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ABSTRACT

The effectiveness of using volunteer reading tutors to work with students with reading difficulties was examined. Changes in academic engaged time, active responding time, achievement, and student attitude were assessed, along with information from tutor evaluations. Nine intervention and 8 control students (grades 3-5) with mild handicaps participated over an 11-week period, with experimental subjects receiving at least 36 20-minute sessions with reading tutors during that time. Observations indicated significantly greater active academic responding (particularly reading aloud) and academic engaged time when students were with tutors, as well as significantly less inappropriate nontask behavior. During the intervention period, higher inappropriate nontask behavior was observed when the student was not with the tutor during reading time. Follow-up observations of intervention students without tutors revealed that changes in responses were not maintained. Changes over time were not found in achievement or in student attitude measures. Tutor evaluations suggested the possibility of gains in aspects of reading not measured by standardized tests (e.g., expression), as well as several improvements for students in social-emotional areas. (Appended are the Reading Attitude Scale used in the study, the teacher and tutor evaluation forms, and a tutorial training agenda and guidelines.) (Author/DB)

University of Minnesota

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Abstract

The effectiveness of using volunteer reading tutors to work with students with reading difficulties was examined. Changes in academic engaged time, active responding time, achievement, and student attitude were assessed, along with information from tutor evaluations. Nine intervention and eight control students with mild handicaps participated over an 11-week period, with experimental subjects receiving at least 36 20-minute sessions with reading tutors during that time. Observations indicated significantly greater active academic responding (particularly reading aloud) and academic engaged time when students were with tutors, as well as significantly less inappropriate nontask behavior. During the intervention period, higher inappropriate nontask behavior was observed when the student was not with the tutor during reading time. Follow-up observations of intervention students without tutors revealed that changes in responses were not maintained. Changes over time were not found in achievement or in student attitude measures. Tutor evaluations suggested the possibility of gains in aspects of reading not measured by standardized tests (e.g., expression), as well as several improvements for students in social-emotional areas.

Volunteer Tutors as a Reading Intervention for Students with Reading Difficulties

"Reading failure is a problem that persists despite good intentions, a growing knowledge base in reading research, and over the past two decades, government intervention in the way of legislation and funding for compensatory and special education" (McGill-Franzen, 1987, p. 477). The ability to read is the foundation upon which other skills are built, and as such cannot be overemphasized. It is important to investigate the factors contributing to and impinging upon success in reading as groundwork for formulating and implementing sound intervention strategies.

Historically, in both general and special education, a great deal of attention has been focused on remediation of deficit skills assumed to exist within the child, without equal consideration of the instructional context within which reading occurs. Recently, efforts have expanded to explore classroom variables associated with positive outcomes in reading achievement. For example, in an investigaton of 105 learning disabled students, Leinhardt, Zigmond, and Cooley (1981) found that 72% of the variance in posttest reading scores could be explained by reading pretest scores, student behaviors, and teacher behaviors. Investigators at the Exemplary Center for Reading Instruction (ECRI) found through a series of studies that student learning increased when: (a) students receive greater amounts of instructional time, (b) students are reinforced for increasing oral reading speed and accuracy, (c) students are provided with supervised practice time, (d) instruction is introduced in a three-step process: demonstration, prompt, and practice, and (e) teachers elicit overt, correct responses (Reid, 1986).

Two variables in particular have come to the forefront in the search for correlates of reading success. These are instructional time and time on task. Subsumed under the concept of "opportunity to learn," operational definitions of allocated time, academic engaged time (AET), and academic responding time (ART)

have been developed. Allocated time is the amount of time actually designated for instruction within a particular subject area. AET describes the time the student is passively or actively engaged in academic learning, and ART refers to time spent making active academic responses such as reading aloud.

Initial work in this area focused on nonhandicapped populations. The Beginning Teacher Evaluation Study, designed to explore the conditions that foster learning, found considerable variance in time allocated to reading (i.e., 60 to 140 minutes per day in fifth grade classrooms). Students were engaged in listening or observable academic responses for an average of 64 minutes of the reading time (Rosenshine, 1980). In contrast, Greenwood, Delquadri, and Hall (1984) reported lower levels of engaged time when passive responses (i.e., looking at teacher) were excluded from measures of engaged time in reading. A study of nonhandicapped third and fourth grade students (Graden, Thurlow, & Ysseldyke, 1983) found that, on the average, students spent only 10 minutes per day in silent reading and less than one minute per day reading aloud. Hall, Delquadri, Greenwood, and Thurston (1982) reported an average of only 4 minutes of oral reading per day and 11 minutes of silent reading for 12 elementary students.

It is clear that students spend relatively small amounts of their school day actively involved in the reading process. What impact does this have on achievement? Leinhardt et al. (1981) reported that an average of 1 minute per day of additional silent reading would increase posttest scores by 1 point; an increase of 5 minutes per day would result in a one month gain (grade-equivalent scale) of additional reading achievement. The BTES findings relevant to time and achievement include the following:

(1) The amount of time allocated to instruction in a given content area is positively correlated with learning in that content area.

(2) There is a positive correlation between proportion of allocated time in which students are engaged and learning.

(3) The proportion of time in which students are successful in reading or math is positively correlated with learning.

(4) More substantive interaction between the student and teacher is correlated with higher levels of student engagement.

Gettinger and White (1979) concluded that Time to Learn (TTL) is a stronger correlate of school learning than is IQ. They found a correlation of .85-.89 for TTL and scores on the Stanford Achievement Test for fourth, fifth, and sixth grade students.

Allocated and engaged times for mildly handicapped students were explored as part of the Instructional Alternatives Project at the University of Minnesota. The proportion of time allocated to reading instruction was found to be greater in special education settings than in mainstream classrooms (Ysseldyke, Thurlow, Christenson, & Weiss, 1987). Mildly handicapped students also had significantly higher proportions of AET and ART in resource room settings during reading compared to mainstream classrooms during reading (O'Sullivan, Ysseldyke, Christenson, & Thurlow, 1988). These kinds of findings suggest that students with mild handicaps experience less opportunity to learn during mainstream reading instruction than their nonhandicapped peers.

The limited amount of time that students are actively engaged in reading, especially in mainstream settings, has been documented. We know something about the relationship between responding time and achievement for nonhandicapped students. How do we use this information to have a positive impact on the reading achievement of learners with mild handicaps? It has been suggested that one of the ingredients for successful reading outcomes is to maximize poor readers' time on reading tasks. Gaskins (1988) describes how organized teaching styles result in more productive use of instructional time. Leinhardt et al. (1981) emphasize the need to increase the amount of direct supervised instruction that students receive:

> The kind of classroom practices we are suggesting derive from a strong belief that changes in the instructional environment that lead to an increase of as little as 5 to 10 minutes per day of reading will go a long way toward improving the educational experiences of children with learning disabilities. (p. 358)

High student-teacher ratios in many schools impede the efforts of educators to implement these changes. Many teachers have too large a caseload to provide additional instructional time to individual students. A potential solution is the use of peer and adult tutors as ways to provide increased practice time, which is hypothesized to improve academic responding time and achievement (Hall et al., 1982). Support for this hypothesis was provided by Searles, Lewis, and Morrow (1982), who reported significant increases in achievement when parents served as tutors for their first-grade children. In addition, BTES data showed higher engagement rates when student-teacher contact was increased. As Fisher and his colleagues explain: "Increasing the number of teaching personnel (aides, volunteers, peer tutors, etc.) is a good way to increase the amount of interactive instruction a child receives" (Fisher, Berliner, Filby, Marliave, Cahen, & Dishaw, 1980, p. 31). Data from nonhandicapped populations suggest that increased practice time is positively associated with higher levels of engagement and achievement. The use of volunteer tutors is a cost-effective method for providing students with additional supervised practice time.

In this study, we investigated the effectiveness of reading tutors for increasing the time on task and academic achievement of students with reading difficulties. The following research objectives were addressed:

(1) To examine the effectiveness of the use of adult tutors for increasing the academic engaged time and achievement of handicapped learners.

(2) To determine the extent to which engaged time is related to academic outcomes.

(3) To determine the extent to which increases in academic engaged time result in commensurate increases in achievement for mildly handicapped students.

(4) To determine the extent to which the use of adult tutors is associated with positive changes in student attitudes toward reading.

Method

Subjects

Nine mildly handicapped children (6 male, 3 female) in grades 3 (n = 2), 4 (n = 1), and 5 (n = 6) from a suburban school district were selected to participate in the reading intervention project. In addition, eight mildly handicapped students (7 male, 1 female) in grades 3 (n = 3), 4 (n = 1), 5 (n = 2), and 6 (n = 2) served as a control group for the reading intervention subjects. The categories within which the reading intervention subjects were served included learning disability (n = 6), emotional/behavior disorder (n = 2), or a combination of the two (n = 1). Control group subjects were served in the categories of learning disability (n = 5), emotional/behavior disorder (n = 2), or a combination of the two (n = 1).

Students were randomly assigned to control and intervention groups, after those meeting five criteria were identified. Potential subjects included students classified as mildly handicapped and served within the targeted school system. From this list, subjects selected were those with parent permission to participate who were: (a) enrolled in grades 3 - 6, (b) teacher-identified as delayed in oral reading and/or in reading comprehension skills, (c) teacher-identified as potentially benefiting from extra reading practice, and (d) not currently involved in other research-based intervention projects. Of eleven subjects originally selected, two grade 6 students asked to be dropped from the project during the first weeks because they did not want to miss class time.

Information was available on six of the seven teachers of the intervention group subjects (one teacher had three students; one teacher did not provide information), and six of the seven teachers of the control group subjects (one teacher had two students; one teacher did not provide information). Each group

included 3 male and 3 female teachers. All were certified as general education teachers. The average number of years of teaching for the intervention group subjects was 24.5 years (SD = 4.2, Range = 20-32 years), and for the control group subjects was 27.7 years (SD = 3.4, Range = 24-32 years).

Measures

Academic responding observation system. The CISSAR (Code for Instructional Structure and Student Academic Response) observation system was used to obtain data on quantity of student responding time. This system focuses the observation on one target student. Student responses are recorded every 10 seconds on a portable computer. The CISSAR system, developed at the Juniper Gardens Children's Project in Kansas City (Greenwood, Delquadri, & Hall, 1978; Stanley & Greenwood, 1980), includes 19 response codes that combine to form the following composite variables: active academic responses, task management responses, and inappropriate responses (see Table 1). An additional composite is academic engaged time, which is formed by adding the attending response to the active academic responses composite. Most reports of student observations focus on "on-task time" or "engaged time"; these variables are comparable to the academic engaged time composite. It should be noted that one of the codes is different from the original CISSAR code. "Self-stimulation" in the original system was deleted and a task management response (waiting) was added. "Waiting" was defined as the time the student is not involved in any response and there is an obvious "wait" time such as when the student is standing in line (see Stanley & Greenwood, 1980 for definitions of other student responses).

Training of CISSAR observers occurred over a two-week period in formal training sessions conducted by project staff members. Training focused on learning and practicing code definitions and use of the portable computer to enter codes; this was followed by 2-3 days of classroom practice. Training was based on the CISSAR

Table 1

Student Response Codes in CISSAR Observation System

Student Response Code			Composite
Writing Playing Academic Games Read Aloud Read Silently Appropriate Talk Answer Question Ask Question			Academic Responding Time (ART)
Attending to Task	+ ART	=	Academic Engaged Time (AET)
Raising Hand Looking for Materials Moving to New Academic Station Playing Appropriately Waiting			Task Management (MGMT)
Disruptive Playing Inappropriately Inappropriate Task Inappropriate Talk Inappropriate Locale Looking Around			Inappropriate (INAP)

Observer and Trainer's Manual (Stanley & Greenwood, 1980), which was modified to reflect changes in the observation codes and use of the computers rather than paper and pencil coding. Interobserver agreement was monitored throughout the training period, and checks were conducted six separate times during the data collection period. Checks occurred at different times during the school day, in different classrooms, and in different content areas. At the time that data were collected for this study, the observers were very experienced in using the observation system. During the current study, using the portable computers to enter data, average interobserver agreement was 88% for student response codes.

Achievement measures. Both standardized and curriculum-based measures were administered to intervention and control subjects. The BASIS (Basic Achievement Skills Individual Screener; Psychological Corporation, 1983) is an individually administered, norm-referenced measure of reading, math, and spelling achievement. Test-retest reliability coefficients range from .81-.96 across content areas and grade levels. Only performance on the reading subtest was examined in this study.

The Curriculum-Based Measurement (CBM) model used in this project was developed by the Minneapolis Public School System. The reading measure was based on the Holt Reading Series. The student is given one minute each to read three passages specific to the student's grade level, as well as one standard passage. Only performance on the standard passage was examined in this study.

Reading attitude scale. The Reading Attitude Scale (see Appendix A) is a slightly modified version of one developed by Heathington (1975). In the original version, items were stated to reflect both positive and negative attitudes. In order to simplify the language demands of the scale and to facilitate data analysis, items were rewritten so that all reflected a positive attitude toward reading. Heathington developed two scales: one to serve grades 1-3, and a second for 4-6. Given the smaller

range of grades represented in the intervention group in this study (grades 3-5) and the need to compare attitude change across grade levels using the same instrument, the attitude scale for grade 4-6 children was administered to all intervention subjects. Scoring was based on a 5-point Likert scale (1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree). Test-retest reliability of the scale was .87. Diagnostic clusters of reading activity defined by Heathington are the following: (a) free reading in the classroom, (b) organized reading in the classroom, (c) reading at the library, (d) reading at home, (e) other recreational reading, and (f) general reading.

Evaluation forms. A brief questionnaire (see Appendix B) was administered to the teachers at a midpoint in the intervention study. Another evaluation form, for tutors (see Appendix C), was given upon completion of the project. Tutors were asked to rate the reading improvement of their tutee with respect to fluency, word recognition, and comprehension. Additionally, tutors were asked to comment on the factors promoting and impinging upon the success of the project for their students.

Procedures

A list of mildly handicapped students was obtained from each of the elementary schools within the targeted school district. Teachers were asked to designate the students most likely to benefit from additional reading practice. From this list, students in grades 3-6 were randomly assigned to intervention and control groups. Each student was assigned a 20-30 minute period 4 days per week to work with a tutor. The tutoring times were chosen so that students would not miss their regular reading instruction since the reading intervention was designed to supplement rather than supplant classroom instruction. Four students had the same tutor all four days. Five students had two different tutors each week. All tutoring was carried out on an individual basis. No student ever worked with more than two

different core tutors, nor were tutors assigned more than two students. This facilitated rapport building between student and tutor. It also provided the opportunity for tutors to become quite familiar with the student's style of learning. Duration of the project was 11 weeks. Due to absences and classroom interruptions, there was some variability in the actual number of times students were tutored. However, all subjects were tutored a minimum of 36 sessions within the 11-week period. The number of sessions for each participant ranged from 36 to 44.

Tutor recruitment process. The recruitment process targeted primarily a senior citizen population, although younger adult volunteers also were accepted. Tutors were selected for the project on the basis of their interest in working with students, their ability to commit to the project on a regular basis, and prior experience working with or parenting children. No professional educational experience was required.

Bulletins describing the intervention project were placed in grocery stores, libraries, and senior citizen apartment buildings within a five mile radius of the school system. Presentations were made to senior citizen community groups. Other recruitment techniques included radio announcements and notices placed in community newspapers and church bulletins. Coordinators of volunteers at each of the elementary schools provided names of other potential volunteers. A list of 23 potential tutors was developed. Telephone or home-based interviews were conducted and volunteers were assigned the position of either a core tutor (serving 1-2 children on a regular basis) or a substitute tutor.

The 12 core tutors (3 males, 9 females) included 8 senior citizens and 4 young/middle-aged adults. Four of the 12 tutors had professional teaching experience. Substitute tutors received similar training and filled in when core tutors were ill or on vacation. Volunteers cited the following reasons for participating: (a) tutoring provides good experience to pursue a teaching career, (b) tutoring fills a

desire to be useful, (c) tutoring is a way to teach children enjoyment of reading, and (d) tutoring in reading can help children develop critical skills.

Tutor training. Core and substitute tutors attended a one-day five hour training session as well as a follow-up session three weeks after tutoring began (see Appendix D for training materials). Training included instruction in the following areas: (a) paired reading technique, (b) flash card drill, (c) cloze procedure, and (d) record keeping.

The paired reading technique, developed in the mid-70's in England (Morgan, 1986), was chosen for the project because of its emphasis on oral reading fluency and on extracting meaning from context of text. Paired reading has two phases: reading together and reading independently. By reading simultaneously with the student, the tutor was able to model appropriate inflection, which aids in comprehension. When the student read alone, the student received verbal reinforcement for accurate, fluent reading. Paired reading directed tutors away from overemphasis on phonics. When a child made a mistake or failed to read a word correctly, the tutor supplied the word and encouraged the child to repeat. It should be noted that the students still received phonics instruction from the regular classroom teacher. The tutoring experience provided more oral reading practice and one-to-one supervision than is generally available in the mainstream classroom.

For this project, a few modifications of the paired reading technique were made. The reading together phase was kept to a minimum if older, more competent readers were embarrassed by having an adult read with them. Also, a component of paired reading involves self-selection of materials by the child. Given the need for teacher support and cooperation, teacher preference of reading material was considered. In some cases, students read from the basal readers. In most cases, students read from library books. Tutors worked with teachers to monitor the difficulty level of the materials.

In order to increase word recognition skills, tutors used flashcards to give students additional practice with words they had missed the previous day. Finally, if time allowed, a cloze procedure (tutor omits a word from a sentence; child fills in the word using the contextual cues) was implemented to strengthen comprehension skills. Tutors were encouraged to discuss with the child each day what they had read and were instructed to ask both recall and inference-level questions. Following each session, tutors kept notes with respect to the type of reading material used, the number of pages read, and general comments regarding the student's progress, motivation, and any relevant behaviors.

Data Collection and Analysis

All outcome measures were administered at baseline and post to intervention and control subjects, with the exception of the reading attitude scale which was administered only to experimental subjects.

Pre-post reading acnievement tests were administered. Raw scores on the BASIS were converted to standard scores with a mean of 100 and a standard deviation of 15. On the CBM standard passage, the raw score reflected the number of words read correctly. For the pre-post reading attitude scales administered only to intervention subjects, individual item scores (Likert scale numbers) were recorded for each subject, along with the six cluster scores (e.g., free reading in classroom, organized reading in classroom).

CISSAR observations were conducted during reading instruction in the mainstream classroom on three separate occasions for intervention subjects: at the onset of the project in January (baseline), at the end of the project in March (post), and 6-8 weeks after post (follow-up). Control subjects were observed only in January (baseline) and April (post). If the student did not receive reading in the mainstream, observations were made in the setting in which the majority of reading instruction

was received. Baseline observational data were collected the week prior to the onset of tutoring. Post-intervention data were collected the final week of intervention and the tutoring session was included in the observation. Follow-up observation data were collected to determine maintenance effects of the intervention. Engaged time was reported in terms of proportion of time observed due to wide variance in duration of observation sessions.

The brief teacher evaluation form was completed midway through the project. The more comprehensive tutor evaluation form was filled out by each core adult volunteer at a final breakfast honoring the volunteers.

Results

Academic Responding

Shown in Table 2 for the intervention and control groups at baseline and post, and for the intervention group only at follow-up are the average percentages of time in which students were (a) making active academic responses (ART), (b) academically engaged (AET), (c) involved in management responses (MGMT), or (d) making inappropriate nontask responses (INAP). In addition, two specific reading responses of interest (read aloud, read silently) are included in the table.

It should be noted that the means and standard deviations are based on just seven students in the control group because one student in that group received no reading instruction on the day of baseline observation (due to a surprise assembly program in the school). Responses that were academic in nature clearly comprised the greatest percentage of time during which students were observed, regardless of group. Active academic responding, on the average, ranged from about 35% to 50%, whereas academic engaged time was consistently about 80% of the observed time.

Statistical analyses of the difference between baseline and post scores for the intervention and control groups revealed that none of the differences between the

Table 2

Percentages of Time in Composite Student Responses and Reading Responses

Student Response		Baseline		Post		Follow-up	
		Int[a]	Contr[b]	Int[a]	Contr[b]	Int[a]	Contr[b]
ART	M	44.7	44.6	51.6	36.6	35.4	-
	SD	16.9	13.7	15.6	11.7	12.3	-
READ ALOUD	M	1.6	8.0	21.6	5.6	2.6	-
	SD	2.0	7.4	11.1	7.7	2.4	
READ SILENTLY	M	24.1	15.4	17.0	2.7	16.9	-
	SD	14.1	14.6	7.5	2 1	10.6	
AET	M	82.3	78.2	78.6	79.9	82.5	-
	SD	9.4	19.6	12.3	10.7	10.9	
MGMT	M	10.5	7.3	6.4	7.0	7.2	-
	SD	6.6	7.3	2.6	5.4	2.8	
INAP	M	7.2	14.5	15.0	13.1	10.3	-
	SD	4.9	14.3	12.8	9.3	10.0	

[a]Intervention (Int) subjects' percentages based on minutes observed, where the average for nine students was 40.3 minutes (SD = 11.5) at baseline, 61.7 minutes (SD = 15.4) at post, and 46.0 minutes (SD = 16.9) at follow-up.

[b]Control (Contr) subjects' percentages based on minutes observed, where the average for seven subjects was 46.9 minutes (SD = 19.9) at baseline, and 56.2 minutes (SD = 16.2) at post.

two groups in these change scores was statistically significant. However, statistical significance was found for the percentages of time that students were reading aloud, $t(14) = 4.34$, $p < .001$. As is evident in Table 2, the intervention group subjects showed a 20% increase from baseline to post while the control group subjects showed a 2% decline in reading aloud time. While intervention subjects started with a very low percentage of read aloud time, their post percentage was clearly out of the range shown by control group subjects.

Comparisons of baseline and post percentages confirmed the significance of the finding for reading aloud. For the intervention subjects only, dependent t tests indicated a significant difference between baseline and post in the percentage of time reading aloud, $t(8) = 5.38$, $p < .001$. In addition, this type of analysis revealed a significant difference between baseline and post percentages for inappropriate nontask responding for intervention subjects only, $t(8) = 2.08$, $p < .05$, with a significant increase occurring (7.2% at baseline to 15.0% at post).

Table 3 is a summary of the percentages of time in composite student responses and in reading responses at the post observation overall and just during the time with the tutor. During tutor time, the intervention subjects were making active academic responses an average of 78% of the time, and were academically engaged 89% of the time. Reading aloud comprised 65% of the students' time with the tutor, on average, compared to 22% overall for the total post observation time. Statistical comparisons of the overall and tutor percentages revealed significant differences for ART, $t(8) = 5.81$, $p < .001$, for AET, $t(8) = 2.72$, $p < .05$, for INAP, $t(8) = 2.99$, $p < .01$, for reading aloud, $t(8) = 6.16$, $p < .001$, and for reading silently, $t(8) = 4.57$, $p < .01$. ART, AET, and reading aloud were higher with the tutor compared to overall, while nontask inappropriate responses and reading silently were lower with the tutor.

Table 3

Percentages of Time in Composite Student Responses and Reading Responses at Post Overall and With Tutor Only

Student Response		Overall[a]	With Tutor[b]
ART	M	51.6	77.9
	SD	15.6	20.9
READ ALOUD	M	21.6	65.1
	SD	11.1	29.6
READ SILENTLY	M	17.0	4.8
	SD	7.5	8.3
AET	M	78.6	89.2
	SD	12.3	13.7
MGMT	M	6.4	6.2
	SD	2.6	6.7
INAP	M	15.0	4.6
	SD	12.8	12.3

[a]Based on observation time of 61.7 minutes (SD = 15.4).

[b]Based on observation time of 21.6 minutes (SD = 7.8).

For the intervention group, comparisons were made between observations at baseline and observations at follow up in the late spring. None of the differences was statistically significant.

Achievement Data

Repeated measures ANOVAs (one between, one within) were used to test differences in achievement between control and intervention subjects over time. Dependent variables were (a) BASIS standard scores in reading, (b) BASIS raw scores in reading, and (c) CBM raw scores on the standard reading passage. Table 4 is a summary of baseline and post achievement scores for both groups.

No significant differences in BASIS scores were found between groups as a function of time. Raw scores on the standard curriculum-based passage were not found to differ significantly for the intervention and control groups, but there was a significant difference overall between baseline and post scores, $F(1,15) = 26.86$, $p < .001$, with scores significantly higher at post than at baseline. The interaction of group (intervention, control) and time (baseline, post) was not significant. Despite the few statistically significant findings, the general trend was for a slightly smaller percentage of control subjects, compared to intervention subjects, to show increases from baseline to post on the BASIS (22% vs 33%) and the standard CBM passage (78% vs 89%).

Reading Attitude Scale

The Reading Attitude Scale was administered only to the intervention group. The Likert 5-point scale was treated as an interval scale. Dependent t tests were used to assess changes in attitude from the onset to the conclusion of the intervention. Individual tests were conducted for each of the six reading clusters. No significant differences were found with respect to changes in reading attitude.

Table 4

Achievement Results

	Intervention		Control	
Measure	Baseline	Post	Baseline	Post
BASIS Standard Score				
M	93.2	89.6	93.6	87.0
SD	9.0	11.2	13.0	7.0
BASIS Raw Score				
M	42.2	41.9	41.5	43.2
SD	9.5	10.1	12.5	10.5
CBM Raw Score				
M	77.8	93.2	83.9	106.8
SD	36.1	35.2	46.9	56.5

Tutor Evaluation

The tutors completed a six-item Likert Scale to evaluate improvement in the following areas: (a) variety of books selected by student, (b) reading fluency, (c) reading expression, (d) word recognition, (e) interest in reading, and (f) reading comprehension (see Table 5). In cases where two tutors worked with the same child, ratings were averaged. Tutors rated each item according to the following scale: 0 = no difficulty in this area, 1 = no improvement noted, 2 = slightly improved, 3 = moderately improved, 4 = much improved, and 5 = greatly improved.

Tutors observed the greatest changes in reading fluency, expression, word recognition, and reading comprehension. Six of the nine students showed at least moderate improvement in all of these areas, according to tutors. All showed improvement in at least two of these areas. Fewer positive changes were noted by the volunteers in the variety of books selected by the students and in their level of interest in reading.

Discussion

A primary goal of the volunteer tutor reading intervention was to increase the academic engaged time and the active academic responding time of students with reading difficulties. This goal was met in this study, if the goal is not interpreted to mean that increased academic responding and engagement rates will be maintained without the tutor's presence. Clearly, if the goal is to increase the active responding of a student, it can be done by having the student read aloud in a one-to-one situation with a tutor.

It is somewhat disconcerting that the percentage of inappropriate nontask behavior also showed a significant increase. Since the increase did not occur during the time with the tutor, it is possible that the student was "over-reacting" to the lack of one-to-one structure when back in the classroom for reading time. On the other hand, it is important to note that even at its increased level, the percentage of

Table 5

Tutor Evaluations of Student Improvement

Item	M[a]	Range	N
1. The student is choosing a greater variety of books	1.8	1-4	6
2. The student is reading more fluently	3.0	3	9
3. The student is reading with more verbal expression	3.3	2-4	9
4. The student is making fewer word recognition errors	3.2	3-4	8
5. The student is more interested in reading	2.4	1-5	8
6. The student understands more of what he/she reads	2.7	1-5	8

[a]Ratings were on a scale from 1 to 5, where 1 = no improvement noted, 2 = slightly improved, 3 = moderately improved, 4 = much improved, and 5 = greatly improved. Items for which the tutor indicated there was no difficulty in the area to begin with were excluded from calculations.

inappropriate behavior time is not much different from that of the students in the control group. The students who received tutorial assistance appeared to have displayed even slightly lower levels at baseline measurement. It is possible that some of the initial lower levels of inappropriate behavior were related to the types of students who were selected to participate in the tutorial program.

Increased active academic responding time for the intervention subjects was not maintained after the reading intervention ended. This is not an unexpected finding, particularly since increases were due almost entirely to increases in reading aloud responses, responses not particularly compatible for longer than a few minutes with the typical classroom setting.

Informal rating scales and standardized measures of achievement were also used to analyze the effectiveness of the reading intervention program. While students did not show significant gains on measures of attitude or academic achievement, tutor ratings indicated positive effects of the program. There are several explanations for the discrepancy between tutor ratings and outcomes on the BASIS and CBM measures. First, there may be a bias effect. Tutors invested considerable time and energy in the project. They may have felt some need to report a favorable outcome. However, tutors had an option of filling out the scale anonymously. Also, during feedback sessions, the volunteers quite openly discussed limitations of the program as well as benefits (see Recommendations section).

Changes in student attitudes about reading also were a target of the reading intervention. No statistically significant changes were found. However, the program was relatively short in duration. It is not surprising that children with a history of learning and/or emotional difficulties did not show a significant attitude change toward reading over an 11-week period.

As described previously, students were selected partly on the basis of teacher report of low reading ability. No specific quantitative criteria were established for

inclusion in the project nor were students eliminated based on pretest achievement scores. It became clear that some students recommended by teachers actually had average reading skills, but were youngsters whom teachers felt would profit emotionally from individual adult attention. One might suspect that these students would be more likely to exhibit social-emotional than academic gains following program participation. Neither the reading attitude scale nor the achievement tests were designed to measure generalized improvement in the social-emotional area. However, several tutors established strong friendships with their students and observed changes in the children's ability to relate to them.

Many of the positive changes observed by the tutors were qualitative in nature (i.e., better expression, improved fluency). It may be that students improved in areas not adequately measured by standardized tests. This possibility is given some support in recent work by Morrow (1988) who found that one-to-one story readings with preschool children led to increases in the number and complexity of children's questions and comments. Another explanation is the limited usefulness and sensitivity of these measures to assess subtle, short-term changes. Additionally, some students showed negative reading growth as an artifact of the instrument's ceiling rule. At spring testing, some students missed one or two more items at the beginning of the test. Because of the discontinuation rule, testing was terminated and these students did not have the option of attempting many of the items they had in the fall. Other research-based tutoring projects (Anderson, Wilson, & Fielding, 1988) reported negative reading growth because in spring, near the end of the school year, students were less motivated to put forth full effort on the testing. "Spring fever" may have also influenced the testing results with this group of Minnesota youngsters.

The project has several limitations. The sample size was small and true random selection was not achieved. Older students, especially sixth graders, felt self-conscious when pulled out of class. Tutors, at times, needed more contact with the

classroom teacher than there was time to provide, especially with respect to appropriate book selection. Finally, although there was uniformity in the amount of time students were scheduled for tutoring, the length and number of sessions varied considerably because of other class and school activities.

Overall, tutors and teachers expressed satisfaction with program outcomes. The majority of intervention subjects demonstrated growth on criterion-referenced measures.

Recommendations

Suggestions for implementation of future volunteer tutorial projects include the following:

- Ensure that students are committed to the project; seek both parent and student agreement to participate.
- Implement the program before or after school so students are not pulled out from class.
- Attempt to have a volunteer coordinator based at each school to facilitate scheduling, book selection, and substitutes.
- Strive for a longer, less intense program, since it will probably be more effective in the long run. Many students lost interest because they were tutored four days a week. A two-day a week program over the course of a semester or school year may improve student level of motivation.
- Conduct tutoring in settings with few distractors (i.e, not a hallway or library). This may significantly improve the student's ability to profit from instruction.

We have evidence that time on task in reading is related to reading achievement. It is time to be bold and intervene, investigating alternative, cost-effective ways to increase reading opportunities for students. Collaboration among researchers and educators is imperative. The successful program components should be preserved and disseminated, along with recommendations for implementing future intervention projects. Individual program variables should be experimentally manipulated. These include, but are not limited to the following:

length of tutoring sessions, duration of project, type of tutor training, degree of teacher involvement, degree of parent participation, student characteristics, instructional method, and amount of additional reading. As Anderson et al. (1988) state, "Nobody measures the amount of reading, even at the group level nor does anyone explicitly relate amount of reading to changes in reading achievement at the individual level. Hence the really penetrating research remains to be done" (p. 300).

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Appendix A

Reading Attitude Scale

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. You feel comfortable when you're asked to read in class.	1	2	3	4	5
2. You feel happy when you're reading.	1	2	3	4	5
3 You remember library books that you have in your desk.	1	2	3	4	5
4. You check out many library books.	1	2	3	4	5
5. You read often in the classroom.	1	2	3	4	5
6. When you have free time in school, you usually read a book.	1	2	3	4	5
7. You often have a book in your room at home.	1	2	3	4	5
8. You would rather read a book than look at the pictures.	1	2	3	4	5
9. You have time to read library books.	1	2	3	4	5
10. You wish you had a library full of books at home.	1	2	3	4	5
11. You often read in your room at home.	1	2	3	4	5
12. You would rather read than watch TV.	1	2	3	4	5
13. You would rather read than play after school.	1	2	3	4	5

Reading Attitude Scale (cont.)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
14. You talk to friends about books that you have read.	1	2	3	4	5
15. You like for the room to be quiet so you can read in your free time.	1	2	3	4	5
16. You read several books each week.	1	2	3	4	5
17. Most of the books you choose are interesting.	1	2	3	4	5
18. You read very often.	1	2	3	4	5
19. You think reading is fun.	1	2	3	4	5
20. You enjoy reading at home.	1	2	3	4	5
21. You enjoy going to the library.	1	2	3	4	5
22. You often finish a book you start.	1	2	3	4	5
23. You think that adventures in a book are more exciting than TV.	1	2	3	4	5
24. You read a chapter in a school book before answering questions at the end.	1	2	3	4	5

Appendix B

Teacher Evaluation Form - Mid

Teacher's Name _____

1. What have been the most positive aspects of the tutorial program thus far?

2. What facets of the program should be improved in the long run?

3. What immediate changes in the program would you like to see implemented?

Appendix C

Tutor Evaluation Form

	ND	NI	SI	Mod Imp	Much Imp	GI
1. The student is choosing a greater variety of books	0	1	2	3	4	5
2. The student is reading more fluently	0	1	2	3	4	5
3. The student is reading with more verbal expression	0	1	2	3	4	5
4. The student is making fewer word recognition errors	0	1	2	3	4	5
5 The student is more interested in reading	0	1	2	3	4	5
6. The student understands more of what he reads	0	1	2	3	4	5

0 = (ND) no difficulty in this area

1 = (NI) no improvement noted

2 = (SI) slightly improved

3 = (Mod Imp) moderately improved

4 = (Much Imp) much improved

5 = (GI) greatly improved

Appendix D

Training

Reading Tutorial Agenda

9:00 - 9:30	Welcome Introductions Overview of Project
9:30 - 10:30	Paired Reading Videotape and Training
10:30 - 11:00	Flash Card Drill Comprehension Questions Cloze Procedure Discussion
11:00 - 11:30	Record Keeping Confidentiality Scheduling
11:30 - 12:15	Lunch Break Question/Answer Session
12:15 - 12:45	What makes reading difficult? Student Characteristics Principles of Effective Tutoring
12:45 - 1:30	Role Playing-Paired Reading
1:30	Individual Questions/Concerns

GENERAL PRINCIPLES OF SUCCESSFUL TUTORING

1. MEET YOUR STUDENT IN A RELAXED AND FRIENDLY MANNER. TRY TO GET TO KNOW YOUR STUDENT. BE YOURSELF -- IT WILL TAKE TIME AND PATIENCE FOR YOU BOTH TO FEEL COMFORTABLE.

2. WHAT STUDENTS ARE CALLED IS VERY IMPORTANT TO THEM. MAKE SURE YOU SAY YOUR STUDENT'S NAME THE WAY THE STUDENT WANTS IT SAID. ALWAYS BE RESPECTFUL AND COURTEOUS TO YOUR STUDENT.

3. SHOW YOUR STUDENTS THAT YOU ARE INTERESTED IN THEM AS INDIVIDUALS BY TALKING INFORMALLY ABOUT THEIR FAMILY, FRIENDS, AND ANYTHING ELSE THE STUDENTS WOULD LIKE TO TALK ABOUT. LISTEN CAREFULLY TO YOUR STUDENTS. EYE CONTACT IS A GOOD WAY OF PROMOTING SINCERITY TO THE STUDENTS.

4. TRY NOT TO BE ABSENT OR LATE FOR TUTORING SESSIONS. LET THE STUDENT KNOW IF YOU CAN'T BE THERE. THE STUDENTS KNOW THAT YOU ARE HUMAN, SO DON'T WORRY IF YOU MAKE SOME MISTAKES DURING YOUR TUTORING EXPERIENCE.

5. BE CLEAR ABOUT THE RULES -- WHAT IS PERMITTED AND WHAT ISN'T. BUT BE FLEXIBLE IF A STUDENT SEEMS FRUSTRATED OR UNHAPPY. AVOID POWER STRUGGLES. TRY TO MAINTAIN A SENSE OF HUMOR SO BOTH OF YOU FEEL AT EASE.

6. BUILD THE STUDENTS' SELF-CONFIDENCE BY LETTING THEM KNOW YOU EXPECT THEM TO DO WELL. ALWAYS PRAISE SUCCESS, NO MATTER HOW SMALL. TRY TO PLAN THE SESSION WITH SUCCESS IN MIND. FOR EXAMPLE, IT IS MORE IMPORTANT FOR A STUDENT TO READ A SHORTER SELECTION WITH SUCCESS THAN A LONGER STORY WITH DIFFICULTY.

7. RECOGNIZE THAT EACH STUDENT IS UNIQUE AND LEARNS AT A DIFFERENT PACE. BE PATIENT AND DON'T ALWAYS EXPECT IMMEDIATE SUCCESS. PRAISE EFFORT AS WELL AS SUCCESS.

8. TRY TO REDUCE DISTRACTIONS AS MUCH AS POSSIBLE. KEEP THE LESSON MOVING. WHEN YOU NOTICE THE STUDENT LOSING INTEREST, CHANGE THE ACTIVITY.

9. ENCOURAGE THE STUDENTS AND HELP THEM FEEL ACCEPTED BY THE WAY YOU RESPOND. ALWAYS POINT OUT AREAS IN WHICH THE STUDENTS HAVE IMPROVED.

THE OBJECTIVES OF THE TUTORING PROGRAM

THE OBJECTIVES OF THE TUTORING PROGRAM INCLUDE:

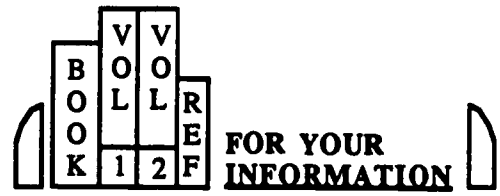
1. PROVIDING MORE INDIVIDUALIZED ATTENTION FOR STUDENTS WHO ARE HAVING DIFFICULTY WITH THEIR COURSEWORK.

2. ENHANCING A POSITIVE SELF-CONCEPT IN THE STUDENT.

3. PROVIDING REINFORCEMENT FOR LEARNING WHAT OCCURS IN THE CLASSROOM.

4. BUILDING THE STUDENT'S INTEREST IN READING.

5. HELPING THE STUDENT SEE THAT LEARNING CAN BE FUN.



DAY ONE

1. Introduce yourself to office personnel.
2. Sign visitor sheet in office if necessary.
3. Introduce yourself to the classroom teacher.
4. Classroom teacher will introduce you to the student.
5. Discuss with the teacher the materials to be used each day.
6. Establish rapport with your student.
7. Begin reading practice.
8. Record information on daily recording sheet.
9. Give students positive feedback!
10. Repeat procedure with your next student.

ENJOY WHAT YOU ARE DOING!

STUDENT CHARACTERISTICS TO BE AWARE OF

1. SOME STUDENTS MAY HAVE A SHORT ATTENTION SPAN.

2. SOME STUDENTS MAY BE RESTLESS AND DISTRACTABLE.

3. SOME STUDENTS MAY HAVE POOR MEMORIES AND REQUIRE CONSIDERABLE REPTITION.

4. SOME STUDENTS MAY HAVE DIFFICULTY UNDERSTANDING LANGUAGE CONCEPTS OR ABSTRACT QUESTIONS.

5. SOME STUDENTS MAY HAVE DIFFICULTY SEQUENCING STORY EVENTS.

PLEASE KEEP THESE THINGS IN MIND WHEN WORKING WITH YOUR STUDENT.

INTRODUCTION TO PAIRED READING

PAIRED READING IS AN ENJOYABLE WAY TO HELP CHILDREN DEVELOP BETTER READING SKILLS. IT GRADUALLY PROGRESSES FROM A SHORT PARAGRAPH TO A PAGE OR MORE, DEPENDING ON STUDENT ABILITY AND SUCCESS.

* THERE ARE FIVE STAGES TO THE PAIRED READING APPROACH. HAVING FIRST READ THEPASSAGE TO YOURSELF, YOU, THE TUTOR SHOULD:

1. TALK ABOUT THE PASSAGE (THE PICTURES, STORY, AND CHARACTERS) WITH THE STUDENT.

2. READ THE PASSAGE ALOUD AS NATURALLY AND WITH AS MUCH EXPRESSION AS POSSIBLE, WHILE RUNNING A FINGER ALONG UNDER THE LINES OF PRINT.

3. READ THE PASSAGE ALOUD AGAIN, BUT WITH THE STUDENT READING IN UNISON. ADJUST THE PACE TO THE STUDENT'S ABILITY.

4. READ THE PASSAGE ALOUD AGAIN, BUT PAUSING AS MUCH AS POSSIBLE FOR THE STUDENT TO SUPPLY THE WORDS WHERE YOU'RE REASONABLY CERTAIN THE STUDENT IS ABLE. ENCOURAGE THE STUDENT TO SIGNAL WHEN THE STUDENT FEELS READY TO READ ALONE. PRAISE THE STUDENT FOR SIGNALLING, BUT DON'T INSIST UPON IT.

5. LET THE STUDENT READ THE FULL PASSAGE ALOUD. IF THE STUDENT HESITATES, SUPPLY ANY WORDS TO HELP OUT.

* THESE STEPS ARE OPTIONAL DEPENDING ON EACH STUDENT'S NEEDS. FOR EXAMPLE, SOME STUDENTS DON"T LIKE TO BE READ ALOUD TO (IT MAKES THEM FEEL CHILDISH) AND WOULD RATHER READ ALOUD THEMSELVES. THEREFORE, YOU COULD SKIP STEP 2. LET YOUR STUDENT GUIDE YOUR DECISIONS AS TO WHAT STEPS YOU'LL USE.

PAIRED READING

WHAT ARE THE ADVANTAGES?

1. THERE IS NO FAILURE - IT IS IMPOSSIBLE NOT TO GET A WORD RIGHT WITHIN 5 SECONDS OR SO.

2. PAIRED READING IS VERY FLEXIBLE - THE CHILD DECIDES HOW MUCH SUPPORT IS NECESSARY ACCORDING TO THE CURRENT LEVEL OF INTEREST, MOOD, DEGREE OF TIREDNESS, AMOUNT OF CONFIDENCE, DIFFICULTY OF THE BOOK, AND SO ON.

3. THE CHILD RECEIVES LOTS OF PRAISE - IT'S MUCH NICER TO BE TOLD WHEN YOU'RE DOING WELL. INSTEAD OF JUST BEING CORRECTED WHEN YOU MAKE A MISTAKE.

4. THERE IS A GREAT DEAL OF UNDERSTANDING - GETTING THE MEANING OUT OF THE WORDS - AND THAT'S WHAT READING IS ALL ABOUT. IT'S NO USE BEING ABLE TO SAY THE WORDS MECHANICALLY WITHOUT FOLLOWING THE MEANING.

5. PAIRED READING GIVES CONTINUITY - IT ELIMINATES STOPPING AND STARTING TO "bREAK UP" HARD WORDS - WHICH OFTEN LEAVES THE STUDENT WITH HAVING FORGOTTEN THE BEGINNING OF THE SENTENCE BY THE TIME THE STUDENT GETS TO THE END. THIS MEANS IT'S EASIER FOR CHILDREN TO MAKE SENSIBLE GUESSES AT NEW WORDS, BASED ON THE MEANING OF THE SURROUNDING WORDS.

FLASHCARD DRILLS TO HELP WORD RECOGNITION

WHILE YOU AND YOUR STUDENT ARE ENGAGED IN PAIRED READING, JOT DOWN A MAXIMUM OF FIVE WORDS THAT THE STUDENT IS UNABLE TO READ EACH DAY. WRITE EACH WORD ON A SEPARATE INDEX CARD TO BE USED THE NEXT DAY FOR FLASHCARD DRILLS. AT THE END OF THE SESSION ON THE BACK OF EACH CARD, WRITE A SHORT VERSION OF THE SENTENCE FROM THE STORY WHERE THAT WORD HAD BEEN USED.

AT THE BEGINNING OF THE NEXT DAY'S SESSION:

1. REVIEW THE DIFFICULT WORDS FROM THE PREVIOUS DAY BY PRESENTING EACH CARD TO THE STUDENT ONE AT A TIME AND HAVING THE STUDENT READ THE WORD ALOUD.

2a. IF THE STUDENT RECOGNIZES THE WORD, GIVE PRAISE.

2b. IF THE STUDENT HAS TROUBLE, HELP OUT BY SUPPLYING THE WORD AND BY READING THE SENTENCE IT CAME FROM (ON THE BACK OF THE CARD) AND THEN HAVING THE STUDENT REPEAT IT.

HOPEFULLY, THIS PROCEDURE WILL HELP THE STUDENT RECOGNIZE WORDS MORE QUICKLY.REMEMBER TO NEVER LEAVE THE STUDENT STRUGGLING AND ALWAYS PRAISE THE STUDENT'S SUCCESS.

IF TIME ALLOWS, AT THE END OF A SESSION THE TUTOR CAN ERASE THE DIFFICULT WORD FROM THE SENTENCE ON THE BACK OF THE CARD AND HAVE THE STUDENT READ THE SENTENCE, FILLING IN THE MISSING WORD.

MORE WAYS OF HELPING

WITH PAIRED READING, THE HARDEST THINGS FOR TUTORS TO GET USED TO ARE:

(1) WHEN YOUR STUDENT READS A WORD INCORRECTLY, JUST TELL YOUR STUDENT WHAT THE WORD SAYS. THEN YOUR STUDENT REPEATS THE WORD. DON'T MAKE THE CHILD STRUGGLE AND STRUGGLE, OR "BREAK IT UP" OR "SOUND IT OUT".

(2) WHEN YOUR STUDENT GETS WORDS RIGHT, YOU SHOW YOU ARE PLEASED. PRAISE FOR: ACCURATE READING OF HARD WORDS, GETTING ALL THE WORDS IN A SENTENCE RIGHT, AND SELF-CORRECTION.

TALK

SHOW INTEREST IN THE BOOK YOUR STUDENT HAS CHOSEN. TALK ABOUT THE PICTURES. TALK ABOUT WHAT'S IN THE BOOK AS YOUR CHILD GOES THROUGH IT. IT'S BEST IF YOU TALK AT THE END OF A PAGE OR SECTION, OR YOUR STUDENT MIGHT LOSE TRACK OF THE STORY. ASK WHAT YOUR STUDENT THINKS MIGHT HAPPEN NEXT. LISTEN TO YOUR STUDENT
- DON'T DO ALL THE TALKING.

NOTES

IT IS A HELP FOR BOTH STUDENT AND TUTOR IF THE TUTOR KEEPS A NOTE EACH DAY OF WHAT HAS BEEN READ, AND HOW YOUR STUDENT IS DOING.

THERE IS A DIARY THAT YOU CAN USE FOR THIS INCLUDED IN THE PACKET.

PAIRED READING CHECKLIST

	YES	NO
READING IN UNISON		
1. ARE TUTOR AND STUDENT IN CLOSE SYNCHRONY?		
2. DOES TUTOR ADJUST PACE WHEN NECESSARY?		
3. DOES TUTOR ALLOW TIME FOR A SECOND ATTEMPT WHEN NECESSARY?		
INDEPENDENT READING		
1. DOES STUDENT REMEMBER TO SIGNAL?		
2. DOES TUTOR HEED SIGNAL?		
3. IS STUDENT PRAISED FOR SIGNALLING?		
4. DOES SIMULTANEOUS READING REOCCUR SOON AFTER STUDENT IS UNABLE TO READ A WORD?		
5. IS STUDENT PRAISED OFTEN FOR INDEPENDENT READING?		
GENERAL		
1. IS READING MATERIAL OF STUDENT'S CHOICE?		
2. DOES TUTOR INTERACT POSITIVELY WITH THE STUDENT?		

COMMENTS _____

Reading Record Sheet

Student _____

Date	Name of Reading Material	Type of Reading Material (I/L)	Pages Read	Comments

Name _____

Sight Words

Date _____

1.

2.

3.

4.

5.

Date _____

1.

2.

3.

4.

5.

Date _____

1.

2.

3.

4.

5.

Date _____

1.

2.

3.

4.

5.

Individual Tutoring Schedule

Tutor _____

Student _____

Grade _____

Teacher _____

Classroom _____

Day(s) M T W Th F S

and Times _____

Place _____

IAP PUBLICATIONS

Instructional Alternatives Project
350 Elliott Hall
University of Minnesota
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Minneapolis, MN 55455

Research Reports

No. 1 Time allocated to instruction of mentally retarded, learning disabled, emotionally disturbed, and nonhandicapped elementary students by J. E. Ysseldyke, M. L. Thurlow, S. L. Christenson, & J. Weiss (March, 1987).

No. 2 Instructional tasks used by mentally retarded, learning disabled, emotionally disturbed, and nonhandicapped elementary students by J. E. Ysseldyke, S. L. Christenson, M. L. Thurlow, & D. Bakewell (June, 1987).

No. 3 Instructional grouping arrangements used with mentally retarded, learning disabled, emotionally disturbed, and nonhandicapped elementary students by J. E. Ysseldyke, M. L. Thurlow, S. L. Christenson, & R. McVicar (July, 1987).

No. 4 Academic engagement and active responding of mentally retarded, learning disabled, emotionally disturbed and nonhandicapped elementary students by J. E. Ysseldyke, S. L. Christenson, M. L. Thurlow, & R. Skiba (July, 1987).

No. 5 The qualitative nature of instruction for mentally retarded, learning disabled, and emotionally disturbed elementary students in special education by J. E. Ysseldyke, S. L. Christenson, & M. L. Thurlow (July, 1987).

No. 6 State guidelines for student-teacher ratios for mildly handicapped children by M. L. Thurlow, J. E. Ysseldyke, & J. W. Wotruba (July, 1987).

No. 7 Student-teacher ratios for mildly handicapped children in special education settings by J. E. Ysseldyke, M. L. Thurlow, & J. W. Wotruba (November, 1987).

No. 8 Regular education teachers' perceptions of instructional arrangements for students with mild handicaps by J. E. Ysseldyke, M. L. Thurlow, J. W. Wotruba, & P. A. Nania (January, 1988).

No. 9 Differences in the qualitative nature of instruction for LD and EBD students in regular and special education settings by J. E. Ysseldyke, S. L. Christenson, & M. L. Thurlow (January, 1988).

No. 10 Alternate explanations for learning disabled, emotionally disturbed, and educable mentally retarded students' reading achievement by J. E. Ysseldyke, D. Bakewell, S. L. Christenson, P. Muyskens, J. G. Shriner, M. Cleary, & J. Weiss (July, 1988).

No. 11 Alternate explanations for learning disabled, emotionally disturbed, and educable mentally retarded students' math achievement by J. E. Ysseldyke, M. Cleary, S. L. Christenson, P. Muyskens, J. G. Shriner, D. Bakewell, & J. Weiss (August, 1988).

No. 12 Student and instructional outcomes under varying student-teacher ratios in special education by M. L. Thurlow, J. E. Ysseldyke, & J. W. Wotruba (August, 1988).

IAP PUBLICATIONS

Page Two

No. 13 Teacher stress and student achievement for mildly handicapped students by D. Bakewell, S. R. McConnell, J. E. Ysseldyke, & S. L. Christenson (August, 1988).

No. 14 A case study analysis of factors related to effective student-teacher ratios by J. E. Ysseldyke, M. L. Thurlow, J. G. Shriner, & C. S. Propsom (August, 1988).

No. 15 Written language: The instructional experience of mildly handicapped and nonhandicapped elementary students by R. McVicar, S. L. Christenson, M. L. Thurlow, & J. E. Ysseldyke (August, 1988).

No. 16 Social validity of different student-teacher ratios by M. L. Thurlow, J. E. Ysseldyke, & C. Yeh (August 1988).

No. 17 Home environments of mildly handicapped and nonhandicapped elementary students by S. L. Christenson, J. E. Ysseldyke, & M. Cleary (September, 1988).

No. 18 Volunteer tutors as a reading intervention for sudents with reading difficulties by J. Weiss, M. L. Thurlow, S. L. Christenson, & J. E. Ysseldyke (October, 1988).

Monographs

No. 1 Instructional environment scale: Scale development and training procedures by J. E. Ysseldyke, S. L. Christenson, R. McVicar, D. Bakewell, & M. L. Thurlow (December, 1986).

No. 2 Instructional psychology and models of school learning: Implications for effective instruction of handicapped students by S. L. Christenson, J. E. Ysseldyke, & M. L. Thurlow (May, 1987).

No. 3 School effectiveness: Implications for effective instruction of handicapped students by M. L. Thurlow, S. L. Christenson, & J. E. Ysseldyke (May, 1987).

No. 4 Instructional effectiveness: Implications for effective instruction of handicapped students by S. L. Christenson, M. L. Thurlow, & J. E. Ysseldyke (May, 1987).

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