%	33%	50%

Table II presents T-score results for the pre-and post-test administrations. Average T-scores are shown for the entire group and each grade level subgroup. For the total group the average IQ was 97. If this group of students were reading up to expectation, the average T-score for each subtest would have been equal to or greater than 92, (i.e., within −5 points of the average IQ). Results should be viewed with this standard in mind.

On the phonetic analysis pre-measure, students performed below (89.1) expectation. On the post measure, the same students performed slightly above expectation (92.2). In reading comprehension students performed well below expectation (83.9) on the pre-measure. On the post measure, their performance improved markedly (90.8), but remained below expectation.

Once again, grade level differences were apparent, with students who began the Alphabetic Phonics program in earlier grades making the greatest gains in both phonetic analysis and reading comprehension. Students who began the program as first graders performed up to expectation, and students who began the program as second graders made substantial progress. Students who began the program in grade 3 or 4 made minimal progress, and in one instance regressed in performance.

Figures 1–3 show the three-year growth pattern of the total group and the early intervention (grades 1 and 2) and late intervention (grades 3 and 4) subgroups. The total group exhibited steady progress

Table II

Average T-scores for Alphabetic Phonics Group for Pre- and Posttest Administrations

Grade in 1987–88	Average IQ	Phonetic Analysis		Reading Comprehension	
		Baseline	1987	Baseline	1987
Grade 3 (N = 2)	86%	67.8	98.1	68.9	101.9
Grade 4 (N = 24)	94%	84.8	93.3	77.9	89.2
Grade 5 (N = 46)	98	87.7	92.0	82.9	90.4
Grade 6 (N = 33)	97	93.5	90.0	89.2	91.7
Grade 7 (N = 33)	98	90.3 (1985)	93.5	88.7 (1985)	90.9
Total (N = 138)	97	89.1	92.2	83.9	90.8

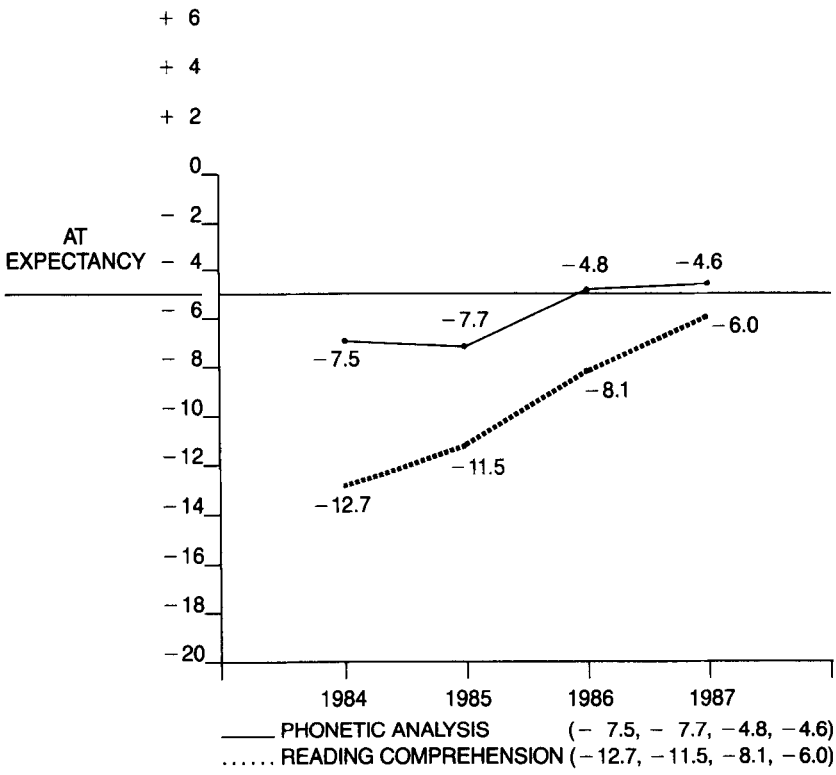

Figure 1. Average T-Score differences of total group (N = 138) from four administrations of the Stanford Diagnostic Reading Test.

in reading comprehension from the baseline through the third year of intervention. Interestingly, growth in phonetic analysis skills was observed between the first and second years with the increase sustaining itself through year three.

Differences between the two subgroups are dramatic. The early intervention group began the Alphabetic Phonics program almost 10 points below expectation in phonetic analysis and more than 15 points below expectation in reading comprehension. In three years, the group progressed 6 points in phonetic analysis and more than 9 points in reading comprehension. Substantial growth in both phonetic analysis and reading comprehension was observed after two years in the program. Late intervention students exhibited a very different profile. After three years, their phonetic analysis skills remained relatively constant, and their comprehension skills had increased by just two points. Rather than a steady climb, their performance decreased after one year

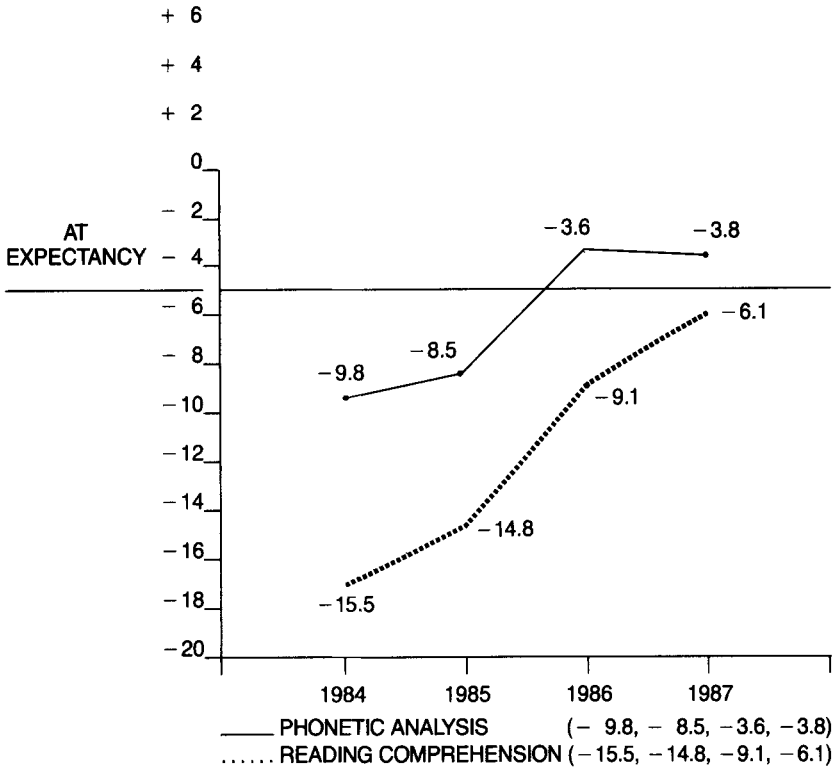

Figure 2. Average T-Score differences of early intervention group (N = 72) from four administrations of the Stanford Diagnostic Reading Test.

in the program and showed slight increases after two and three years. Undoubtedly, the two groups began the program in different positions. The early intervention group exhibited nearly twice the deficiency in phonetic analysis and comprehension of the late intervention group.

The important issue is the progress shown by students. In the early intervention group the AP program resulted in substantial growth over a multi-year period. The late intervention group seemed to derive little benefit from the intervention and was in relatively the same position at the beginning and end of three years.

Did SLD students in different instructional placements (i.e., resource or full-time) exhibit different patterns of growth over the three year period?

Tables III and IV present results of t-Test comparisons of the average discrepancy scores (i.e., difference between IQ score and reading

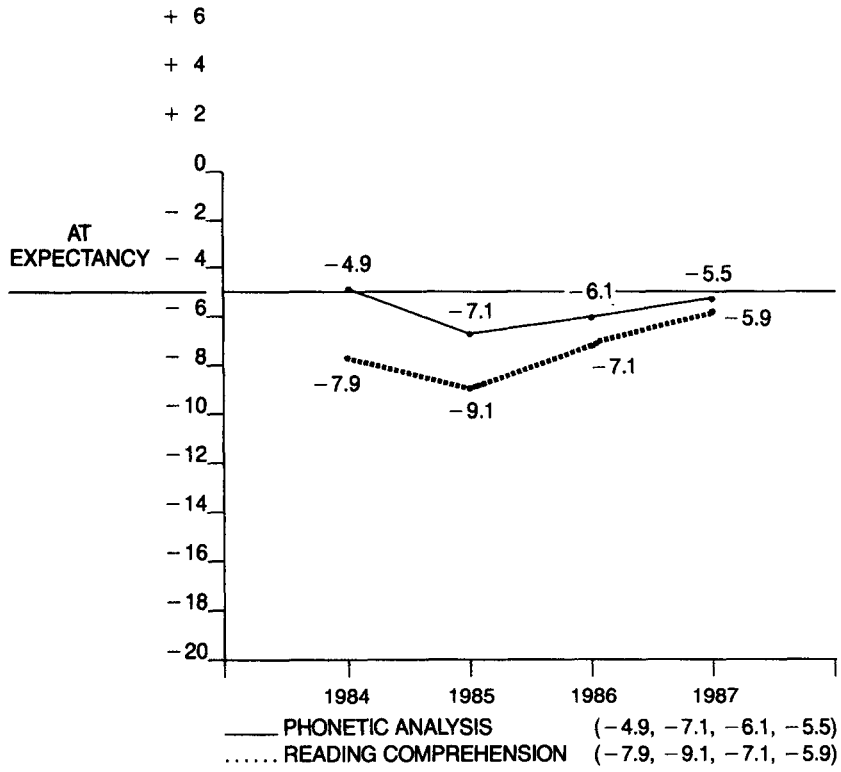

Figure 3. Average T-Score differences of late intervention group (N = 66) from four administrations of the Stanford Diagnostic Reading Test.

Table III

t-Test Comparisons Between Pre- (1984) and Post (1987) for Elementary Resource Students

	Mean T-score Difference	Standard Deviation	t value (df)	Probability
		PHONETIC ANALYSIS (N = 90)		
Baseline (1984)	- 7.15	16.79		
After 3 years (1987)	- 4.71	14.15	-1.35 (89)	.18
		READING COMPREHENSION (N = 88)		
Baseline (1984)	-11.91	15.14		
After 3 years (1987)	- 4.90	15.60	-3.99 (87)	.00

Table IV
t-Test Comparisons Between Pre- (1984) and Post (1987) for Full-time Students

	Mean T-score Difference	Standard Deviation	t value (df)	Probability
		PHONETIC ANALYSIS (N = 17)		
Baseline (1984)	− 9.462	13.77		
After 3 years (1987)	− 4.571	10.58	−1.38 (16)	.18
		READING COMPREHENSION (N = 16)		
Baseline (1984)	−18.64	9.21		
After 3 years (1987)	− 9.69	16.78	−2.02 (15)	.05

subtest score) for the pre and post *Stanford Diagnostic Reading Test* scores. Table III presents information regarding elementary resource (i.e., partially mainstreamed) students, and table IV presents data for full-time placement students. Positive changes were evident in the performance of resource students. In phonetic analysis, the resource group scored 7.15 T-score points below expectation on the baseline measure. By the third year, the group progressed to within 4.71 T-score points of expectation. While this difference was a positive one, it was not statistically significant. Significant gains did occur, however, in reading comprehension. Prior to Alphabetic Phonics instruction, students scored more than 10 T-score points below expectation. After three years of instruction, students decreased the discrepancy between IQ and achievement to 4.9 points in reading comprehension.

Table IV presents information for the 17 students enrolled in an elementary full-time SLD program. Results for this group paralleled those of the resource group. Positive, but not significant gains occurred in phonetic analysis; sizeable and statistically significant gains occurred in reading comprehension.

The resource group's steady climb in reading comprehension skills is profiled in figure 4. Figure 5 shows a different growth pattern for students in the full-time group who moved steadily forward in phonetic analysis but made little or no progress in reading comprehension until the third year of instruction.

By-grade performance of the resource students is provided in tables V, VI and VII. Consistent with previous statements, early intervention (grade 4) students posted statistically significant gains in both

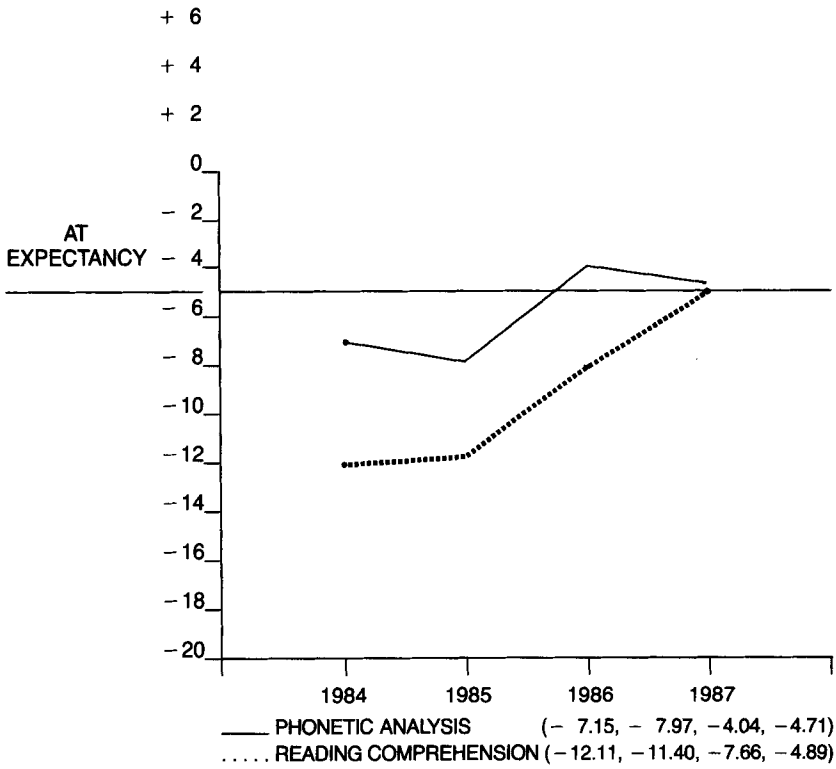

Figure 4. Average T-Score differences of resource students (N = 90) from four administrations of the Stanford Diagnostic Reading Test.

Table V

t-Test Comparisons Between Pre- (1984) and Post (1987) for Grade 4 Resource Students

	Mean T-score Difference	Standard Deviation	t value (df)	Probability
		PHONETIC ANALYSIS (N = 22)		
Baseline (1984 in grade 1)	-10.58	14.94		
After 3 years (1987 in grade 4)	- 1.12	11.50	-4.07 (21)	.00
		READING COMPREHENSION (N = 21)		
Baseline (1984 in grade 1)	-16.98	12.93		
After 3 years (1987 in grade 4)	- 4.17	15.25	-3.52 (20)	.00

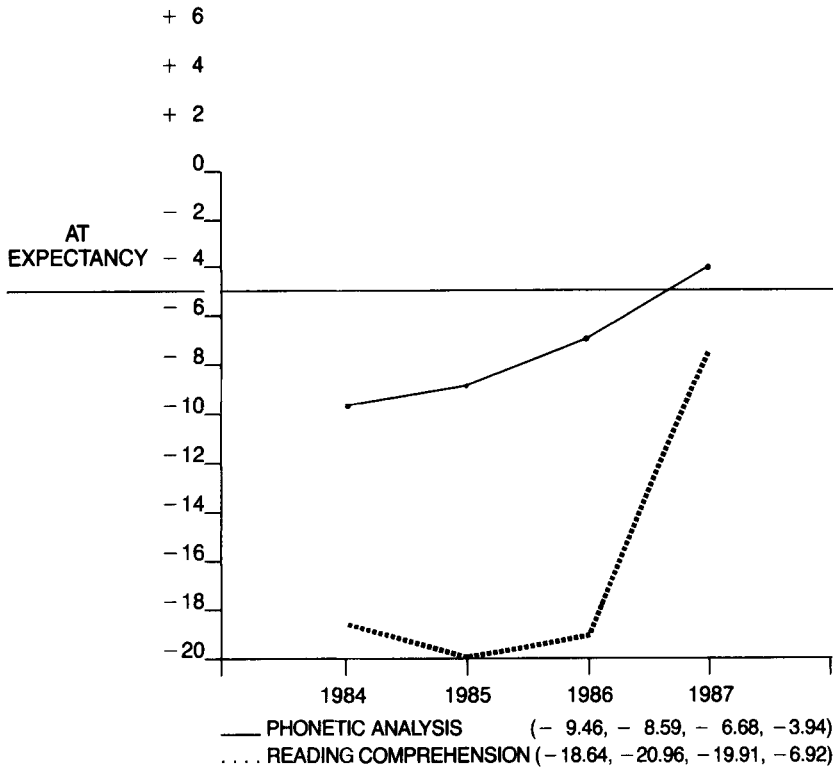

Figure 5. Average T-Score differences of full-time students (N = 17) from four administrations of the Stanford Diagnostic Reading Test.

phonetic analysis and reading comprehension; grade 5 students made statistically significant gains in reading comprehension, and grade 6 students showed no gains or negative pre-post differences.

Did SLD students in different IQ categories exhibit different patterns of growth over the three year period?

As evident in table VIII, low ability students showed positive, but not significant pre to post growth. It is especially important to note that at the end of three years of Alphabetic Phonics instruction this student group performed three points above expectation in phonetic analysis and at expectation in reading comprehension. Figure 6, the low ability group's three year profile, clearly shows these students performing above expectation. Interestingly, and variant from the other two ability group's findings, a sizeable gap remained between low ability students' skills in phonetic analysis and in reading comprehension. Although these students were not performing up to grade level, they were performing at expectation.

Table VI
t-Test Comparisons Between Pre- (1984) and Post (1987) for Grade 5 Resource Students

	Mean T-score Difference	Standard Deviation	t value (df)	Probability
		PHONETIC ANALYSIS (N = 38)		
Baseline (1984 in grade 2)	− 8.90	17.51		
After 3 years (1987 in grade 5)	− 5.39	16.33	−1.25 (37)	.22
		READING COMPREHENSION (N = 37)		
Baseline (1984 in grade 2)	−13.31	14.97		
After 3 years (1987 in grade 5)	− 5.45	15.93	−2.84 (36)	.00

Table IX and figure 7 provide statistical information and the growth profile for average ability students. While steady and significant progress occurred in reading comprehension, this group's growth in phonetic analysis varied from year to year with positive but not significant pre to post growth.

Students in the high ability group (table X and figure 8) exhibited dramatic and significant progress in the area of reading comprehen-

Table VII
t-Test Comparisons Between Pre- (1984) and Post (1987) for Grade 6 Resource Students

	Mean T-score Difference	Standard Deviation	t value (df)	Probability
		PHONETIC ANALYSIS (N = 33)		
Baseline (1984 in grade 3)	−2.11	17.08		
After 3 years (1987 in grade 6)	−7.82	12.16	−1.70 (27)	.10
		READING COMPREHENSION (N = 33)		
Baseline (1984 in grade 2)	−6.08	16.03		
After 3 years (1987 in grade 6)	−6.07	15.50	.00 (27)	.99

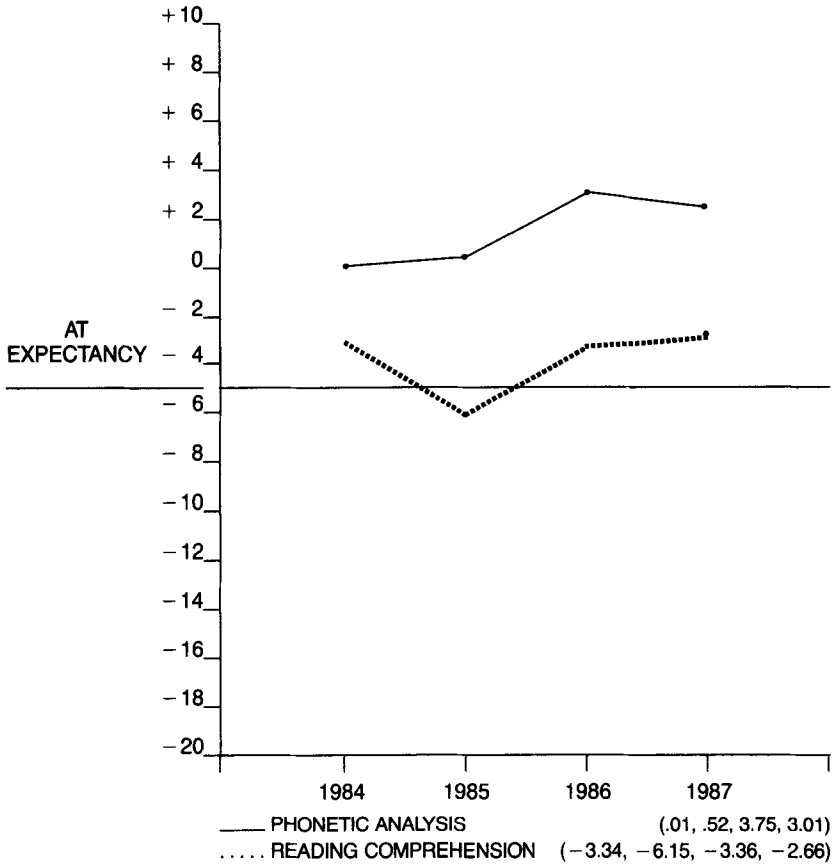

Figure 6. Average T-Score differences of low ability resource students (N = 23) from four administrations of the Stanford Diagnostic Reading Test.

sion. Their growth profile reveals particular advances in both phonetic analysis and reading comprehension during the second year of instruction with a leveling-off during year three. Unlike the low ability group, these students appear to possess greater skills in reading comprehension than in phonetic analysis. It is essential to point out that because their IQ is above average, the achievement expectation for these students actually exceeds grade level performance. Thus, a T-score difference of −15 or −17 may represent nearly average grade level performance for a particular student.

At the end of a three-year period of Alphabetic Phonics instruction, did classroom teachers have a more positive view of SLD students' classroom reading behaviors?

Table XI presents results of the classroom teacher checklist for the pre and post observation points. As shown near the bottom of the

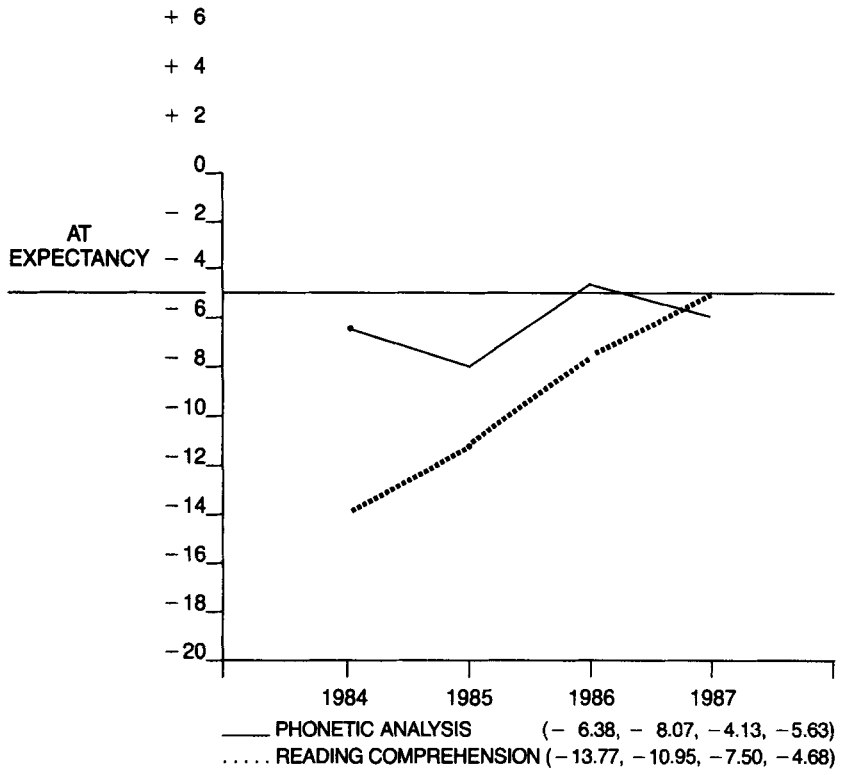

Figure 7. Average T-Score differences of average ability resource students (N = 57) from four administrations of the Stanford Diagnostic Reading Test.

Table VIII
t-Test Comparisons Between Baseline (1984) and Post (1987) for Low Ability Resource Students

	Mean T-score Difference	Standard Deviation	t value (df)	Probability
		PHONETIC ANALYSIS (N = 23)		
Baseline (1984)	.01	15.32		
After 3 years (1987)	3.01	11.67	−.78 (22)	.44
		READING COMPREHENSION (N = 23)		
Baseline (1984)	−3.48	14.33		
After 3 years (1987)	−0.82	19.18	−.64 (22)	.53

Table IX
t-Test Comparisons Between Pre (1984) and Post (1987) for Average Ability Resource Students

	Mean T-score Difference	Standard Deviation	t value (df)	Probability
		PHONETIC ANALYSIS (N = 57)		
Baseline (1984)	− 6.38	13.55		
After 3 years (1987)	− 5.63	13.21	−.36 (56)	.72
		READING COMPREHENSION (N = 55)		
Baseline (1984)	−12.36	12.81		
After 3 years (1987)	− 4.60	13.99	−3.75 (54)	.00

table, scale values ranged from 1 to 4; 4 represented the teacher's perception that the student exhibited the particular behavior all the time, and 1 represented the teacher's perception that the student never exhibited the particular behavior.

On three of the seven behaviors classroom teachers perceived students to behave differently at the end of three years of Alphabetic Phonics instruction. Reportedly, students were more likely: 1) to use word attack skills to unlock new words, 2) to comprehend when reading or-

Table X
t-Test Comparisons Between Pre- (1984) and Post (1987) for High Ability Resource Students

	Mean T-score Difference	Standard Deviation	t value (df)	Probability
		PHONETIC ANALYSIS (N = 10)		
Baseline (1984)	−27.98	21.31		
After 3 years (1987)	−17.25	15.14	−1.60 (9)	.14
		READING COMPREHENSION (N = 10)		
Baseline (1984)	−28.84	15.10		
After 3 years (1987)	−15.91	9.91	−3.33 (9)	.00

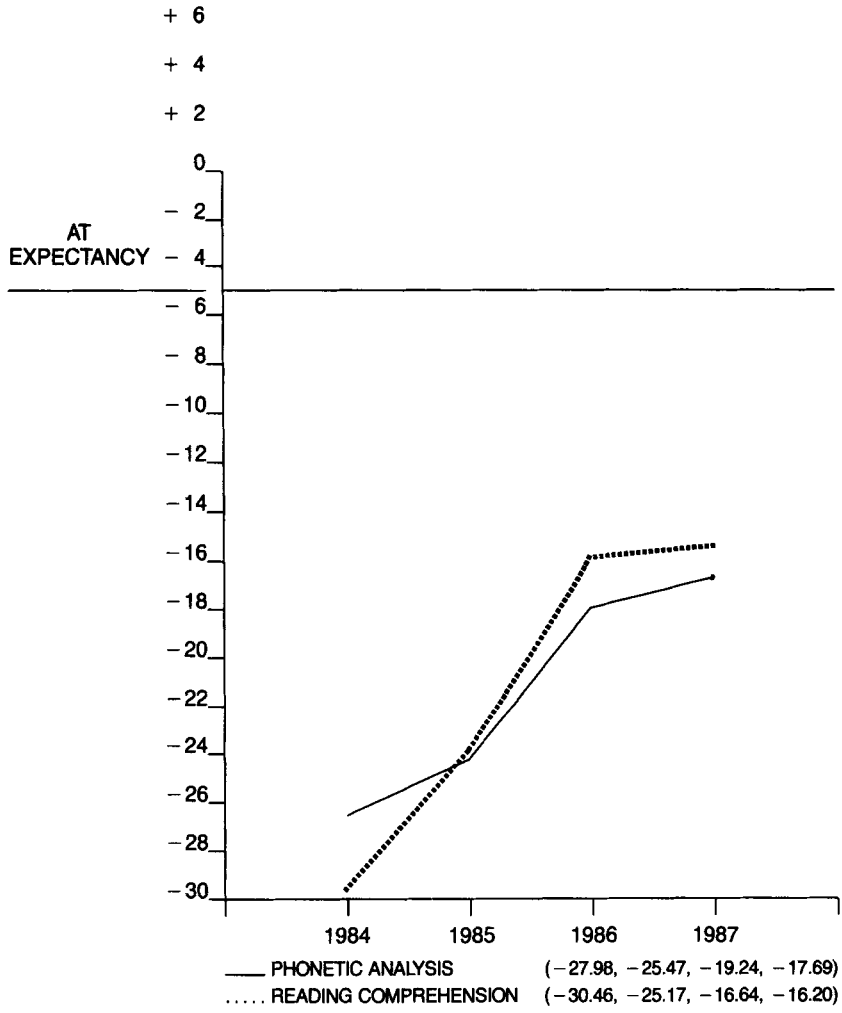

Figure 8. Average T-Score differences of high ability resource students (N = 10) from four administrations of the Stanford Diagnostic Reading Test.

ally, and 3) to comprehend when reading silently. The behaviors on which improvement occurred were emphasized in Alphabetic Phonics curriculum.

Discussion

Over a three year period, the Alphabetic Phonics curriculum produced positive results in reading comprehension for most SLD stu-

Table XI
Pre- (1984)—Post (1987) Comparison of Mean Scores for Classroom Teacher Ratings of Reading Behaviors (N = 117)

	Total	
Question	Pre	Post
Does the student utilize word attack skills when unlocking new words?	2.10	2.34*
Does the student learn and retain sight words?	2.53	2.44
Does the student comprehend when read to orally?	2.73	2.70
Does the student comprehend what he reads orally?	2.31	2.50*
Does the student comprehend what he reads silently?	2.07	2.41*
Is this student performing at his ability level in reading?	2.21	2.24
Does the student read for enjoyment?	1.81	1.83

*Denotes statistically significant difference on Wilcoxon Rank Test for Matched Pairs: p .05

Scale
4 = All the time
3 = Most of the time
2 = Sometimes
1 = Never

dents. Although results for this group of students were not as dramatic as those reported by Waites and Cox (1976), the same trend is evident. In their study of moderately learning-disabled children, ages seven to twelve, Waites and Cox observed that after 20 months of intensive instruction with the Alphabetic Phonics curriculum, students' reading achievement test scores improved significantly to the point that children were functioning at a level equal to or above the level of their peers. In contrast to the delivery method employed here, students in the Waites/Cox study received small group instruction for a total of approximately 400 hours over one summer and two school years. Instruction was delivered by a specially trained language therapist in a private hospital setting.

Consistent with other research findings, early intervention appears essential to the Alphabetic Phonics program's success. Students who began the program in the early primary grades made the greatest and most significant gains. Chall and others (Chall and Jacobs 1983; Calfee and Piontkowski 1981) have repeatedly emphasized the need for early phonemic training. In a synthesis of the research, Juel (1988) reports the widely supported conclusion, "A child who does poorly in reading in the first year is likely to continue to do poorly" (p. 22). Results of several of her studies led Juel to conclude that " . . . if decoding

skill arrives much later [than first grade], it may be very hard to change the direction that reading achievement will take: Poor decoding skill leads to little reading and little opportunity to increase one's basic vocabulary and knowledge, leaving a shaky foundation for later reading comprehension" (p. 29). This study lends further support to Juel's conclusion.

Students in resource and self-contained settings made significant gains in reading comprehension although, interestingly, the two types of students exhibited different patterns of progress. Resource students made consistent progress from one year to the next while the self-contained students made little or no progress until the third year when their performance increased dramatically. This substantial difference in progress may, in part, be due to the seriousness of the student's learning disability.

Students of different ability levels responded differently to Alphabetic Phonics instruction. Both average and above average students made significant progress in reading comprehension. Average students improved steadily from year to year. Above average students improved in both the first two years, with their performance stabilizing during year three. Low ability students, at the end of three years, performed at or above expectation in phonetic analysis and reading comprehension. However, even though they performed at the "expected" level, they still read below grade placement, which is not unusual considering their potential ability.

After three years of Alphabetic Phonics instruction, classroom teachers had a significantly more positive view of students' word attack, oral reading, and silent reading comprehension.

Certainly, further research is necessary regarding the reading growth of learning-disabled students. The students in this study were required to achieve standard scores within five points of their IQ level. It may be that future studies should be more liberal in their standards for measuring reading "success" of learning-disabled students. By definition, learning disabilities are diverse in degree and type. Therefore, youngsters respond to treatment at different rates and in different ways, and it would be unrealistic to expect the same level of performance in the same time frame from each student. A more reasonable program goal may be to expect a certain proportion of the SLD group (e.g., 60 percent) to achieve up to expectation after several years of instruction. In addition, continued research regarding the differences that were observed between the overall reading progress of the severe (full-time) and moderately-impaired (resource) students should occur. Closer examination of the growth of these two groups of learning-disabled students is recommended.

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