Repeated Readings with Precision Teaching to Distinguish LD from NLD

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Three regular education students and two students with specific learning disabilities, all fourth graders, performed repeated readings using Precision Teaching with three stories and three practice sheets to assess generalization. Differences in aims reached, number of sessions to reach aim, frequency of learning opportunities, and celerations discriminated between the two groups. All students demonstrated improvements on at least one generalization practice sheet. Inconclusive data from generalization practice sheets support the use of some comprehension measure as dependent variable when oral reading fluency using repeated readings is being evaluated.

Fluent oral reading is important for at least three reasons. First, students who read fluently comprehend better. Dowhower (1987) found that students who reread passages, become more fluent, retained factual information better, detected errors such as misspellings and embedded nonwords in reread passages, and remembered important terms from their readings. Samuels (1979) explained these improvements in comprehension skills by asserting that fluency in reading allows students to attend to text meaning, whereas lack of fluency in oral reading requires that all the student's attention is focused on decoding.

Second, oral reading and rereading give teachers instructional and remedial information about their students' word attack skills, strategies, and word acquisition frequencies. When teachers know the particular strengths and weaknesses of students, their choices of remediation techniques are more likely to be efficient and effective. This information is not available when students read silently. Although oral reading fluency is not necessarily an agreed upon terminal goal of reading instruction in the educational community (reading aloud is not a common adult behavior), it does fill a very important instructional niche.

Third, fluency in oral reading can be considered a tool skill with wide applicability to many complex skills. These complex skills are primarily comprehension skills and include comprehension at all levels (literal, inferential, critical) and in all areas of the school curriculum (from literature to science). Johnson and Layng (1992) stress the notion that building fluency in tool skills improved accuracy and rate of correct completion of such complex skills as calculus and the advanced comprehension task of identifying faulty logic in lengthy passages. For these reasons it is justifiable to allocate instructional time to fluency building in oral reading in schools.

In special education many children with learning disabilities have reading problems. In fact, Lovitt (1989) comments "the inability to read and learning disabilities are synonymous to many educators" (p. 183). In the Interagency Committee on Learning Disabilities' report to the US. Congress in 1987, the inability of children with learning disabilities to decode effectively is cited as a major reason for poor comprehension. An examination of the leading journals in learning disabilities quickly shows a strong focus on teaching comprehension strategies to students who have learning disabilities (Swanson & Trahan, 1992; Torgesen, Dahlem, & Greenstein, 1987; Box & Anders, 1987; Billingsley & Wildman, 1988; Griffey, Zigmond, & Leinhardt, 1988; Dyck & Sundbye, 1988; Freund, 1988). There is little attention to decoding fluency as a tool skill.

Precision Teaching with repeated readings was demonstrated to be effective in increasing fluency skills in school children (Carroll, McCormick, & Cooper, 1991; Wolking, Harris, Ferro, & Scott, 1990). Standard Celeration Charts showing fluency scores should allow differences between regular education students and students with learning disabilities to be described. Teachers using Precision Teaching and repeated readings are interested in generalization of fluency to novel passages. This information is easy to include on a Standard Celeration Chart.

The purpose of this article is to compare the performances of regular education students and students with learning disabilities at the elementary level on repeated readings using Precision Teaching. Also, performances of all students on a fluency generalization task are presented.

Method

Participants and Setting

Adam, Jess, and Frankie are three fourth grade regular education boys from a rural community in lower Michigan who agreed to participate in the study. They were chosen by their teacher as "average-to-below average overall performers" in their class. Tameca and Nick were fourth grade students with learning disabilities. All students' ages ranged from nine years, two months, to nine years nine months (see Table 1). The students with learning disabilities had attended a resource room, but the semester of this study they were placed in a regular classroom where a special education teacher co-taught with the regular teacher two hours daily. This change from resource room to regular classroom with co-teaching was part of the school's policy on implementing 'Inclusive Education.'

An empty classroom in the school was used for initial assessment. A quiet, designated section of the resource room was used for the study. Starting in September, 1991 the five students attended the resource room three times weekly to do repeated readings with Precision Teaching with the special education teacher, Jean Guldswog. The goal was for each student to complete three reading practice sheets to a fluency aim of at least 150 words per minute and three generalization practice sheets.

Movement Cycle/Measurement Procedure

The movement cycle for oral reading was the number of words read correctly/incorrectly per minute. The learning channel set was see/say. Errors were marked on the teacher's copy of each probe using an acetate sheet. Omissions, mispronunciations, insertions, reversals, and words prompted by the teacher were counted as errors. Skips were not counted, but were marked for subsequent instruction and feedback. Self-corrections were counted as corrects.

General Procedures

Assessment

Prior to passage selection, the five participants were assessed individually using the Word Identification and Reading Comprehension subtests of the Woodcock-Johnson Psychoeducational Battery - R (19). Grade and age equivalents are presented in Table 1. On the basis of this assessment, grade level probes were selected.

Table 1

Student	Classification	Age (Y/M)	Woodcock-Johnson Reading Mastery Test			
			Word Identification		Passage Comprehension	
			AE[c]	GE[d]	AE	GE
Adam	Regular Ed.[a]	9/8	10-2	5.0	10-8	5.3
Jess	Regular Ed.	9/3	9-5	4.3	11-8	6.6
Frankie	Regular Ed.	9/9	8-1	2.7	8-5	2.9
Tameca	LD[b]	9/2	7-10	2.3	9-3	3.7
Nick	LD	9/9	8-11	3.7	9-3	2.4

[a]Regular education student. [b]Student with learning disabilities. [c]Age equivalents. [d]Grade equivalents.

Probe Selection
Three school library books with reading grade levels between 4.4 and 4.6 were selected. Passages of approximately 220 words in length were copied from each book using chapter beginnings until three practice sheets and three generalization practice sheets were selected per student. Each student read at least one passage from each book. The passages were retyped with cumulative word totals added at the end of each line. Two copies were made, one for the student and the other for the teacher. Selection of generalization passages from the same texts supports the likelihood they were of comparable difficulty as the other reading passages.

Precision Teaching Lessons
Procedures for sessions one and two for each probe were different from those for all other sessions. The steps were identical for all students.

Session one
A timing was conducted on a reading practice sheet and a generalization practice sheet for each student. Each child was told to read the passage silently for one minute, then to read it aloud as quickly as possible. The student was required to use a bookmark to keep track of his/her place in the passage while reading. When the practice sheets were completed, the student and the teacher counted corrects and learning opportunities. The student was then given the option of doing a second timing and charting the best result for both practice sheets. Charting was done by the student.

Session two
The student reread the practice sheet only, had the second timing option, and then selected an aim. An aim rate was accepted and charted if it was 150 words per minute or higher. Aim was decided on the second day because reading rates tended to improve dramatically the second time, and this prevented aims which were too low from being selected.

Remaining sessions
The teacher prepared two teaching sequences for this and every subsequent lesson until aim was reached. Three steps were completed.

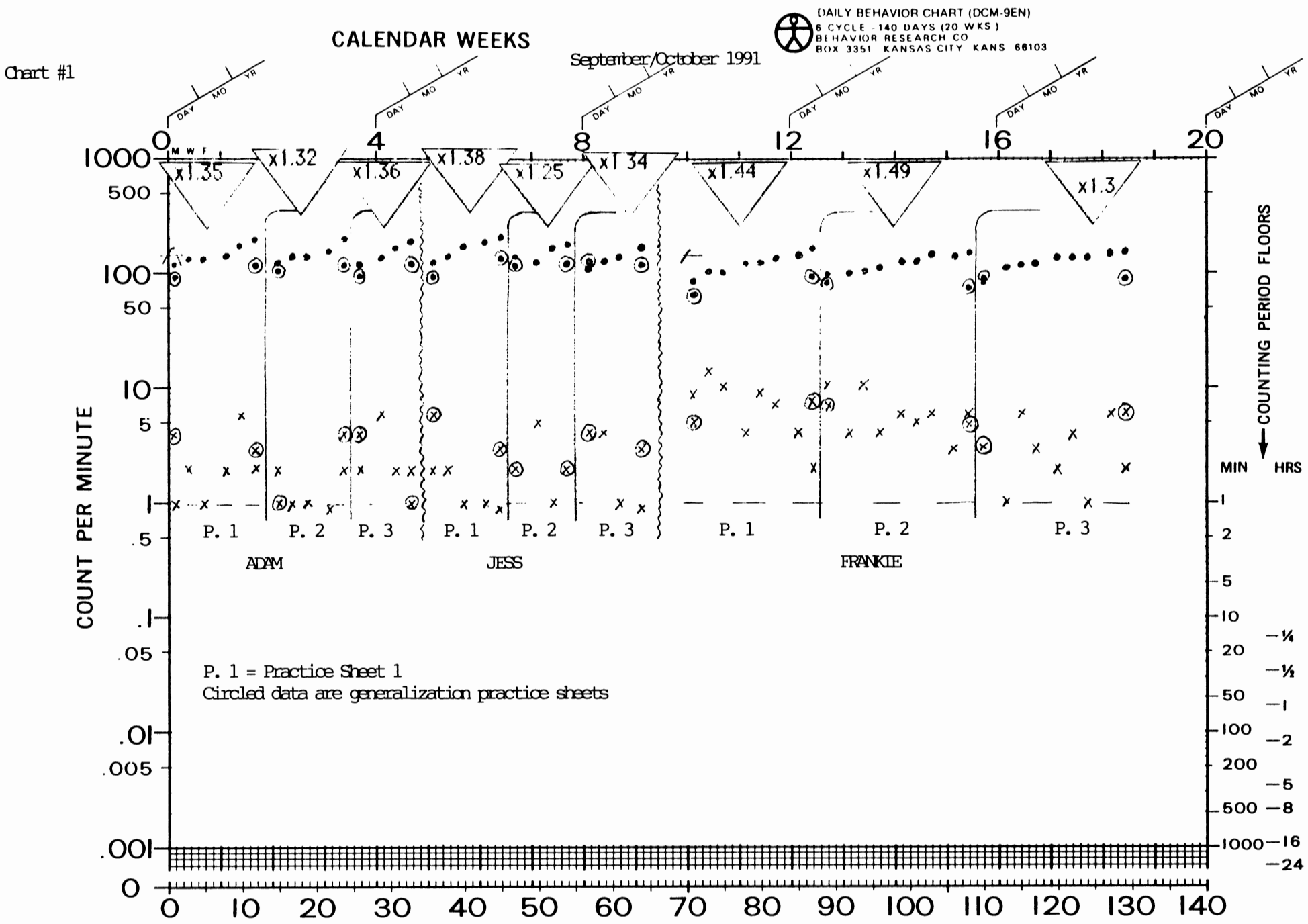
1. Flash card phrases of learning opportunities and skips were made and rehearsed orally for one minute by the student.
2. The teacher made a tape-recording of the practice sheet at a rate at least 20 words per minute faster than the student's previous best rate. The student listened to the tape once, following with the book mark, then read along with the tape once.
3. The timing was conducted as before.

Each day, the last word read by the student was marked on the student's copy of the practice sheet. This told the student what s/he had to exceed in s/he next reading to make an improvement. When aim was reached, the student reread the generalization practice sheet used on day one.

Results

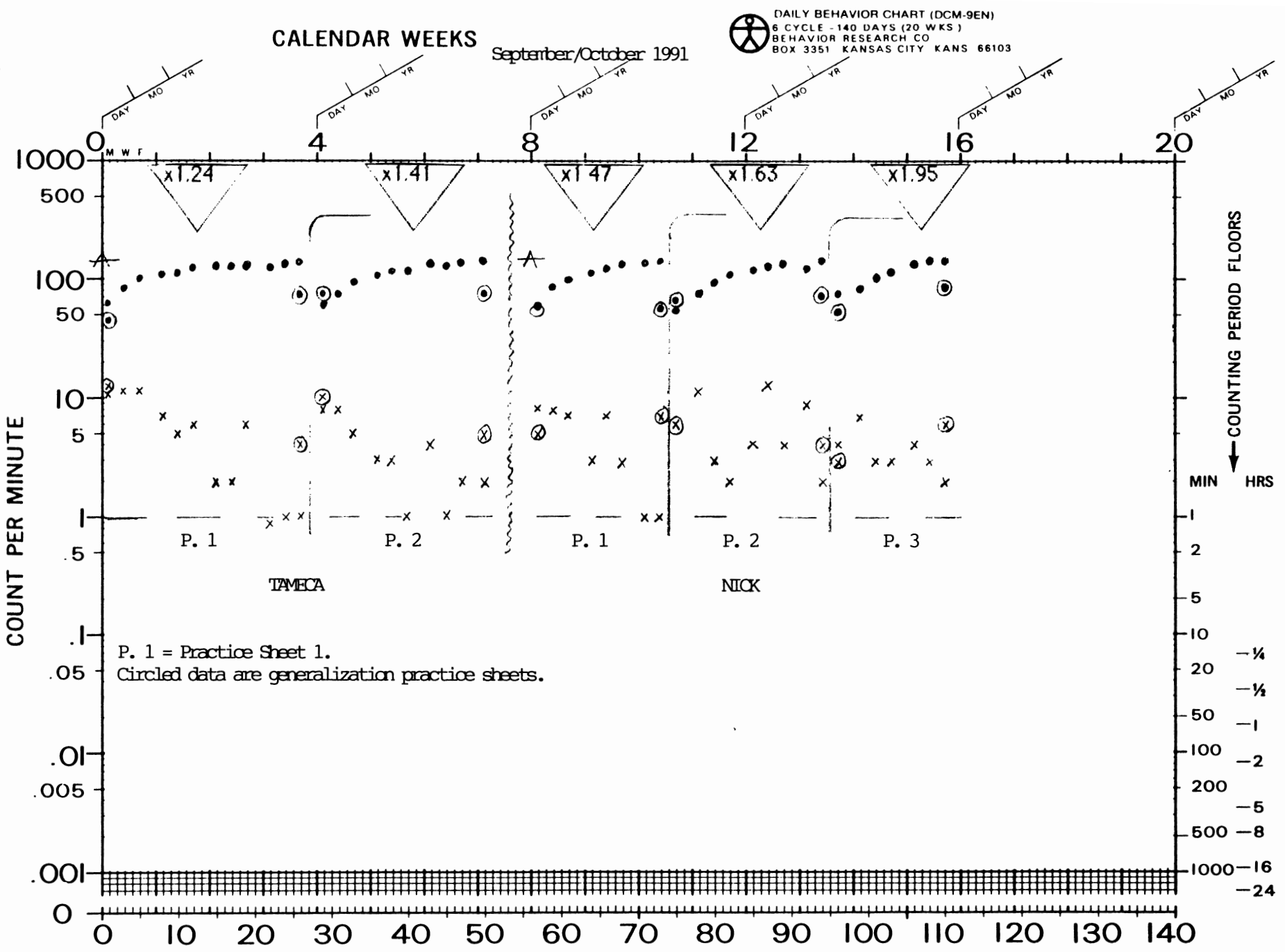
Practice Sheets
All students reached the minimum oral reading fluency aim of 150 words per minute. The regular education students achieved higher beginning frequencies per practice sheet and higher aims than the students with learning disabilities Charts. (Charts 1 and 2 display these data.) The regular education students reached aim faster (i.e., took fewer rereadings) than their counterparts with learning disabilities, with one exception. Beginning frequencies for Adam averaged 125 and for Jess 136 words per minute. Frankie, the third regular education student, demonstrated lower beginning frequencies, averaging 89 words per minute. Beginning frequencies for the students with learning disabilities ranged from 61-64 for Tameca, who only completed two practice sheets in the time frame of the study. Nick averaged 63 words per minute in his first timed readings.

The regular education students Adam and Jess took less time to reach aim on successive practice sheets. For example, Adam took six sessions with practice sheet one, five with practice sheet two, and four with practice sheet three, and reached over 195 words per minute each time. Frankie took longer to reach aim, an average of nine sessions, and did not decrease the number of sessions to get to aim across three practice sheets. The students with learning disabilities



Guldswog	Daly		Adam/Jess/Frankie	9	see/say	words
SUPERVISOR	ADVISER	MANAGER	BEHAVER	AGE	LABEL	COUNTED
			Daly			

Chart #2



Guldswog	Daly			Tameca/Nick	9	see/say	words	83
SUPERVISOR	ADVISER	MANAGER		BEHAVER	AGE	LABEL	COUNTED	
				Daly				
DEPOSITOR	AGENCY		TIMER	COUNTER	CHARTER			

Table 2

Performance on Generalization Probes

Student	First Reading Corrects/Learning Opportunities	Second Reading Corrects/Learning Opportunities	Frequency Difference Words per Minute
Adam	94/4	122/3	+28
	103/1	119/4	+16
	97/4	135/1	+38
Jess	97/6	146/3	+49
	137/2	136/2	- 1
	129/4	138/3	+ 9
Frankie	66/5	93/8	+27
	80/7	73/5	- 7
	89/3	87/6	- 2
Tameca[a]	54/3	76/4	+31
	78/10	79/5	+ 1
Nick[a]	57/5	57/7	-----
	68/6	74/4	+ 6
	56/3	83/6	+27

[a]Students with learning disabilities.

both took fewer sessions to reach aim on successive practice sheets. For example, Tameca took 12 sessions with practice sheet one and ten with practice sheet two. There were no appreciable differences in celerations between the two groups of students.

Generalization practice sheets

Regular education students had higher oral reading fluency scores during the second reading of at least one generalization practice sheet. Only Adam showed an increase on all three generalization practice sheets. His median fluency improvement score was 28 words per minute. Jess increased his fluency on the first and third generalization practice sheets by 49 and 9 words respectively. He maintained approximately the same fluency on the first and third generalization practice sheets by 49 and 9 words respectively. He maintained approximately the same fluency on the second one. Frankie increased his fluency by 27 words per minute on the first practice sheet only and performed slightly worse on the other two generalization practice sheets.

Both students with learning disabilities demonstrated improved fluency rates on at least one generalization practice sheet also. Tameca increased her fluency by 31 words per minute on the first and maintained her fluency on the second one. Nick increased his fluency by six words per minute on the second generalization practice sheet and by 27 on the third one. He maintained his fluency on the first one.

Discussion

Overall, the use of Precision Teaching with repeated readings did distinguish between regular education students and students with learning disabilities in five ways. Regular education students had higher ranges of corrects throughout; they took fewer sessions to reach aim, and had fewer learning opportunities. Students with learning disabilities had higher celerations and higher overall performance changes.

During the course of the study, Frankie was referred by his teacher for evaluation in reading. Frankie's performance looked more like that of the students with learning disabilities in that he took about as long to reach aim as they did. The range of his corrects was higher than these stu-

dents however, but lower than his regular education peers. Review of his school records indicated that Frankie had been referred for assessment previously, but his parents chose not to pursue this as long as he maintained passing grades. The evaluation conducted after this study found him eligible for special education services as a student with learning disabilities. The data from this study were not used in this process.

All students demonstrated increased fluency on the second reading of at least one generalization practice sheet. However, there were too few data to predict whether greater or more consistent increases might have emerged with continuation of the study. Given the larger number of sessions students with learning disabilities took to reach aim, improved fluency on repeatedly read practice sheets should not be expected to generalize to single readings of novel sheets. In other words, students with learning disabilities may be better served by encouraging them to reread every passage whose content they need to comprehend. Whether increasing fluency using repeated readings to aims much higher than 150 words per minute would produce greater generalization to novel reading sheets, should be studied. Johnson and Layng's (1992) research indicates that some students need to become more competent than others in tool skills before performance in complex skills improves.

Whether fluency on a novel probe is an appropriate generalization measure is also open to question. Choosing some measure of comprehension as the dependent variable might be a better way to assess the effects of varied fluency rates using repeated readings. The measurement of the comprehension movement cycle here is critical as too gross a measure, such as ideas or events recalled, may not reflect growth in comprehension skills.

The major weakness of this study was the small number of practice sheets brought to aim. Learning pictures of small numbers of students with learning disabilities across many reading practice sheets need to be accumulated, so that learning profiles of these heterogeneous students can be constructed. Standard Celeration Charting has the potential to be singularly effective in this process and would provide the most instructionally relevant data displays.

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