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ABSTRACT

This report describes a program for teaching students to use specific strategies to construct meaning from text. The targeted population consisted of elementary and middle school students in a growing urban community in northern Illinois. The lack of reading strategies was documented by data describing the reading behaviors and achievement of the population. Analysis of probable cause data revealed that students lacked specific strategies for comprehension of written text. Faculty reported student weakness in reading or listening comprehension in subject areas across the curriculum. Reviews of curricula content and instructional strategies revealed a lack of student instruction in strategies for self-monitoring of reading comprehension. A review of solution strategies suggested by knowledgeable others, combined with an analysis of the problem setting resulted in the selection of one major intervention: reciprocal teaching strategies to improve reading comprehension developed by Annemarie Palincsar and Ann Brown. Post intervention data indicated an increase in listening comprehension at the kindergarten level, and an increase in reading comprehension levels for targeted fourth and fifth grade students. Limited improvement in reading comprehension of math word problems was evident at the seventh grade level. (Contains 28 references, and 3 tables and 11 figures of data. Appendixes contain assessment instruments, reading logs, journal prompts, and pre- and posttest instruments.) (Author/RS)

Improving Reading Comprehension Through the Use of Reciprocal Teaching

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An Action Research Project

Submitted to the Graduate Faculty of the School of Education

in Partial Fulfillment of the Requirements for the

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This report describes a program for teaching students to use specific strategies to construct meaning from text. The targeted population consisted of elementary and middle school students in a growing urban community in northern Illinois. The lack of reading strategies was documented by data describing the reading behaviors and achievement of the population.

Analysis of probable cause data revealed that students lacked specific strategies for comprehension of written text. Faculty reported student weakness in reading or listening comprehension in subject areas across the curriculum. Reviews of curricula content and instructional strategies revealed a lack of student instruction in strategies for self-monitoring of reading comprehension.

A review of solution strategies suggested by knowledgeable others, combined with an analysis of the problem setting resulted in the selection of one major intervention: reciprocal teaching strategies to improve reading comprehension developed by Annemarie Palincsar and Ann Brown.

Post intervention data indicated an increase in listening comprehension at the kindergarten level, and an increase in reading comprehension levels for targeted fourth and fifth grade students. Limited improvement in reading comprehension of math word problems was evident at the seventh grade level.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

Students in the four targeted classrooms lack strategies for constructing meaning from text. Evidence of this is shown by teacher observations that describe student reading behaviors, student interviews/surveys about reading strategies used, and given assessments that document reading achievement.

Immediate Problem Context

There are three sites and four classrooms involved in this study. School A houses the kindergarten and fifth grade classrooms. School B houses the fourth grade classroom, and School C houses the seventh grade class.

School A:

School A is an elementary school which consists of 386 students ranging in grade from kindergarten through fifth grade with two classes per grade level. There are 13 full-time regular classroom instructors. Non-classroom staff include a full-time library media specialist with a part-time aide, a full-time secretary, a part-time health technician, two full-time learning disabilities specialists, a full-time reading specialist and two teaching assistants. There are also part-time positions in the areas of physical education, art, music, social work, speech and language, and nursing.

Various other programs are offered at this site. Band is an option available to students in grade five during the school day two days a week. Drug Abuse Resistance Education and Child Sexual Assault Prevention are programs provided to the school by local community agencies. There is a school breakfast and lunch program available for students. School sponsored activities for students include Homework Club, Computer Club, Kids for Saving Earth Club, Drama Club, Student Leadership Team, after school sports, and choir. Other activities offered in the school include Brownies, Cub Scouts and Webelos, Daisies, and Saturday Gym. An after school child care agency utilizes space in the building during the school year and part of the summer.

Parent involvement in the school is particularly evident in the primary grades, where parents regularly work with students on classroom activities. An active PTA, with parent, teacher, and community labor, recently installed a new playground funded by a city grant, community donations, and fund raising activities.

School A's enrollment is 53.1% White, 23.6% Black, 22.5% Hispanic, and 0.8% Asian. Of the students, 46.1% are low income, 1.6% are limited English speaking, and the entire student body has a 95.7% attendance rate, a 19.0% mobility rate, and a 2.2% chronic truancy rate (School Report Card, 1997).

As Table 1 shows, the students' academic achievement is average. The scores on the Illinois Goals Assessment Program (IGAP) are consistent with the state averages in all areas.

Table 1

1997 School A IGAP Results
Compared to Statewide Averages

	% Do Not Meet Goals	% Meet Goals	% Exceed Goals
Grade 3			
Reading-School	34	47	19
Reading-State	29	52	15
Math-School	8	64	28
Math-State	10	63	27
Writing-School	4	51	45
Writing-State	14	61	25
Grade 4			
Social Science-School	12	67	22
Social Science-State	19	47	34
Science-School	6	65	29
Science-State	11	52	37

Heterogeneous groups are implemented in all subject areas, including art, music, and physical education. Students in the targeted classrooms are in self-contained kindergarten and fifth grades. Cooperative learning, whole language, peer and cross-age tutoring, and various other strategies are utilized in these classrooms on a regular basis. Students in the fifth grade of the targeted groups participate in Accelerated Reader, a supplementary reading program.

The first classroom in School A (Classroom A-1) is a kindergarten classroom. There are two sessions, one in the morning and one in the afternoon. The morning begins at 8:10 a.m. and ends at 10:35 a.m. The afternoon begins at 11:50 a.m. and ends at 2:15 p.m. Sessions open with the Pledge of Allegiance, and include whole language, inventive spelling, math, art, music, and physical education. Students take part in a social studies/science activity. Students are also given free time to explore various centers set up in the classroom. Kindergarten students have weekly access to computer lab and library media center for book checkout. The session ends with story time.

The targeted fifth grade students (Classroom A-2) begin their school day at 8:15 a.m. each day. After organizing their materials for the day, the students join the rest of the school in saying the Pledge of Allegiance. Attendance, lunch count, and other administrative tasks are then completed. The students have math and integrated social studies and language arts units in the morning. Lunch is 11:25 a.m.- 12:00 p.m. which includes a 10-15 minutes recess. The afternoon begins with silent sustained reading and is followed by science. These fifth grade students have 50 minutes of art, music, and physical education with specialized staff members each week, generally in the afternoon. The students also have a book checkout time in the library media center each week and access to the computer lab. The students' school day ends at 2:15 p.m.

School B:

School B is an elementary school which consists of 435 students ranging in grade level from kindergarten through fifth grade, with two classes at each of the following levels: kindergarten, third, fourth, and fifth grades. First and second grades have three sections each. One of the kindergarten classes is also bilingual. There are 15 full time regular classroom instructors. Non-classroom instructors include a full-time library media specialist with a part-time aide, a full-time secretary with a part-time assistant, a part-time health technician, and two full-time learning disabilities specialists. There are also part-time staff in the areas of physical education, art, music, social work, collaborative intervention, speech and language and nursing.

Various other programs are offered at this site. Band is an option available to students in grade five during the school day two days a week. A school breakfast and lunch program is available for students. School sponsored activities for students include Homework Club, after school sports, student council, and chorus. An after school child care agency is also available in the building.

School B's enrollment is 35.4% Hispanic, 35.2% Black, 28.0% White and 1.4% Asian. Of the students, 46.2% are low income and 3.2% are limited English proficient and have been found eligible for bilingual education. The entire student body has a 95.5% attendance rate, a 26.3% mobility rate, and a 4.3% chronic truancy rate (School Report Card, 1997).

Students in the targeted group are in fourth grade. Cooperative learning and flexible grouping strategies are utilized in this classroom. Students who are *at risk* engage in a Big Brother/Big Sister mentor program for an hour once a week. Students are heterogeneously grouped for all subject areas including art, music, and physical education.

As Table 2 shows, the students' academic achievement varies by subject area when compared to the statewide averages.

Table 2

1997 School B IGAP Results
Compared to Statewide Averages

	% Do Not Meet Goals	% Meet Goals	% Exceed Goals
Grade 3			
Reading-School	67	27	6
Reading-State	29	52	20
Math-School	31	67	2
Math-State	10	63	27
Writing-School	19	77	4
Writing-State	14	61	25
Grade 4			
Social Science-School	54	38	8
Social Science-State	19	47	34
Science-School	22	66	12
Science-State	11	52	3

The students in the fourth grade classroom in School B begin their day at 8:15 a.m. Attendance, lunch count, and other administrative tasks are then completed. The students have

language arts and spelling in the morning. Lunch is 11:20 a.m.-12:00 noon, which includes a twenty minute recess. The afternoon begins with silent sustained reading, followed by math activities. At the end of the day, social studies and science are interchanged throughout the week. These fourth graders have fifty minutes each of art, physical education, and music with specialized staff members during the week. They also have a specific time to checkout books in the library media center along with forty minutes a week in the computer lab. The students end their day at 2:15 p.m.

School C:

School C is a middle school which consists of 727 students ranging in grade level from sixth grade through eighth grade. There are 32 full-time regular classroom teachers, three LD/BD teachers, and five classroom assistants. Non-classroom staff includes a bookkeeper, LMC director, a full-time secretary, a LD resource specialist, a social worker, two dean/counselors, two assistant principals, and a principal.

There are a number of programs available to students. The school offers a variety of sports throughout the year. There is also a yearbook committee, student counsel, poms/cheerleading, pep club, D.A.R.E., band, choir, and drama.

Parents/guardians of 91.0% of the students made contact with their child's teacher at least once throughout the year. This is reported in the school report card for the 1997 year.

School C's enrollment is 69.7% White, 15.3% Hispanic, 12.8% Black, 1.7% Asian, and 0.6% Native American. Of the students, 17.6% are low-income, 0.0% limited-English speaking, and the

entire student body has a 94.7% attendance rate, a 15.0% mobility rate, and a 2.8% chronic truancy rate. The overall student-teacher ratio is 22.7:1 (School Report Card, 1997).

As Table 3 shows, the students' academic achievement is average. The scores on the Illinois Goals Assessment Program(IGAP) are consistent with the state averages in all areas.

Table 3

1997 School C IGAP Results
Compared to Statewide Averages

	% Do Not Meet Goals	% Meet Goals	% Exceed Goals
Grade 7			
Science-School	18	56	13
Science-State	16	53	30
Social Science-School	17	45	39
Social Science-State	16	49	35
Grade 8			
Reading-School	34	53	13
Reading-State	34	50	16
Math-School	5	59	36
Math-State	12	62	26
Writing-School	6	42	52
Writing-State	13	56	31

Students in the targeted group are in seventh grade. Cooperative and flexible grouping strategies are used in this math classroom. Students are heterogeneously grouped in teams, with some homogeneous grouping in instructional classes.

The school utilizes a typical middle school schedule, with students having different teachers for the various classes. The

students are in teams, with a flexible block schedule in place. Students have 42 minute class periods, with a 3 minute passing time between each. The teachers arrive at 7:45 a.m., with students arriving at 9:00 a.m.. The seventh grade schedule is set up with most of the academic classes taking place in the morning periods. This leaves most elective and non-academic classes in the afternoon. The school day ends at 3:30 p.m.

District:

The school district for all three schools, one of three school districts in the city, consists of one high school, three middle-schools, and 11 elementary schools. The teachers in the district have an average of 14.4 years teaching experience, and 46.6% have earned a masters degree or higher. The ethnic makeup of the teaching staff is 89.9% White, 5% Black, 4.3% Hispanic, .4% Asian/Islander, and .4% Native American. The teaching staff is 77.8% female and 22.2% male. The average teacher's salary in 1996-97 was $44,110. The current salary of the superintendent is $102,722. The district's operating expenditure per pupil is $5,295 (School Report Card, 1997).

Surrounding Community:

The schools are located 30 miles west of a large midwestern city. According to the 1996 census, the city's population was 117,000. The population forecast for the year 2001 was estimated at 133,380. There were 33,662 households in 1990, with a mean income per household of $39,078 and a median income of $35,039. The average household size was 2.96.

Over 41,000 residents have lived in the same house 10 years or more, and approximately 61.5% own their own home. The median housing value is $81,400; the median rent is $499.

Ethnically, 63.8% of the city's population is White, 22.9% is Hispanic, 12% is Black, and 1.3% is Asian/Pacific Islander. According to the 1990 Census, 26% of the population over 25 years of age have less than a high school education. There are 30% who have a high school diploma, 25% who have some college or an associate degree, 13% who have a bachelor's degree, and 6% who have a graduate degree.

In the past 20 years the city and its economic base have expanded considerably. Population has grown 33% between 1986 and 1996. The city has more than doubled in size, from 15.68 square miles in 1972 to 34.37 square miles in 1994. Employment has increased 56%, from 34,898 in 1982 to 54,634 in 1996. The unemployment rate is at 5.7%, the lowest level in nearly 20 years Retailing, office, research and development, manufacturing, distribution, and entertainment industries have expanded and diversified the city's economy. Six business parks house Fortune 500 companies and scores of fast growing small manufacturing and service industries (Community's Home Page).

National Context of the Problem

The problem of students lacking strategies for comprehending text has been discussed in professional literature for over twenty years. "Until the late 1970s students were seldom taught cognitive strategies that could assist them in reading" (Rosenshine & Meister, 1994, p. 479).

This issue becomes more critical in light of recent concern about the reading achievement of students in urban schools in the United States. Education Week, January 8, 1998, summarizes the stark differences in achievement between urban and non-urban school districts. "Most fourth graders who live in U.S. cities can't read and understand a simple children's book. . ." (Olsen & Jerald, p. 10). Many children in urban settings are not learning, and teachers lack hope for stimulating student achievement (Carter, 1997).

The problem of low reading achievement among students in city schools may reflect a lack of instruction in strategies for comprehension. Teachers have been noted to spend a large amount of instructional time asking students questions about their reading and a minimum amount of time teaching students comprehension strategies that would enable them to answer the same questions. Coley indicated that teacher-posed questions evaluate but do not teach comprehension (1993). This lack of instruction in comprehension strategies was observed as long ago as 1979 by Durkin (Rosenshine & Meister, 1994).

As stated by Fielding and Pearson (1994), a more in-depth study of reading comprehension indicates that the task of comprehension requires more evaluative thinking than previously thought. Thus, teachers need to modify reading instruction to include direct instruction in strategies teaching thinking skills.

Additionally, to be successful readers, students need instruction in the process of monitoring their own reading comprehension and instruction in fix-up strategies for "comprehension breakdowns" (Baumann, Jones, & Seifert-Kessell,

1993, p. 185). Successful readers know whether or not they are comprehending the text and what to try when they are not.

It can be surmised that students fail to achieve at a level commensurate with their potential due to their lack of knowledge of and training in how to derive meaning from text. The misguided belief that teacher questions alone will teach students comprehension skills has contributed to the failure to teach strategies needed for comprehension. The responsibility to give students comprehension strategies lies in the classroom with professional educators.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Background

The students in the targeted classrooms seem to lack the skills needed for successful reading comprehension of text. Observations in these classrooms have indicated that students are not utilizing strategies needed for reading comprehension.

Problem Evidence

School A:

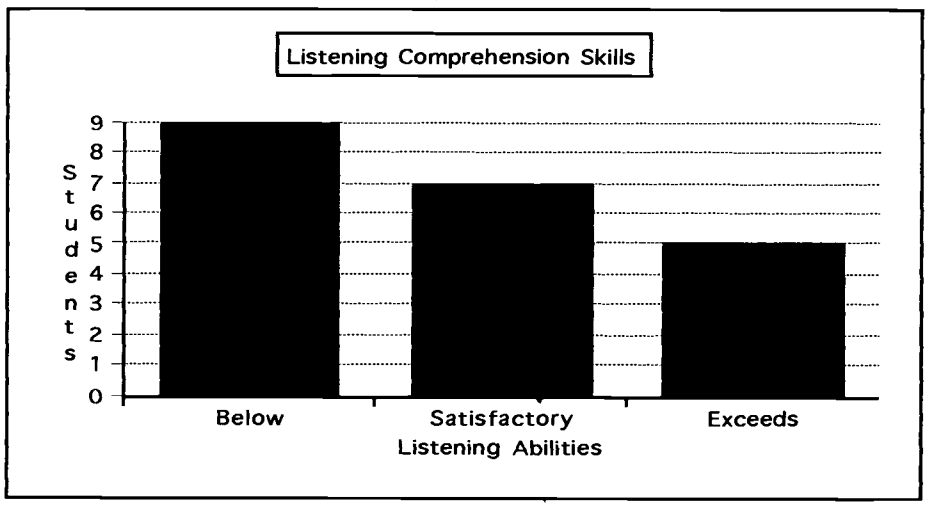
In the targeted kindergarten classroom the kindergartners entered school as non-readers and pretesting could not include reading assessment. Because listening comprehension is embedded in reading comprehension, informal measures of listening comprehension (Appendix A) were administered to five and six year old students during the first two weeks of school. To accomplish this informal comprehension check, kindergarten students were paired with fifth grade partners who recorded the kindergartners' oral responses to questions about stories read aloud by a teacher.

Student responses were evaluated for correctness and completeness of understanding of the story by the classroom teacher. The students were divided into three groups by the thoroughness of their responses. The students who fell below the satisfactory level of listening comprehension skills, shown in Table 1, had incorrect and/or incomplete responses to the comprehension questions.

The results shown in Figure 1 suggest that a high number of students entering kindergarten do not have necessary listening comprehension skills. Since overall reading readiness correlates

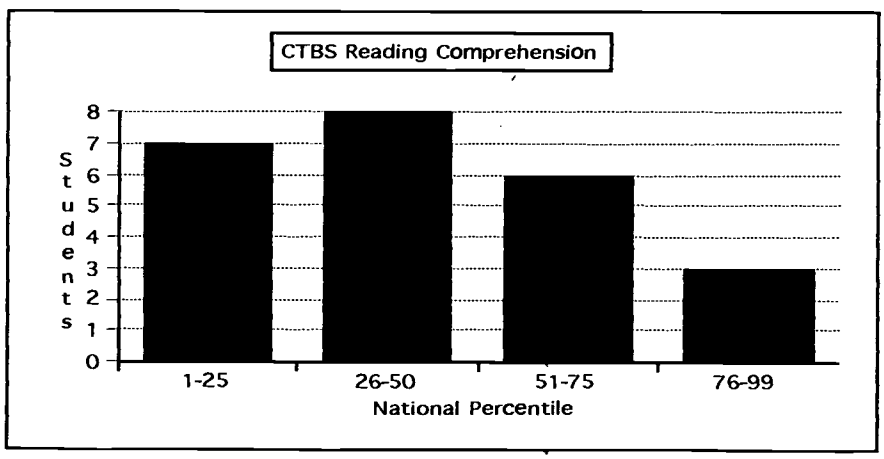
with listening comprehension skills, students need listening comprehension skills to be successful readers.

Figure 1



In gathering data from the fifth graders a variety of objective and subjective measures were used. Screening tools included Reading Comprehension scores from the Cognitive Test of Basic Skills (CTBS). As Figure 2 indicates, more than 50% of the students in the targeted classroom scored in the lower two quartiles on this measure.

Figure 2

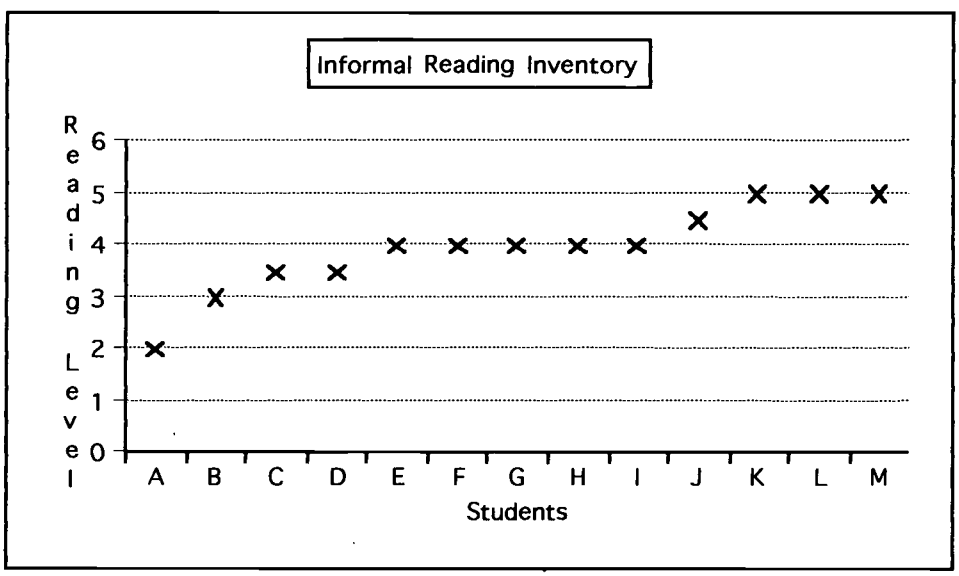


In another screening procedure fifth graders were asked to write responses to items in Reading Strategies Intermediate Survey (Fiderer, 1995). These responses indicated that the targeted students were utilizing little or no appropriate reading strategies. In their responses they listed few or no strategies that they used while reading.

Reading logs (Appendix B) kept by the students while reading both content material and self-selected literature also indicated a lack of comprehension for these students: They did not write responses that showed understanding of the material read.

Finally, Basic Reading Inventory by Johns (1994), was administered to fifth grade students. As Figure 3 indicates, all but three of the targeted students are reading below grade level.

Figure 3

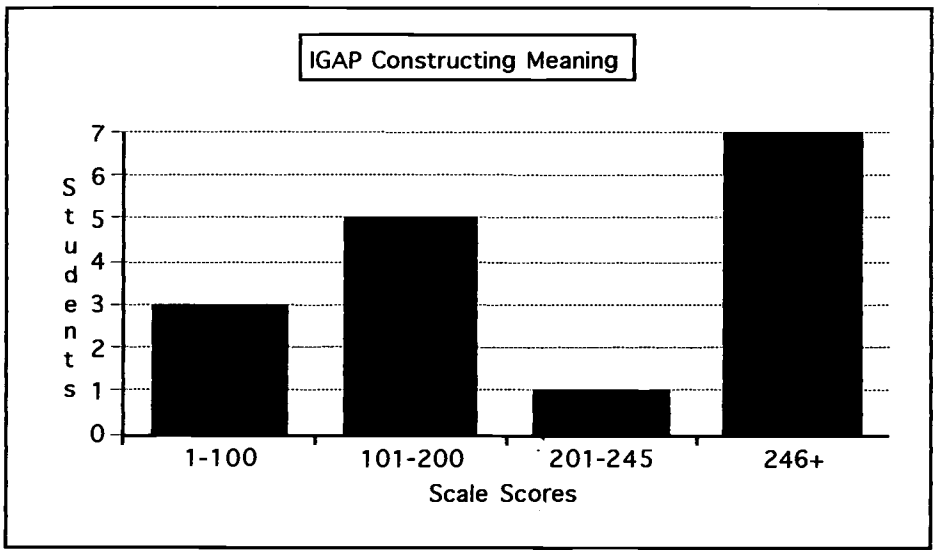


School B:

Data collected from students in the targeted fourth grade classroom also include both objective and subjective tools. First, the Constructing Meaning scaled scores from the 1997

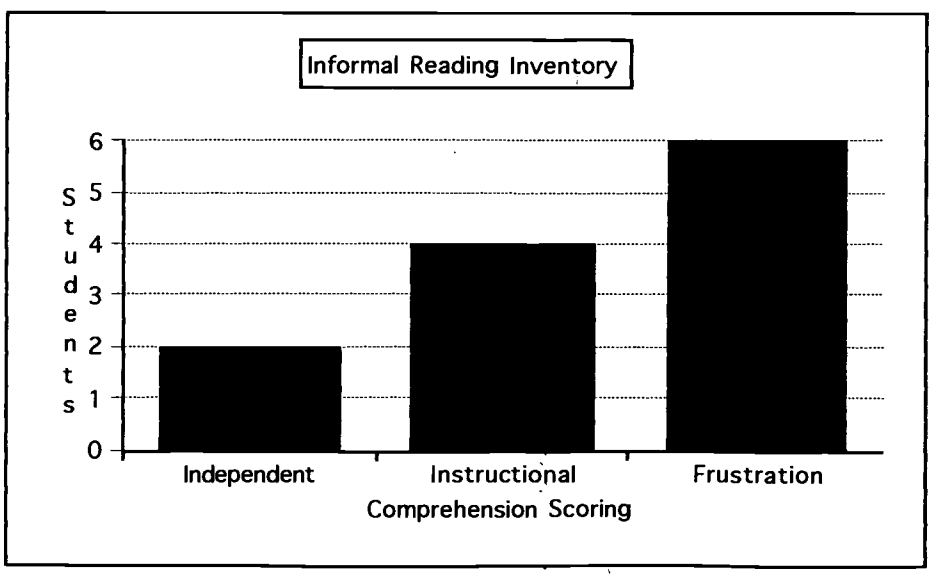
Illinois Goals Assessment Program (IGAP) were reviewed. As Figure 4 indicates, a significant number of students scored below the state average of 246.

Figure 4



Basic Reading Inventory by Johns (1994), was administered to the targeted students. As Figure 5 indicates 50% of the students fell below a fourth grade instructional level in comprehension.

Figure 5



Students' responses on Reading Strategies Intermediate Survey (Fiderer, 1995) indicated that targeted students had little or no evidence of strategies. These students reported using few or no strategies in their reading on this survey.

Finally, students' lack of comprehension skills was evidenced by the use of reading logs (Appendix C) that required students to summarize social studies material read in class. These written responses did not show understanding of the material read.

Results gathered from the IGAP, CTBS, student surveys, reading logs, and Informal Reading Inventories gave ample evidence that reading comprehension is weak and there is a need for reading strategy instruction to improve this skill.

School C:

The classrooms in School C are regular math classes of 24-28 students with varying abilities. Students range in age from 12 to 13 years. The targeted students were chosen from the data collected through teacher observation, journal entries, and a math pretest. There was evidence to support that students have difficulty pulling out important information and solving problems when required to solve word problems.

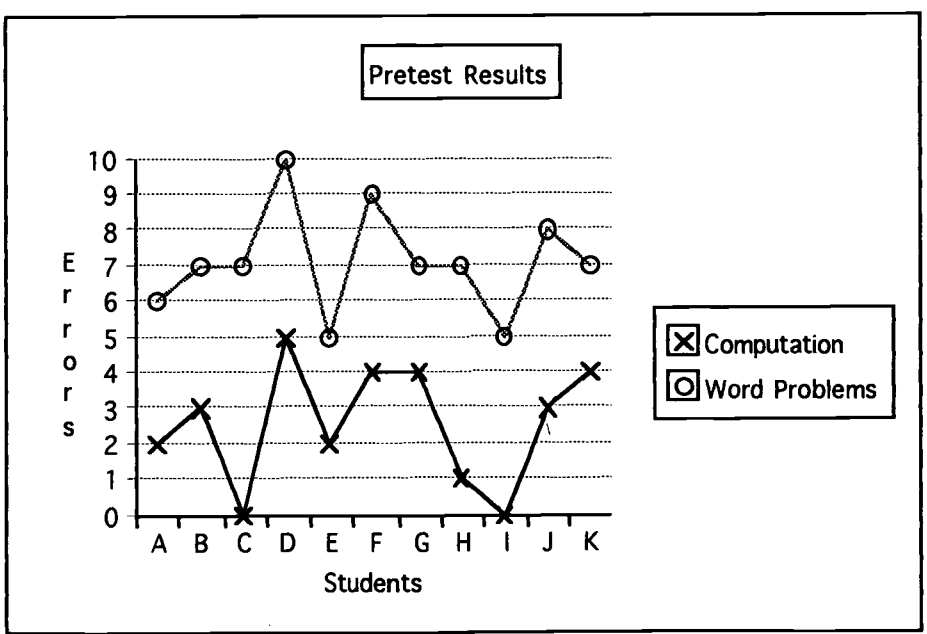
Teacher observations showed that students were more willing to participate and offer information in class when asked to solve a basic computation problem versus being asked to solve a word problem that required similar computation in the solution. Also, in responding to a journal prompt (Appendix D) students noted that word problems were more difficult because they were "confusing", especially when extra information was included in the data. This indicates that when reading is required to solve a math problem,

students displayed hesitation and/or a lack of understanding of the process needed to find the answer.

Finally, students were given a teacher-made pretest (Appendix E) consisting of three parts. The first part required students to solve some basic computation problems. The second part required students to solve word problems that used similar computation skills. The third part of the test gave students a solved equation and asked that the students write a word problem that would correlate with the given equation. Students were given unlimited time to complete this test.

As Figure 6 shows, results of two parts of the test showed that the targeted students consistently had more difficulty in part two of the test which required students to solve word problems. In part one computation seemed to offer less difficulty and many problems missed in this section were simple mistakes that may have been caused by carelessness.

Figure 6

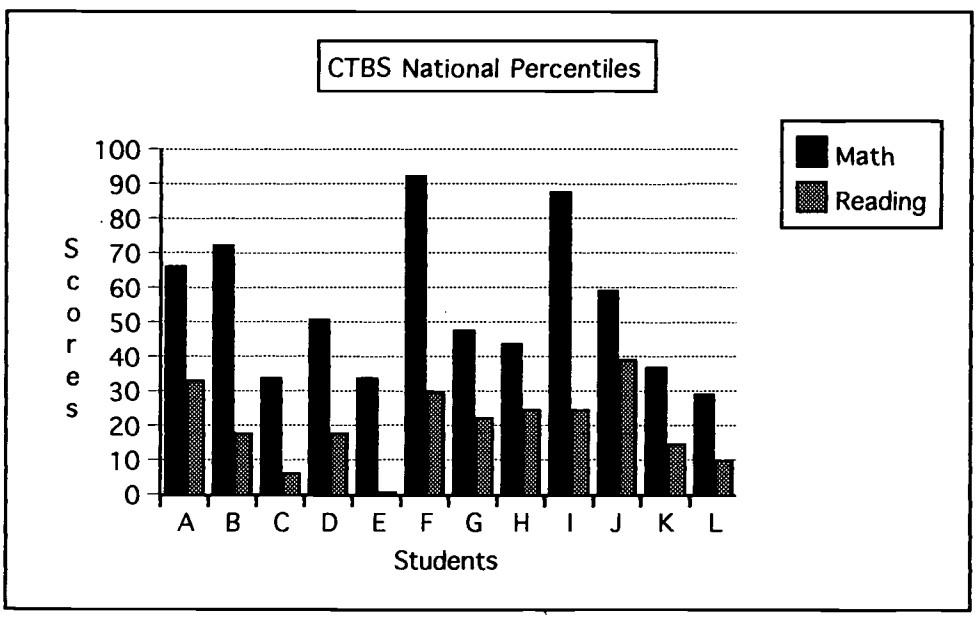


In part two, the targeted students seemed to have difficulty deciphering between important information and extra detail information. Many didn't seem to understand what the final question was asking. This seems to help explain why many of these same students had trouble with part three.

In part three students were asked to write their own word problems that used a given equation as the solutions. Several students could write a word problem but had difficulty when given an equation which required them to work backwards.

Figure 7 shows that targeted students scored significantly lower on the CTBS in Reading Comprehension than they did in Math Computation. This indicates that there may be some correlation between students' lack of reading skills and their inability to solve word problems successfully.

Figure 7



The evidence gathered from these three forms of data collection gives reason to believe that students need help reading

and pulling out important text for meaning in order to solve word problems successfully.

Probable Causes

Major researchers such as Coley (1993), Dymock (1993), and Carter (1997) support the theory that reading comprehension skills need to be improved for many students. Information gathered from the selected research literature suggested multiple probable causes for this deficiency in reading comprehension.

In Dymock's article (1993) she discussed why some students can decode words but still struggle with reading comprehension. Her study looked at whether poor decoding or language comprehension is related to poor reading comprehension. Twelve year old students in a New Zealand suburb were tested for the ability to decode words, reading fluency, and reading comprehension. Thirty-two children who read fluently were selected for the study and divided into two equal groups. In the first group the students had good decoding and comprehension skills. The other group were good decoders, but had poor comprehension skills. After a six week trial of reading and listening to each of four expository passages and responding to six questions each time they listened to or read a passage, the two groups could still be distinguished by their differing comprehension, which seems to indicate that "once a child has become a good decoder, differences in reading ability will reflect differences in listening ability"(p.90).

A similar theory on the cause of reading comprehension breakdown is presented by Hollingsworth and Reutzel (1993). In their study 78 second-grade students were randomly assigned to a

control group or a treatment group. The treatment group received instruction in reading fluency through a model called oral recitation lesson (ORL). In post testing the treatment group was shown to have developed reading fluency and to have better comprehension than the control group on three out of four comprehension measures. These researchers proposed that reading fluency goes hand-in-hand with reading comprehension.

Matthew (1997) also discussed the relationship between fluency and reading comprehension as well as the need for students to have adequate prior knowledge needed to fully comprehend written material presented to them. This study addressed both the issue of lack of fluency and the issue of adequate prior knowledge with the use of electronic text as an experimental treatment. From a pool of third grade students, 37 matched pairs were selected for the study. A control group read print versions of the same three books that the experimental group read from CD-ROM versions. Reading comprehension on story retelling were significantly higher for the experimental group. Since the electronic text assisted students with word pronunciation and background knowledge, this study supports the relationship of prior knowledge and fluency to comprehension.

Carter (1997), however, suggested that poor reading comprehension may be due to a lack of reading strategy instruction in the classroom. In her urban school district reading comprehension scores improved at the fourth and tenth grade levels when the reciprocal reading strategies of predicting, summarizing, clarifying, and questioning were taught directly to students.

Coley and her colleagues (1993) also suggested an overuse of

traditional teaching techniques as a cause of a breakdown of reading comprehension. They suggested that the use of too many worksheets deteriorates students' enthusiasm for reading. In this article educators reported on their experiences implementing reciprocal teaching in their classrooms. Each teacher adapted this strategy to their own unique situation in an attempt to address the concern that traditional worksheets kill students' interest in reading and fail to teach reading comprehension.

Another avenue of reading comprehension looks at reading in subject areas other than language arts. In one article by Fuentes (1998), he discussed reading comprehension in math. Fuentes pointed out that there is a lot of reading in math. Thus, in order for students to be successful in math, they need to be able to comprehend math text. It stands to reason that teachers need to provide reading strategy instruction in all content areas, even math, in order for students to be successful learners. Manning (1999) also discussed reading across the curriculum. She discussed the need for teachers in all content areas to take on the role of a reading teacher. Since all areas require some type of reading, students need to be equipped with reading strategies in order to successfully comprehend these various types of text. Both authors suggested that there is a breakdown in comprehension in subject areas other than language arts because students are not being taught how to adequately implement reading strategies when reading the different types of text presented in the various classrooms.

Finally, a synthesis of recent research on reading comprehension by Fielding and Pearson (1994) also indicated that

reading comprehension is a skill that must be taught. They listed four components they found to be important in learning reading comprehension:

1. Large amounts of time provided for the actual reading of text,
2. Teacher-directed instruction in comprehension strategies,
3. Opportunities for peer and collaborative learning, and
4. Occasions for students to talk to a teacher and one another about their responses to reading.

CHAPTER 3

SOLUTION STRATEGIES

Literature Review

As stated previously, there is evidence to support that the students in the targeted classrooms lack the necessary skills to comprehend reading material successfully. There are many possible causes for this deficiency in reading comprehension, as stated in Chapter 2. Dymock suggested that difficulty with decoding could be a symptom of poor reading comprehension in her 1993 article. An overuse of traditional strategies, such as worksheets, was another cause suggested by Coley and her colleagues (1993). A third theory was discussed by Hollingsworth and Reutzel (1993). They presented the idea that repeated readings are needed to enhance fluency and improve comprehension. A lack of prior knowledge could also explain why students have trouble understanding given reading material (Matthew, 1997). Finally, Carter (1997) believes that not enough reading strategy instruction is taking place in the classroom to adequately prepare students for reading comprehension.

In researching possible solutions for the lack of reading comprehension skills, we became aware of several strategies. All articles presented relevant research data which supported the strategies being suggested by the authors. In an article discussing the need for accountability, Edward Paradis and his colleagues (1991) discussed the use of checklists to assess student reading skills more authentically. The teachers involved in this study found that each needed to revise and modify the checklist to fit the need and structure of their individual classrooms. The first attempt to adapt this matrix was to add

items to the list and delete questions that were not relevant for each grade level. The teachers continued to have difficulty completing the checklists efficiently and still remain active and involved in their students' literature discussions. As a result, the teachers chose to use audiotape recordings to assist them in their assessments after the completion of the discussions. This allowed them to interact with the students throughout the activity but still be able to accurately recall information when completing the matrices later.

In another article by Mooney (1996), the use of guided reading activities was presented as a way to improve reading comprehension. Mooney suggested that teachers need to be involved in small reading groups, but they should offer only enough support to keep the group moving. Strategies should be initiated gradually, beginning with the simplest and working up to the more complex.

Hadaway and Young (1994) suggest the use of graphic organizers to enhance reading comprehension. Some of the organizers listed were Venn diagrams, story maps, graphs/charts, flow charts and time lines. The use of graphic organizers was also supported by Shelley and her colleagues (1997) in their article. They discussed the need for prior knowledge and suggested the use of K-W-L charts. Shelley's article promoted the repeated use of K-W-L charts and discouraged the one-time presentation of the strategy. They felt that a strategy needed to be used on a regular basis in order for it to be internalized by students. The use of these graphic organizers help students

organize ideas and information and become more involved in their own learning through cooperative group work.

Sinatra and Pizzo (1992) also discussed a strategy that promoted organizing information and ideas. They presented semantic mapping as a strategy for reading comprehension. The process of semantic mapping requires students and teachers to follow a nine step procedure to develop strong reading comprehension skills.

The use of think aloud strategies was another possible solution discussed by Baumann and his colleagues in their 1993 article. Here they suggested that reading comprehension skills could be taught through self-questioning, predicting and verifying, retelling, rereading, and reading to clarify meaning. This strategy promotes the student's use of self-monitoring.

The problem of the lack of instruction in reading strategies has been addressed by the research on reciprocal reading (or teaching) done by Palincsar and Brown (1984). According to a recent review of the research by Rosenshine and Meister (1994), the reciprocal teaching method originally developed by Palincsar and Brown required students to read expository text, a paragraph at a time. While reading,the students learned and practiced four reading comprehension strategies: questioning, summarizing, clarifying, and predicting. At first the teacher modeled the strategies and took charge of the discussion. As the students practiced each strategy and became proficient at utilizing them, the teacher invited individual students to lead the discussions. The teacher continued to provide feedback, modeling, coaching, hints, and explanation, fostering a "cooperative effort. . .to

bring meaning to the ideas in the text" (Rosenshine and Meister, 1994, p.481).

While a number of interventions seemed likely to enhance or improve reading comprehension, focusing on one solution seemed to be the most workable plan for an action research project. After analyzing the structures and objectives of the various strategies, the reciprocal teaching strategies seemed to best meet the needs of the classrooms involved in the study.

Project Objectives and Processes

As a result of reciprocal teaching, during the period of September 1998 to January 1999, the students in the targeted classrooms will improve their reading comprehension, as measured by teacher-constructed tests and teacher observation.

The project objective will be reached by implementing the following:

1. Activities that require cooperative grouping.
2. Implementation of the four reciprocal teaching strategies: summarizing, questioning, predicting, and clarifying.
3. Materials that encourage the use of the given reading strategies.
4. Regular monitoring of student progress.

Project Action Plan

The action plan is organized in a 16 week format in order to accommodate the varying classroom schedules. Setting weekly goals will allow the classroom teachers to include the specific interventions in their plans without disrupting any other

schedules(i.e. school assemblies, P.E., special classes). The 16 week schedule will begin in September 1998 and continue into January 1999. The action plan is as follows:

Week 1

A. Send home parent letter (Appendix D) to get permission for inclusion in study.
B. Pretest students to identify abilities.
C. Survey students to become better acquainted with the students and their reading habits.
D. Observe students in various classroom settings to become familiar with student practices and abilities.

Week 2 Introduction

A. Set up base groups and cooperative work guidelines.
B. Class discussions on what students do when they have difficulty understanding written material.
C. Give an overview of the four strategies of reciprocal teaching(summarizing, questioning, predicting, clarifying).

Week 3 Summarizing

A. Define and discuss summarizing.
B. Model strategy using short passages.
C. Practice summarizing paragraphs as a whole class and in cooperative groups.

Week 4 Questioning

A. Define and discuss questioning: Brainstorm question words and identify what a question is, differentiating "fat" and "skinny" questions.

B. Model strategy using short passages.

C. Practice creating questions about short passages as a class and in groups.

D. Continue using previous strategy.

Week 5 Predicting

A. Define and discuss predicting.

B. Model strategy using short passages.

C. Practice making predictions about short passages as a class and in groups.

D. Continue using the previous two strategies.

Week 6 Clarifying

A. Define and discuss clarifying.

B. Model strategy using short passages.

C. Practice clarifying using short passages as a class and in groups.

D. Continue using the previous three strategies.

Weeks 7 & 8 Practice

A. Continue practicing the four strategies as a class with guided practice.

B. Class discussion to address questions or problems.

Weeks 9 & 10 Practice

A. Continue practicing the four strategies in base groups with teacher monitoring.

B. Class discussion to address any problem areas.

Week 11 Extension

A. Introduce students to longer passages.

B. Use guided practice to implement the four strategies.

C. Allow students to practice the strategies with longer passages, closely monitoring their process.

Week 12 Extension Practice

A. Continue to practice four strategies in small groups.

B. Discussion to address any questions or concerns.

Weeks 13 & 14 Independent Practice

A. Students practice using the four strategies in independent reading.

B. Teacher closely monitors individual progress and difficulties, assisting students with any problems.

Week 15 Practice

A. Continue practicing the four strategies using independent reading.

B. Conference/interview/survey students to assess the students' opinion and progress of reading comprehension strategies.

Week 16 Analysis

A. Post-test on reading comprehension.

B. Evaluate student progress.

Methods of Assessment

Two methods will be used to assess the students' improvement at the completion of this research period. The first method is the implementation of tests, designed by each teacher, which will assess the use of the reciprocal teaching strategies at the appropriate level for each grade. The second method of assessment will be the use of teacher observation and notes taken throughout the intervention period.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

All students involved in the research displayed difficulties in reading and listening comprehension. In order to address these problems, the researchers implemented reciprocal reading strategies as an intervention to improve student success in these areas. Instruction in the four classrooms included the presentation and use of the four components of reciprocal teaching: summarizing, questioning, predicting, and clarifying. While all researchers followed the same basic order of implementation outlined in the action plan of Chapter 3, varying time lines were applied.

Reciprocal reading strategies were used as avenues for getting students to think about the material they were reading. Skills were taught that would help students read more actively and thoroughly, resulting in better comprehension of text.
The original plan involved identifying students who could read words but had difficulty comprehending. These students were identified by the researching teacher for each classroom based on information gathered in surveys, journals, tests (both teacher-made and standardized), and observations. Students who were chosen for the target groups displayed evidence of difficulty with comprehension through the information gathered.

At School A, nine kindergartners and 12 fifth graders were included in the targeted groups, but the strategies were taught to all students in the targeted classrooms. At School B, twelve fourth grade students were selected for the targeted group. At School C, 11 seventh grade math students were chosen. Once the

groups were identified, the action plan was put into effect for each classroom. Some varying applications were used by the researchers in order to conform to individual classroom needs, abilities, and/or restraints. Some teachers found that the weekly schedule of the action plan was either too spread out or too close together to successfully manage the implementation. These teachers reworked the plan so that each strategy was managed effectively with their students.

For classroom A-1 and A-2, the researchers chose to work jointly, using a cross-age tutoring technique. Teacher A-1, the kindergarten teacher, and Teacher A-2, the fifth grade teacher, decided that a cooperative approach would be beneficial with the large class numbers with which they were working during the research period. Each teacher prepared her classroom before the large group session with activities and/or discussion about the upcoming cross-age activity.

Kindergarten students were prepared for the activity by reviewing cooperative grouping rules in a whole class discussion. Teacher A-1 informed her students that the fifth graders would be joining them for a story session. They discussed the procedure, and students were told who their partners were and what they would be expected to do. It was decided that the fifth grade students would serve as mentors in teaching kindergartners the reciprocal teaching strategies within their reading session.

In the fifth grade classroom, students were given an overview of the four strategies of reciprocal teaching within the first two weeks of school, and began practicing summarizing text in social studies and in guided and independent reading in the third and

subsequent weeks. When the kindergartners were ready for their comprehension pretest, the fifth graders had had some experience with summarizing text. Prior to the cross-age activity, Teacher A-2 modeled the procedure of taking dictation from a partner. The fifth graders also practiced taking dictation from each other and made a T-chart of what cross-age mentoring might look like and sound like.

When the cross-age activity took place, the fifth grade students came down to the kindergarten classroom. At this time, the teachers modeled the procedure for the roles of each reading partner and how to apply the reciprocal reading strategies when answering questions and discussing the story. After modeling the activity for each session, one of the teachers would begin reading a story aloud. Portions of the book were read and then time was given for the partners to work together to complete question sheets. After ample time was allowed, a whole group discussion proceeded in which students and teachers would summarize and predict the events of that segment of the story. A teacher would then go on to read the next segment of the story, partners would work together again, and so on until the story was completed. The two classes worked together twice a week for the duration of the research.

In classroom B, the teacher implemented the reading strategies in her reading groups. When beginning a new passage, students were encouraged to make predictions based upon the title and/or pictures of the text. A discussion leader was selected and a segment of the text was read. The discussion leader began the dialogue by framing a teacher-like question about the most

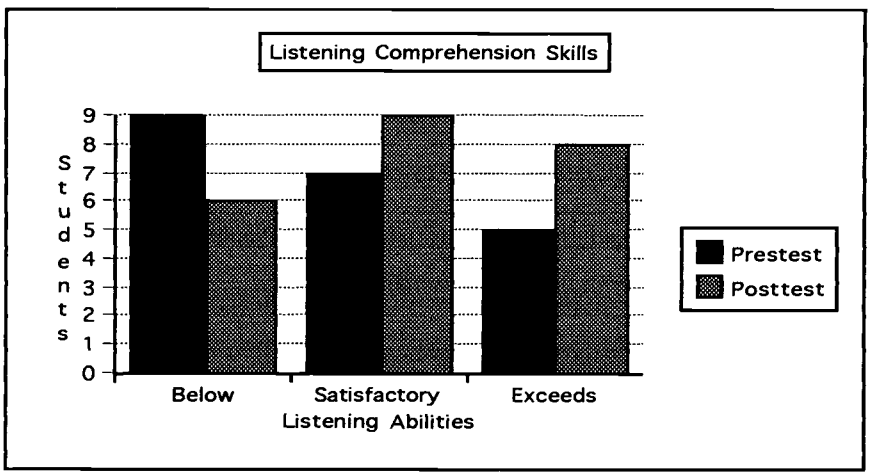
important information in the segment of the text. The other members were called upon to answer that question and suggest additional questions for the group to answer. The leader then summarized the text in his/her own words and asked for suggestions from the group about how the summary might be improved. The leader then suggested or elicited from the group any words or ideas that needed to be clarified. After the group had resolved their confusion, they were ready to generate additional predictions for the next segment of the text. Reciprocal teaching would be repeated again with a new leader. In classroom B, the teacher also used the strategies with social studies chapters, especially for clarification of vocabulary and content.

In Classroom C, the researcher implemented the reading strategies in her math classroom in hopes of improving problem solving skills. The seventh grade teacher presented the strategies through word problems. In order to conform to time limits and the district's math schedule, she taught each strategy in a daily lesson rather than weekly. She began by modeling with a think aloud activity. Using a sample word problem, she demonstrated how students could apply the four reciprocal strategies when analyzing the data. As a large group, the class went through several word problems together, implementing reciprocal strategies to identify the important information and question to be answered. The students then went on to solve the problem and clarify their answers. This approach was revisited at various times throughout the research period. At these times, students were asked to solve word problems on their own using the reciprocal teaching strategies.

Presentation and Analysis of Results

The listening comprehension skills of the kindergarten students in School A were assessed with an informal comprehension check. This posttesting was accomplished in the same manner as the pretest. The results are displayed in Figure 8.

Figure 8



In Table 8 the results of posttesting are compared to the pretest results. The table shows that more students fall into the satisfactory and exceeds categories. The researcher observed that as the year progressed students were able to respond in complete thoughts and retain and retell more information about the stories. The researcher also noticed that some of the students who did not show any improvement in their listening comprehension also had limited English skills. The information gathered from these kindergarten students indicates a positive effect of reciprocal reading strategies.

The fifth grade students in School A were given a post informal reading inventory to assess any growth in reading comprehension. The results of this inventory are shown in Figure 9.

Figure 9

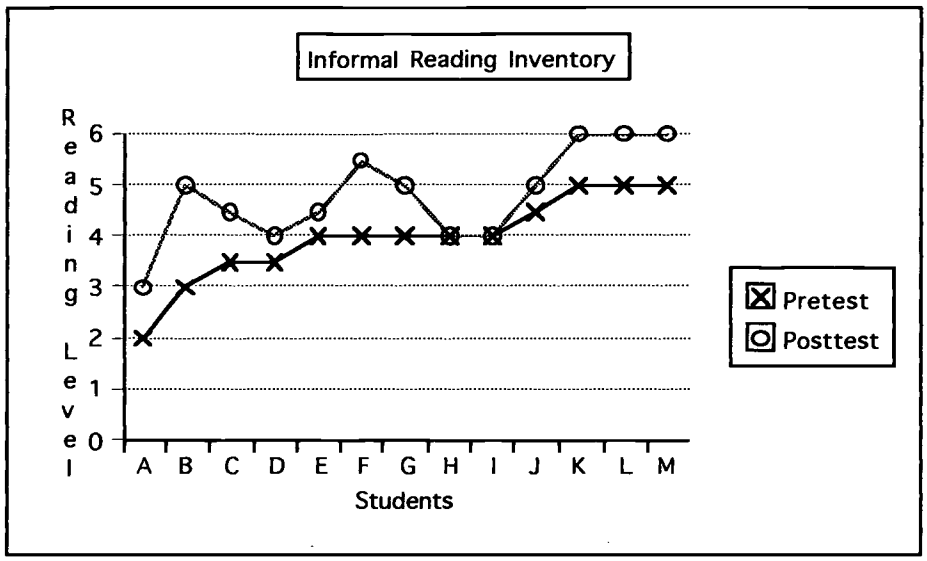
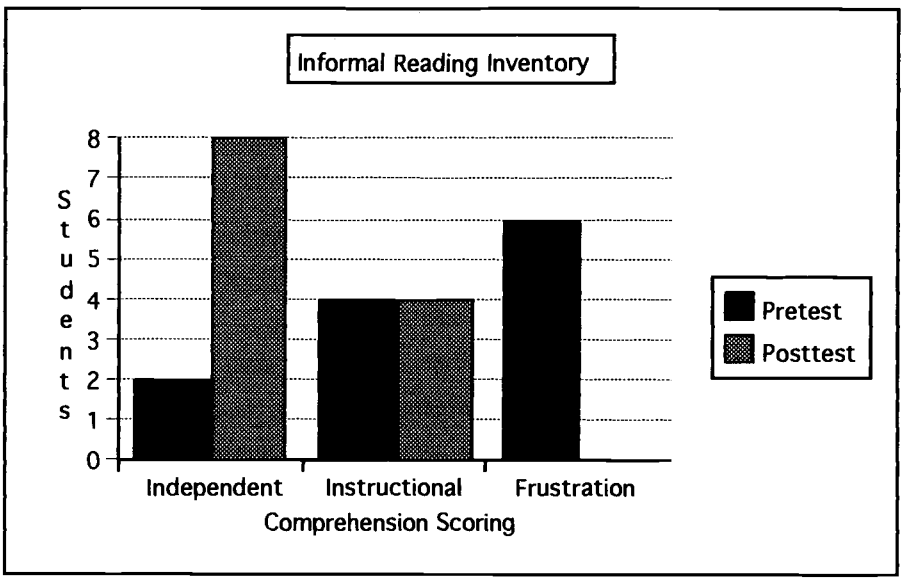


Figure 9 shows the results of the posttest compared to the pretest information. Improved reading levels can be seen for 11 of the 13 targeted students. During the course of the school year, Students H and I moved to new schools. Additional support for improvement in reading comprehension was shown by the student responses recorded in their reading logs for independent reading and social studies. Student responses to a survey about reading strategies (Fiderer, 1995) also indicates improved awareness of and use of reading strategies. Reciprocal reading seems to have had a positive effect upon the reading comprehension skills of the targeted fifth grade students.

The targeted fourth grade students were given a post informal reading inventory (Johns, 1994) to assess the effects of reciprocal reading strategies on their reading comprehension. The results of the second inventory are recorded in Figure 10.

Figure 10



When compared to Figure 5 in Chapter 2, there was a considerable increase in the number of independent readers. There were only four students at the instructional level, and no students scored in the frustration level. These results would indicate that the use of reciprocal reading strategies did impact reading comprehension positively.

The researcher in classroom B also observed that students were actively engaged and utilizing the strategies while working in their reading groups. Entries in reading logs indicated that students were clarifying content in social studies more accurately.

The targeted seventh grade math students were also given a posttest equivalent to the original pretest. The test results are compared below in Figure 6 and Figure 11.

Figure 6

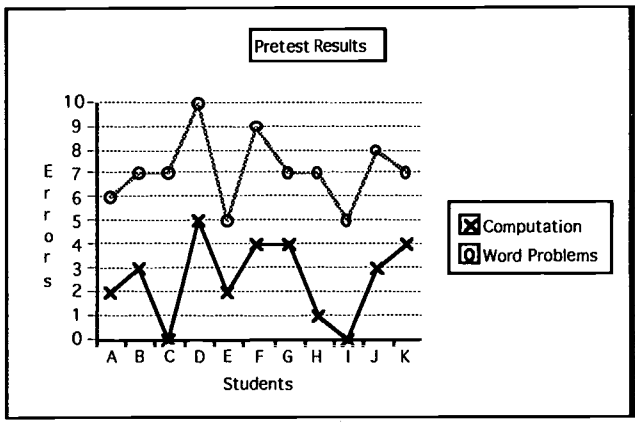
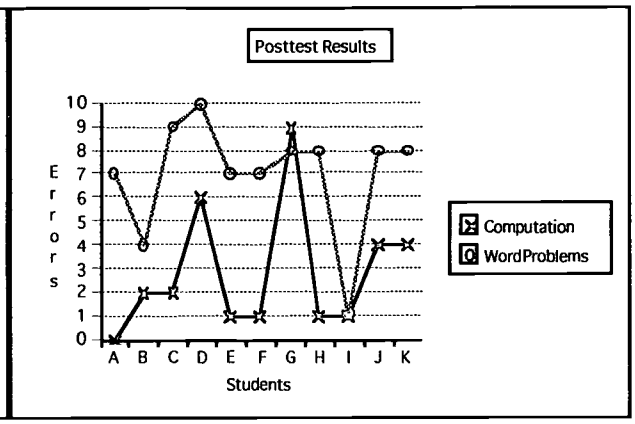


Figure 11



When comparing the posttest results of Figure 11 with the pretest results of Figure 6, there were no major changes in student scores. Most student scores show little or no improvement. Only one student showed any drastic improvement. This student also made a drastic improvement in overall classroom performance. The student seemed to be fully capable of doing both computation and word problems successfully. His lower scoring on the first test was probably a result of a lack of effort.

When comparing Figure 6 with Figure 11, reciprocal reading strategies don't seem to have impacted problem solving skills. The researcher in classroom C observed that students only utilized the reciprocal reading strategies when specifically instructed to do so. On the test and in daily work students tended to go right to the solution rather that go through the appropriate four steps taught with reciprocal reading. The math text presented a similar set of problem solving steps, and students seemed to refer to these steps more than the reciprocal strategies. This may have been because the text steps were easily accessible in the book. Reciprocal steps were available, but students would have to look them up in their notebooks when doing work at home.

Time constraints may have caused students to skip necessary steps in an attempt to finish more quickly. Students often seem to rush when doing work. They want to get finished as soon as possible and are reluctant to take extra time going through the steps of reciprocal reading.

Another possible factor which may have affected the implementation of reciprocal reading strategies in this seventh grade classroom may have been the teacher's lack of familiarity with the seventh grade math curriculum and middle school schedule. This action research was implemented during the researcher's first year in this setting.

Conclusions and Recommendations

After analyzing the data collected from the targeted students in all four classrooms, the researchers noted positive effects from the use of reciprocal teaching. Varying degrees of improvement in comprehension were evident in all groups.

In the cross-age tutoring reading and language activities between the targeted kindergartners and fifth graders a number of positive effects were noted by the teachers. Kindergarten students became more attentive to literature and listened more carefully to the reading of stories as the year progressed. Improvements in vocabulary and word recognition were also evident for some of the students. Students were able to identify elements of a story. Finally, the overall effect of the cross-age tutoring was beneficial because each kindergartner could immediately respond to the story instead of waiting turns to respond to the teacher in a large classroom setting. Naturally more on-task behavior was observed. Fifth graders not only enjoyed assisting

their kindergarten partners, but also gained skill in the use of the reciprocal teaching strategies. By helping the kindergartners expand language in their dictated responses, the fifth graders also expanded their own use of the strategies and language. The kindergarten and fifth grade teachers will continue to have their students share these reading and writing activities with each other in the future.

Modifications of the intervention that were made included dividing the fifth grade tutors and their kindergartners into two smaller groups each meeting with one of the teachers in separate locations. This allowed for a much more manageable teaching setting than trying to instruct in a whole group setting. Students from both classes were able to better attend to their tasks.

Future revisions in the intervention could include more precise selection of literature that would enhance the teaching of the reciprocal reading strategies and better parallel the time constraints of the kindergarten schedule. Also an ideal plan would include weekly meetings of the cross-age partners and time allotted for the teachers to adequately plan their activities.

In the targeted fifth grade classroom students were instructed in the strategies of reciprocal teaching as a whole group. The strategies were practiced with social studies text and overall improvement of comprehension in this content area was evident. The strategies were also practiced in literature circle activities with positive effects for the majority of students in the classroom. For the target group, the strategies of reciprocal teaching had a positive effect, but for the lowest readers,

teaching the strategies at the fifth grade level seemed to be a somewhat delinquent effort. . . Success would be much more likely if at-risk readers were targeted much earlier (than fifth grade) and consistently taught these strategies throughout the primary and intermediate grades. Such an effort would involve a building level commitment. Although improvements were made by the lowest readers, the time line of this action research project did not adequately address their needs.

In the fourth grade classroom, using the reciprocal teaching strategies showed positive improvement in reading comprehension. The students were more engaged and able to pull out more meaningful information from text. Teacher B incorporated the strategies with guided reading which had a positive impact on the students' comprehension. Students reacted positively to the new strategy being implemented, and it was observed that they were more enthusiastic about reading. Procedures used in the fourth grade classroom worked successfully, thus Teacher B would use the same procedures next year.

However, the reciprocal teaching strategies did not seem to improve middle school students' comprehension of mathematical word problems. The targeted students seemed reluctant to implement a new strategy in an otherwise familiar task. The more significant obstacle that the researching teacher felt may have obstructed a more positive growth in students' comprehension was the fact that this was her first year teaching seventh grade math and the curriculum was new. Now that there has been a year to become familiar and comfortable with the seventh grade schedule and

curriculum, it would be easier to implement the reciprocal reading strategies into the math lessons.

This researcher felt the action research could have been more successful if a few changes were made. First, when looking back at the way the curriculum is arranged, there may have been a better time to present the reciprocal reading strategies. In order to fit the action plan schedule, a special lesson was implemented early in the year. If the lesson had been introduced a little later, students may have been less reluctant to adapt it to their problem solving schema. Second, the steps probably would have been used more by the students if the teacher had set up all tests and homework to require these reciprocal steps be shown, at least for the beginning of the year.

All four researchers agreed that the use of reciprocal teaching was successful in varying degrees. They concur that continued use of these strategies in the future would be beneficial for teachers and students in most classroom settings.

REFERENCES CITED

Aaron, P. G. (1997). The impending demise of the discrepancy formula. Review of Educational Research, 67 (4), 461-502.

Abromitis, B. (1994). The role of metacognition in reading comprehension: Implications for instruction. Literacy Research Report No.19. Northern Illinois University, DeKalb. Curriculum and Instruction Reading Clinic.

Baumann, J. F., Jones, L. A., & Seifer-Kessel, N. (1993). Using think alouds to enhance children's comprehension monitoring abilities. The Reading Teacher, 47 (3), 184-193.

Carter, C. J. (1997). Why reciprocal teaching? Educational Leadership, 57 (6), 64-68.

Coley, J. D., DePinto, T., Craig, S, & Gardner, R. (1993). From college to classroom: Three teachers' accounts of their adaptations of reciprocal teaching. The Elementary School Journal, 94 (2), 255-283.

Community Home Page. www.community.com

Dymock, S. (1993). Reading but not understanding. Journal of Reading, 37 (2), 86-91.

Fiderer, A. (1995). Practical assessments for literature-based reading classrooms. New York: Scholastic.

Fielding, L. G., & Pearson P. D. (1994). Reading comprehension: What works. Educational Leadership, 5 (5), 62-68.

Fuentes, P. (1998). Reading comprehension in mathematics. The Clearing House, 72 (2), 81-88.

Hadaway, N. & Young, T. (1994). Content literacy and language learning: Instructional decisions. Reading Teacher, 47 (7), 522-527.

Johns, J. (1994). Basic reading inventory. Dubuque, Iowa: Kendall Hunt.

Klingner, J., & Vaughn, S. (1996). Reciprocal teaching of reading comprehension strategies for students with learning disabilities who use English as a second language. Elementary School Journal, 96 (3), 275-293.

Manning, M. (1999). Reading across the curriculum. Early Years, 29 (5), 83-85.

Marks, M., Pressley, M., Coley, J.D., Craig, S., Gardner, R., DePinto, T., & Rose, W. (1993). Three teachers' adaptations of reciprocal teaching in comparison to traditional reciprocal teaching. The Elementary School Journal, 94 (2), 267-283.

Matthew, K. (1997). A comparison of the influence of interactive CD-ROM storybooks and traditional print storybooks on reading comprehension. Journal of Research on Computing in Education, 29 (3), 263-275.

Mooney M. (1996). Guided reading-The reader in control. Teaching K-8, 25 (5), 54-58.

Palincsar, A.S., & Brown, A.L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. Cognition and Instruction, 1 (2), 117-175.

Palincsar, A., David, Y., & Brown, A. (1992). Using reciprocal teaching in the classroom. Unpublished manuscript.

Paradis, A., Chatton, B., Boswell, A., Smith, M., & Yovich, S. (1991). Accountability: Assessing comprehension during literature discussion. The Reading Teacher, 45 (1), 8-17.

Olsen, L. & Jerald, C. (1998). The achievement gap. Education Week, 17 (17), 10-13.

Reutzel, R., & Hollingsworth, P. (1993). Effects of fluency training on second graders' reading comprehension. Journal of Educational Research, 86 (6), 325-331.

Rosenshine, B., & Meister C. (1994). Reciprocal teaching: A review of the research. Review of Educational Research, 64 (4), 479-530.

School A State School Report Card (1997). School District.

School B State School Report Card (1997). School District.

School C State School Report Card (1997). School District.

Shelley, A. C., Bridwell, B., Hyder, L., Ledford, N., & Patterson, P. (1997). Revisiting the K-W-L: What we knew; what we wanted to know; what we learned. Reading Horizons, 37 (3), 234-242.

Sinatra, R., & Pizzo, J. (1992). Mapping the road to reading comprehension. Teaching K-8, 23 (2), 102-105.

APPENDICES

APPENDIX A
Informal Assessment of Listening Comprehension

Friends
by Helme Heine

Kindergarten Student:_____
5th Grade Partner:_____

(Pages 1-4 are read by teacher.)
What happened in this part of the story?

_____
_____
_____
_____

(Pages 5-8 are read by teacher.)
What happened in this part of the story?

_____
_____
_____
_____

(Pages 9-12 are read by teacher.)
What happened in this part of the story?

_____
_____
_____
_____

(Pages 13-14 are read .)
What happened in this part of the story?

_____
_____
_____
_____

APPENDIX B
Reading Log for Social Studies

Social Studies Unit 2:
Exploring and Settling America
Chapter 4, *The First People of the Americas*
Lesson 1, *People Come to the Americas*,
Pages 80-83

Before you read think about the titles of the unit, chapter, and lesson and look at any pictures, captions, and headings in this lesson. Make a prediction about what you will read in this lesson: _____

_____

_____

_____

Share your prediction with your group.

Now read your assigned pages or lesson.

As you are reading, write a summary of each part of the lesson.

From Asia to the Americas: _____

_____

_____

_____

From Hunting to Farming: _____

_____

_____

_____

What ideas or words do you need clarification of?

_____

_____

_____

Independent Reading Log

Reading Log for _____
My reading goal for this week is _____

_____

On Monday, _____, I read pages ____to____ of

_____

written by_____
and I _____

_____

_____

On Tuesday, _____, I read pages ____to____ of

_____

written by_____
and I _____

_____

_____

On Wednesday, _____, I read pages ____to____ of

_____

written by_____
and I _____

_____

_____

APPENDIX C
Reading Log for Social Studies

Chapter _____, _____

Lesson _____, _____

Pages _____

1. What do you think this lesson is about?

_____

_____

_____

Now read the assigned pages.

2. After reading the lesson what would you like to report about what you read?

_____

_____

_____

_____

_____

_____

3. What questions do you need answered about what you read?

_____

_____

_____

4. What would you ask the class about this lesson if you were the teacher?

_____

_____

_____

_____

APPENDIX D
Journal Prompt

Which did you find more difficult? Computation or word problems?

Why?

APPENDIX E
Pretest/Posttest

Solve.

1. $350 \div 6 =$

2. $\frac{4}{20} = \frac{x}{100}$

3. $(4 \times 20) + (5 \times 30) =$

4. $(10 \times 60) \div 5 =$

5. $\frac{3}{4} = \frac{x}{100}$

6. $(70 \div 5) \times 8 =$

7. $\frac{2}{3} = \frac{10}{x}$

8. $88 \div 6 =$ (round)

9. $(4 \times 8) \times (3 + 8 + 9) =$

10. $(20 \div 5) \times 3 =$

Solve. Show your work.

11. Jenny ran 4 laps in 5 minutes. How many seconds did it take to run each lap if she ran at a steady pace?

12. Twenty-four guests came to the party. This was $\frac{3}{4}$ of those who were invited. How many guests were invited?

13. Fifty-eight players were divided as evenly as possible into 8 teams. How many teams had exactly 7 players?

14. If photocopies cost 5¢ each for the first hundred copies and 3¢ each for additional copies, what would be the cost of 150 copies?

15. Three eighths of the people in the town voted. If 120 of the people in the town voted, how many people lived in the town?

16. If 12 mongooses weigh 72 pounds, how much would 100 mongooses weigh?

17. If Sarah is batting at a rate of 3 hits in every 10 at-bats, then how many hits is she likely to get in 80 at-bats?

18. The average of 3 numbers is 7. Two of the numbers are 8 and 9. What is the third number?

19. Seven containers can hold 84 ounces of punch. The punch is made using 1 cup of soda for every 3 cups of juice. How much can 10 containers hold?

20. Tony reads 30 pages of a book each day. He watches his favorite show for 30 minutes each day and spends 1 hour on homework. How many days will it take to finish a 200 page book?

21. Write any word problem you'd like and show the solution.

Write a word problem for each equation below. You can use the back of this sheet.

22. $8 + 5 = 13$ 23. $(7 \times 3) - 4 = 17$ 24. $18 \div 3 = 6$

APPENDIX F
Parent Letter

September, 1998

Dear Parents,

As you may know, I am currently involved in a masters degree program through Saint Xavier University. As a part of this program I am required to conduct a research project with may students. I look forward to the opportunity to work with your child. I will be working on this project from September 1998 through March 1999. The students will be learning specific strategies for listening and reading. The purpose of these strategies is to improve reading/listening comprehension.

Another requirement of the university is that parents give consent for their child's participation in the project. While I hope you will give your consent for your child to be a part of the study, your child's participation is completely voluntary. Participation is not part of your child's grade.

Please sign the attached consent form and return it tomorrow, if possible. If you have any questions or concerns please call me at school (844-4485).

Sincerely,

Saint Xavier University

Consent to Participate in a Research Study
"Improving Reading Comprehension Through
the Use of Reciprocal Teaching"

I, the parent/legal guardian of the minor named below, acknowledge that the investigator has explained to me the need for this research, identified the risks involved, and offered to answer any questions I any have about the nature of my child's participation. I freely and voluntarily consent to my child's participation in this study. I understand all information gathered during the interview will be completely confidential (or anonymous). I also understand that I may keep a copy of this consent form for my own information.

_____

Name of Minor Participant

_____ _____

Signature of Parent/Legal Guardian Date

_____

Witness

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Author(s): Kahre, Suzanne; McWethy Christine; Robertson, Jamie; Waters, Sharon

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