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The impact of reciprocal teaching strategies on reading comprehension

Mary Jo Fitzgerald
University of Northern Iowa

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The impact of reciprocal teaching strategies on reading comprehension

Abstract

The purpose of Reciprocal Teaching is to improve reading comprehension through the use of cognitive strategies. The strategies encourage student's self-directed prediction, clarification of information, generation of questions about the content, and summarization of material covered. It also promotes collaboration between the student and teacher in the learning process. Reciprocal Teaching was introduced to teachers at a staff meeting, and they were told they were expected to use these strategies in their classrooms. Teachers were given two choices for training. One was a two-day workshop in August and the other was a thirty-four hour program offered throughout the school year. The goal was to train all teachers at Central Middle School in the Reciprocal Teaching strategies.

THE IMPACT OF RECIPROCAL TEACHING STRATEGIES
ON READING COMPREHENSION

Submitted
In Partial Fulfillment
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Master of Arts in Education

Mary Jo Fitzgerald
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John E. Henning

Director of Paper

Radhi H. Al-Mabuk

Reader of Paper

Reader of Paper

John E. Henning

Advisor

John K. Smith

Department Head

5/6/05

Date Approved

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INTRODUCTION

Since No Child Left Behind education law was mandated into the schools, education has moved in a new direction and schools are being held to a new standard. In this new environment, the quality of teaching is based on standardized testing, which has caused Central to be identified as a school in need of assistance. In response, Central implemented the instructional practice of Reciprocal Teaching, which meets the criteria of a scientifically-based and research-supported method that could improve student achievement. This program can be implemented across the curriculum in all subjects and with students of all ability levels. This study was designed to evaluate the implementation of Reciprocal Teaching at Central Middle School.

The purpose of Reciprocal Teaching is to improve reading comprehension through the use of cognitive strategies. The strategies encourage student's self-directed prediction, clarification of information, generation of questions about the content, and summarization of material covered. It also promotes collaboration between the student and teacher in the learning process. Reciprocal Teaching was introduced to teachers at a staff meeting, and they were told they were expected to use these strategies in their classrooms. Teachers were given two choices for training. One was a two-day workshop in August and the other was a thirty-four hour program offered throughout the school year. The goal was to train all teachers at Central Middle School in the Reciprocal Teaching strategies.

The purpose of this study was intended to determine whether Central had full implementation of Reciprocal Teaching. The research question for this study was:

How successful was Central at using Reciprocal Teaching strategies across grade levels and content areas in reading comprehension and can they be sustained?

Significance of the Study

This study of Reciprocal Teaching is the only evaluation of Reciprocal Teaching at this school. If it is successful, implementation should result in higher reading comprehension test scores. This in turn will tell us what is working well in implementation of Reciprocal Teaching.

Limitations of the Study

In 2004-2005 academic year, there was a change in administrators at Central. These administrators were not trained in Reciprocal Teaching. In order for success of any initiative, it is essential for the principal to be knowledgeable about the program. In addition, this study is not a school-wide sampling but examines what five teachers are doing in their classrooms. Target Teach was not addressed in this study as it was a new curriculum the district mandated and was introduced at the same time Reciprocal Teaching began, which may make it more difficult to know which program was more important.

LITERATURE REVIEW

Introduction

Two specific areas of literature provided the framework for the study. The first was concerned with Reciprocal Teaching and the components involved with this practice, a researched supported learning method for reading. In a district initiative, a majority of the teachers at Central signed up to take the Reciprocal Teaching (RT) course which was offered to give teachers a common language while talking to students, parents, and other educators. It would also let the teachers incorporate the teaching strategies into their curriculum. The second area was largely concerned with Peer Coaching and the self-reflection that can affect teaching successes. It is a part of Reciprocal teaching and can help teachers be more successful if there is support from peers. It also creates awareness, develops readiness, builds commitment, plans, implements, and maintains a peer-coaching program throughout a school.

Reciprocal Teaching

The purpose of Reciprocal Teaching is to help students, with or without a teacher present. The strategies chosen not only promote reading comprehension but also increase student interactions which helps bridge the gap between students of different ability levels (Brown & Dole, 1996). It also encourages student self-directed prediction of what information might occur in the text, clarification of information not completely understood as the text is read, generation of questions about the content, an summarization of material covered (Lysynchuk, Pressley & Vye, 1990). Reciprocal Teaching is an approach for improving reading skills based on the development of comprehension through direct engagement with the text. It refers to an instructional activity that takes place in the form of a dialogue between teachers

and students with regards to different sections of the text (Palincsar, 1986). Students are taught four strategies that are used: summarizing, questioning, clarifying, and predicting. Teacher and student led discussions foster self-verbalization techniques in readers, enabling them to construct meaning from the written word (Palincsar & Brown, 1984).

Reciprocal Teaching has proven to be useful with a widely diverse population of students. It was designed to improve the reading comprehension ability of students who were adequate decoders but had poor comprehension (Carroll, 1986). It empowers the students to be engaged in the reading process and to assume more ownership of their learning. Students didn't initially utilize the four strategies. They needed encouragement to visualize what was read and successfully accomplish their goal. The application of Reciprocal Teaching was used in an underachieving school district of Highland Park, Michigan during 1993-95. It was an attempt to raise reading scores to accepted standards. This resulted in considerable improvement with the numbers of fourth-grade students in the district who met or exceeded standards rising from 14.4% in 1993 to 39.6% in 1996 (Carter & Fedete, 2001).

RT could have some definite limitations. First, the comprehension behaviors are unfamiliar to many teachers, and second, helping students to assume the role of teacher is very challenging and could be inappropriate for some students or settings (Rosenshine & Meister, 1994). Some students could become very motivated to improve their grades, while other students may not become involved in the process. Another limitation in the classroom is the small sample size. This gives a limited number of students a chance to practice the strategies presented but could hamper the learning if enough time was not allowed to practice the strategies of summarizing and predicting (Lyon & Pinnell 2001).

Peer Coaching

Peer Coaching is a reciprocal process among teachers to improve their teaching. It focuses on improving professional development, which in turn drives school improvement. It is also a process during which two teachers watch each other teach courses and later discuss what they saw and help each other solve problems. In peer coaching, usually two teachers come together, share in conversations, and reflect on and refine their practice. The relationship is built on confidentiality and trust in a non-threatening environment in which they learn and grow. This is not a part of an evaluative system. It is a confidential process through which two or more professional colleagues work together to reflect on current practices.

The purpose of peer coaching is to help fellow instructors improve their teaching, and give them someone with whom to share the ups and down of teaching. Peer coaches strive to focus on positive reactions and solutions to possible problems as opposed to peer visits for evaluative purposes that may focus on rankings or ratings of teaching for employment reasons (Munro & Elliott, 1987).

A related, yet very important, function of peer coaching is to provide a forum in which teachers can experiment with and discuss teaching with an interested partner (Munro & Elliott, 1987). Teachers who utilize peer coaching for this purpose may meet with their partners to plan effective teaching strategies, review each other's syllabus and textbooks, review exams for clarity, and attend classes to see that the instructor's teaching goals are being met in a practical manner. In a sense, such partners serve as "teaching consultants" in a shared reciprocal relationship.

The primary goal of peer coaching is to provide positive feedback to instructors, most of whom regularly receive negative comments from students and administrators on teaching evaluations. It is important for teachers to realize that such comments "come with the territory" and does not mean that they are ineffective as instructors (Munro & Elliott, 1987). Instead, it is more positive to focus on change and personal development. Peer coaches also provide support and companionship for their partners (Joyce & Showers, 1982).

Teachers are notorious for ignoring comments made on administrative and student evaluations, but this is not true for peer coaches. One evaluation found that less than 25% of teachers made changes based on student's evaluations and less than 10% reacted to peer or administrative comments (Spencer & Flyr, 1992). On the other hand, more than 80% of peer coaches report making changes in their teaching (Millis 1994; Munro & Elliott, 1987).

Other benefits of Peer Coaching were a better understanding of teaching and improved self-analysis skills. Along with this, there is renewal and recognition, increased sense of efficacy and an increased collaboration/collegiality among the peer coaches. Peer Coaching also improves teaching performance and increases student growth and development (Little & Bird 1998).

In order for peer coaching to succeed at any level there are specific conditions that need to be in place to be effective. Criteria for effective implementation of peer coaching includes a school climate that is supportive of innovation and change, a commitment to the coaching process in terms of time and money and common language that is shared about curriculum and/or teaching practices. Other criteria for

peer coaching are to have participants receive training in coaching skills, give them the opportunity to select the partner with whom they will work, and make sure the person being observed has the opportunity to determine which teaching practice will be observed. Coaching procedures are negotiated in detail so that partners trust their agreements and feedback needs to be given based on specific, objective data.

Setting up and implementing peer coaching programs is not hard, but they can be time consuming. Time is a crucial factor. Ongoing training and support are needed. Pairs or teams of teachers must have time to meet, research, and collaborate (Hutchins 1994). The administration of a peer-coaching program is relatively easy, but very time consuming. Several hours each week can be spent coordinating and preparing to introduce this program to teachers. Other examples of limitations drawn from another author indicate the facts that peer coaching does not ensure meaningful communication, that it has a narrow vocabulary, lacks adequate release time, the supervisor is not trained, and the evaluation may not count for much since, without training, a person would not know what qualities may be lacking (Hyman 1990). Most studies on peer coaching are conducted at one school. Because schools are complex and unique systems, the findings may not generalize to all schools. Peer coaching can be inconsistent throughout a school and positive/negative attitudes vary depending on the experiences of the teachers with this strategy (Barth 2001).

Support for peer coaching is necessary. There are many demands made upon teachers today with high mobility, different languages, and special need children in the classroom. The goal of peer coaching is to improve instruction for all children. Literacy

experiences through peer coaching encourage students in reading and writing of all types (Swafford 1998).

Methods

Introduction

The purpose of this study was to address the following question: If Reciprocal Teaching Strategies are effective in reading comprehension can they be sustained as an initiative? Central was identified as School In Need of Assistance in 2002. As part of Central's 2004-2005 School Improvement Plan, Central implemented Reciprocal Teaching as part of their professional development component. Data was collected from four sources: 1) classroom assessments, 2) surveys, 3) Iowa Test of Basic Skills (ITBS) and 4) interviews. The classroom-based research determined the success of teachers using teacher/student interaction and student led lessons which are a key component for Reciprocal Teaching. Peer Coaching was also used as a strategy together information on classroom interactions. Parent survey data was collected to determine if they were aware of the RT strategy that Central implemented. Student achievement data was collected for evidence that reading comprehension scores were increasing at Central Middle School. This was the goal of the school improvement plan. Interviews provided insight into how the Reciprocal Teaching strategies were improving students' attitudes and perceptions.

Setting

Central is one of the largest middle schools in the state of Iowa with 820 students enrolled. Four subgroups, African American, ELL, Special Needs and SES student,

make up part of Central's population. The majority of Central students are bussed. The large number of students, combined with a lack of neighborhood connections, affects Central's commitment to the middle school concept. It is hard for students and parents to develop close relationships with peers, build community, and feel ownership of their school. This has an effect on attendance at conferences, student performances, and groups such as Parent Boosters and Site Council.

Participants

Teachers

The participants in the interview were 3 middle school teachers and 2 teachers who participated in the peer observation activity. The teachers have an average of seventeen years teaching experience. The special needs teacher teaches 6th, 7th, and 8th graders who are hearing impaired. These students are usually below grade level. The math teacher interviewed also took the 34 hours of training. She believes that her students are more engaged in learning since she started using RT. The last teacher interviewed also had the Reciprocal Teaching course. She teaches Social Studies at the 7th grade level and took a two-day workshop for RT. When she has finished a lesson after being observed, both the observer and teacher discuss feedback on the strategies the teacher used and how well the lesson was conducted.

Each teacher was observed during a fifteen-minute lesson with his/her classroom using a modified Flanders Interaction Analysis Data Table as a collection tool. The premise of the analysis process is that by critiquing the teacher, it is possible to be both

the student and the teacher thereby creating self-analysis and awareness of your teaching personality, techniques and effectiveness.

Parents

The parent survey which was sent home with the students consisted of fifteen questions. Survey questions were designed to determine if parents were familiar with the reading comprehension strategies that are part of RT: questioning, predicting, visualizing, summarizing, small group collaboration, and teacher collaboration. Information was needed from the parents to see if they were aware of RT, understood why RT was being used, and what terminology was used in the program. Demographic information received from the surveys determined 1) One or two parent homes, 2) Education of parents, 3) Shifts worked.

Target Teach

Target Teach is a district-mandated reading curriculum for the Waterloo School District. The reading teacher administers the test to students in their reading class. The pretest is given every fall during the first week of school with four increment tests given throughout the school year. All tests are written in ITBS format and scored electronically. The pre and posttests consist of 105 questions and cover 26 district reading objectives. The pretest was used as the measure since the increment tests had been reformatted for the 2004-2005 school year, while the pretest remained the same. The purpose was to compare the scores of the Fall 2004 Target Teach pre-test scores to the Fall of 2002 and the Fall 2004 pretest scores to see if strategies to improve reading comprehension implemented during RT have made a difference in reading comprehension test scores.

INSTURMENTS

Flanders Interaction Analysis Data Table

The Flanders Interaction Analysis Data Table is a data table, which is divided into ten behaviors. These 10 categories of communication are said to be inclusive of all communication possibilities. There are seven categories for teacher talk and two for pupil talk. In teacher talk, the teacher may accept feeling, use ideas of pupils, ask questions, lecture, give directions and criticize. In pupil talk, the student has a response and could initiate topics. The last section on the Flanders data table was silence. This silence could be for confusion or pauses, which may indicate something, could not be understood (See Appendix A). The researcher added two other categories to the data table to include the number of times boys or girls were called on (See Appendix B). The modified Flanders was used to collect the data for the peer observations. The premise of Flanders analysis process is that by critiquing teaching skills it is possible to be the student and the teacher at the same time. In this way, teachers are creating self-analysis and awareness of their teaching. Data were needed to see how many times girls and boys were called on, and the strengths and weaknesses of each individuals.

Teachers

The researcher interviewed one special needs teacher, a math teacher, and a social studies teacher from each grade level. These teachers had either the recommended 34 hours of Reciprocal Training or the two-day training held before the start of the school year. The purpose of the interviews was to discover if Reciprocal Teaching had been implemented and was working in the classroom better than other traditional methods (See Appendix C). Questions that were asked at the interview were

on parent communication and student use of the strategies, what kind of help was needed to be successful, and how knowledgeable the building administration was with Reciprocal Teaching.

Parents

The survey was sent out to 100 randomly selected parents of 6th, 7th, and 8th grade students. A note explaining the purpose of the survey was attached to the survey. The survey was given to the reading coach at Central to check for clarity and gender bias. There were 3 questions related to homework and parent involvement, five questions related to strategies used in Reciprocal Teaching, five questions related to Reciprocal Teaching terminology and communication to parents, and two questions related to teacher collaboration. This information was needed to find out if parents were aware or understood what RT was and how familiar they were with the terminology used in the classroom (See Appendix D).

Target Teach

Target Teach is part of the district-wide reading curriculum for the Waterloo Schools. The post-test is administered in the Spring to students in the reading classes. The pre-test is given every Fall with four increments tests given throughout the school year. These tests consist of 105 questions that cover 26 district reading objectives. The pretest was revised from the fall of 2001 and remains in use. Tests from Fall of 2002, 2003, and 2004 have been used in this analysis. The purpose of this measure was to compare the Target Teach (2004) pretest scores to the fall of 2002 and 2003. We wanted to determine whether the implementation of RT strategies had an effect on

student achievement in reading comprehension. The assessment is a reading passage, followed by questions that are ITBS formatted (See Appendix E).

PROCEDURES

Data Collection/Teacher Observations

Each teacher was observed during a fifteen-minute lesson with his/her class using a modified Flanders Interaction Analysis Data Table collection tool (Flanders & Amidon, 1998). We focused on the following three categories during our observations: indirect teacher talk, teacher talk, and student talk. We were also interested in the number of times we called on girls and boys in our classrooms so that information was also recorded. There were two initial observations, with two different peer coaches followed by debriefing with peer coaches. Individuals will reflect with the coaches and identify strengths and weaknesses and target an area to change.

Data Collection/ Interviews

There were three interviews conducted both during and after school. The researcher interviewed one Special Needs teacher, a Math teacher, and a Studies teacher from each grade level. Each teacher was asked ten interview questions concerning RT practices.

The first interview with Teacher A, a 7th grade Social Studies teacher, was done during her planning time with no interruptions occurring. She uses whole group instruction with reading and discussion of materials. The second interview with Teacher B is a Special Needs teacher who teaches all grade levels for hearing impaired students. This interview was completed after school. There were two interruptions during this time. Usually, this teacher works one on one with her students. Interview

with Teacher C, a 7th grade Math teacher, was interviewed after school in her room with no interruptions. After each question asked, the answer was recorded

Parents

Questions were sent home with randomly selected 6th, 7th, and 8th grade students to determine whether the parents were familiar with the terms used in RT in the classroom. Surveys were handed out in sealed envelopes during a class on Monday morning. A note explaining the purpose of the survey was attached to it. Parents were asked to return the survey to one of the teachers noted by Friday of the same week. There were 50 surveys sent home with male students and 50 sent home with female students. The 6th graders received 30 surveys and 70 surveys were sent with 7th and 8th graders. Fewer were sent home with the 6th grade because they were new to the building and one 6th grade team of teachers were all new and had not received Reciprocal Teaching.

Target Teach

The reading teacher administered the test to 225 Central 8th grade students in their reading class. The pretest was then scored electronically. The same procedure was followed when the pretest was administered to this group in 2003 as 7th graders and in 2002 as 6th graders. Due to the time frame, the posttest that would be best suited for our purpose would not be available since it is not administrated until May. Tests from the Fall of 2002, 2003, and 2004 have been used in this analysis

Results

Introduction

Peer coaching observations using the Modified Flanders Interaction Analysis Table shows that the teacher being observed was making progress towards transitioning their classroom to a student led environment as shown on the increases on the table. The observations were helpful since it identified both strengths and weaknesses in interactions with students. In the researcher's interviews with the three teachers, it became clear that while some teachers were using RT, others needed more in-service and peer coaching support to be successful. In the parent survey, it became apparent that students would need to be encouraged to share new ideas with their parents and begin using the terminology they are being taught in the classroom. The Target Teach data showed an increase in reading comprehension at Central Middle School

Observations by Peer

The area of weakness for the participant, which was also the area to be targeted as needing work, was Indirect Teacher Talk. Tally marks showed an increase in student participation and are reflected in the chart shown below. Work also needs to be done on the other categories where the researcher needs to become more aware of what the students say and really listen to them. Even though the participant increased the percentage of participation from 23% to 27%, it was found that it is still difficult to respond to student query when the participant feels that students have difficulty listening. The other observations ranged from 45% to 56%.

Peer coaching should focus on improving instruction and different innovations and to become consciously competent teachers. The peer coach brainstormed ways in which some pitfalls can be avoided and different ideas could be implemented.

Modification may be necessary. The data table below was used for all observations.

Using this data will also be an excellent way to compare later observations and determine what has improved.

Peer Coaching Observations Using Modified Flanders Table

OBSERVER	#TALLIES	%INDIRECT	%DIRECT	% PARTICIPATION
1	45	23	27	44
2	47	24	33	51
3	48	27	38	56

Interviews

Interview questions with teachers at Central Middle School were used to help determine what strategies were being used in class and if teachers felt comfortable using these strategies.

The researcher used 10 questions to determine if RT was being used in the classroom, how comfortable the teachers were with this strategy, and how much of RT has been implemented. Two teachers who were asked to give an interview both declined saying they were not familiar with the strategies and would not be comfortable talking about Reciprocal Teaching strategies. Of the three teachers interviewed, all three had some strategies in place in the classroom but to varying degrees. One of the teachers felt that their content area was a good match for RT Strategies while the others felt they could not make an informed response to some of the questions regarding actual classroom teaching of the strategies. All the teachers felt that with the

implementation of Reciprocal Teaching there needs to be more communication with parents.

There was support for the Reciprocal Teaching strategy given to teachers throughout the classes. Posters were given with different cueing for the strategies. Teaching lessons were also given to the teachers to show different ways to teach a strategy. These happened during the 34 hours of training. There was not a variety of materials available to teach students, especially language deficit students after the training.

Teachers felt they were not well practiced in the strategies of RT even though they were involved in the training. To use RT successfully, it is necessary to have a refresher course to encourage teachers to continue using different strategies to reach the different learning styles. If a teacher doesn't use the strategies they have learned, it will be very easy to slip back into the old habit of teaching and the teacher may not be able to reach students who have alternative learning styles

Parent Surveys

In the Reciprocal Teaching questionnaire parents indicated in questions 1, 5, and 6 that they are taking an active role in the students' homework but for the most part there is very little communication about the books the students are reading (See Appendix D). Questions 2, 3, 8, 9, 10, and 11 showed that communications from school have not been effective. Most parents have not heard of the term Reciprocal Teaching and the students are not using the terms at home. There was very little discussion with the students about small group instruction, predicting and writing. Survey data seemed to indicate that students can't talk to parents using the terms from Reciprocal Teaching

because they don't seem to know them. Questions 4, 7, 13, 14, and 15 indicated there was very little communication, both verbal and written, about RT to the parents from school. Parents believed that their child was getting a good education but wanted to see more help given when they are having difficulty. The 53% response rate and the demographic information collected from the survey showed that those parents who responded were actively involved in their student's education and most of the surveys came from two parent families. This survey does not seem to reflect the demographics of Central Middle School. The perceived demographics are single parent households, guardian or grandparent households, or blended families.

Target Teach

There were ten reading classes tested for reading comprehension in the fall. Listed are the scores for the pre-test in three different years. In 2002, 2003, and 2004 there was an increase in reading comprehension. (See Table 2) The total gain in reading comprehension median scores over two years was 4%. The total decrease was 32%. There appears to be a consistent growth in scores from year to year.

Table 2

	2002	2003	2004
Medium	52	55	56
Range	52	33	20

A definite conclusion cannot be drawn to support the belief that Reciprocal Teaching strategies contributed to the rise in scores since a new reading curriculum

started the year before RT. RT may have an impact on reading comprehension but more implementation is necessary throughout the school

Discussion

In this study, I wanted to determine whether the implementation of the strategy Reciprocal Teaching was successful at Central Middle School? Interview results indicated that some teachers were using RT in their classroom but did not have feedback from administrators, and peers really did not take the time and do not have the time to observe teaching. The first measure used in this research, peer coaching, pointed out that indirect teacher talk was an area that needed work. The post observations indicated that the area of indirect teacher talk increased from 23% to 27%. The post observations made the teacher more aware of the need for acceptance of student feeling and the necessity of positive feedback. Interview results of the three teachers at Central Middle School indicated that teachers trained in the RT strategies were at different stages. The two teachers first asked were very uncomfortable and refused to be interviewed. Of the three teachers who were interviewed, one used the strategies often since she felt her subject area was conducive to Reciprocal Teaching. The other two felt that they needed more in-service, support and resources. From these interviews, the data indicated that all teachers would benefit from more training. Results from the survey concluded that parental involvement was low. Parents do not appear to understand Reciprocal Teaching strategy and are not familiar with any of the terminology. Individual teachers have not communicated with parents and students can't talk to parents using the terms because they don't know them. There has been no written communication about Reciprocal Teaching; therefore, it will be necessary to

communicate via a newsletter so that information can be disseminated. This will give the parents a better awareness of the strategies used in the classroom to help their child. Conferences will also be an opportune setting to discuss some of the terms of Reciprocal Teaching. The conference setting is a more personalized setting and may make a bigger impact when the teacher begins discussions about Reciprocal Teaching.

Future Steps

In studies, it was said that a program like Reciprocal Teaching has to be in effect at least five years to know how effective it will be. It can an important tool that will positively affect student achievement if staff works together. It could possibly help if administrators were trained in this particular strategy or at least be knowledgeable in order to assess and evaluate classroom teaching during a lesson. Teachers need to be held accountable for the use of the strategies in the classroom and stress how important this is to students. Follow up in service training should be provided for staff already trained in RT and training should be provided for new staff throughout the year. Peer coaching, another part of RT could also be used as a tool for both staff already trained and for teachers new to the building.

Also, more data can also be collected from further interviews with teachers who have been using RT in their classrooms and comparing this data to classrooms who do not use RT. It would also be advantageous to follow a group of students in an RT classroom, collect data and compare this data to a class where RT is not being used and the teacher is not trained in the strategy. In this way, it may be possible to evaluate the data to determine if the teaching strategies from Reciprocal Teaching are improving

reading comprehension or is Target Teach, which is district mandated responsible for the improvements.

Teachers also need to communicate with parents via a newsletter so that information can be disseminated. It would also be possible to make suggestions to parents on different techniques that can be used at home when helping with homework.

Since RT is not district mandated, teachers would have to be willing to use the strategies offered in Reciprocal Teaching and use them consistently to determine if there would be an increase in student achievement, If the district were to mandate such a program, more in-service and mentoring opportunities would be needed.

Appendix A

PEPBL: Methodology working paper 6: Flanders Interaction Analysis

Introduction

Flanders Interaction Analysis is a system of classroom interaction analysis. The system in its original and modified forms has been used extensively in classroom observation studies (Wragg, 1999). It has also been used in the study of differences between expert and non-expert PBL tutors at University of Michigan Medical School (Davis et al 1992). It is a system for coding spontaneous verbal communication. The system has two primary uses, Firstly to provide evidence of difference in teaching patterns that distinguish one curriculum from another and secondly it can also provide data, which may help to explain why differences in learning outcomes appeared or failed to appear. They system will be used for both purposes in the PEPBL study.

The Flanders Interaction Categories (FIAC) consists of 10 categories of communication, which are said to be inclusive of all communication possibilities. There are seven categories used when the teacher is talking and two when the pupil is talking (see table 1 for details of each category). Because the system is totally inclusive coding at a constant rate allows calculation of the proportion of time in one or more *categories*.

Table 1: Flanders' Interactions Analysis Categories (FIAC)

Teacher-talk		1. Accepts Feeling. Accepts and clarifies an attitude or the feeling tone of a pupil in a non threatening manner
	Response	2. Praises or encourages. Praises or encourages pupil action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, saying um, hmm or go on are included.
		3. Accepts or uses ideas of pupils. Clarifying, building or developing ideas suggested by a pupil. Teachers' extensions or pupil ideas are included but as teacher brings more of his own ideas into play, shift to category five.
		4. Asks questions. Asking a question about content or procedures; based on teacher ideas, with the intent that the pupil will answer.
	Initiation	5. Lecturing. Giving facts or opinions about content or procedures; expressing his own ideas, giving his own explanation or citing an authority other than a pupil
		6. Giving directions. Directions, commands or orders to which a student is expected to comply.
		7. Criticizing or justifying authority. Statements intended to change pupil behavior from non-acceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference
Pupil Talk	Response	8. Pupil-talk - response. Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil statement or structures the situation. Freedom to express own ideas is limited.
	Initiation	9. Pupil-talk – initiation. Talk by pupils that they structure
Silence		10. Silence or confusion. Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

Appendix B

Interaction Analysis Data Table

	Category	Tally Marks	No. of Tallies	% of Tallies
Indirect Teacher Talk	1. Accepts Students Feelings			
	2. Gives Praise to Students			
	3. Responds to Student Query			
	4. Question is asked			
	5. Lecture			
Direct Teacher Talk	6. Giving Directions			
	7. Criticize Student Behavior			
	8. Student Responds to Teacher			
Student Talk	9. Student Initiates the Talk			
	10. Silence or Confusion			
	11. Calls on boy			
Other	12. Calls on girl			

Appendix C

1. How would you describe your current classroom practice in Reciprocal Teaching?
2. What additional Professional Development/Support do you need to effectively implement Reciprocal Teaching?
3. What roadblocks have you faced in implementing Reciprocal Teaching?
4. How have you communicated to parents that you are using Reciprocal Teaching strategies in your classroom?
5. How would you describe your students' use of Reciprocal Teaching?
6. What resources are available to you for Reciprocal Teaching?
7. How do you assess/evaluate your success in implementing Reciprocal Teaching?
8. What kind of assistance do you need in preparing students for independent practice?
9. How informed is the building administration with regards to Reciprocal Teaching?
10. How does it fit with your content area?

Appendix D

Central Middle School Reciprocal Teaching Questionnaire – Parents

1. I spend time discussing homework with my child.
daily ____ 2 to 3 days per week ____ once a week ____ never ____
2. I have heard about Reciprocal Teaching
____ from my child ____ from the school newsletter ____ from school posters ____ other (write on back)
3. My understanding of Reciprocal Teaching is
____ very clear ____ somewhat clear ____ a little fuzzy ____ I don't understand Reciprocal Teaching
____ I haven't heard about Reciprocal Teaching
4. How many teachers have discussed Reciprocal Teaching with you?
____ 1 ____ 2 ____ 3 or more
5. My child asks me about his/her homework.
A lot ____ A little ____ Not at All ____
6. I talk to my child about the books she/he is reading.
A lot ____ A little ____ Not at All ____
7. My child has discussed Reciprocal Teaching strategies with me.
A lot ____ A little ____ Not at All ____
8. My child has talked about working in small groups within the classroom.
A lot ____ A little ____ Not at All ____
9. My child talks about making mental pictures when he/she reads.
A lot ____ A little ____ Not at All ____
10. My child predicts what will happen to the characters in her/his novels.
A lot ____ A little ____ Not at All ____
11. I have seen evidence of summarizing either verbalizing or writing.
A lot ____ A little ____ Not at All ____
12. I have seen evidence that if my child is having difficulty understanding what he/she is reading, my child will continue to try to make sense of what he/she is reading.
A lot ____ A little ____ Not at All ____
13. I believe teachers should work together to provide the best education for my child.
A lot ____ A little ____ Not at All ____
14. I have seen evidence of teachers planning and working together.
A lot ____ A little ____ Not at All ____
15. Reciprocal Teaching can enhance my child's learning.
____ Strongly Agree ____ Agree ____ Neutral ____ Disagree ____ Strongly Disagree

In the last year I have attended: a conference ____ and Open House ____

My student is in grade 6 ____ 7 ____ 8 ____

My student is: Male or Female

Father works: 1st shift ____ 2nd shift ____ 3rd shift ____

Mother works: 1st shift ____ 2nd shift ____ 3rd shift ____

Father's education: GED/HS ____ Year of College ____ Other ____

Mother's education: GED/HS ____ Year of College ____ Other ____

Appendix E
Sample page: Target Teach Test

32. What makes a camel capable of retaining water?

- a. The large hump on its back in which it stores water
- b. The special water pockets in its stomach.
- c. The unusual oval shape of its blood cells.
- d. The fat in its hump

33. The reason a camel needs sweat glands to survive in the desert is because

- a. they help the camel evaporate the condensed water on its skin.
- b. they help the camel store water in its hump
- c. they help the camel keep cool in the desert.
- d. they help the camel stay warm in the desert.

Read the following poem and then answer the questions.

From "The Barefoot Boy"
By John Greenleaf Whittier

Blessings on thee, little man
Barefoot boy, with cheek of tan!
With the turned-up pantaloons,¹
And thy merry whistled tunes;
With thy red lip, redder still,
Kissed by strawberries on the hill;
With the sunshine on thy face,
Through thy torn brim's jaunty grace,
From my hear I give thee joy,
I was once a barefoot boy.

¹ pants

34. How does the poet feel about the barefoot boy?

- a. The poet feels affection for him
- b. The poet feels jealous of him.
- c. The poet feels annoyed by him.
- d. The poet feels blessed by him.

35. How does the barefoot boy feel in this poem?

- a. blessed
- b. happy
- c. adventurous
- d. foolish

36. Which words does the speaker use to express the boy's feelings?

- a. barefoot, tunes, sunshine
- b. pantaloons, strawberries, hill
- c. merry, jauntily, joy
- d. cheek, lip, heart

37. The barefoot boy can best be described as

- a. carefree and lonely.
- b. lighthearted and content.
- c. sneaky and deceitful.
- d. old and foolish.

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