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Impact of Peer-Tutoring on Rural At-Risk Fourth and Fifth Grade Students

Catherine J. Kremer

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FOURTH AND FIFTH GRADE STUDENTS

Catherine J. Kremer, B.S.

Abstract

This study was designed to assess the impact of one full semester of peer-tutoring on 30 fourth and fifth grade at-risk students in a rural Midwestern community. A paired t-test was performed on the students' Grade Point Average (G.P.A.) before and after tutoring. Statistical analysis of the data revealed that students who received peer tutoring experienced a statistically significant gain in academic achievement as measured by G.P.A. Research leading to this study indicated that at-risk students do benefit from same gender peer assistance in homework, reading and math skills when consistent assistance takes place for at least 45 minutes per week over a several month period of time.

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Dedication

This document is dedicated to my husband, Kevin, my children, Randy, Jack, Miranda, and Carisa, and to my good friend Ann, who provided much love and constant support throughout this project.

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Chapter 1

Introduction

During the past decade the term "at-risk" has been used in different contexts in literature on education, medicine, psychology, economics, and social work, as well as in the legislation of several states and in federal government reports (McWhirter, McWhirter, McWhirter, & McWhirter, 1994). For the purpose of this research the term "at-risk" denotes a set of presumed cause/effect dynamics that place the individual child or adolescent in danger of dropping out of school (McWhirter et al., 1994; Rose-Gold, 1991).

Defining the Problem

The research clearly identifies environmental conditions such as poverty, poorly educated parents, exposure to violence, drug and alcohol abuse, child abuse, poor bonding with parents, and personal loss as significant factors resulting in students choosing to drop out of school (Cranston-Gingras & Anderson, 1990; Hathaway, Sheldon, & McNamara, 1989; McWhirter et al., 1993; Wirth-Bond, Coyne, & Adams, 1991). These factors are present in the United States in often alarming frequencies.

According to the United States Department of Education, about one in every four students in the U.S. does not complete high school (McWhirter, et al. 1994;

Rose-Gold, 1991). Twenty percent of children under the age of 18 are living below the poverty level (Losing Generations, 1993). The U.S. has seen a 48 percent increase in the number of youths between the ages of 10 and 17 arrested for robbery, homicide, or aggravated assault (Losing Generations, 1993). Over 40 percent of U.S. high school seniors reported smoking marijuana in the past year, and 85 percent reported having used alcohol during the past year (Kamps, Barbetta, Leonard, & Delquadri, 1994).

In addition, research shows that similiar statistics exist regarding the home environment of children. An estimated 2.5 million children are the victims of child abuse each year, and an estimated 7 million live in homes in which at least one parent frequently abuses alcohol (Webb, 1992). Over one million children have experienced the divorce of their parents, and one of every five children live in single parent homes. It has been estimated that nearly 80 percent of all children live in dysfunctional homes in which they do not receive the necessary guidance, love, and nurturing to form healthy relationships and develop a positive self-esteem (Webb, 1992).

The negative sociatal and home environments influencing many of today's youths have led to one-quarter high school drop out rate in the United States.

The social and economic consequences for students who do not graduate from high school have worsened in the past two decades because advances in technology have lessened the availability of lower-skilled, high waged jobs (Robinson, 1992). "Unemployment, criminal activity, and an increased reliance on social welfare characterize the school dropout" (Rose-Gold, 1991, p.122).

Undereducated adults cost the U.S. government in lost taxes, misspent revenues, lost productivity, and lost profits (Cranston-Gingras & Anderson, 1990). Adults who did not receive a high school diploma are seven and one-half times as likely as graduates to be on welfare, and twice as likely to be on unemployment and live in poverty (Wirth-Bond et al., 1991). It costs society about $4,200.00 a year to educate a child, but it costs about $5,300.00 a year to support a family on welfare. Further, the yearly cost of housing one prisoner in jail is about $25,000.00, three times the cost of educating one college student for the same period of time, and 62 percent of all prison inmates are high-school dropouts (Cranston-Gingras, & Anderson, 1990; McWhirter, et al., 1994).

Clearly the problem of students dropping out of high school permeates the American society and warrants correction wherever possible. Due to the vast nature

of the at-risk problem, an ample supply of research is available in professional literature dealing with educational methods which affect the drop-out rate. It is the consensus of most of this research that the early identification and treatment of at-risk students presents the most favorable prognosis for students (Gaustad, 1992; Gerne & Gerne, 1986; Hamby, 1989; Hathaway, Sheldon, & McNamara, 1989; Robinson, 1992; Wirth-Bond et al., 1991).

Identification and Remediation

While school officials may be aware of some of the previously mentioned environmental factors present in a student's life, it is more realistic to identify at-risk students through school related documentation. Hathaway et al. (1989) and Wirth-Bond et al. (1991) discussed the following signs which school professionals should look for when identifying at-risk students: absenteeism, failure of at least one grade, repeated tardiness, low scores in math and reading, lack of motivation, little identification with school, no perceived relationship between education and life, rebellious attitude toward authority, deficiency in language and verbal skills, and a poor self-esteem.

The research has clearly demonstrated the need for school personnel to implement intervention strategies designed to help the at-risk student succeed in school

(Cransten-Gingras & Anderson, 1990). Suggested strategies include developing action committees, volunteer and mentor programs, updating attendance policies, providing inservice training for teachers, and leading parenting groups. Central themes among most strategies are the motivation of students at a young age, and improving reading abilities at the elementary level (Gerne & Gerne, 1986; Hamby, 1989; McWhirter et al., 1994; Robinson, 1992).

The negative environmental conditions present in the lives of many at-risk students often contribute to the acquisition of poor social skills and a low self-esteem in these children (Gambrell, 1996). These two factors inhibit peer friendships for many at-risk students. Feelings of isolation and inferiority reduce a student's motivation to learn (Bauwens & Hourcade, 1992).

It is generally acknowledged in the academic literature that motivation plays a critical role in learning. Levels of student motivation often make the difference between superficial learning and deep internalized learning (Gambrell, 1996). According to statistics from the National Reading Research Center, educators across the county identify the development of children's intrinsic desire to learn as one of their top educational priorities (Gambrell, 1996).

Definition of Peer Tutoring

Peer-tutoring has been identified as a useful method of both motivating at-risk students and improving their reading skills (Martino, 1994). Rekrut (1994) defined peer tutoring as the matching of two students of approximately the same grade level in which one student (i.e.,the tutor) aids the other student (i.e., the tutee) in a structured instructional setting.   In most peer-tutoring models one tutee is matched with the same tutor for an extended number of tutoring sessions (Martino, 1994; Mathes, Howard, Allen, & Fuchs, 1998; Rekrut, 1994).

This extended one-on-one contact with a positive model (i.e., the peer tutor) provides an ideal setting for the modeling and practice of appropriate social skills (Juel, 1991). Partnering with a peer over a prolonged period of time can also increase a student's sense of belonging, self-esteem, and levels of motivation (Juel, 1991; Kamps et al., 1994; Taylor, Hanson, Justice-Swanson, & Watts, 1997). These factors coupled with the additional academic practice peer tutoring provides often produce increases in academic competency in students receiving peer tutoring.

Statement of Purpose

Clearly the problem of students dropping out of school permeates the American society, and warrants

corrections wherever possible. School professionals need to become involved with at-risk students early in their educational process in order to increase the students' chances of graduating from high school. Early at-risk intervention can improve both the individual student's and society's prognosis for the future.

One at-risk intervention which has been proven effective is peer-tutoring, in which one trained peer tutor is paired with a student of approximately the same grade level (Martino, 1994). The tutor works to increase the tutee's chances of academic success, thus increasing the tutee's sense of belonging, success, and motivation. The null hypothesis of this research is that rural at-risk students receiving peer tutoring will not experience a statistically significant gain in academic achievement as measured by the Grade Point Average (G.P.A.).

Chapter 2

Literature Review

Concern over the rising high school dropout rate continues to grow in the United States. Historically, the public has measured school success by standardized test scores. This definition of success devalued marginal students because of their inability to perform well on such tests. As a consequence, school systems failed to emphasize graduation for poorer performing students and drop out rates steadily rose (Hamby, 1989).

In an effort to keep the dropout problem before the public, much research has been conducted on the identification and remediation of students at-risk of dropping out of school (Hamby, 1989). Some research analyzed the reasons why students choose to quit school. These studies confirmed that dropping out of school is not the result of one single impulsive decision, but rather the culmination of many personal and environmental factors bearing on a student over a period of time (Robinson, 1992).

Most of the literature concurs that students at-risk of dropping out of school require aggressive intervention programs (Gerne & Gerne, 1986). These programs may include tutorial activities, counseling and advising periods, alternative classes, or work

the U.S. educational system than students attending school in suburban areas (Robinson, 1992). With about half of the schools in the country defined as small, rural, and poor, much attention has been paid to the unique characteristics of such schools, as well as to finding ways to prevent rural students from dropping out of school (Rose-Gold, 1991).

Small rural schools tend to have limited funds, limited extra-curricular activities, and limited elective choices. They are usually far from social services, have few recreational facilities, and few employment opportunities (Rose-Gold, 1991)., "Staggering workloads, low salaries, meager resources, shortages of staff development opportunities, a high rate of administrative turnover, and difficulties attracting needed personnel are just some of the factors that plague small rural schools" (Worzbyt & Zook, 1992, p. 344).

Small rural schools possess some positive attributes related to the at-risk issue as described by Rose-Gold (1991). Smaller enrollment can lead to closer personal relationships between school staff and at-risk students. Smaller enrollment can also lead to improved understanding of the at-risk student's home environment. Small communities can move easily to mobilize community-wide action teams, and the staff of

smaller schools are better able to identify at-risk students earlier in their education than are the staff of larger schools.

Large metropolitan areas often hire dropout prevention specialists to work with the at-risk students. Small rural schools rarely have the funds for hiring specialists, and generally rely on their guidance and teaching staff to develop programs for the at-risk population (Robinson, 1992).

One of the challenges rural schools face in developing at-risk programs is the diversity of the at-risk students. There are as many personal and environmental factors contributing to the at-risk status of this population as there are students in the population (Hamby, 1989). Metropolitan districts generally have a large enough enrollment to support specialized programs such as teen parenting programs, in-school suspension classes, vocational programs, and specific-issue group counseling. These programs help to address the diverse at-risk population. Small rural schools do not have sufficient enrollment to support many specialized programs, making it necessary for rural schools to develop techniques which address each individual student, yet are general enough in nature so as to encompass all of the students (Rose-Gold, 1991; Worzbyt & Zook, 1992).

Community Action Committees

The intimate nature of small rural communities often enhances the formation and effectiveness of community at-risk action committees. Such committees often include school administrators, teachers, parents, community leaders, and police officers (Gerne & Gerne, 1986; Hamby, 1989; Rose-Gold, 1991). In most effective at-risk programs, community action committees search for creative ways to address resource deficits while establishing quality service (Worzbyt & Zook, 1992). Committee members often serve as mentors and tutors for at-risk students. They enlist community support for at-risk activities, and provide valuable ideas and labor for addressing the needs of at-risk children (Kottman & Wilborn, 1992).

Working With Teachers

Teacher participation in community action committees increases teacher support and awareness for the at-risk problem, but only a small percent of the teachers in any given district participate in such committees (Robinson, 1992). Since much of the current literature dealing with the at-risk issue stresses the importance of early identification of at-risk students, (i.e., grades kindergarten through three) many effective at-risk programs devote much time to training elementary teachers to identify the at-risk students in

their classrooms (McWhirter et al., 1994; Robinson, 1992; Rose-Gold, 1991).

Due to the intimate atmosphere of small rural areas, the family history of many students is known to the school staff at the time children enroll in kindergarten. Children from known dysfunctional families are often watched for warning signs such as depression, impulsiveness, low self-esteem, and emotional and behavioral disorders (Webb, 1992). Small enrollment in these schools also simplifies the process of watching the academic progress of a child as he or she advances from one grade to the next, thus facilitating the early identification and remediation of at-risk children at an age where they can best be helped (McWhirter et al., 1994).

As discussed by McWhirter et al. (1994), one of the most obvious characteristics of at-risk children is academic underachievement which results from a lack of basic math and reading skills. Academic problems may be due to developmental delays, emotional disturbances, or learning disabilities, but they may also be due to an inadequate educational structure, poor teaching, limited instructional programs, and an uncaring and unresponsive school climate (McWhirter et al., 1994).

Cross-Age Tutoring

The educational literature is full of at-risk

check lists and descriptions, which are basically the same for all students whether from rural, urban, or suburban areas (Hamby, 1989). Since small rural districts lack specialized programming, yet are still required to meet the needs of a diverse at-risk population, much has been written on the positive effects of tutoring programs for at-risk students (Corn & Moore, 1992; Rekrut, 1994). Tutors can be peers, older students, or community volunteers who help the at-risk student on a regular basis with specific school work (McWhirter et al. 1994).

As discussed by Corn and Moore (1992), "Reversal Peer Tutoring" programs, in which high school at-risk students are sent to the elementary school to work with younger at-risk students have been proven effective. This pairing provides older at-risk students with a feeling of accomplishment through helping a younger student. Older students are often able to relate to the type of problems their younger tutees are having. Working with a tutee often improves both the tutor and tutee's self-esteem and commitment to education, as well as improving their knowledge level and educational success. Honor students from junior high or high school may also be used to tutor at-risk elementary students, providing the children with a positive role model, as well as many of the same benefits the older

at-risk student provides (Corn & Moore, 1992; Rose-Gold, 1991). This approach is well suited for small rural districts where the elementary and high school may be in the same building or on the same campus (Rose-Gold, 1991).

One very successful cross-age tutoring program was described by Taylor et al. (1997). In this program tutees were exposed to repeated reading practice during which high school tutors coached elementary students on both reading and writing strategies. After a seven week program, at-risk tutees exhibited gains in word recognition, reading rate, accuracy, fluency, and comprehension.

This program resembled the "Shared Book Experience" technique in which second-grade at-risk students read stories first with teacher support then with a high school tutor. Tutors coached their at-risk tutees in reading for meaning, self-monitoring strategies, and word recognition. In this program tutees demonstrated gains in academic success across all subject areas (Rekrut, 1994).

Peer Tutoring

Research demonstrates that using students to tutor other students provides greater achievement per dollar than many other more often used educational innovations (Martino, 1994). At-risk students who were involved in

well planned and supervised peer tutoring situations,
regardless of the specific subject taught,
demonstrated: gains in grade-point average,
improvement in reading, math, and study skills,
increased reading comprehension, identified long range
goals, and an increased sense of self-esteem (Kamps et
al., 1994; Marino, 1994).

History of Peer Tutoring

Peer tutoring is a natural function of peer
relationships, and occurs whenever a higher achieving
student aids a less accomplished classmate. According
to Rekrut (1994), pupil-to pupil teaching is as old as
instruction.

One of the earliest documented uses of peer
tutoring in an institutionalized setting was the
monitorial system developed in early 19th century
England by Joseph Lancaster and Andrew Bell. As
explained by Rekrut (1994), in the monitorial system
one schoolmaster was responsible for a large number of
children. The more able students were trained to teach
their classmates what they had learned. Elaborate
instructions for organizing and conducting these
schools were developed. One student monitor, or peer-
tutor, was assigned for each 10 students. Work was
concentrated on reading, penmanship, and arithmetic.
The basic premise of the monitorial school was that

children learned most efficiently from one another.

Research regarding peer tutoring began to increase during the 1970's when the practice increased in American schools in response to a teacher scarcity. Pupil-to-pupil teaching was viewed as a means of stretching their teacher resources. Higher achieving students were taught strategies and concepts to teach their lower achieving peers (Rekurt, 1994).

In the 1980's tight school budgets sparked new interest in peer tutoring. Studies conducted in the 1980's found that pupil-to-pupil tutoring was a more cost effective way of reaching students than computer-aided instruction, lowering class size, increasing instructional time, or adult tutoring (Rekrut, 1994). Currently, the popular principles of collaboration, or the trend to allow students control of their own learning, has fostered new interest in peer tutoring (Martino, 1994).

The history of peer tutoring reflects the concerns of educators. The monitorial system sought a method for the education of many children during the Industrial Revolution. Teachers of today are interested in personalizing instruction, enabling students to reach their potential, and providing for individual differences (Rekrut, 1994).

Tutor Training

Peer tutors can be of any age or grade. Generally the tutor is a high achieving student who is paired with a lower achieving tutee. However, reciprocal reading programs in which every student is both tutor and tutee are also common (Gaustad, 1992). Research demonstrates that the tutor should be of the same gender as the tutee due to comfort and modeling reasons. Female students, serving as either tutor or tutee, reported a higher desire to be paired with partners of the same sex than did male students (Rekrut, 1994).

Most successful tutoring programs provide training for the tutors. Research demonstrates that training in the following three basic areas increases the likelihood of a successful program: interpersonal skills, management skills, and context skills (Martino, 1994; Rekrut, 1994).

Teaching tutors appropriate interpersonal skills includes teaching them ways to draw answers from tutees without telling them answers. Tutors are taught ways of encouraging tutees so they want to learn and do their work. Tutors are also taught to use positive statements about their tutee's work and attitudes (Maritno, 1994).

In the area of management skills, tutors are

taught how to sit with the tutee. They learn ways of expressing open body language and strategies such as sitting side by side with their tutee during paired reading. Tutors are taught to prepare proper materials for the lesson, and to work in a quiet place (Rekrut, 1994).

In the area of context skills tutors are taught to prepare lesson activities in advance of the tutoring session. They are taught to read the lessons before presenting them to their tutee. Tutors are encouraged to prepare questions over the material, and to create follow-up activities for the next tutoring session (Rekrut, 1994).

Tutor training programs range from the very formal type, which follow detailed guidebooks, to the less formal group workshops. In most cases students practice tutoring other trainees. In some cases adults model appropriate tutor behavior, and discuss their methods with the group (Kamps et al., 1994). One program, described by Juel (1991), provided weekly university instruction on how to foster reading and writing skills in tutees.

Academic Benefits of Peer-Tutoring

Even with training, elementary students do not possess the content knowledge or teaching abilities of adult teachers, but according to Gaustad (1992), peer

tutors are cognitively much closer to their tutees. The close cognitive match between tutors and tutees allow peer tutors to understand the problems of their tutees more easily than adult teachers can. Peer tutors seldom express adult prejudices against specific students or slow learners. In fact, peer tutors may possess a special empathy with slow achievers, often displaying the ability to perceive problems in their tutee's learning which classroom teachers missed (Gaustad, 1992).

In addition to the cognitive gap between teachers and students, teachers in today's elementary classrooms must cope with great academic divesity among students. Students range in maturity, language (some speak little or no English), emotional well being, and ability. Such diversity produces challenges and frustrations for teachers trying to meet the educational needs of individual students (Mathes et al., 1998).

According to Mathes et al. (1998), and Taylor et al. (1997), one result of this diversity is an insufficient reading program for many students. The majority of elementary reading time in U.S. classrooms is independent of the teacher an often results in nonreading by low readers. About 70% of teacher guided reading time is spent passively watching and listening to the teacher or other students, and the students most

at-risk, receive less engaged reading opportunities than their high performing peers.

Low reading ability is aften linked to a student's decision to drop out of school (Lox & Wright, 1997). Approximately one in three elementary students experience significant difficulty in learning to read, and once children fall behind it is rare for them to catch up to their expected reading level (Mathes et al., 1998). This reading deficiency leads to low vocabulary and word knowledge, and often affects these students's abilities to participate in enjoyable, purposeful reading and writing throughout their lives (Juel, 1991; Mathes et al., 1998).

Peer-tutoring has been proven to be an effective technique for improving the basic reading skills of at-risk students (Martino, 1994; Mathes et al., 1998; Rekrut, 1994). During peer-tutoring sessions at-risk students gain valuable monitored reading time, as well as the opportunity to hear other students read aloud and check for understanding. This extended immersion in meaningful text has been shown to enhance both reading fluency and comprehension in at-risk students. Increased levels of reading success in turn increase the student's motivation to learn (Mathes et al., 1998; Rekrut, 1994; Taylor et al., 1994).

One very successful peer tutoring program called

"Classwide Peer Tutoring" was developed specifically to increase the amount of daily engaged reading time for at-risk students (Mathes et al., 1998). This program has been proven to promote academic gains across subject areas for most learners. Researchers from the Peabody College of Vanderbilt University built on the concepts of the Classwide Peer Tutoring program to develop the "Peabody Peer-Assisted Learning Strategies" program for reading in the upper elementary grades. These researchers expanded on the principle of additional engaged reading time, and added several tasks to the tutee including verbal review of information, lessons on the sequencing of information, and practice predicting outcomes of stories read together (Mathes et al., 1998).

Fox and Wright (1997) discussed a similar peer-tutoring program called "Storytime." In this program 9, 10, and 11 year old at-risk students were teamed with higher achieving classmates to read and analyze interesting story books. They practiced writing new endings, identifying cause and effect within the story, making predictions, looking for transition words, making inferences, and drawing conclusions. Students completing this program demonstrated increased interest in reading and higher reading skills than achieved before the program.

Emotional Benefits of Peer-Tutoring

Research has demonstrated gains in academics, self-confidence, self-esteem, cooperation, and social behaviors in students receiving peer-tutoring (Juel, 1991; Kamps et al., 1994; Martino, 1994; Rekrut, 1994). According to Juel (1991), peer tutoring programs are of benefit to both the tutee and the tutor in areas of achievement and attitude towards learning. "If you want to really learn something, teach it" (Juel, 1991, p. 178). Rekrut (1994) discussed several programs involving different types of pairings of students. Whether it was cross-aged, evenly matched academic peers, or high achieving students matched with low achieving peers, both the tutor and tutee demonstrated benefits in social skills, attitude toward learning, and academics.

When used as an at-risk intervention, peer-tutoring may be directed specifically toward the needs of at-risk students. High student stress, poor communication skills, poor coping skills, a lack of self control, feelings of isolation, and a poor self-image are all factors which can place a child at-risk of dropping out of school. Peer tutoring has been proven to serve as one aspect of an at-risk intervention plan designed to reduce the effects of these factors (Rekrut, 1994; Taylor et al., 1994).

School work and tests, social interactions, poor treatment by teachers, and discipline procedures can all be sources of stress among elementary at-risk student (Bauwens & Hourcade, 1992). Reducing the stress level of at-risk students early in their education can increase their chances of remaining in school. As addressed by Bauwens and Hourcade (1992), stress can be reduced through teaching stress-reduction techniques or coping skills, or it may be reduced by the removal of stressors. Tutoring activities such as social interaction, one-on-one communication, and teaching students study and test taking skills have all been shown to reduce stress in the at-risk tutee. Teaching study skills and test taking skills to at-risk students in the form of specific strategies, techniques, and rules helps students learn how to learn. In turn achievement tends to increase and stress tends to decrease (Bauwens & Hourcade, 1992).

According to McWhirter et al. (1994), at-risk children lack core abilities in building and maintaining positive relationships with peers and adults. Basic interpersonal skills are needed in order for the child to develop mutually beneficial relationships, and to achieve a sufficient level of personal adjustment later in life. McWhirter et al. (1994) further explained the need for elementary

schools to work toward helping the at-risk child develop and maintain friendships, laugh and joke with peers, learn how to join in group activities and conversations appropriately, and interact with a variety of peers and adults. Peer tutoring sessions represent one tool which has been proven effective in teaching children these lessons.

Peer tutoring also teaches coping skills. As discussed by McWhirter et al. (1994), at-risk children generally lack coping ability. Coping skills are an important part of a child's overall social skills, as the way in which children cope with stress affects how they deal with conflict. Peer tutors can help teach children to cope through the use of humor or by focusing their attention elsewhere when tutees become frustrated. When young people learn to better cope with stress they become better able to process information, exercise good judgement, and use common sense (McWhirter et al., 1994).

Many high school dropouts reported feeling as though they did not belong in school, and as though school personnel had lost interest in them (Wirth-Bond et al., 1991). Providing a peer tutor reduces feelings of isolation by giving the at-risk student a person to connect with, a reason to look forward to going to school, and often an improved self-concept (McWhirter

et al., 1994; Wirth-Bond et al., 1991).

<u>Organizing Peer Tutoring</u>

Peer tutoring has been used within the classroom in the form of paired activities, and for the practice of learned activities by allowing one student to reiterate knowledge to another student and vice versa. Peer tutoring within one classroom has been shown to be an easy way to manage a program because no cross-classroom cooperation is required. Training takes place at the convenience of the classroom teacher, and the teacher uses his or her prior knowledge of the children to facilitate the pairing of students (Gaustad, 1992). This type of peer tutoring reaches all academic levels of students.

Many schools provide long term organized peer tutoring programs directed specifically toward at-risk students (Corn & Moore, 1992; Fox & Wright, 1997; Mathes et al., 1998; Rekurt, 1994). In some programs the tutees are chosen on the basis of standardized test scores or classroom grades, though a variety of at-risk check lists have also been utilized (Corn & Moore, 1992). Tutors have been chosen on the basis of standardized test scores or grades, and they generally volunteer for the program. In some programs the selection of tutors is much more specific. One study, described by Juel (1991), utilized only student

athletes as tutors. Both tutees and tutors have been selected from all age levels.

Corn and Moore (1992) elaborated on one high school level peer tutoring program in which tutors were selected from the National Honor Society and referred by teachers and guidance counselors. Tutors were matched one-on-one with at-risk peers. Tutoring took place during study hall, and was subject specific. Eighty-five percent of students requested tutoring in math. Positive results of this study included improved grades, reduced stress, and improved socialization skills for tutees, and higher self-esteem for both tutors and tutees.

In most programs tutors and tutees are paired one-on-one, but one tutor has been shown to work effectively with as many as two tutees at a time (Mathes et al., 1998; Rekrut 1994). Research indicates that the tutor and tutee should be of the same gender to increase their comfort level and facilitate a friendship/role model relationship (Rekrut, 1994).

Not less than 45 minutes per week has been proven successful for actual tutoring time. Time frames vary from one 45 minute period per week to daily tutoring (Gaustad, 1992). When tutoring takes place in more than one session per week, the same tutor is always matched with the same tutee for all session to

facilitate the relationship and academic continuity (Martino, 1994). Most tutoring programs take place in a quiet location conducive to work. The one negative result of the previously mentioned Corn and Moore (1992) study was the lack of a formal tutoring site. In all programs tutors are trained, and many programs provide for ongoing training throughout the tutoring experience (Rekurt, 1994).

Subjects taught in peer tutoring programs range from reading and math to study skills. Depending upon the academic level of the tutee, tutoring has focused on subjects such as word recognition, identifying the elements of a story structure, rereading a text book for specific information, and using context clues to discover word meanings. Both content and concepts have been practiced in peer tutoring, skills have been reinforced, learning strategies taught, and in an indirect way, self-confidence and self-esteem enhanced (Corn & Moore, 1992; Gaustad, 1992; Juel, 1991; Mathes et al., 1998; Rekrut, 1994).

Summary

The research on at-risk students in the United States demonstrates the need for schools to implement strategies to combat the problem early in a child's education in order to increase the student's chances of graduating from high school. The research also

demonstrates the high cost to both society and the individual student who drops out of school. Increased awareness of the at-risk problem and quality programs designed to combat the problem are predicted to reduce the number of students dropping out of high school over the next decade (Rekrut, 1994).

An abundance of research articles currently exist on the at-risk topic. Some articles expounded on specific methods of intervention while others discussed multifaceted at-risk plans. Many articles mentioned the importance of early identification and intervention, but articles do exist which discussed methods of intervention for junior high and senior high school students.

Many research articles concentrated on one aspect of an at-risk plan, peer tutoring. Most peer tutoring studies concluded a positive effective on tutees as a result of peer-tutoring. Increased academic performance was documented by fewer retentions, advancement to higher reading groups, higher overall grades in school, and improved scores on standardized tests. Improvements were also noted in social behavior, self-esteem, and popularity after peer tutoring, though the tools used to measure these outcomes were generally omitted (Gaustad, 1992; Juel, 1991; Martino, 1994; Rekrut, 1994).

Chapter 3

Methodology

Subjects

Students in the fourth and fifth grades from an elementary school in a rural Midwest community were included in the study. A total of 31 students who earned below a 2.0 grade point average on their spring of 1997 grade cards were placed in an after school peer tutoring program. The subjects ranged from 9 to 11 years of age, with a mean age of 10. All of these students were white, which is representative of the school population. Of those students, 11 (35%) were 5th grade females, 6 (19%) were 4th grade females, 8 (26%) were 5th grade males, and 6 (19%) were 4th grade males.

Since the program took place after school it was voluntary. The 31 students who took part in the study represent 58% of the total 53 students who qualified for the program due to their grade point average and grade in school. This district serves a virtually all-white population from a predominately lower-middle to lower class socioeconomic background.

Tables 1, 2, and 3 demonstrate a relatively normal distribution of G.P.A. scores in the sample group before testing.

Table 1

Sample Evaluation of G.P.A. Before Tutoring

SCORE 1   BEFORE TUTORING

Valid Cases	Missing 30 Cases	Percent 0.00 Missing	0.00		
Mean	1.3400 Std Err	0.0577 Min	0.8000	Skew-ness	-0.0856
Median	1.4000 Variance	0.0997 Max	1.8000	S E Skew	0.4269
5% Trim	1.3444 Std Dev	0.3158 Range	1.0000	Kurtosis	-0.9570
		IQR	0.4500	S E Kurt	.8327

Table 2

Stem and Leaf G.P.A. Before Tutoring

Frequency Bin Center

```
3.00     0.850 ***
0.00     0.950
4.00     1.050 ****
0.00     1.150
7.00     1.250 *******
0.00     1.350
6.00     1.450 ******
0.00     1.550
5.00     1.650 *****
0.00     1.750
5.00     1.850 *****
```

Bin width: 0.100
Each star: 1 case(s)

Table 3

Normal and Detrended Normal Plot of G.P.A.

Before Tutroing

SCORE1   BEFORE TUTORING

Normal Plot   Detrended Normal Plot
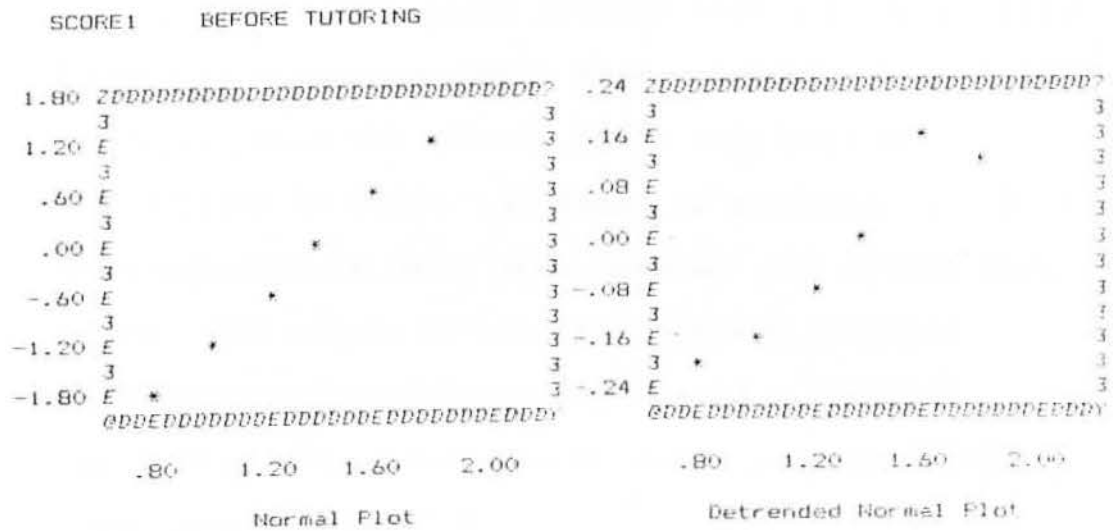
Instrumentation

A comparison study of each tutee's grade point average before and after one semester of peer tutoring was made. Students were chosen for the program based on their spring of 1997 grade point average. This average was compared to their winter of 1998 grade point average.

The over all grade point averages serve as the dependent variable in this study. A paired t-test was used to compare the data.

Procedure and Design

     The administration of the school district granted permission to conduct this study. Volunteer tutors were taken from fifth grade students who had earned a 2.5 or above grade point average each quarter of their entire fourth grade school year. A total of 43 fifth grade students who met the grade requirements volunteered to tutor. Of these 43 students, 18 (42%) were male and 25 (58%) were female. All tutors were white. All tutors and tutees received parental permission to participate and signed a contract indicating they would stay with the program for at least one full semester.

     Training was provided by "Prevention Consultants of Missouri." Tutor training consisted of one six-hour day of training in a large room at the school involved in this study. The room was supplied with a chair for each trainee, and seven tables which could seat eight trainees comfortably. Four classroom teachers from various grade levels at the school volunteered as adult facilitator for the tutoring program. They also participated in this training. All of these teachers are members of the school's at-risk committee.

     A team of two members from Prevention Consultants conducted the training. The training consisted of three major topics: interpersonal skills, managements

skills, and content skills. Tutors brainstormed positive responses to tutee work. They practiced demonstrating ways to find answers to questions without telling answers. They reviewed ways to use resources, such as a glossary, to locate information. Tutors practiced using open body language and sitting side-by-side with a tutee. They were taught to prepare for tutoring by bringing paper, pencils, and other materials to the sessions, and tutors were taught to read with tutees asking review questions, and asking for outcome predictions.

All 43 students successfully completed training. Tutors were randomly assigned to same sex tutees. The names of all male trainees were placed in a container and blindly pulled out, one at a time, by one of the teacher facilitators. As the names were pulled they were matched with the alphabetized list of male tutees. One additional male name was drawn as a substitute tutor. The same procedure was followed for female tutors and tutees, with one female substitute chosen. Ten tutors were not used in this study, as there were more tutors than tutees. The tutors were informed in advance of training that some may not be used due to the number of tutees participating.

The tutoring took place from 2:50 to 3:25 every Tuesday and Thursday for one semester. It was held in

two fourth grade classrooms. One adult facilitator was present in each room to monitor tutoring and answer questions. Each adult was responsible for the same room one day each week.

All fourth and fifth grade students attending the school used for this study are required to keep a list of their homework assignments in an assignment book, which is provided for them. Upon reporting for tutoring the tutee and tutor first looked over the tutee's assignment book. If homework was listed, it was completed in the order that the tutee felt he or she needed the most help.

When no homework as assigned, story books were chosen by the tutee for reading. Books were purchased from the "Scholastic" book club, and were rated at the second and third grade reading levels. All books contained illustrations on at least every other page. Titles included: Children of the Earth and Sky, by Stephen Krensky, Stories of the White House, by Kate Waters, The Magic School Bus, by Joanna Cole, and The Popcorn Dragon, by Jane Thayer.

Tutors allowed tutees to read aloud from these books. Tutees were stopped after every paragraph and asked to explain what they had read. If they understood the passage they would then move on. However, if tutees did not understand, tutors asked

questions about the pictures related to the passage. Then tutees read smaller sections of the story, and explained what they had read. Once tutees were able to paraphrase their readings they were asked to predict outcomes of the story. All answers were encouraged and accepted. When the story was finished tutees were then asked to make up new endings for the story they had read.

Of the eleven fifth grade female tutees, 9 had perfect attendance, 1 missed one session, and 1 missed three sessions. Of the six fourth grade female tutees all had perfect attendance. Of the 6 fourth grade male tutees, one moved and dropped out of the program, and one missed two sessions. Of the eight fifth grade male students, two missed one session, one missed two sessions, and one missed six sessions.

Chapter 4

Results

Analysis of the G.P.A. of fourth and fifth grade students in this study showed that students receiving peer tutoring did experience a statistically significant gain in academic achievement as measured by G.P.A. A paired t-test was performed comparing G.P.A.'s before and after tutoring. In this study N=30. The mean G.P.A before tutoring was 1.3400 and the mean G.P.A after tutoring was 1.6467, with respective standard deviations of .316 and .527. The t-test revealed a 2-tail significance value of .029, demonstrating a significant gain in achievement after tutoring (Table 4).

Table 4

T-test of G.P.A. for Paired Samples

Variable		Number of pairs	Corr	2-tail Sig	Mean	SD	SE of Mean
SCORE 1	Before Tutoring	30	0.399	0.029	1.3400	0.316	0.058
SCORE 2	After Tutoring				1.6467	0.527	0.096

Paired Differences			**3**			
Mean	SD	SE of Mean	3 t-value	df	2-tail Sig
-.3067	.495	0.09	3 -3.39	29	0.002
95% CI (-.491, -.122)			3		

Analysis of extraneous variables were also run isolating data on males (N=13), females (N=17), fourth grade students (N=11), and fifth grade students (N=19). Male students experienced a gain of 0.4923 G.P.A. points. Female students experienced a gain of 0.1647 G.P.A. points. Fourth grade students experienced a gain of 0.1272 G.P.A. points, and fifth grade students experienced a gain of 0.4106 G.P.A. points (Table 5).

Table 5 also demonstrates that the sample group's mean, median, and mode were 1.3400, 1.4000, and 1.2500 respectively before tutoring. These scores compare with the post tutoring mean, median, and mode of 1.6467, 1.6000, and 1.5000 respectively.

Table 5

Sample Evaluation of G.P.A. Before and After Tutoring

Before Tutoring

	Mean	Median	Mode	Std Dev	Vari-ance	Skew-ness
Males	1.2462	1.2000	1.300	.3072	.0944	.1969
Females	1.4118	1.4000	1.45 1.85	.3120	.0974	-.3335
Grade 4	1.3455	1.2000	1.30 1.70	.3475	.1207	-.0485
Grade 5	1.3368	1.4000	1.450	.3059	.0936	-.1304
Total	1.3400	1.4000	1.250	.3158	.0997	-.0856

After Tutoring

	Mean	Median	Mode	Std Dev	Vari-ance	Skew-ness
Male	1.7385	1.6000	2.250	.5316	.2628	-.3639
Female	1.5765	1.6000	1.3 1.9 2.3	.5286	.2794	.1668
Grade 4	1.4727	1.4000	1.500	.5312	.2822	.6556
Grade 5	1.7474	1.8000	2.300	.5114	.2615	-.4299
Total	1.6467	1.6000	1.500	.5270	.2777	-.0532

Chapter 5

Discussion

The 2-tail significance test used to compare the pre-tutoring and post-tutoring G.P.A.'s of the sample group in this study demonstrated that peer tutoring did result in a statistically significant increase of academic achievement as measured by G.P.A., and predicted by the researcher. Male students experienced a larger gain in G.P.A. than female students (0.4923 vs. 0.1647), and fifth grade students experienced a larger gain than fourth grade students (0.4106 vs. 0.1272).

It is interesting to note that the largest increases were seen in males and fifth graders, but there were more girls in the fifth grade than boys (11 vs. 8 respectively). A study of the raw data (Appendix 1) reveals that 4 of the 6 fourth grade girls experienced declines in their G.P.A. after tutoring, decreasing both the female and fourth grade scores. However, only one of the 5 fourth grade boys experienced a decline in G.P.A. after tutoring.

The current research on the subject of peer tutoring indicates that programs such as the one conducted in this study benefit all age groups and genders (Martino, 1994). The researcher has found no studies which indicate males or females of specific age

groups respond better or worse than other groups to peer tutoring.

Research does indicate that some students perform better in the first semester of the school year, and others perform better in the second semester (Gaustad, 1992). An analysis of previous G.P.A. trends comparing each student's first semester and second semester grades was not run. Such a comparison could have been helpful in interpreting this data. The comparison of a full year's G.P.A. before and after tutoring would have also been useful in preventing grade fluctuations between semesters from influencing the data.

Limitations

There were several limitations of this study. The number of subjects in this study was small, and when subjects were broken down by gender and grade, the numbers became much too small to be representative of a population. The subjects were also not selected at random since they were volunteers, and required to remain after school in order to participate. In addition school was not selected at random, as it was the researcher's place of employment.

Recommendations

In spite of its limitations, the study did support the results of the research on peer tutoring. Tutors experienced training and supervision, tutors and tutees

were paired according to gender, tutoring took place in a structured work environment, and tutoring lasted over 45 minutes per week. Research has indicated that these are some of the most important considerations in a productive tutoring program (Kamps et al., 1994). It would be interesting in futures studies to compare one group of subjects receiving all of these elements of peer tutoring with several groups from which one different element was missing to discover which are the most important facets of a peer tutoring program.

Self-esteem evaluations for both tutors and tutees would also be interesting to examine since the research has indicated peer tutoring often results in increases in self-esteem in both tutors and tutees. However, the researcher was unable to locate any such inventories from the studies reviewed in the literature.

The peer tutoring programs described in the research ranged greatly in form and purpose. Most paired one tutee with one tutor, but some allowed one tutor to work with more than one tutee at a time (Juel, 1991). Some programs targeted certain at-risk students, while others encompassed an entire classroom (Rekurt, 1994). Most programs paired high achieving peers with lower achieving counterparts, but evidence does exist which cites improved academic scores when two peers of the same academic level are paired (Kemps

et al., 1997).

The researcher in this particular study paired one academically at-risk tutee with a higher achieving tutor. The research provided for tutor training and supervision, and allowed both homework assistance and reading for understanding exercises. Most programs described in the literature focused on only one aspect of peer assistance (i.e., reading exercises). In this study, two types of assistance were paired and allowed the tutee to choose the order in which to work on homework assignments when more than one assignment was specified. The combination of homework assistance and reading for comprehension appears to have proven effective in this research, though the amount of time each student spent in each activity was not logged. Future research distinguishing the results between students who spent more time reading and those who spent more time on homework assignments would be interesting to review.

Appendix 1

Student	Grade in School	Gender	Before Tutoring G.P.A	After Tutoring G.P.A
1	5	2	1.4	1.6
2	5	2	1.8	2.2
3	5	2	1.4	2.6
4	5	2	1.8	1.4
5	5	2	1.2	1.2
6	5	2	1.8	2.2
7	5	2	1	1.8
8	5	2	1.2	1.8
9	5	2	1.4	1.6
10	5	2	1.4	1
11	5	2	1.6	2.2
12	4	2	1.8	1.2
13	4	2	1.2	1
14	4	2	1.6	1.4
15	4	2	1.6	1.8
16	4	2	1	0.6
17	4	2	0.8	1.2
18	5	1	1.2	1.4
19	5	1	1.4	2
20	5	1	1	1.4
21	5	1	0.8	0.6
22	5	1	1.6	2.4
23	5	1	0.8	2.2
24	5	1	1.4	1.6
25	5	1	1.2	2
26	4	1	1.6	1.4
28	4	1	1.8	2.6
29	4	1	1	1.6
30	4	1	1.2	2
31	4	1	1.2	1.4

Variable Label Grade: "Grade in School"
Value Label Sex: 1: "Male", 2: "Female"

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