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ABSTRACT

Twenty-seven third-grade children in a northern Louisiana public school participated in a study which examined whether a minimum amount of direct instruction in sight word recognition, combined with drill of sight words, could result in significantly better performance for the targeted at-risk children on the story and unit reading tests. The control group consisted of 16 students in an at-risk self-contained class; the experimental group consisted of 11 at-risk students, 3 of whom were special education inclusion students. Both groups received 165 minutes of language arts instruction daily from their respective regular education teachers. Control group students received instruction in the basal reading series from their regular education teacher in a whole-group setting. The intervention used with the experimental group focused on expansion of direct instruction in vocabulary associated with each story and unit test. Data were collected over a 6-week period. Analysis revealed a significant difference between experimental and control group scores, in favor of the experimental group, on the cumulative unit test. The Mann Whitney Test revealed a significant difference in favor of the experimental group on the following unit test components: vocabulary, fact/opinion, and graphic aids. Data collected indicated that very brief direct instruction in sight word recognition combined with daily word drill assignments resulted in vocabulary and comprehension unit test scores of at-risk third graders significantly higher than those of control group students. (Contains 22 references and 4 tables of data.) (NKA)

The Effect of Direct Instruction in Sight Word Vocabulary on Reading Achievement of At-Risk Students

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The Effect of Direct Instruction in Sight Word Vocabulary

on Reading Achievement of At-Risk Students

Since the publication of the widely cited report *A Nation at Risk* (The Commission on Excellence in Education, 1983), educators have been cognizant that U. S. students as a whole are at risk of leaving school with lower skill levels than their counterparts in other highly competitive countries. The differences in scores of American and foreign students, however, are much smaller than the discrepancy in scores of the better and poorer students within the United States itself (Rossi & Montgomery, 1994). While the ranks of students considered to be at risk grow nationwide, Louisiana's children are the poorest and most at risk of failure of any children in the country, due to a combination of four or more chronic family conditions: (a) living in a single parent home, (b) having parents with low educational attainment, (c) living in poverty, (d) having unemployed parents, (e) receiving welfare, and (f) lacking health insurance (Louisiana Department of Education, 1999). The setting for the current study was a public elementary school in a rural northern Louisiana parish in which 85% of students were eligible for the free or reduced lunch program, and which was designated as a Title I school. While most students in this school could be classified at risk, the classrooms chosen to participate in the study were specifically labeled as at-risk classes, as they contained the lowest performing third graders in the school as measured by their performance on parish-mandated norm-referenced and criterion-referenced assessments.

Traditional methods for dealing with non- or poor readers have included (a) grade retention, (b) ability grouping, (c) special education placement, and (d) Title I pull-out programs; many researchers believe these approaches have been equally ineffective. Grade retention amounts to a second dose of the "medicine" that failed to work the first time, and the result is often the social promotion of non-readers after two years in each grade. Ability grouping, or tracking, often creates a climate conducive to failure experiences, and may develop into "curriculum ghettos" where academic choices depend upon race, gender, and socioeconomic class expectations (Robinson, 1992). Title I programs are also considered largely ineffective, and sometimes result in resegregation (Slavin, Karweit, & Madden, 1989). While special education has shouldered much of the burden of educating students at risk of reading failure, special education pull-out and self-contained programs rarely accelerate students enough to catch up with their same age peers (Slavin et al.). Researchers are now calling for an end to special education labeling of children, and instead, the provision of specialized reading instruction for all who need it (Aaron, 1997; McCormick & Becker, 1996). While programs such as Reading Recovery (Clay, 1979) and Success for All (Slavin, Madden, Dolan, & Wasik, 1996) have been successful with many students at risk for reading failure, their cost is often prohibitive to school districts (Gettys, 1994; Shanahan & Barr, 1995).

The implementation of a program of full inclusion of selected special education students at the participating school during the 1998-1999 school year allowed a special education inclusion teacher to spend 2 ½ hours per day with

the regular education teacher in one of the third grade at risk classrooms, which served as the experimental group in this study. After observing all students in the class during reading instruction and testing, the inclusion teacher approached the regular education teacher with the hypothesis that poor phonetic decoding skills, combined with the lack of broad sight word vocabularies, were resulting in the at risk students' inability to recognize a significant number of words on the cumulative unit reading tests, thus preventing them from demonstrating understanding of skills taught in the stories and units. The students' poor grades in reading appeared to be resulting not from a lack of comprehension of the stories they had read together as a class, or failure to master the skills taught, but from their inability to decode and/or recognize enough words (which appeared in both the stories and tests) to determine what was being asked on the tests themselves.

Researchers agree that word recognition is a precursor to reading comprehension, and therefore, if a child has difficulties in both word recognition and comprehension, improvement of the former skill should be first priority (Aaron, 1997; Spear-Swerling & Sternberg, 1994). Levy, Abello, and Lysynchuk (1997) described some agreement in the literature that children should not be asked to read texts containing high proportions of unfamiliar words, because doing so renders them unable to focus attention on meaning processing. On the other hand, Levy et al. maintained that improving word recognition and reading fluency leads to increased comprehension.

Levy et al. (1997) examined the relationship between word identification speed, story reading fluency, and comprehension when they trained 40 grade four poor readers on 72 target sight words and subsequently engaged them in repeated readings of two stories, one with and one without the target, trained words. Results showed that fluency gains in context-independent word recognition (obtained through single-word reading practice) generalized to reading those words in context, as measured by reading time and accuracy. Perhaps most importantly, faster word recognition resulted in improved story comprehension, suggesting that fluency gains through single word training can facilitate improved comprehension. The researchers theorized that the bottleneck created by slow word identification prevents the proper operation of syntactic and semantic processes used in comprehension. Levy et al. maintained that while fluency does not cause increased comprehension, it enables the higher order comprehension operations to function. Based on these findings, the researchers recommended the combined use of single-word practice and rereading of stories with controlled vocabulary as the ideal procedure. They suggested that once a student has some basic word recognition fluency, which enables the comprehension of texts, a broader selection of literature may then be added without confusing the problem reader.

In the extensive study of the relationships between various aspects of reading which are found in the literature, no higher positive correlation has been found than that between word recognition and reading comprehension (Groff, 1991). In his exploration of the relationship between word recognition and critical

reading, Groff maintained that (a) word recognition is necessary for literal reading, (b) literal reading is prerequisite to critical reading, and therefore, (c) critical reading cannot be accomplished without accurate word recognition. Rupley and Willson (1997) supported the strong relationship between word recognition and comprehension in their study of 1,200 children, ages 6 to 12 years. The authors stated their findings were consistent with cognitive development theory, which supports the necessity of gaining automaticity in the word recognition process before experiencing success in comprehension tasks. In a study of 42 seven- to ten-year-old students in New Zealand, Tan and Nicholson (1997) also concluded that students who received word training, whether as single words or as words embedded in phrases and sentences, significantly outperformed control group students on measures of comprehension.

Purpose of the Study

Because some students cannot decode phonetically after years of remediation (Lovett et al., 1990; Uhry & Shepherd, 1997), such disabled readers may be best served by initial instruction based on their strengths, using their compensation strategies, such as sight word memorization. The sight word recognition used in the current study required participating at-risk students to recognize words without resorting to any apparent use of strategies, such as decoding or context (McCormick & Becker, 1996). The researchers sought to determine if a minimum amount of direct instruction in sight word recognition, combined with drill of sight words by peers and family members, could result in

significantly better performance for the targeted at-risk children on the story and unit reading tests, which measure both comprehension and metacognitive strategies taught during the unit.

Method

Participants

Twenty-seven third grade children attending a public elementary school in northern Louisiana participated in the study. The elementary school chosen for the intervention is one of the highest poverty level schools in the rural parish, with 85% of its students eligible for the federal free and reduced lunch program. The two classes chosen for the study were purposefully selected as the two lowest ability level groups out of four third grade classes. The control group consisted of 16 students, 10 males and 6 females, in an at risk self-contained class. The experimental group consisted of 11 at-risk students, 5 males and 6 females, three of whom were special education inclusion students. These three students were receiving direct reading instruction on first grade level from the special education inclusion teacher, and were not included in the intervention due to their not using the third grade basal text book. Of the 11 experimental group students, 5 had repeated at least one grade; 6 students out of the 16 participants in the control group had repeated at least one grade. The age range of the experimental group was 9 to 12 years; the control group ages ranged from 9 to 11 years.

The standard scores from the total reading battery of the Iowa Tests of Basic Skills were analyzed using a Mann-Whitney Test in order to determine whether significant differences existed between the two groups prior to intervention. The ITBS was administered to both groups during April of 1999, before the intervention was implemented. Results indicated there was not a statistically significant difference between experimental and control group students on the ITBS total reading battery scores.

Procedures

Both control and experimental group students received 165 minutes of language arts instruction daily from their respective regular education teachers. The reading series used in the classes was Harcourt Brace Jovanovich's *Treasury of Literature* (Farr & Strickland, 1993) third grade, second semester book, *A Most Unusual Sight*, which is the parish-wide adopted basal reading text. The third grade reading curriculum consists of two texts, each containing three units of four to five stories each. Each unit revolved around a general theme, such as "adventures" and "mysteries." Within each story, six to eight key vocabulary words were emphasized for instruction in the text, supplementary materials, and teacher's manual. In addition, two to four skills, such as sequencing and paraphrasing, were emphasized for instruction in each unit. Each story was tested with a ten-item multiple choice test concerning story vocabulary, comprehension, and skills taught with the story. Each unit culminated with a test consisting of multiple choice questions encompassing the main skills taught throughout the six-week period. These story and unit tests

were developed by the authors of the basal series, and were used in both the experimental and control classrooms.

Intervention

In the control group, students received instruction in the basal reading series from their regular education teacher in a whole-group setting. This class focused on the six to eight key vocabulary words designated by the basal series for each story and two to four comprehension skills per unit. They did not receive the one-on-one intervention in vocabulary, nor were they given homework assignments to drill vocabulary words. Due to the presence of the six special education inclusion students in the experimental group class, the special education inclusion teacher provided services to the class for 2 to 2 ½ hours each morning during language arts instruction. The regular education teacher provided the same whole-group instruction to the experimental class as did the control group teacher.

The intervention used with the experimental group focused on expansion of direct instruction in vocabulary associated with each story and unit test. The inclusion teacher created a list of sight words that students might be unable to identify. In her interaction with one special education inclusion student whose IEP specified that he should read stories aloud to a teacher or aide, the inclusion teacher recorded all words the student was unable to decode in his oral reading of each story. In addition, the inclusion teacher added to this list words she considered potentially troublesome to third grade at-risk readers. Additional words were selected from the comprehension skills portion of the unit test. Only

the teachers scanned the unit tests for vocabulary words; no students were allowed to read them prior to their actual administration.

On the day each new story was introduced, each student in the experimental class would orally read the list of sight words to the inclusion teacher, who would record all missed words in each student's homework notebook. This individualized list of words from each story then became the students' nightly homework assignment; students were to read their lists aloud to parents or older siblings. In addition to the homework assignment, students read their word lists to the inclusion teacher throughout the week as time allowed. Each time students read the word list aloud, the inclusion teacher would circle words the student could not identify; these yet unmastered words would comprise the next night's homework. This process would continue until all words were mastered or the weekly story tests were given. Because the inclusion teacher often did not have the time to work individually with each student, peer tutors within the class were used to assist in practice of the sight word lists. The inclusion teacher spent approximately two to five minutes with each student three times a week, for a total of 6 to 15 minutes per child per week.

Data Collection

Data were collected over a six-week period, during which Unit 3 of the third grade second semester book, *A Most Unusual Sight* (Farr & Strickland, 1993) was taught. Data consisted of student scores on four story tests and one unit test. Skills assessed on the unit test were (a) key vocabulary,

(b) paraphrasing, (c) fact and opinion, (d) graphic aids, and (e) reference sources. The key vocabulary subtest covered the six to eight key vocabulary words which were stressed in both experimental and control classes for each of the four stories.

Results

Data were analyzed using a Mann Whitney nonparametric test (see Table 1). There was a significant difference between the experimental and control group scores ($p<.05$), in favor of the experimental group, on only one of the four story tests (see Table 2). The total test scores for both groups on the cumulative unit test were also analyzed (see Table 3). Analysis revealed a significant difference between the experimental and control group scores, in favor of the experimental group, on the cumulative unit test. The five subtests comprising the unit test were then considered separately. The Mann Whitney Test revealed a significant difference in favor of the experimental group on the following components of the unit test: vocabulary, fact/opinion, and graphic aids. There was no significant difference in scores of the two groups on the reference sources or paraphrasing subtests (see Table 4).

Discussion

Data collected in the study indicated that very brief direct instruction in sight word recognition combined with daily assignments to drill those sight words resulted in vocabulary and comprehension unit tests scores of at-risk third graders that were significantly higher than those of control group students. While the total test scores on the cumulative unit test were significantly higher for

experimental group students, story test data were not. The researchers hypothesize that this result reflected the brief time spent on vocabulary for each story before it was tested (four days), while vocabulary from the cumulative unit test was addressed for several weeks.

At the same time the researchers are encouraged by any difference in control and experimental groups in an intervention of 6 to 15 minutes per child per week, they caution that the severe limitations of the study preclude generalization to other populations. The small size of both groups and lack of random assignment were serious threats to both internal and external validity. In addition, the failure to provide an alternate one-on-one intervention to control groups students raises the issue of the Hawthorne Effect. At the same time, the researchers believe results support the validity of even brief instructional strategies designed to increase word recognition in at-risk students and warrant replication using a true experimental design. It should be noted that the authors began the described intervention not as a research study, but as an attempt to increase the reading skills of at-risk students. The decision to collect and analyze data was made to discover if the improvements observed on reading tests were truly significant.

Despite the limitations of the study, the researchers believe the intervention also supported the importance of self-fulfilling prophecy and high expectations for all students. It is sometimes assumed that at-risk students in high poverty schools will not, or cannot, complete homework assignments because there is no one in the home able or willing to work with them. The

opposite was true in this situation, as the majority of the experimental group students read their assigned words at home and returned signed homework sheets daily.

The researchers were also impressed with the peer tutoring which evolved during the intervention. Research has shown the powerful effect of combining explicit teaching with peer tutoring in the reading achievement of learning disabled and low-performing students in the regular classroom (Simmons, Fuchs, Fuchs, Mathes, & Hodge, 1995). In the present intervention, the special education inclusion teacher initially asked one of her special education students to serve as a peer tutor by drilling weaker regular education students on their vocabulary words. Soon, the other students in the class spontaneously offered to help peers weaker than themselves. By the end of the intervention, the entire class was breaking into student-initiated dyads to help each other with their vocabulary lists.

Finally, the researchers believe this intervention is an example of a possible academic benefit of inclusive classrooms. Widespread concern exists over the possible detriment to the achievement of non-special education students caused by the presence of special education inclusion students. The literature contains reports of inclusion not harming the academic achievement of regular education students (Odom, Deklyen, & Jenkins, 1984; Pettier, 1997; Sharpe, York, & Knight, 1994), but little has been written on possible academic benefits to the non-disabled children. To date, the literature has focused on attitudinal and social benefits, such as reduced fear of differences in others,

growth in social cognition, improved self-concept, and the development of personal principles and friendships (Staub & Peck, 1994). Based upon the results of the current intervention, the authors urge further research into the positive effect special education inclusion teachers can have on the achievement of all children.

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Table 1

Mann-Whitney Ranks: Story Tests

Story	Groups	N	Mean Rank	Sum of Ranks
Story 1	Control	16	14.44	231.00
	Experimental	11	13.36	147.00
	Total	27		
Story 2	Control	16	11.34	181.50
	Experimental	11	17.86	196.50
	Total	27		
Story 3	Control	16	11.78	188.50
	Experimental	11	17.23	189.50
	Total	27		
Story 4	Control	16	12.06	193.00
	Experimental	11	16.82	185.00
	Total	27		

Table 2

Results of Mann-Whitney Test: Story Tests

Story	Significance (2-tailed)	Significance (1-tailed)
Story 1	.721	.753
Story 2	.031*	.034*
Story 3	.070	.080
Story 4	.115	.134

Note. *p<.05.

Table 3

Mann-Whitney Ranks: Unit Test

Subtest	Groups	N	Mean Rank	Sum of Ranks
Vocabulary	Control	16	10.97	175.50
	Experimental	11	18.41	202.50
	Total	27		
Fact/Opinion	Control	16	10.44	167.00
	Experimental	11	19.18	211.00
	Total	27		
Paraphrasing	Control	16	12.19	195.00
	Experimental	11	16.64	183.00
	Total	27		
Reference Sources	Control	16	13.47	215.50
	Experimental	11	14.77	162.50
	Total	27		
Graphic Aids	Control	16	11.44	183.00
	Experimental	11	17.73	195.00
	Total	27		
Total Test	Control	16	10.25	164.00
	Experimental	11	19.45	214.00
	Total	27		

Table 4

Results of Mann-Whitney Test: Unit Test

Subtest	Significance (2-tailed)	Significance (1-tailed)
Vocabulary	.012*	.015*
Fact/Opinion	.004*	.004*
Paraphrasing	.134	.162
Reference Sources	.626	.680
Graphic Aids	.022*	.044*
Total Test	.003*	.002*

Note. *p<.05.

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