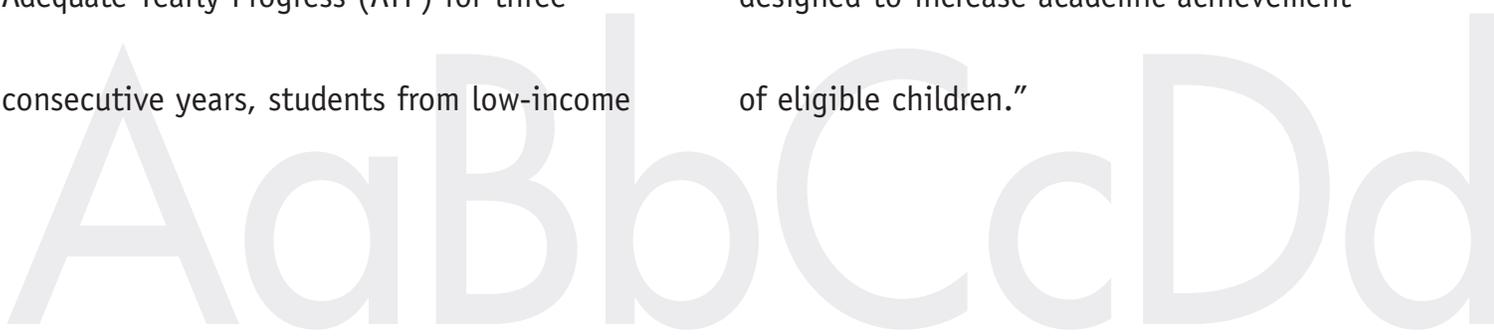


**W**hen tutors work closely with teachers and experience comprehensive, intensive, and ongoing training, they can make a tremendous difference in students' reading success. Research has consistently shown that well-designed tutoring programs, which incorporate volunteers and other nonprofessionals as tutors, can be quite effective in improving reading skills.

Through its supplementary services provision, the No Child Left Behind Act (NCLB) has focused national attention on the use of tutoring to improve student achievement, particularly in math and reading. If a school does not achieve Adequate Yearly Progress (AYP) for three consecutive years, students from low-income

families become eligible for supplementary services, which may include tutoring programs offered by state-approved providers. NCLB requires that tutoring programs be "high quality, research-based, and specifically designed to increase academic achievement of eligible children."



## What Research Shows About Tutoring

Recently a group of researchers identified 29 studies, conducted between 1975 and 1998, that examined the effectiveness of adult-delivered tutoring of children experiencing reading difficulties. These studies included a control group, as well as data that could be evaluated providing an effect size.

Ultimately, the 29 studies generated 216 effect-size comparisons, covering interventions in Grades 1–5. Although there was significant variation in the effect-size estimates, the overall average was positive: 0.41 (or 2/5 of a standard deviation, which is equivalent to someone who scored at the 50th percentile moving to the 65th percentile). (Elbaum, Vaughn, Hughes & Moody, 2000.)

Several other studies, including those listed below, show that a well-designed tutoring program can be truly effective in helping struggling readers attain academic success.

## Improving Early Literacy

A study conducted by Susan Gibbs, called “Effects of a One-to-One Phonological Awareness Intervention on First-Grade Students Identified as At-Risk for the Acquisition of Beginning Reading” evaluated the effects of a particular SRA/McGraw-Hill program. In this study, *Early Reading Tutor* was used as supplemental intervention addressing phonological awareness and beginning reading skills with first graders identified as at-risk.

For the initial stage of the study, Grade 1 teachers from four elementary schools were asked to recommend four students to be screened for the study based on their performance on a mid-year district phonemic awareness assessment (scores that were not proficient, < 80%) and a Running Record (reading below grade level). Students with parental permissions were screened for the study using the Letter-Word Identification Subtest of the Woodcock Johnson-Reading (WJ-R) Form A and the Test of Phonemic Awareness (TOPA) (Torgeson & Bryant, 1994). The Word Attack Subtest of the WJ-R Form A was also administered as a pretest measure.

Ultimately, 60 students from 15 Grade 1 classrooms in the four elementary schools participated in the study. When

participants were in the seventh month of Grade 1, they were randomly assigned to either *Early Reading Tutor* (n=30) or control conditions (n=30). Both the *Early Reading Tutor* and control groups continued to be instructed for one hour a day with the district’s adopted balanced literacy program.

## Study Implementation

A total of 17 trained paraprofessionals implemented the *Early Reading Tutor* program for the 30 participants in the experimental condition. The paraprofessionals followed the scripted lessons within the program to present instruction for approximately 10 minutes daily. Lessons focused on: 1) identifying letter-sound correspondences, 2) blending phonemes into words, 3) segmenting words into phonemes, and 4) manipulating phonemes to form rhyming words. If a lesson could not be completed within 10 minutes, the same lesson was presented again the following day.

At the end of tutoring sessions, student progress was recorded on daily data collection sheets. At the end of every fifth lesson, a mastery test was administered, and paraprofessionals proceeded to the next lesson or repeated lessons based on the number of correct student responses. A total of 30 10-minute intervention sessions were completed with each participant in the experimental group.

Classroom teachers (at times supplemented by paraprofessionals or volunteers) provided instruction for the control group. This instruction consisted of a sequence of activities designed to supplement the district’s Grade 1 balanced literacy adoption (Cooper & Pikulski, 1995) and included: 1) reading books to peer partners, 2) guided reading, 3) word attack skills, 4) picture walks, 5) sight word instruction, and 6) oral language activities. The control group received instruction in a variety of literacy activities that included letter-sound correspondence instruction, but they did not receive instruction in the manipulation of phonemes through blending and segmenting. The amount of time spent on instruction of control group participants ranged from 15-20 minutes daily for three days a week, to 15-20 minutes daily for five days a week.

## Results of the Early Reading Tutor Study

Measures of letter-word identification, word attack, and phonological awareness performance were compared for students participating in *Early Reading Tutor* and their peers participating in more traditional, supplemental instruction. Differences favoring the *Early Reading Tutor* group were evident for letter-word identification and word attack skills, but not for phonological awareness. Both groups increased abilities to isolate phonemes heard in spoken words to the same extent. In addition, the level of performance on the phonological awareness on the TOPA was the same for both groups on posttests. But the degree of improvement of children in word reading and word attack skills depended strongly on the type of intervention they received.

### Letter-Word Identification Scores

Average Letter-Word Identification pretest and posttest scores were similar. The amount of change from pretest to posttest was significant for both groups. The *Early Reading Tutor* group improved from 18.30 to 23.00 and the control group improved from 19.23 to 21.67.

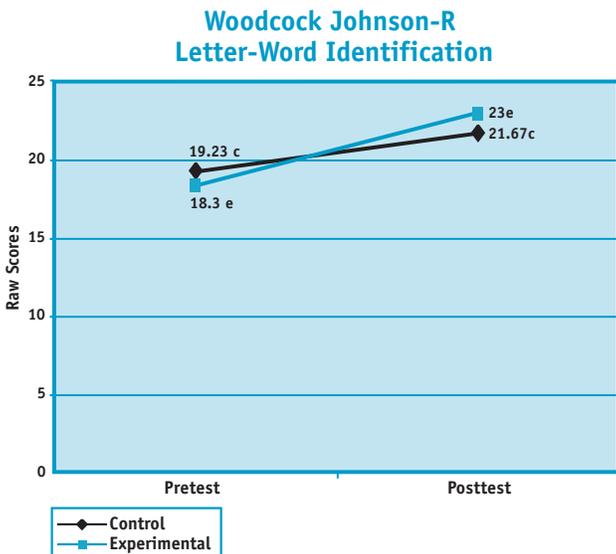


Figure 1 – Performance by group across the repeated measure of letter-word identification on the WJ-R

The groups were similar before, but the difference reflecting growth in the *Early Reading Tutor* group was significantly

greater — almost twice as large — than that of the control group. The effect size for the control group was modest at 0.77; whereas the effect size for the *Early Reading Tutor* group was very large at 1.62.

### Word Attack

Average pretest scores were similar for the *Early Reading Tutor* (M=1.37) and control group students (M=1.43) for Word Attack. However, average posttest scores were significantly different for the *Early Reading Tutor* (M=4.97) and control group students (M=2.77). The amount of change from pretest to posttest on the Word Attack Subtest of the WJ-R was significant for both experimental and control groups. The experimental group improved from 1.37 to 4.97, and the control group improved from 1.43 to 2.80. The effect size of the control group was modest at 0.68, but the effect size of the *Early Reading Tutor* group was quite large at 1.58.

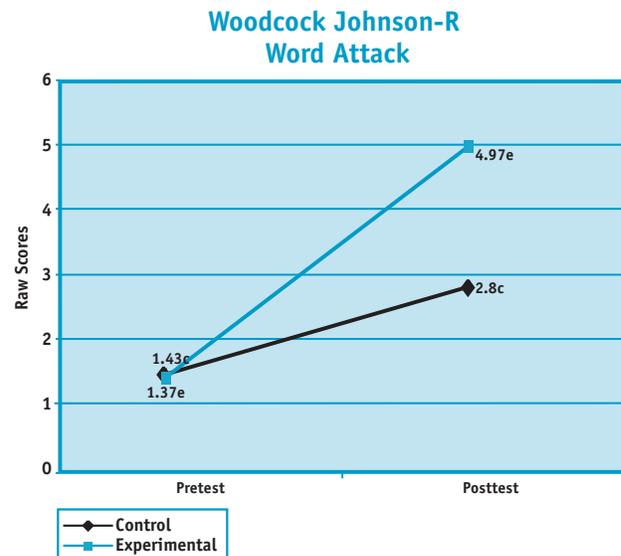


Figure 2 – Performance by group across the repeated measure of Word Attack on the WJ-R

The groups were similar before the intervention, both improved over the course of the intervention, and the growth in the *Early Reading Tutor* group was much greater than in the control group.

## The Effects of Grouping Conditions On Reading Achievement

Many supplemental programs are designed with the assumption that 1:1 instruction is necessary for effectiveness (Elbaum et al., 2000). However, this format requires the most resources and often reduces the number of students being served. A second study using *Early Reading Tutor* compared the results of two grouping conditions (1:1 and 1:3) on the reading achievement of 54 Grade 1 students identified as at risk for reading failure.

This study, conducted by Shawna Helf, Nancy L. Cooke, and Claudia Flowers, used a true experimental group design with students randomly assigned into the 1:1 or 1:3 grouping condition. Prior to intervention, students were grouped based on their current lesson placement in *Early Reading Tutor*. Then, groups of six students were assigned to one of nine tutors for the study.

Once the groups had been assigned, students within the groups were randomly assigned to one of the two grouping conditions. In *Early Reading Tutor*, a student practices skills by responding to tutor cues, which include verbal prompts (e.g., What sound?) and physical prompts (e.g., tutor using a finger to touch under the sounds as the student says the sounds). For students instructed in the 1:3 grouping condition, the children chorally responded as a group for all tasks. In addition, they responded individually at least one time during the instructional components of the lesson. When an error was made, the tutor implemented a correction procedure with the entire group. Similarly, if any one of the students in the group did not meet criteria for the review component, all received remediation on that specific skill.

For each grouping condition, Mastery Tests were administered individually to each student, and the tutor compared each student's performance to the program guidelines. If the student(s) did not master the skills in the unit, the tutor provided remediation on the specific skills not mastered. The remediation sessions were separate from the instructional sessions, but they occurred immediately after the instructional sessions.

## Instructional Efficiency

This study also addressed whether there were differences in instructional efficiency between 1:1 and 1:3 instruction, based on the number of lessons completed, number of instructional minutes per students, number of remediation sessions per student, number of lessons mastered, and the percentage of rewards earned (a measure of behavior management).

### Mean Scores and Standard Deviations

Measures	1:1 (N=25)		1:3 (N=24)	
	M	SD	M	SD
Number of Lessons Completed	40.16	3.29	39.08	3.23
Number of Instructional Minutes per Student	370.48	63.84	169.23	111.27
Number of Remediation Sessions per Student	3.64	4.28	4.79	3.93
Number of Lessons Mastered	55.68	10.24	58.75	7.58
Percentage of Rewards	97.86%	4.38%	96.70%	3.59%

Figure 3 – Mean scores and standard deviations

The mean number of lessons completed, remediation sessions, lessons mastered, and percentage of rewards were not significantly different for students instructed 1:1 than for students instructed 1:3. The magnitude of difference was quite large for only one variable – the mean number of minutes of instruction (Cohen, 1988). Figure 4 presents the means and standard deviations for number of minutes based on lesson placement.

### Mean and Standard Deviations for Number of Minutes Based on Lesson Placement

Grouping	Number of Minutes								
	Lessons 5-25			Lessons 26-40			Lessons 41-93		
	N	M	SD	N	M	SD	N	M	SD
1:1	24	4.96	1.28	24	10.05	1.17	25	10.93	.91
1:3	24	5.52	1.03	24	14.92	1.25	24	16.02	1.91

Figure 4 – Mean and standard deviations for number of minutes based on lesson placement

The analysis for the number of minutes based on lesson performance indicates that providing instruction to students in a small group is more efficient than providing instruction 1:1.

**Pretest and Posttest Mean Scores and Standard Deviations**

	1:1 (N=25)				1:3 (N=24)			
	Pretest		Posttest		Pretest		Posttest	
	M	SD	M	SD	M	SD	M	SD
PSF	20.56	15.76	58.44	10.32	24.08	15.67	62.25	14.20
NWF	16.72	6.62	57.16	12.97	17.46	7.45	62.04	13.78
ORF	13.88	8.98	23.76	11.34	12.71	11.12	23.71	11.56

Figure 5 – Pretest and posttest mean scores and standard deviations

As Figure 5 indicates, all groups had a higher posttest mean score than mean pretest score on Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), and Oral Reading Fluency (ORF). The mean change was statistically equivalent for both the 1:1 and 1:3 grouping conditions.

**Nonsense Word Fluency**

In addition, by week seven, participants in both grouping conditions met the DIBELS winter Nonsense Word Fluency benchmark goal (50 or more correct sounds per minute). These gains maintained throughout the duration of the study.

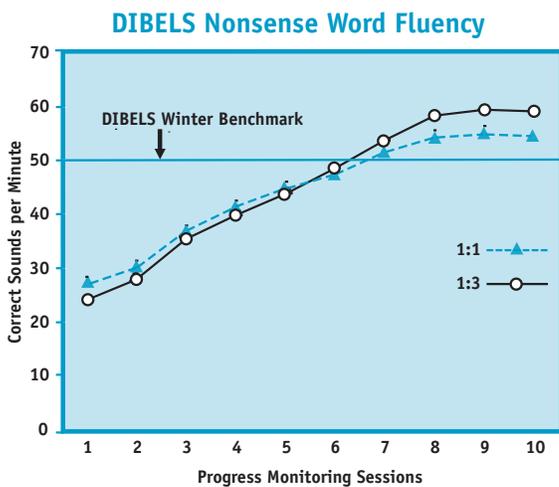


Figure 6 – Nonsense Word Fluency

**Oral Reading Fluency**

Students in both grouping conditions showed an increase in Oral Reading Fluency. By weeks seven and eight, participants met the DIBELS winter Oral Reading Fluency benchmark goal (20 or more correct words per minute). These gains also were maintained throughout the duration of the study.

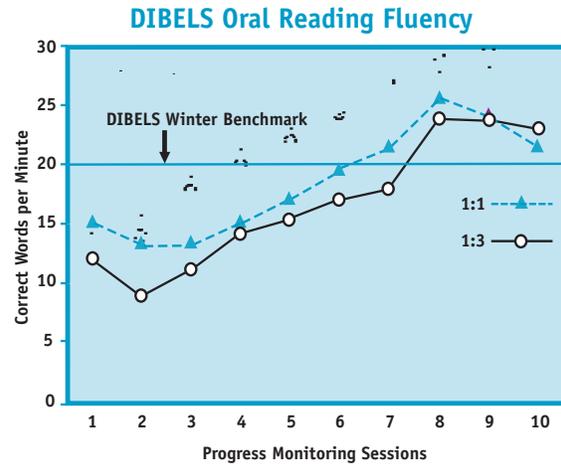
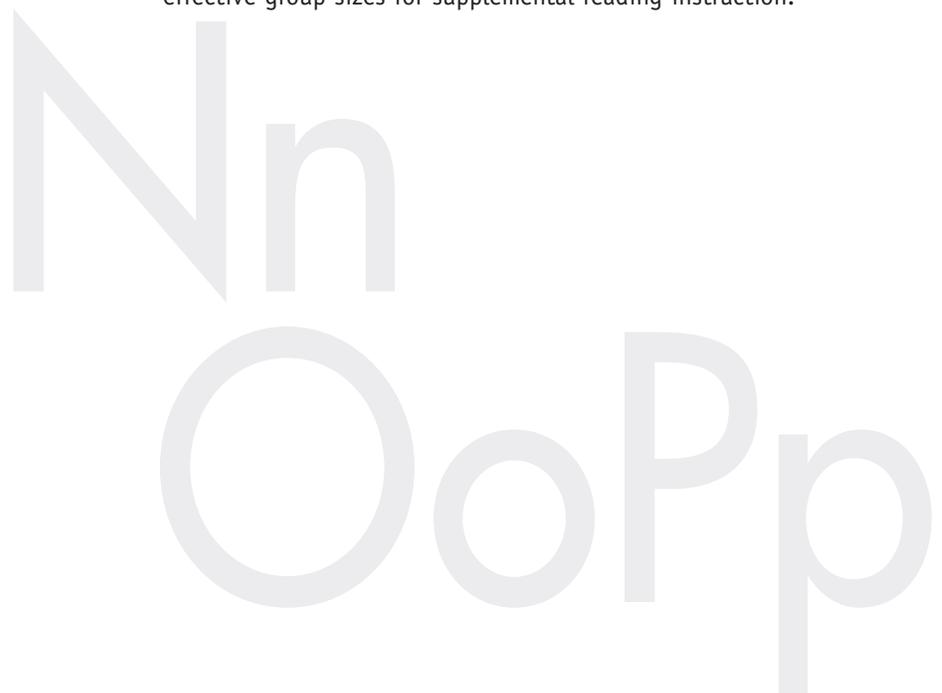


Figure 7 – Oral Reading Fluency

**Results for Grouping Conditions Study**

The results of this study indicate that students in groups of 1:3 made gains in reading achievement comparable to those taught 1:1. This finding is consistent with existing research that suggests both 1:1 and 1:3 grouping conditions are effective group sizes for supplemental reading instruction.



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## Conclusion

These studies extended the work of Vaughn et al. (2003) by tightly controlling an intervention, through the use of a scripted supplemental tutorial program, to examine differences in reading achievement and instructional efficiency. The results indicate that students receiving *Early Reading Tutor* for supplemental intervention made significant gains in reading from pretest to posttest. Overall, the majority of students met DIBELS benchmark scores and were on track to reach end-of-year benchmark goals. In addition, because students made comparable progress and gains in reading when instructed in small groups of three, *Early Reading Tutor* provides a solution for the lack of resources (time and staff) found in many schools.

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## Scientifically Based Research For Intervention

The scientific research for students who are at risk for learning to read (Simmons & Kame'enui, 1999) indicates that the following principles of instructional design should be included in intervention programs: 1) big ideas, 2) conspicuous strategies, 3) mediated scaffolding, 4) strategic integration, 5) primed background knowledge, and 6) judicious review. *Early Reading Tutor* addresses all of the principles of instructional design for students identified as at-risk for learning disabilities.

### Early Reading Tutor: Principles of Curriculum Design

	Conspicuous Strategies	Mediated Scaffolding	Strategic Integration	Primed Background Knowledge	Judicious Review
Definition	Sequences of teaching events/actions that clarify the steps required for sound identification and manipulation	External support by teacher, tasks, and materials during initial learning of sounds  Strategies for consciously hearing and manipulating sounds	Planned sequencing of phonologic and alphabetic tasks to promote reading acquisition or remediation of reading disabilities	Relevant and essential language skills and strategies with sounds that enhance new learning of phonological awareness	Sequence and schedule of opportunities provided allow children to apply and develop facility with sounds
Attention to Basic Sound Production	Sounds of phonemes modeled in isolation	Initial support provided for students as they learn phonemes	Use of text that provides sufficient practice with related words	Letter-sound correspondences taught in isolation and systematically reviewed	Review of sounds at end of each lesson
Attention to Advanced Sound Production	Blending of phonemes into words without stopping between sounds is taught as a decoding strategy	Sufficient practice in saying the sounds of phonemes provided	Letter-sounds, words, and passages in each lesson	Blending  Segmentation using concrete representation of sounds  Onset rime instruction, including writing words  Review of blending, segmenting, and onset rimes	Mastery Tests at every fifth lesson
Other Instructional Components	Blending, segmenting, use of onset rimes	Instructional sequence adapted dependent upon mastery of skills	Letter-sound correspondence integrated with word reading	Consistent review of skills necessary to succeed at each level	Multiple chances to apply knowledge of phonological awareness and alphabetic understanding

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