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A STUDY OF CERTAIN EFFECTS OF CROSS-AGE TUTORING

DISSERTATION

Presented to the Graduate Council of the  
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By

Mae E. Dobbs, B.S.E., M.Ed.

Denton, Texas

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M. W. E.

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This study investigates the effect of the helping relationship in cross-age tutoring upon the attitude toward school, self-concept, and grade average of elementary and middle-school students.

Attitude effects were measured by the Bonney Attitude Toward School Scale and the Coopersmith Self-Esteem Inventory, and variations in grade average were determined by pre-test and post-test. Comparisons were made between the total experimental and control groups, the higher ability students, and the lower ability students. A total of 160 children from grades three, five, six, and eight of one elementary and one middle school were chosen for this study. The experimental group and the control group consisted of eighty students each, twenty from each of the four grades. Third- and sixth-grade students served as pupils, fifth- and eighth-grade students as tutors. Sixteen research hypotheses were formulated, with the .05 level of significance for acceptance. Between pre-tests and post-tests, experimental students acting as tutors or pupils gave or received one-half hour of tutoring help three times a week for

sixteen weeks. This procedure was followed for all hypotheses, each of which was tested by analysis of covariance.

The data measuring attitude toward school of those in the tutor-pupil relationship imply that this variable is the most sensitive to the tutoring program. The program resulted in a definitely superior attitude toward school for eighth graders and one sub-group of third graders. Therefore, it is concluded that cross-age tutoring can be expected to result in an improved attitude toward school on the part of children in specific age levels. Since no significant difference in self-concept was found, cross-age tutoring cannot be supported as an indirect means of improving the self-concept of children. Generally, the experimental condition of the tutor-pupil relationship did not result in higher grade averages for the experimental tutors and pupils in grades three, five, and six; however, the grade averages of lower-ability eighth-grade students showed highly significant gains over the control group. Therefore, although cross-age tutoring cannot be expected to improve academic standing of all elementary students, lower-ability eighth-grade students acting as tutors can be expected to improve their academic standing.

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## CHAPTER I

### INTRODUCTION

Cross-age tutoring has always been a part of learning in the process of teaching. In colonial times, education for poor children usually consisted of a form of apprenticeship. The child was taught a trade by his master, and, in the process, he may have acquired some skill in reading and writing. Later, in the one-room school, older students often helped younger children with their lessons.

Gartner, Kohler, and Riessman (3) note that it has long been obvious that children learn from their peers, but a more significant observation is that children learn from teaching other children. They suggest that each child be given the opportunity to play the teacher role because by playing this role he may really learn how to learn.

Recently, the term "Cross-Age Tutoring" has been used for the plan for students to help students. The program appears to aid both the tutors and the pupils being tutored--the "tutees." Students participating in this kind of program seem to show an improvement in self-concept and gain in confidence and attitude toward school (9).

A review of literature indicates that children who do not succeed in school often have emotional and personal difficulties. These findings are important in that they are manifested in conflict and frustration in the lives of the pupils, causing their psychological capacities for academic learning to become limited. The research cited suggests that one group of characteristics appears consistently: lack of ego strength, poor self-concept, and lack of confidence (6).

Fleming (2) describes the type of human development that can occur as a result of student tutoring. In a program at his school in Portland, Oregon, called Student Team Action, entire classes of upper-grade students prepare lessons that they then present to primary-grade pupils in a one-to-one relationship. Thus each student in the program is assured the undivided attention of another person and a chance to be seen and heard once each day. The results indicated student tutoring had an effect upon the child's self-image and sense of worth. The tutors also indicated by discussion that this program did something for their own personal development. They suggested that this type of program be used in schools everywhere to encourage everyone--children, teachers, and supervisors to do a better job.

Low achievement in a child can very well be related to personality factors. A child's self-image may be one of the most

important elements relating to achievement. A low-achieving pupil placed in a helping relationship with another low-achieving pupil may find that playing the role of a tutor produces within him feelings of worth, self-acceptance, and self-confidence.

Thelen states,

Educators, almost to a man, feel that tutoring (by students) works. I can think of no other innovation which has been so consistently perceived as successful (8, p. 229).

Because of the lack of scientific research and evaluation of tutorial programs, an investigation of cross-age tutoring can aid in exploring its use in helping children and its effect on certain personality and academic characteristics.

#### Statement of the Problem

The problem of this study was to determine the effect of cross-age tutoring upon elementary and middle-school level students in regard to attitude toward school, self-concept, and grade average.

#### Purposes of the Study

The purposes of this study included (1) measuring the effects of a cross-age tutoring program on attitude toward school, academic achievement, and attitude toward self by pre-test and post-test, of experimental and control groups and (2) analysis and

interpretation of these data in order to make comparisons between the total experimental and control groups, higher ability students, and lower ability students.

### Hypotheses

To carry out the purposes of this study, the following hypotheses were formulated:

1. At the elementary level, the adjusted mean score for the experimental group of tutors will be significantly higher than the adjusted mean score for the control students on
  - a. the Attitude Toward School Scale (see Appendix A);
  - b. the Self-Esteem Inventory (see Appendix B); and
  - c. the grade point average.
2. At the elementary level, the adjusted mean score for the experimental group of tutees will be significantly higher than the adjusted mean score for the control students on
  - a. the Attitude Toward School Scale,
  - b. the Self-Esteem Inventory, and
  - c. the grade point average.
3. At the middle-school level, the adjusted mean score for the experimental group of tutors will be significantly higher than the adjusted mean score for the control students on

- a. the Attitude Toward School Scale,
  - b. the Self-Esteem Inventory, and
  - c. the grade point average.
4. At the middle-school level, the adjusted mean score for the experimental group of tutees will be significantly higher than the adjusted mean score for the control students on
- a. the Attitude Toward School Scale,
  - b. the Self-Esteem Inventory, and
  - c. the grade point average.
5. At the elementary level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the higher ability control students on
- a. the Attitude Toward School Scale,
  - b. the Self-Esteem Inventory, and
  - c. the grade point average.
6. At the elementary level, the adjusted mean score for the experimental higher ability group of tutees will be significantly higher than the adjusted mean score for the higher ability control students on
- a. the Attitude Toward School Scale,
  - b. the Self-Esteem Inventory, and
  - c. the grade point average.



7. At the middle-school level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the higher ability control students on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

8. At the middle-school level, the adjusted mean score for the experimental higher ability group of tutees will be significantly higher than the adjusted mean score for the higher ability control students on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

9. At the elementary level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the experimental lower ability tutors on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

10. At the elementary level, the adjusted mean score for the experimental higher ability group of tutees will be significantly

higher than the adjusted mean score for the experimental lower ability group of tutees on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

11. At the middle-school level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the experimental lower ability tutors on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

12. At the middle-school level, the adjusted mean score for the experimental higher ability group of tutees will be significantly higher than the adjusted mean score for the experimental lower ability group of tutees on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

13. At the elementary level, the adjusted mean score for the experimental lower ability tutors will be significantly higher than the adjusted mean score for the lower ability control students on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

14. At the elementary level, the adjusted mean score for the experimental lower ability group of tutees will be significantly higher than the adjusted mean score for the lower ability control students on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

15. At the middle-school level, the adjusted mean score for the experimental lower ability tutors will be significantly higher than the adjusted mean score for the lower ability control students on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

16. At the middle-school level, the adjusted mean score for the experimental lower ability group of tutees will be significantly higher than the adjusted mean score for the lower ability control students on

- a. the Attitude Toward School Scale,
- b. the Self-Esteem Inventory, and
- c. the grade point average.

### Background and Significance of Study

For some time now, the problem with students of normal intelligence performing below the mean of students in their classes has been of increasing concern to educators, psychologists, guidance counselors, and parents. The importance of helping each child reach his full potential has become more and more significant to all concerned. The research of the 1960's (3) seems to point to individualization as the key to more adequate learning. The involvement of pupils as tutors is one way some teachers are relieving the problem of lack of time for individualization.

Thelen observes that the practice of students helping each other is not new. Today's new approach is the view that children learn more from teaching other children. Thelen notes that the benefits of the plan do not seem to depend on such particulars as subject matter, academic status or competence, or the nature of the lesson plan. What does seem important is the helping relationship between students (8).

Gartner, Kohler, and Riessman (3) report that, though children have been teaching other children throughout history, the general emphasis in these programs was on improving the learning of the recipient--the tutee. It was in the early 1960's that attention was focused on the possible benefits that might come to the tutor.

Lippitt and Lippitt (5), working in Detroit, Michigan, set up a cross-age learning situation in which fourth-grade pupils with reading problems were assigned to be tutored by sixth-grade pupils who were also experiencing reading difficulties. The Lippitts found that both the fourth and the sixth graders progressed and learned from the experience. This experiment caused them to realize that learning through teaching was an important principle of learning.

Elliott (1) draws certain conclusions from the experiments that have been made involving tutors, the first being his belief that the tutoring method increases the total amount of teaching in the school. The regular teacher, through advice and counseling of tutors, can provide many more individualized learning experiences for pupils. Also, the one-to-one relationship provides feedback to pupil responses. He found that student tutors develop a sense of responsibility, causing teachers and tutors to be drawn together by the bond of trying to achieve a common goal--that of helping the tutee.

The research cited suggests that cross-age tutoring benefits both the tutor and the tutee, but in different ways. The tutee benefits by being able to improve his performance of academic tasks, by becoming better motivated, and by gaining individual recognition. The tutor benefits by developing better attitudes toward school, more interest in school activities, and by developing his ability to work cooperatively with other children.

Rogers states in regard to student tutoring,

Most important of all, the lack of funds may lead us to use the most untapped resource of all in education-- the ability of students to assist other students to learn. There is nothing so personally stretching--on both sides of the table--as for one student to help another, and for each to grow in the process (7, p. 217).

Previous research does not indicate whether or not cross-age tutoring has particular benefits for students of different ability levels. There is no indication as to its effects on higher ability students as compared with lower ability students. It is quite possible that its greatest value would be for average range I.Q. students and that higher I.Q. students may not benefit at all. The inverse may, of course, be true. Therefore, as one facet of this study, the factor of lower and higher I.Q. as it relates to the variables in this study was explored.

Because of the growing importance of cross-age tutorial programs, more research should be devoted to the effects of involving older children in tutoring younger children in all subject areas. Research is also needed concerning the effects of tutoring on changing attitudes toward school and improving the self-image. This study was an attempt to investigate these areas.

### Definition of Terms

For the purpose of this study the following definitions were formulated:

Cross-Age Tutoring--Older pupils assisting younger pupils, under teacher direction, in a one-to-one relationship.

Higher Ability Students--The eight students in each experimental group and each control group who have the highest I. Q. scores on the California Test of Mental Maturity. (All students in the study have normal or above I. Q. s.)

Lower Ability Students--The eight students in each experimental group and each control group who have the lowest I. Q. scores on the California Test of Mental Maturity. (These scores fall within the normal I. Q. range.)

Tutee--The experimental group third- and sixth-grade pupils in the schools who are assisted by tutors.

Tutor--The experimental group fifth- and eighth-grade pupils in the schools who work to assist the younger pupils, under the supervision of the teacher.

Self-Concept--That organization of qualities that the individual attributes to himself as a unique personality (4).

Academic Achievement (major subjects)--A composite score from Reading, Language Arts, and Mathematics was used.

Traditional marks of A, B, C, D, and F were converted to numerical indices.

#### Delimitations of the Study

This study was carried out in a school system which has a stable population and a relatively homogeneous social background. All twenty-five classroom teachers involved in the study were teachers with at least two years' teaching experience. No teacher had prior experience with cross-age tutoring.

Help given by the tutors in this program was delimited to the use of techniques laid out in a carefully planned program. No case or personality problem histories were undertaken, and no pupils with extreme language handicaps were included in this study, either as tutors or as tutees. Counselors did not recommend pupils with emotional or social adjustment problems.

Conditions relative to those present within the "Hawthorne Effect" could conceivably affect measurement of variables in this study. Therefore, interpretations of data should take such possibilities into account. Participation in the study was evident to both experimental and control subjects, but placebo procedures were not implemented.



### Basic Assumptions

Three basic assumptions were made:

1. The participating students responded candidly to the instruments.
2. The instruments were valid and reliable for their intended purposes.
3. The time period of sixteen weeks was adequate to elicit change of the experimental treatment as an effective treatment.

### Summary

In Chapter I the writer has presented a description of the present problem. The purposes and hypotheses relative to the problem have been specified. Data relative to cross-age tutoring in respect to the effects of cross-age tutoring on attitude toward school, self-concept, and grade point average are lacking. The problem, purposes, and hypotheses of this study are structured to elicit such study data.

References drawn from the available literature verify the need for the study. Terms are defined and delimitations are stated as a means of establishing the contextural framework for the study.

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## CHAPTER II

### SURVEY OF RELATED LITERATURE

#### Introduction

In the past decade, there has been much written concerning the use of older students to tutor or help younger students. This teaching strategy has been labeled "Cross-Age Tutoring," and its use has spread throughout the country (28). In projects being carried on in schools today, there are many kinds of students used as tutors or teachers. In 1971, it was estimated by Ralph W. Tyler that there were 250 school systems providing opportunities for students to tutor students, with both tutor and tutee improving in academic performance (10). The thesis is that tutors can be students who are willing and able to teach younger students, and in so doing, can improve their own academic skills. It is the purpose in this review of literature to report on research and related literature dealing with tutoring on the elementary- and middle-school age-group levels in particular.

This chapter is divided into seven sections: (1) history and overview of tutoring in the United States, (2) types of student

tutoring in the United States, (3) factors relating to the effectiveness of tutorial programs, (4) factors relating to the organization of tutorial programs, (5) psychological factors of tutorial programs, (6) discussion of the literature pertaining to tutorial programs, and (7) summary. Because of the organization of this chapter, aspects of a cited work may appear in more than one section.

#### History and Overview of Tutoring in the United States

In 1798 John Lancaster, an English educator, developed a system of mass instruction for poor children. Lancaster developed this new method of conducting schools cheaply because his classrooms were overcrowded and he did not have the money to hire enough teachers to help him. In this new teaching method, he utilized the children themselves to teach other children (10).

Good (12) states that the tutoring program itself was brought from Madras, India, by a British army chaplain, Dr. Andrew Bell. The Jesuits had also used this method, as well as a few other groups. In this system pupil teachers were called monitors--and the process, the monitorial system. In the monitorial system, when a child was admitted, the tutor, under the direction of an adult teacher, assigned him to his grade level, taught him, tested him, and when he made sufficient progress, promoted him. Lancaster developed

manuals of prescribed teaching procedures for the student tutors to use.

The Lancasterian system was introduced in America in New York City in 1806. Good (12) reports that the system soon spread to most of the larger and some of the smaller cities in the United States. No data can be found to provide criteria for evaluating the effectiveness of the Lancasterian System, but it was the official method used for the New York schools from 1806 to 1853.

During the nineteenth century, Lancaster's system became the most widespread means of providing education for children of the common people of Europe, England, and North America. This system helped pave the way for universal education supported and controlled by the state (12).

Morita (24) states that when the Lancasterian System was gradually discarded in schools, the teacher, once again, became the only dispenser of instruction. She points out, however, that starting with Dewey, educators became more interested in involving students in the learning process by active participation. Nationwide financial problems of schools may well have hastened this trend. Shaw (28) suggests that, in an era of fast increasing costs, tutoring by students may at least be a partial answer to the schools' financial problem, since tutoring can be accomplished with no financial strings attached.

Morita (24) reports that by 1967 the Office of Educational Opportunity commissioned the Tutorial Assistance Center to do the first of several extensive surveys of the country's tutorial programs. Data were collected by means of a questionnaire on 369 projects. Harrison (15) reported these results: (1) the average tutor ratio was one-to-one; (2) in 79.79 percent of the cases tutors were given only one orientation to acquaint them with their work; (3) 89.4 percent of the tutees were in grades four through twelve; (4) 52 percent of those being tutored were Negro children; (5) only 10.6 percent of those being tutored were in grades one through three; and (6) the majority of those who tutored were students either in high school or in college.

Morita (24) states that assuming that the facts of the study are valid and typical of programs nation-wide, the majority of tutorial programs in 1967 appeared to be quite inadequate. Because of this inadequacy, a Workshop on the Helping Relationship was held the following year at the University of Chicago. A.H. Thelen, Workshop Director on the Helping Relationship, planned to bring together persons already experienced with student tutoring who wished to share ideas and plans for improved tutoring possibilities. Thelen (30) found three facts about the current tutorial interest: (1) various tutorial programs began independently of each other in all parts of the

country; (2) the tutorial arrangement took a number of forms; and (3) most educators felt that tutoring helped despite the lack of supportive empirical data.

### Types of Student Tutoring in the United States

#### Programs Emphasizing Help for the Tutors

Children have been teaching other children for centuries in many different environments. In more recent times, this method of learning occurred in the Lancasterian system of tutoring, in one-room schools, and in the Montessori schools of the present day. In these early tutoring programs, the tutee received the most emphasis; however, certain findings reveal that even though the tutee does improve some, this improvement has not been outstanding (10).

Gartner, Kohler, and Riessman (10) state that in the early 1960's, attention began to focus on the possible benefits that might come to the tutor himself in this learning situation. Riessman, when working at Mobilization for Youth in the early sixties, found that the tutors in the tutoring programs seemed to enjoy tutoring and were gaining much self-esteem from helping others learn. These tutors seemed to be developing a new attitude toward learning. They appeared to be more aware of the problems in learning and studying. As Riessman states, the tutors were beginning to "learn how to learn"

by discovering how they could transfer that which they learned to many different learning experiences. Tutoring seemed to help these students to be able to deal more realistically with their other problems, not just their academic work (10).

Cloward and his associates, while working as a part of the Mobilization for Youth research staff, considered Riessman's observations and decided to develop carefully controlled studies to assess what was occurring. A research study of this program, released by Cloward, found that gains in the achievement scores of the tutors far exceeded those of the tutees. It was unfortunate that most of this research was largely restricted to achievement tests. Much more research is needed to gather specific data in regard to learning sets, creativity, analytic thinking, and many other indices (10).

Cloward (3) states that, in his tutoring study, elementary children were involved as tutors, but the main emphasis was placed on the high school and college students who tutored them. He gave three purposes of the program: (1) to encourage high school students to remain in school; (2) to present an opportunity for high school and college students to achieve success; and (3) to motivate high school students to improve academic achievement.

In this program, the tutors worked with the tutees on a one-to-one basis two days a week for a total of four hours. Another group



was tutored only two hours a week. Help was given on homework assignments. Instruction in reading was supervised by high school and elementary teachers. The tutors were paid for their work. They attended orientation sessions for two weeks prior to the program. Tutors met twice a week to discuss problems as a form of continuing training.

Cloward found that the tutors' gain in reading for the four-hour group was one year and seven months during the seven-month period of tutoring. Tutees showed a gain of 6.2 months after receiving five months of tutoring. A control group that had no tutoring help showed a 3.5 month gain for the same period. The group that received tutoring only two hours a week did not show a significant gain when compared with the control group (3).

Niedermeyer (25) reports a study which evaluated the instructional behaviors of trained student tutors as compared with the behaviors of untrained tutors. The behaviors of six trained and six untrained tutors in fifth grade were recorded on a Tutor Observation Scale as the tutors worked with kindergarten pupils. Programmed materials for the reading program were used. The trained tutors scored significantly higher than the untrained tutors on the following: (1) engaging the pupil in friendly conversation, (2) confirming, (3) praising, (4) giving the correct answer when the pupil is

incorrect, and (5) eliciting the correct response before going on. Niedermeyer found that the behaviors of trained and untrained tutors differ regarding basic instructional principles. Apparently, if it is desired that tutors behave in accordance with instructional principles, they must be trained. Unfortunately, states Niedermeyer, very few tutorial studies now recorded mention the training of the tutors (25).

Fragar and Stern (9) suggest the value of giving an older under-achieving student an opportunity to play the role of the teacher with a younger pupil who needs help. As Cloward points out, this technique has been found to be effective for both the tutor and the one being tutored. The tutor can serve as a model for the younger child, thus aiding the tutee in more than the acquisition of academic skills.

Fragar and Stern report the results of a study evaluating two completely different procedures for counseling tutors of younger children which was sponsored by the UCLA Center for the Study of Evaluation and Research Center. The main object of this study was to discover which type of tutor instruction would bring about the most significant growth in both tutors and tutees. In this program, the tutors were trained in two different counseling methods. Each counselor conducted five series of counseling sessions for each of the two methods. Both high and low achievement students were used. Each

tutor was given a series of counseling interviews in groups of four students to each interview.

The first method of counseling techniques consisted of a traditional instructional procedure. The tutorial process was described, working suggestions were presented, and specific questions asked by the tutors were answered.

In the second counseling method which was adapted from Sorenson (29), tutors were taught a procedure of five basic steps: defining goals, defining obstacles, specifying alternatives, identifying consequences of specific alternatives, and making selections among alternatives. Frager and Stern (9) state that certain basic principles of learning were taught to the tutors during each of the five counseling sessions. One example given was that the tutor was to look for observable evidence that his tutee, after instruction, could do something which he had been unable to do before.

In this experiment on counseling techniques, the tutors were forty-eight sixth-grade students divided into two equal groups of high and low achievers on the basis of reading scores on the Stanford Achievement Test. Each tutor was paired with a kindergarten child who had been tested and found to need remedial work. The kindergarten tutees were divided into three treatment groups: children taught by tutors who had received counseling by method one, children

taught by tutors counseled by method two, and the third group as a control. The language-readiness program used by the tutors in working with the kindergarten children was the McNeil Learning Activities (22). The McNeil ABC Learning Activities Criterion Test was used as a pre and post measure. This test revealed that the kindergarten children who received tutoring, whether by the first or second counseling group, were superior to the children who did not receive tutoring.

The effect on the tutors was high morale, good attendance, and satisfactory adjustment to the school setting. This was true for the high achievers of both the experimental and control groups. But, as Frager and Stern relate, it was with the low achievers that the greatest impact of the tutoring experience was demonstrated. The low achieving tutors showed significant differences between experimentals and controls in changes in school morale, attitudes, attendance, and feelings about themselves (9).

A major conclusion of the study was that the achievement level of the tutor seems to make little difference in the amount of learning gained by the tutee; but there are significant differences in the gains made by the tutors. Frager and Stern were convinced that the benefits accruing from this educational model justified its extension. Desirable educational outcomes were observed in all participants in the experiment (9).

In another study, Harris (14) describes how she involved a sixth-grade group of poor readers in a tutoring program in her school. Each student was to read and report orally on one library book (seventy-five pages) before he could begin tutoring. The tutors prepared materials with which to tutor, such as picture cards for vowels, blend sounds, and diphthongs. The tutors were not permitted to continue tutoring unless they gave a book report every two weeks. Tutors began reading at home, since they wanted to use their school time to prepare tutoring materials. If a student lost his chance to tutor, he was reinstated as soon as he gave another book report.

The teachers assigned the lessons in which their children were to be tutored. If no work was assigned, the tutors worked with the tutees on phonetic cards, listened to them read, or read stories to them, asking and answering questions. They kept charts on tutee progress. The tutors were responsible for going to get their tutees, tutoring them, and returning them to their classrooms.

The sixth graders' test scores showed that some benefited academically much more than did others. These were the children with average to high intelligence. According to Harris, the remaining tutors, though not gaining as much academically, gained something of great importance. They gained dignity from helping younger children.

These tutors knew they were doing a good job. They had found success, perhaps for the first time in their lives.

Lippitt (18) describes a program in which bored under-achieving fifth-grade students became excited about helping some second-grade pupils who were having trouble learning. These fifth-grade tutors worked on a one-to-one basis with the second graders, and, as Lippitt points out, helped to provide a partial answer to four educational challenges: (1) that of providing individualized instruction, (2) that of increased motivation, (3) that of enriched opportunities at school, and (4) that of helping build self-esteem.

Lippitt suggests the rationale for cross-age helping is that all children need more individualized help than the teacher can possibly give by himself. She calls attention to the fact that an older student can better relate to the younger student who is having difficulty than can an adult. Further, the opportunity to acquire a new friend within the peer culture is important. This researcher theorizes that there is a direct ratio between feelings of peer acceptance and the ability to use one's learning potentials.

Inherent in the Lippitt program is the assumption that training of older helpers is needed for tutoring to be successful. Tutors need to develop a sympathetic, caring attitude toward the ones they help and practice ways of making them feel useful, successful, and

important. With proper training tutors can bring about changes in their tutees and within themselves, also, such as increased academic skill, more class participation, better school attendance, and growth in confidence (18).

#### Programs Emphasizing Help for the Tutees

Gartner, Kohler, and Riessman (10) state that from the point of view of the child being taught, the tutee, the two key factors in tutoring are the greater "closeness" of the child as teacher as compared with the adult teacher and the individualization of attention. Closeness may be no more than a matter of age, but it could involve sex, race, or background. The child as a teacher may better understand another child's way of viewing things. He may be able to have greater empathy with and understanding for the younger child than could an adult teacher. Also, the child who is taught by another child gains the opportunity to model himself after his tutor.

Bronfenbrenner (2) in his comparative study of children in the United States and the U.S.S.R. concludes that involving persons important to the child in attaining certain goals, as in tutoring, can cause the child to model his behavior after that of his tutor. He notes that American children are more likely to look to their peers for models, rather than to adults, as contrasted to Soviet children.

Bronfenbrenner describes the schools' potential in the task of child development:

Perhaps the most promising possibility which the total school offers in furthering the development of the child is the active involvement of older and, subsequently, younger children in the process. For the preschooler or primary grader, an older child, particularly of the same sex, can be a very influential figure, especially if he is prepared to spend time with his younger companion. Except for the occasional anachronism of the 1-room school, this resource remains almost entirely unexploited (2, p. 156).

Fleming (8), a teacher of grades six and eight in the Fernwood Elementary School, Portland, Oregon, developed a program called Student Team Action in which entire classes of upper-grade students prepare lessons that they present to primary-grade pupils in one-to-one relationship. Each pupil being taught is provided the undivided attention of his tutor. The tutee gains a companion with whom he can talk things over, someone who cares. This has a beneficial effect upon the child's self-image and sense of worth.

Fleming concludes that Student Team Action, though not difficult to organize and administer, requires a great deal of work and planning. He feels that most teachers would gladly contribute the necessary work and planning if the objective of improved self-image and greater personal development of the child can be achieved.

In an experiment conducted by Hamblin and Hamblin (13), a group of inner-city preschoolers who were able to read quickly tutored



others who were having difficulty with reading. This type of peer tutoring was combined with a system of reinforcement by the use of tokens. The results were studied to assess the effects upon reading achievement. The thirty-two subjects were disadvantaged black and white preschoolers of the inner city--a group known to be quite slow in learning to read.

The results showed that the student tutors, although very young and also disadvantaged, proved to be effective tutors. They were found to be significantly more effective than a control group of adult tutors (Job Corps teen-agers). The tutors, who had medium or high I.Q.s, made at least as much progress when tutoring their peers as when they themselves were being tutored by adults. The experiment supports the validity of the peer tutoring model in the inner-city setting.

Vassallo (33), in an article called "Learning by Tutoring," describes a tutoring program involving high school students in Dallas, Texas. The Dallas tutoring program initially involved twenty students helping twenty-four other students who were having difficulty with various classes. In three months the number of participants in the program had risen to 260. Vassallo states that at the close of the 1971-1972 school year one thousand student volunteers had clocked 100,000 hours of tutoring five thousand other students in a wide variety

of subjects at thirteen junior high or middle schools and ten high schools in the district.

At the year-end evaluation, 43 percent of the students receiving tutoring had brought their grades up one full grade level; another 8 percent had made even greater improvement. The tutored students began to show an increase in self-confidence. Some students who were failing began to perform well scholastically. Students, lacking confidence in their abilities, when tutored, could see tangible evidence of success, thus causing their self-esteem to increase greatly.

Vassallo states that many other plus-factors have resulted as a consequence of the tutoring program. Cultural, social, and economic barriers fall, cliques break up, and students get to know one another. The possibilities for the tutoring program to build good relations among students of different races and nationalities look encouraging (33).

Most of the tutees in the Dallas program are referred by their regular classroom teachers, but some request the service themselves. They may stay in the program as it suits their needs, from a few weeks to the entire year. But effort is a strict requirement. Students not truly interested in the program are dropped to make room for those who are. Tutors hold weekly conferences with their tutees' teachers to discuss the progress of their tutees and possible

new approaches they may try. Some tutors find that all their tutees need is to learn how to study.

Vassallo reports that the main requirements for this program are as follows: (1) space in which to work and someone to serve as supervisor, (2) the program to be carried out during classroom hours when the students are easily available from study halls and have their minds on schoolwork, (3) the full support of the teachers to cooperate with the tutors in effectively helping the tutees.

Although no scientific data were gathered for the program at this time, Vassallo points out that supporting empirical data suggest three noteworthy results of the Dallas tutoring program at the end of its first year: (1) the number of students who were spared scholastic failures because of the extra help given them, (2) the improvement in self-concept on the part of both the tutor and the tutee, and (3) the participants' increased feeling of belonging, even in a large school that sometimes seems to them impersonal (33).

Hunter (16), in another kind of program designed to motivate tutors for the purpose of stimulating and maintaining interest in the field of education, found that not only can tutoring aid both tutor and tutee, but it can also be an important device in training teachers. Hunter tried this experiment in Hunter College in New York as a teacher preparation program. The subjects were primarily college

students. A student teacher tutored one fifth- or sixth-grade pupil who in turn tutored a third grader. Although no data were brought out to support the claims that teacher candidates were more motivated as a result of tutoring or that they became more capable in their chosen field of education as a result of their experience, all the college students involved reported that the cross-age tutoring program was a good learning experience for them. The pupils enjoyed the tutoring sessions and the classroom teachers regarded the program as helpful. Hunter recommends cross-age tutoring most enthusiastically as one effective means for bringing more methods into a college methods course.

#### Factors Relating to the Effectiveness of Tutorial Programs

##### Age of Tutorial Subjects

Ellis (7) made a study of the use of trained and untrained tutors in the reading performance of kindergarten pupils in four Los Angeles elementary schools. Test scores of classes that had the help of the teacher and trained tutors were compared with the test scores of classes in which the teacher provided remedial instruction without the assistance of trained tutors. She found the kindergarten children quite responsive to tutorial help. The children helped by the trained pupil tutors from fifth- and sixth-grade levels were more

successful in improving their reading performance than were the children in classes in which the teacher provided the remedial instruction without the assistance of trained tutors.

Ramirez (26) reports a study of the results of a problem-solving oriented tutorial program which was aimed at improving the problem-solving skills of tutors by providing opportunities for them to experience, discuss, and attempt to resolve problems relating to tutoring younger pupils. In this tutorial program, half of the sixth-grade population of a metropolitan elementary school were selected as tutors and assigned to problem-solving groups. The first group participated in the project for five months; the second group, for only two months. The remaining sixth graders served as the control group. Ramirez hypothesized that sixth graders, given an opportunity to develop supportive groups dedicated to the study of problems associated with tutoring first graders, would demonstrate more effective problem-solving behavior on criterion tasks than would equivalent subjects not given such an opportunity. Results showed significant differences between the experimental and control groups on only one problem-solving skill (problem defining) in relation to one criterion task (structured task). All other differences were in the predicted direction, though not statistically significant.

Despite the insignificant results in relation to the hypotheses of this study, Ramirez found considerable evidence that the project had positive effects relating to student attitudes toward school. Teachers and the vice-principal of the school expressed amazement in observing how successfully some former problem pupils worked with first graders. As a result of these observations, the vice-principal requested that the tutorial program be continued (26).

Allport (1) states that changes in self-concept, attitudes, and behavior will most likely occur between the ages of six to twelve years. Thus, it seems possible that a younger child is more likely to undergo a positive change in self-concept. Morita (24) theorizes that using tutoring as a means of changing self-concept among high school students would, therefore, appear to be less probable than with children of a younger age.

#### Ability and Achievement in Tutorial Situations

Thelen (31) states that the modern idea of tutoring originated when educators were trying to find ways to help maladjusted children. They observed how these children related to their younger brothers and sisters. The older ones helped the younger ones and they both benefited. Teachers, too, began to realize that many of their students who were having difficulties had never really been successful with anything

in school. They, therefore, began to try to find ways to give these children feelings of success that would carry over into all their school life. Helping younger children with their schoolwork was initiated. The results were encouraging. The older children became highly enthusiastic about what they were doing as helpers. Consequently, they became motivated to acquire the knowledge necessary to help the younger children. Thus, reports Thelen, tutoring helps a child to start liking school, wanting to learn, and feeling good about himself as a person.

Tutoring, then, seems to be a constructive device to change the status of low ability or low-achieving students. These children need no longer feel hostile toward the school situation. Tutoring enables them to be accepted by their peers, thus giving them confidence to use the learning potential within themselves.

Lippitt and Lippitt (21) report that both younger and older children gain a great deal from participating in a cross-age tutoring program. The tutors are acquiring valuable learning experiences while working with their tutees. They have, also, the chance to be appreciated by both the tutees and their teachers. They learn social skills as well as academic skills. The tutees acquire from their tutors an incentive to work, a commitment to work, and the challenge to continue their work until they succeed, instead of quitting.

Also, the tutors help meet the tutees' needs to feel successful and important.

Fragar and Stern (9) found that low-achieving sixth graders can be effective tutors to younger children while being helped themselves. Fleming (8) reports that even students who have been troublemakers, those who lack self-control, and even children under the care of psychiatrists, social workers, and juvenile authorities do outstanding work tutoring their younger pupils. He states that the poor students, both tutors and tutees, are especially likely to "blossom out" as they apply themselves to learning without fear of looking stupid.

From the literature reviewed in this section, it appears that the effectiveness of tutorial programs seems to depend upon several variables--age of both tutor and tutee, the kind of training the tutors are given, the dedication the tutors give to their work of helping others, and the kinds of tasks to be performed.

### Factors Relating to the Organization of Tutorial Programs

#### Pairing of Tutor and Tutee

The issues relating to matching tutor to tutee depend upon the goals and strategies of each particular tutorial program. Lippitt and Lippitt (21) recommend that student pairing can be made



tentative; in this way, if it does not work out, the tutor will not feel that he is a failure. Shaw (28) in an article written for Nation's Schools, states that matched students should be of similar intelligence to preserve the tutor's image and esteem as a wiser resource person. Shaw suggests at least two grades between tutor and tutée. Gartner, Kohler, and Riessman (10) report the Mobilization for Youth's Homework Helper program found that with children in New York City, it was better for black children if the pairs were homogeneous as to race and sex, while among Puerto Ricans and whites this did not seem to be significant.

In any case, the pairs must be able to communicate ideas and feelings to each other so that a good relationship can develop. There are indications that it is not wise to match a slower older learner with a very quick younger learner, or one too close to his own age or academic development. Lippitt, Eiseman, and Lippitt (19) discovered that if the older helper is three years or more older than the younger he is helping, this tends to safeguard his image as a good resource person. It also makes the younger feel it is not at all threatening for him to know less than his tutor who is so much older. Harrison (15) in his study on structured tutoring, found that the best tutors for primary children are older elementary grade students; however, he states that these students require close supervision by an

adult who has experience in devising diagnostic criterion-referenced pretests, designing and using instructional materials, maintaining records, and selecting and training the student tutors.

### Scheduling the Tutoring Sessions

Gartner, Kohler, and Riessman (10) report that the major operational problem of in-school programs involving children teaching other children has to do with teacher planning and scheduling. They believe the key to making the system work is to allow enough time for the teachers to plan, to meet with other teachers, and to meet with the pupils involved individually. The timing of the tutoring is important, too. Tutoring sessions have been scheduled during the school day, before school, and after school, but generally, tutoring during the regular school day is easiest to administer. Shaw (28) states that tutoring should not take either child away from an activity that he would hate to miss, such as art or gym. If the child is taken out of such activities, tutoring will assume the aura of punishment.

### Location of Tutoring Sessions

Many different locations have been used to tutor. Elementary children usually tutor in the tutees' classrooms under the supervision of the classroom teacher. Gartner, Kohler, and Riessman (10) state that, ideally, separate space should be available for the tutoring

sessions, but in most schools this is seldom possible. No special place is obligatory, but wherever the location, it should be a relatively private and quiet place, and one in which both children feel comfortable. It is possible that the tutor would feel more at ease in a private place where he is not under the constant supervision of the adult teacher. In this way, he would feel that a greater sense of respect and responsibility has been given him.

#### Time and Frequency of Sessions

Tutoring sessions should last for various periods of time according to the ages of the participants. For young children, the one-to-one half-hour period of tutoring help given five days a week will be more effective than one-hour periods given two or three times a week. Cloward's study concluded that it was the extent of the treatment that defined reading improvement (3). When the children were tutored only two hours a week for twenty-six weeks, there was no significant gain. Those who were tutored four hours a week showed a significant gain in reading. Lippitt and Lohman (20) found in the University of Michigan study that twenty to fifty-minute sessions help three or four times a week proved successful.

#### Training of Tutors

Shaw (28) reports that the crux of any serious tutoring program is tutor training. It is in this area that the difference between

the non-structured and structured approaches become most obvious. In the non-structured training program, discussions are held in which the prospective tutors actively participate. Techniques such as role-playing, brain-storming, and discussions of familiar classroom incidents help tutors to learn to relate positively to their tutees. In the non-structured tutor training program, the tutors are not taught to use specific tutoring procedures. Some non-structured training programs urge tutors to create or find their own teaching materials. This type of training program usually involves older tutors of high school age.

The structured tutor training program is one in which tutors are taught step-by-step procedures they are expected to use. They learn how to make flash cards, drill tutees on pronunciation of difficult words, listen to them read, and discuss with them what they have read to check on the tutee's comprehension abilities.

Lippitt and Lippitt (21) place great emphasis on the structured training of tutors. They have developed a pre-service and in-service program for the tutors to use. They state that scientific studies of children's behavior show that children in the current age-graded society, when left to their own devices, indicate that both tutor and tutee need to be prepared to participate in a tutorial program. Older children tend to look down on younger ones, and the younger

children look up to and envy the older ones. The Lippitts feel that the older children must receive careful training in the attitudes and skills of taking responsibility as helpers, and the tutees must learn that older peers can and will be friendly and trustworthy.

In the Lippitt program, the tutors receive in-service training in weekly seminar sessions led by a teacher, counselor, or vice-principal. They also have conferences with the teachers of their tutees. In the sessions, the tutors learn the techniques of relating successfully to younger children and have the opportunity to discuss the problems they encounter while tutoring. The Lippitts found that untrained tutors tend to boss the tutees because of their own frustrations and, therefore, are not able to establish a rewarding interaction with their tutees. They concluded that simply providing opportunities for students of different ages to interact did not necessarily result in growth for either the tutor or the tutee.

Gartner, Kohler, and Riessman (10) report that the National Commission on Resources for Youth takes the position of "limited pre-service training," seeking to maintain the tutor's naturalness in helping the tutee; they, themselves, feel that the pre-service training of tutors should be short and not overly directive; however, all programs will need to provide some pre-service orientation or training.

### Role of the Teacher and Administrator

Thelen (31) states that administrators have two goals. First, they should try to develop a helping or tutorial relationship in their schools. Next, they should try to establish the belief that it is more important to teach learners to help one another than it is to teach subject matter. Administrators participating in a cross-age tutoring program should be able to give some support to the program through general orientations, explanations, and question-answering to such groups as parents and staff according to Cox (4). Administrators can construct time tables, schedule facilities in their own buildings, and cooperate with administrators from other buildings implementing tutoring programs. They can identify and develop necessary resources for supporting the program, such as needed materials and funds. They should participate in developing a system of general publicity of the cross-age program. They should check on the general progress of the program on a continuing basis. Administrators must be sensitive to the behavior of the teachers involved, and understanding and skillful in producing behavior that will make the tutorial program successful.

Cox (4) suggests that teachers participating in the cross-age tutorial program can be divided into two categories: sending teachers, or those teachers who send tutors to help the tutees, and receiving

teachers, or those teachers who have children to be tutored or tutees. Sending teachers should be able to select the tutors according to identified needs, and develop and implement ways by which the tutors can integrate, incorporate, and otherwise utilize their helping experiences in their own learning activities. They should participate in the pairing of tutors and tutees and communicate feelings of support and uniqueness of the tutor's role.

Receiving teachers should be able to select the tutees according to identified needs, orient the tutors to the learning setting of the tutees, communicate feelings of support and uniqueness of opportunity of the program to the tutees, participate in the scheduling of tutoring sessions, and provide supportive supervisory feedback to the tutors. They should participate in the pairing of tutors and tutees, prepare and facilitate the use of learning resources for the tutors and tutees, and prepare the tutees for the tutorial program (4).

Teachers and tutors need to meet and plan together frequently, to evaluate the program, and to make necessary changes. All teacher participants need to understand and accept the philosophy of cross-age tutoring. This investigator has found that the attitude of the sending teacher shapes the attitude of the tutors from her room; likewise, the attitude of the receiving teacher shapes the attitude of the tutees in her room; consequently, the importance of having both the

sending and the receiving teachers' cooperation in the program is crucial. The receiving teacher must create a classroom attitude that cross-age helping is a desirable opportunity for everyone involved. She should consider the help of tutors as a chance for her tutees to have individualized learning opportunities. The tutors should be appreciated as partners in helping the tutees to learn. The receiving teacher should give clear directions to the tutors and check to see if these directions are understood. She should show her appreciation of the tutor's help and build his self-esteem; she should act as a model of how one person can relate constructively to another. As Lippitt so succinctly states, "Teachers can make or break a cross-age helping program" (18, p. 59).

#### Psychological Factors of Tutorial Programs

Schoeller and Pearson (27) reported findings of the 1967-68 Volunteer Reading Tutoring Program developed in Milwaukee, Wisconsin. The problem was to ascertain what results could be obtained in building reading skills and improving attitudes toward reading and school by the use of volunteer reading tutors. Schoeller and Pearson theorized that if tutors could help a disabled reader change his attitude toward himself and reading, then tutoring programs could be used in the constant battle for literacy. The Spache Diagnostic Reading Scales were used to determine actual reading improvement. Both



pre and post testing was administered. Five related questionnaires with comparable questions about pupils' attitudes and progress were administered to the teachers, parents, pupils, and tutors. The teacher questionnaire and an anxiety-tension check list were checked at the beginning and the end of the program while the parents, pupils, and tutor questionnaires were checked at the end. The results showed above average gain on all eight parts of the Spache Diagnostic Reading Scale during the average 3.1 month testing period. The results of the questionnaires to the teachers, parents, pupils, and tutors showed strong agreement on their perceived improvement of reading skills.

Although the evidence on attitude building is less conclusive because of the subjectivity of the evidence, statistically significant results were also obtained in improving pupils' attitudes toward reading, school, and themselves. It is possible that the changes in attitudes are very related to the improvement of reading skills.

Schoeller and Pearson state that although further evidence of reading and attitude improvements is being sought in further research, the evidence from this program clearly shows that tutors can be effective in securing achievement in attitude toward reading, school, and self.

Thelen (30) suggests that the important idea in the helping relationship is something more than just gaining information. The tutor's self-confidence improves when he becomes a teacher for an

individual child. Lippitt, Eiseman, and Lippitt (19) found that tutoring became a status symbol in many classes, for both the tutor and the tutee. They report on a program established in a Detroit Public school complex--a high school, a junior high school, and an elementary school. Sixty-eight children participated in this program. The tutors met the tutees for a half hour a day three or four times a week. They helped in many different activities from math to publishing a class paper. Teachers of the tutees reported academic gains for practically all the children involved, greater class participation, better attendance, greater self-confidence, and greater attentiveness.

The high school tutors were given a list of categories and were asked to check off whether or not their own attitudes toward school, teachers, and the future had changed. Seventeen out of the twenty-four high school tutors indicated that they had changed their attitudes toward at least one of these references and eight had changed in their attitudes toward two or more. Only one of these seventeen experienced a change in a negative direction.

Snygg and Combs (32) have hypothesized concerning the crucial importance of the student's attitude toward himself. They indicate that, at the root of many students' failures is not the inability to master study methods, but a concept of self which is inadequate.

They stress the importance of self-concept in all phases of adjustment and specifically with regard to its position in determining the success or failure of a student. Using tutoring as a means of building a better self-image could prove beneficial to both the tutor and the tutee.

Elliott (6) suggests that tutoring is a means of assuring students a sense of identity in school. It provides for them a niche or place within the organization. A well-organized tutoring program assures them a level of involvement and participation which helps them see that they are an essential part of the school program, thus developing within them a sense of responsibility and a more positive attitude toward school and life in general.

Despite the positive aspects attributed to tutoring programs in regard to self-concept and changed attitudes, scientific literature shows that the relationship of these programs to improved self-concept and more positive attitudes is inconclusive. Evidently, there is a need for further research to study the relationships of tutoring to these two variables.

#### Discussion of the Literature Surveyed

Since the 1960's, teachers and administrators have been pressured to improve their educational methods. The use of student tutors has been one response to this demand for improvement of methods. Some educators involved in tutoring programs have claimed

benefits for both the students being helped and the tutors themselves. Other educators involved have not found that individual tutoring always guarantees significant attitude changes or learning gains. Present research findings have not always substantiated the alleged benefits of tutoring programs. However, there is great interest among educators in the potentials of student tutoring at all levels of education, as evidenced by the numerous articles written in this field (24).

In spite of the lack of experimental evidence supporting the use of tutors, elementary schools are using tutorial programs more and more to try to prevent achievement gaps that may cause later learning difficulties. Since the extent of cross-age tutoring appears to be growing rapidly, the potential benefits of the tutorial program should be subjected to additional study.

Thelen (30) states that no directive from Washington or authoritative bit of research prompted the increasing number of school programs in which students today are teaching each other. He reports that these tutoring experiments have risen spontaneously and simultaneously in many parts of the country, and have taken a great number of different forms. Thelen also reports that, when the University of Chicago held its Workshop on the Helping Relationship in July, 1968, the projects studied were, for the most part, lacking in empirical data measuring the learning gains of those who were

tutored. There appears to be, then, a pressing need for empirical proof of the claims that have been made for the tutorial method of instruction.

### Summary

The purpose of the present study was to explore the effects of students tutoring other students in regard to the variables self-concept, attitude toward school, and academic improvement at the elementary- and middle-school levels. The literature reviewed indicates a need for more research in the tutoring area. A great number of descriptive tutorial projects have been reviewed in which many claims of benefits have been made, but there appears to be a minimum of evidence to support these claims.

One of the important aspects of any tutorial project is the positive interaction which takes place between the tutor and the tutee; scientific studies, however, have been on academic gains. Studies concerning self-concept and attitudes have not been able to evaluate adequately the relationship found in the tutorial process. Tutoring at the elementary- and middle-school levels can bring out many new possibilities in learning in the classroom if emphasis is placed on the strengths of the children involved rather than dwelling on their weaknesses.

Administrators and teachers can improve tutorial activities in their own buildings by keeping up with the findings of new research on tutorial programs and applying the techniques that will benefit their own particular group of children.

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## CHAPTER III

### PROCEDURES FOR COLLECTING AND TREATING DATA

The purposes of the present study include measuring the effects of student tutoring upon attitude toward school, attitude toward self, and academic achievement of both the experimental and the control groups. Included, also, are the interpretation and analysis of these data in order to make comparisons between the total experimental and control groups, higher ability students, and lower ability students.

In Chapter III is a description of the procedures used for collecting data, the data-gathering instruments, and the selection of the subjects. The testing procedure and the procedures for statistical treatment of the data are also explained.

#### Description of the Data Gathering Instruments

For the purpose of this study, pre- and post-measures were obtained: (1) the subject's attitude toward school, (2) the subject's score of self-esteem, and (3) scholastic grade averages of all major subjects.

The Attitude Toward School Scale developed by Bonney was given as a pre and post-test to all participants in this study. This scale consists of forty-seven items which are responded to on a basis "Nearly Always," "Sometimes," "Seldom," and "Never," with points of three, two, one, and zero assigned for each response respectively. The total score is obtained by summing the scores or points received on all items (2).

Reliability of this instrument was found to be .89 and .86, respectively, in a test-retest administration to twenty-four fifth-grade students in a small city and to twenty-two combined fifth- and sixth-grade students in a rural community. A split-half correlation of .68, using the Spearman-Brown formula for correction, was established by an analysis of the 320 attitude scales administered to the sixth grade of the small city (2).

Results from the Attitude Toward School Scale (n = 320) were submitted to an item analysis to determine the discriminatory power of each item. All the forty-seven items significantly discriminated between the upper and lower one-fourth of students as noted by the total instrument. Forty-five were significant at the .001 level of significance and the remaining two at the .01 level of significance.

The scholastic average which was used to test for academic gains was obtained for the pre-test by calculating the average of the

fall semester, 1973 grades received in all major subjects; the scholastic average which was used to test for academic gains for the post-test was obtained by calculating the mathematical average of the spring semester, 1974 grades received in all major subjects in the second semester.

The Self-Esteem Inventory (SEI) was developed by Stanley T. Coopersmith (1). It was constructed on the basis of items selected from the Rogers and Dymond Scale (5) which was reworded for use with children. Several additional items were designed by Coopersmith. The entire battery was presented to five psychologists who sorted the items into groups--those indicative of high self-esteem and those indicative of low self-esteem. Items that appeared to be ambiguous, repetitious, or about which there was disagreement were eliminated. The set of items was then tested for comprehensibility with a group of thirty children. The final inventory consisted of fifty items concerned with the students' perceptions in four areas: peers, parents, school, and self. Each item checked in the positive direction, such as an item designating high self-esteem checked in the "Like Me" column or an item designating low self-esteem checked in the "Unlike Me" column, was worth two points. Only the total score was reported.

One of the problems of self-reporting is the question of whether a subject is distorting his responses, presenting an acceptable facade, or expressing a genuine statement of his views. A unique feature of the SEI is a built-in "Lie Scale." There are eight such items scattered throughout the SEI. The lie scale is to determine the credibility of the results. No student in the present study was found to be ineligible.

The SEI was administered by Coopersmith, on a group basis, to two fifth- and sixth-grade classes. Five weeks later the SEI was readministered to one of the fifth-grade classes. The test-retest reliability, after a five-week interval with the sample of thirty fifth-grade children, was .88. The test-retest reliability, after a three-year interval with a sample of fifty-six children from the same population, was .70 (3).

#### Selection and Description of Subjects

The design of this study consisted of establishing experimental and control groups of twenty students in each of the following grades: three, five, six, and eight. All subjects were in the normal or above I.Q. range. The total number of experimental and control subjects was 160.

The samples in the pupil study were drawn from one elementary school and one middle school. With a few exceptions, most of

the parents are in the upper economic class, and are engaged in professional occupations. The neighborhood is characterized by single family urban homes.

Classroom teachers were the key selectors in choosing the subjects to be used in this study. They were oriented as to types of students most likely to benefit from tutorial work. Considerations mentioned were weak academic work, poor self-image, and wrong attitude toward school.

Subsequently, school counselors conferred with individual teachers to compile a list of recommended students. Those students who consented to be a part of the program and whose parents also agreed became the experimental and control groups for this study. Thus the criteria for involving the subjects in the study were as follows:

1. Teacher-counselor agreement on designation of students,
2. Child's desire to be in the study, and
3. Parental consent.

Pupils chosen for the control group for both the tutors and the tutees at each grade level had I.Q.s comparable with (within five points of) those of the tutors and the tutees. The control group of pupils were students selected from the same grade and on the same bases as the pupils in the experimental groups.

The specific groups used for comparison purposes in the study may be described as follows:

Group A --This group was an experimental group of twenty selected eighth-grade students having normal or above I.Q. s who actively tutored twenty sixth-grade students or tutees.

Group B --This group was the control group for Group A. It was made up of twenty selected eighth-grade students having normal or above I.Q. s who participated in only the testing phase of this study.

Group C --This group was an experimental group made up of twenty selected sixth-grade students having normal or above I.Q. s who were tutored or helped by the experimental Group A eighth-grade students in their regular school work.

Group D --This group was the control group for Group C. It was made up of twenty sixth-grade students having normal or above I.Q. s who participated in only the testing phase of this study.

Group E --This group was an experimental group of twenty selected fifth-grade students having normal or above I.Q. s who actively tutored twenty third-grade students or tutees.

Group F --This group was the control group for Group E. It was made up of twenty selected fifth-grade students having normal or above I.Q. s who participated in only the testing phase of this study.

Group G--This group was an experimental group made up of twenty selected third-grade students having normal or above I. Q. s who were tutored or helped by the experimental Group E fifth-grade students in their regular school work.

Group H--This group was the control group for Group G. It was made up of twenty selected third-grade students having normal or above I. Q. s who participated in only the testing phase of this study.

### Special Groupings

Special grouping of data was necessary for purposes of statistical comparison in order to examine findings relating to all hypotheses and sub-hypotheses from numbers five through sixteen inclusive. It should be noted that the groupings as described below do not denote differential experimental or control treatment. The grouping of data relative to these groups was strictly for statistical purposes.

Group  $A_1$ --The eight students in Group A who had the highest measured I. Q. s. This group was the top 40 percent of experimental Group A and will be referred to as higher ability experimental students.

Group  $A_2$ --The eight students in Group A who had the lowest measured I. Q. s (but were still within the normal I. Q. range). This



group was the lower 40 percent of experimental Group A and will be referred to as lower ability experimental students.

Group B<sub>1</sub>--The eight students in Group B who had the highest measured I.Q.s. This group was the top 40 percent of control group B and will be referred to as higher ability control students.

Group B<sub>2</sub>--The eight students in Group B who had the lowest measured I.Q.s (but were still within the normal I.Q. range). This group was the lower 40 percent of control Group B and will be referred to as lower ability control students.

Group C<sub>1</sub>--The eight students in Group C who had the highest measured I.Q.s. This group was the top 40 percent of experimental Group C and will be referred to as higher ability experimental students.

Group C<sub>2</sub>--The eight students in Group C who had the lowest measured I.Q.s (but were still within the normal I.Q. range). This group was the lower 40 percent of experimental Group C and will be referred to as lower ability experimental students.

Group D<sub>1</sub>--The eight students in Group D who had the highest measured I.Q.s. This group was the top 40 percent of control Group D and will be referred to as higher ability control students.

Group D<sub>2</sub>--The eight students in Group D who had the lowest measured I.Q.s (but were still within the normal I.Q. range). This

group was the lower 40 percent of control Group D and will be referred to as lower ability control students.

Group E<sub>1</sub>--The eight students in Group E who had the highest measured I.Q.s. This group was the top 40 percent of experimental Group E and will be referred to as higher ability experimental students.

Group E<sub>2</sub>--The eight students in Group E who had the lowest measured I.Q.s (but were still within the normal I.Q. range). This group was the lower 40 percent of experimental Group E and will be referred to as lower ability experimental students.

Group F<sub>1</sub>--The eight students in Group F who had the highest measured I.Q.s. This group was the top 40 percent of control Group F and will be referred to as higher ability control students.

Group F<sub>2</sub>--The eight students in Group F who had the lowest measured I.Q.s (but were still within the normal I.Q. range). This group was the lower 40 percent of control Group F and will be referred to as lower ability control students.

Group G<sub>1</sub>--The eight students in Group G who had the highest measured I.Q.s. This group was the top 40 percent of experimental Group G and will be referred to as higher ability experimental students.

Group G<sub>2</sub>--The eight students in Group G who had the lowest measured I.Q.s (but were still within the normal I.Q. range). This

group was the lower 40 percent of experimental Group G and will be referred to as lower ability experimental students.

Group H<sub>1</sub>--The eight students in Group H who had the highest measured I.Q.s. This group was the top 40 percent of control Group H and will be referred to as higher ability control students.

Group H<sub>2</sub>--The eight students in Group H who had the lowest measured I.Q.s (but were still within the normal I.Q. range). This group was the lower 40 percent of control Group H and will be referred to as lower ability control students.

#### Statistical Comparisons

Given the groupings described previously, the specific comparisons made in the study in respect to each variable to treat all hypotheses are as follows:

##### Elementary

Group E	X	Group F
Group G	X	Group H

##### Middle School

Group A	X	Group B
Group C	X	Group D

## Elementary

Group E <sub>1</sub>	X	Group F <sub>1</sub>
Group G <sub>1</sub>	X	Group H <sub>1</sub>

## Middle School

Group A <sub>1</sub>	X	Group B <sub>1</sub>
Group C <sub>1</sub>	X	Group D <sub>1</sub>

## Elementary

Group E <sub>1</sub>	X	Group E <sub>2</sub>
Group G <sub>1</sub>	X	Group G <sub>2</sub>

## Middle School

Group A <sub>1</sub>	X	Group A <sub>2</sub>
Group C <sub>1</sub>	X	Group C <sub>2</sub>

## Elementary

Group E <sub>2</sub>	X	Group F <sub>2</sub>
Group G <sub>2</sub>	X	Group H <sub>2</sub>

## Middle School

Group A <sub>2</sub>	X	Group B <sub>2</sub>
Group C <sub>2</sub>	X	Group D <sub>2</sub>

### Testing Procedures

All pupils participating in this study were given the Attitude Toward School Scale and the Self-Esteem Inventory. Pre-tests were administered in January of 1974.

One problem that has been underscored by users of self-report inventories at the elementary school level is the readability and interpretability of the instruments. By reading the directions and each item orally to the students, this problem should have been lessened. Other steps taken in an effort to make the results more reliable and valid were to make sure that each participating teacher had a schedule of the planned testing time; to be sure that each teacher read uniform directions to each group; and to be sure that each teacher gave the tests at a time when the pupils were rested and relaxed (3).

Each teacher in the tutoring program agreed to cooperate in preparing her pupil participants for testing. The pupils were informed that the instruments were not tests of achievement and that they would in no way affect the pupils' grades.

The Attitude Toward School Scale was administered first. The Self-Esteem Inventory was given last. The subjects in each group responded simultaneously to each orally read statement. There was no time limit on either instrument.

A structural sampling of observed classroom behaviors of experimental and control subjects was taken from teachers of children in the study. The Behavior Rating Form (BRF) was used to collect these data. Development of the BRF was based originally on a series of observations of child behavior in and out of the classroom, and interviews with teachers, principals, and a clinical psychologist. On a theoretical and empirical basis, the behaviors and their descriptions were assumed to be relevant to the classroom situation. Thus, the form is assumed to have construct validity. Limited reliability studies range from a correlation of .73 for cross-rater reliability to .96 for test-retest procedures. This collection of data was implemented on a "post" basis only. Significant findings are reported in Chapter IV as ancillary data.

### Basic Procedures

#### Steps Implementing the Study

The procedure generally followed in the study included the following:

1. The orientation of the parents of the subjects used in the study by means of a letter sent to them explaining the tutorial program;

2. The orientation of the teachers of the subjects involved by meetings in which the tutorial program was explained;
3. The selection of tutors and their controls and tutees and their controls by joint agreement of their teachers and each grade counselor;
4. The pre-testing of all students participating in the study;
5. The training of the tutors;
6. The implementation of tutoring in two schools;
7. Weekly individual conferences between the investigator in this study and each teacher involved;
8. Assistance given by the investigator in the communication between tutors and tutees to be helped; and
9. The post-testing of all students participating in the study.

The teachers of both the tutors and the tutees met together to assign each tutee to a specific tutor for a trial period of four to six weeks. At the end of this trial period, needed adjustment was made for the pairing of the tutors and tutees. Tutoring occurred in the classroom of the tutee, on a one-to-one basis under the supervision of the tutee's teacher. Tutoring continued for sixteen weeks.

This experimental program began in January, 1974, and ended in May, 1974. Involved in the study were students from twenty-five classes and their teachers, three counselors, and two principals.

When the pupils were selected and the tutoring times were arranged, the fifth- and eighth-grade pupils who were chosen to be tutors were called in individually. They were informed by their principal that they had been chosen to be a part of a study to investigate whether tutoring or "helping" would result in grade averages being raised. They were not told that they were low-achievers. They were told that previous tests had indicated that they were average or above in intelligence and were capable of helping another pupil. They were then introduced to the individual pupil who was assigned to each of them for the study.

#### Procedures for the Treatment of Data

The measurement results of the experimental tutoring project were analyzed after the treatment of raw data by analysis of covariance. Appropriate comparisons were made based on the hypotheses of this study. The data are reported in proper tables in conjunction with their respective hypotheses in Chapter IV. Conclusions and recommendations based on findings of the study are reported in Chapter V.

The statistical analysis was verified through the use of the analysis of covariance design. Although the students were matched to some degree by CTMM scores, it was determined that the groups could not be regarded as matched groups. Therefore, the analysis



of covariance design allowed each group to be treated on the order of an intact group. In computing data relative to each hypothesis, the pertinent pre-test data were used as the covariate. This process served to equate the groups on the basis of the pre-test and produce adjusted mean scores to be analyzed by the analysis of variance. The results were accepted or rejected at the .05 level of significance for all three variables: (a) attitude toward school, (b) self-concept, and (c) grade average.

#### Summary

In this study, 160 subjects from two schools were involved in an experiment on cross-age tutoring. The sixteen-week experimental program led to comparisons of experimental subjects with control subjects at the third-, fifth-, sixth-, and eighth-grade levels. Special statistical groupings were formed to test the effect of the tutor and tutee roles on higher and lower ability students.

The procedure for selecting participants, tutor training, and implementation of tutoring are described. Finally, the approach to the statistical data is detailed.

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## CHAPTER IV

### PRESENTATION AND ANALYSIS OF DATA

The purpose of this chapter is to report, analyze, and interpret the findings of the study. The data acquired from the experimentation described in Chapter III are presented. The current investigation tested sixteen hypotheses, each with three sub-hypotheses.

In reporting the data of the study, each hypothesis will be presented in turn along with the data pertinent to it. The data for each hypothesis were statistically treated by the use of analysis of covariance and were tested at the .05 level of significance. Following the reporting of data by hypothesis, a discussion of findings provides the researcher interpretation of the experimental results. Finally, ancillary data relating to peripheral aspects of the study are presented and discussed.

#### Data Related to Hypothesis 1a

The statement of Hypothesis 1a is as follows: At the elementary level, the adjusted mean scores for the experimental tutors will be significantly higher than the adjusted mean scores for the control students on the Attitude Toward School Scale.

The data relative to Hypothesis 1a are shown in Table I.

TABLE I

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN TUTORS AND CONTROLS IN GRADE V (GROUP E X GROUP F)

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
<u>Attitude Toward School Scale</u>	103.2868	96.8131	2.1267	0.1532

In the comparison of adjusted means on the Attitude Toward School Scale between the experimental tutors and the controls in Grade V, the experimental group exceeded the control group by 6.4737. The resultant F-ratio of 2.1267 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 1a was rejected.

#### Data Related to Hypothesis 1b

The statement of Hypothesis 1b is as follows: At the elementary level, the adjusted mean scores for the experimental group of tutors will be significantly higher than the adjusted mean scores for the control students on the Self-Esteem Inventory.

The data relative to Hypothesis 1b are shown in Table II.

TABLE II

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY  
BETWEEN TUTORS AND CONTROLS IN GRADE V  
(GROUP E X GROUP F)

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
<u>Self-Esteem Inventory</u>	80.7718	76.3282	1.4991	0.2285

In the comparison of adjusted means on the Self-Esteem Inventory between the experimental tutors and the controls in Grade V, the experimental group exceeded the control group by 4.4436. The resultant F-ratio of 1.4991 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 1b was rejected.

#### Data Related to Hypothesis 1c

The statement of Hypothesis 1c is as follows: At the elementary level, the adjusted mean scores for the experimental group of tutors will be significantly higher than the adjusted mean scores for the control students on the grade point average.

The data relative to Hypothesis 1c are shown in Table III.

TABLE III  
A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN TUTORS AND CONTROLS IN GRADE V  
(GROUP E X GROUP F)

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
Grade Point Average	5.0094	4.9396	0.2651	0.6097

In the comparison of adjusted means on the grade point average scores between the experimental tutors and the controls in Grade V, the experimental group exceeded the control group by 0.0698. The resultant F-ratio of 0.2651 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 1c was rejected.

#### Data Related to Hypothesis 2a

The statement of Hypothesis 2a is as follows: At the elementary level, the adjusted mean scores for the experimental tutees will be significantly higher than the adjusted mean scores for the control students on the Attitude Toward School Scale.

The data relative to Hypothesis 2 a are shown in Table IV.

TABLE IV  
A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN TUTEES AND CONTROLS  
IN GRADE III (GROUP G X GROUP H)

Variable	Adjusted Mean Scores		F	P
	Experimental	Control		
<u>Attitude Toward School Scale</u>	94.4780	84.6719	3.7458	0.0606

In the comparison of adjusted means on the Attitude Toward School Scale between the experimental tutees and the controls in Grade III, the experimental group exceeded the control group by 9.8061. The resultant F-ratio of 3.7458 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 2 a was rejected. Although the hypothesis was rejected, the differences approached significance with the direction of the difference in numerical scores favoring the experimental group.

#### Data Related to Hypothesis 2 b

The statement of Hypothesis 2 b is as follows: At the elementary level, the adjusted mean scores for the experimental group

of tutees will be significantly higher than the adjusted mean scores for the control students on the Self-Esteem Inventory.

The data relative to Hypothesis 2 b are shown in Table V.

TABLE V

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY BETWEEN TUTEES AND CONTROLS IN GRADE III (GROUP G X GROUP H)

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
<u>Self-Esteem Inventory</u>	68.3307	70.8193	0.3777	0.5426

In the comparison of the adjusted means on the Self-Esteem Inventory between the experimental tutees and the controls in Grade III, the control group exceeded the experimental group by 2.4886. The resultant F-ratio of 0.3777 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 2 b was rejected.

#### Data Related to Hypothesis 2 c

The statement of Hypothesis 2 c is as follows: At the elementary level, the adjusted mean scores for the experimental group of tutees will be significantly higher than the adjusted mean scores for the control students on the grade point average.



The data relative to Hypothesis 2 c are shown in Table VI.

TABLE VI  
A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN TUTEES AND CONTROLS IN GRADE III  
(GROUP G X GROUP H)

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
Grade Point Average	4.9714	4.9776	0.0016	0.5426

In the comparison of the adjusted means on the grade point average between the experimental tutees and the controls in Grade III, the control group exceeded the experimental group by 0.0062. The resultant F-ratio of 0.0016 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 2 c was rejected.

#### Data Relating to Hypothesis 3 a

The statement of Hypothesis 3 a is as follows: At the middle-school level, the adjusted mean score for the experimental group of tutors will be significantly higher than the adjusted mean score for the control students on the Attitude Toward School Scale.

The data relative to Hypothesis 3a are shown in Table VII.

TABLE VII

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN TUTORS AND CONTROLS  
IN GRADE VIII (GROUP A X GROUP B)

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
<u>Attitude Toward School Scale</u>	111.5160	97.4339	9.9519	0.0032*

\* Significant at or above the .01 level

In the comparison of the adjusted means on the Attitude Toward School Scale between the experimental tutors and the controls in Grade VIII, the experimental group exceeded the control group by 14.0821. The resultant F-ratio was sufficient to verify difference at the .01 level of significance. Therefore, Hypothesis 3a was retained.

Data Related to Hypothesis 3b

The statement of Hypothesis 3b is as follows: At the middle-school level, the adjusted mean score for the experimental group of tutors will be significantly higher than the adjusted mean score for the control students on the Self-Esteem Inventory.

The data relative to Hypothesis 3 b are shown in Table VIII.

TABLE VIII  
A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY  
BETWEEN TUTORS AND CONTROLS IN GRADE VIII  
(GROUP A X GROUP B)

Variable	Adjusted Mean Scores		F	P
	Experimental	Control		
<u>Self-Esteem Inventory</u>	78.8095	72.7405	2.7153	0.1079

In the comparison of the adjusted means on the Self-Esteem Inventory between the experimental tutors and the controls in Grade VIII, the experimental group exceeded the control group by 6.0690. The resultant F-ratio of 2.7153 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 3 b was rejected.

#### Data Relating to Hypothesis 3 c

The statement of Hypothesis 3 c is as follows: At the middle-school level, the adjusted mean score for the experimental group of tutors will be significantly higher than the adjusted mean score for the control students on the grade point average.

The data relative to Hypothesis 3 c are shown in Table IX

TABLE IX  
A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN TUTORS AND CONTROLS IN GRADE VIII  
(GROUP A X GROUP B)

Variable	Adjusted Mean Scores		F	P
	Experimental	Control		
Grade Point Average	4.8964	4.6441	3.5923	0.0659

In the comparison of the adjusted means on the grade point average between the experimental tutors and the controls in Grade VIII, the experimental group exceeded the control group by 0.2523. The resultant F-ratio of 3.5923 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 3 c was rejected. Although the hypothesis was rejected, the differences approached significance with the direction of the difference in numerical scores favoring the experimental group.

#### Data Related to Hypothesis 4 a

The statement of Hypothesis 4 a is as follows: At the middle-school level, the adjusted mean score for the experimental

group of tutees will be significantly higher than the adjusted mean score for the control students on the Attitude Toward School Scale.

The data relative to Hypothesis 4a are shown in Table X.

TABLE X

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN TUTEES AND CONTROLS  
IN GRADE VI (GROUP C X GROUP D)

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
<u>Attitude Toward School Scale</u>	89.8392	90.8608	0.0350	0.8526

In the comparison of adjusted means on the Attitude Toward School Scale between the experimental tutees and the control students in Grade VI, the control students exceeded the experimental group by 1.0216. The resultant F-ratio of 0.0350 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 4a was rejected.

#### Data Relating to Hypothesis 4b

The exact statement of Hypothesis 4b was as follows: At the middle-school level, the adjusted mean score for the experimental

group of tutees will be significantly higher than the adjusted mean score for the control students on the Self-Esteem Inventory.

The data relative to Hypothesis 4 b are shown in Table XI.

TABLE XI

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY  
BETWEEN TUTEES AND CONTROLS IN GRADE VI  
(GROUP C X GROUP D)

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
<u>Self-Esteem Inventory</u>	74.1223	70.7277	0.5241	0.4736

In the comparison of adjusted means on the Self-Esteem Inventory between the experimental tutees and the control students in Grade VI, the experimental group exceeded the control group by 3.3946. The resultant F-ratio of 0.5241 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 4 b was rejected.

#### Data Related to Hypothesis 4 c

The statement of Hypothesis 4 c is as follows: At the middle-school level, the adjusted mean score for the experimental

group of tutees will be significantly higher than the adjusted mean for the control students on the grade point average.

The data relative to Hypothesis 4c are shown in Table XII.

TABLE XII

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN TUTEES AND CONTROLS IN GRADE VI  
(GROUP C X GROUP D)

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
Grade Point Average	4.9085	5.0790	1.9829	0.1674

In the comparison of adjusted means on the grade point average between the experimental tutees and the controls in Grade VI, the control group exceeded the experimental group by 0.1705. The resultant F-ratio of 1.9829 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 4c was rejected.

#### Data Related to Hypothesis 5a

The statement of Hypothesis 5a is as follows: At the elementary level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score

for the higher ability control students on the Attitude Toward School Scale.

The data relative to Hypothesis 5 a are shown in Table XIII.

TABLE XIII

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE HIGHER ABILITY TUTORS AND THE HIGHER ABILITY CONTROLS IN GRADE V (GROUP E<sub>1</sub> X GROUP F<sub>1</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
<u>Attitude Toward School Scale</u>	98.6362	96.7388	0.0434	0.8382

In the comparison of adjusted means on the Attitude Toward School Scale between the higher experimental tutors and the higher controls in Grade V, the experimental group exceeded the control group by 1.8974. The resultant F-ratio of 0.0434 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 5 a was rejected.

#### Data Relating to Hypothesis 5 b

The statement of Hypothesis 5 b is as follows: At the elementary level, the adjusted mean score for the experimental higher



ability tutors will be significantly higher than the adjusted mean score for the higher ability control students on the Self-Esteem Inventory.

The data relative to Hypothesis 5 b are shown in Table XIV.

TABLE XIV

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY BETWEEN THE HIGHER ABILITY TUTORS AND THE HIGHER ABILITY CONTROLS IN GRADE V (GROUP E<sub>1</sub> X GROUP F<sub>1</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
<u>Self-Esteem Inventory</u>	76.9801	82.6449	2.5225	0.1362

In the comparison of adjusted means on the Self-Esteem Inventory between the higher experimental tutors and the higher controls in Grade V, the control group exceeded the experimental group by 5.6648. The resultant F-ratio of 2.5225 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 5 b was rejected.

#### Data Related to Hypothesis 5 c

The statement of Hypothesis 5 c is as follows: At the elementary level, the adjusted mean score for the experimental higher

ability tutors will be significantly higher than the adjusted mean score for the higher ability control students on the grade point average.

The data relative to Hypothesis 5 c are shown in Table XV.

TABLE XV

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE HIGHER ABILITY TUTORS AND THE  
HIGHER ABILITY CONTROLS IN GRADE V  
(GROUP E<sub>1</sub> X GROUP F<sub>1</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
Grade Point Average	5.2858	5.4258	0.3482	0.5653

In the comparison of adjusted means on the grade point average between the higher experimental tutors and the higher controls in Grade V, the control group exceeded the experimental group by 0.1404. The resultant F-ratio of 0.3482 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 5 c was rejected.

#### Data Related to Hypothesis 6 a

The statement of Hypothesis 6 a is as follows: At the elementary level, the adjusted mean score for the experimental higher

ability tutees will be significantly higher than the adjusted mean score for the higher ability control students on the Attitude Toward School Scale.

The data relative to Hypothesis 6a are shown in Table XVI.

TABLE XVI

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE HIGHER ABILITY TUTEES AND THE HIGHER ABILITY CONTROLS IN GRADE III (GROUP  $G_1$  X GROUP  $H_1$ )

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
<u>Attitude Toward School Scale</u>	91.3687	88.3813	0.1946	0.6664

In the comparison of adjusted means on the Attitude Toward School Scale between the higher experimental tutees and the higher controls in Grade III, the experimental group exceeded the control group by 2.9874. The resultant F-ratio was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 6a was rejected.

## Data Related to Hypothesis 6b

The statement of Hypothesis 6b is as follows: At the elementary level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the higher ability control students on the Self-Esteem Inventory.

The data relative to Hypothesis 6b are shown in Table XVII.

TABLE XVII

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY BETWEEN THE HIGHER ABILITY TUTEES AND THE HIGHER ABILITY CONTROLS IN GRADE III (GROUP  $G_1$  X GROUP  $H_1$ )

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
<u>Self-Esteem Inventory</u>	71.9546	68.9204	0.3503	0.5641

In the comparison of adjusted means on the Self-Esteem Inventory between the higher experimental tutees and the higher controls in Grade III, the experimental group exceeded the control group by 3.0342. The resultant F-ratio of 0.3503 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 6b was rejected.

## Data Related to Hypothesis 6c

The statement of Hypothesis 6c is as follows: At the elementary level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the higher ability control students on the grade point average.

The data relative to Hypothesis 6c are shown in Table XVIII.

TABLE XVIII

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE HIGHER ABILITY TUTEES AND THE  
HIGHER ABILITY CONTROLS IN GRADE III  
(GROUP  $G_1$  X GROUP  $H_1$ )

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
Grade Point Average	4.9033	4.9179	0.0035	0.9538

In the comparison of adjusted means on the grade point average between the higher experimental tutees and the higher controls in Grade III, the control group exceeded the experimental group by 0.0146. The resultant F-ratio of 0.0035 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 6c was rejected.

## Data Related to Hypothesis 7a

The statement of Hypothesis 7a is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the higher ability control students on the Attitude Toward School Scale.

The data relative to Hypothesis 7a are shown in Table XIX.

TABLE XIX

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE HIGHER ABILITY TUTORS AND THE HIGHER ABILITY CONTROLS IN GRADE VIII (GROUP A<sub>1</sub> X GROUP B<sub>1</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
<u>Attitude Toward School Scale</u>	107.8044	94.1956	4.3722	0.0567

In the comparison of the adjusted means on the Attitude Toward School Scale between the higher experimental tutors and the higher controls in Grade VIII, the experimental group exceeded the control group by 13.6088. The resultant F-ratio of 4.3722 was not sufficient to verify difference at the .05 level of significance.

Therefore, Hypothesis 7a was rejected. Although the hypothesis was rejected, the differences approached significance with the direction of the difference in numerical scores favoring the experimental group.

#### Data Related to Hypothesis 7b

The statement of Hypothesis 7b is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the higher ability control students on the Self-Esteem Inventory.

The data relative to Hypothesis 7b are shown in Table XX.

TABLE XX

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY BETWEEN THE HIGHER ABILITY TUTORS AND THE HIGHER ABILITY CONTROLS IN GRADE VIII (GROUP A<sub>1</sub> X GROUP B<sub>1</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
<u>Self-Esteem Inventory</u>	83.1398	74.7352	2.0389	0.1769

In the comparison of the adjusted means on the Self-Esteem Inventory between the higher experimental tutors and the higher controls in Grade VIII, the experimental group exceeded the control group by 8.4046. The resultant F-ratio of 2.0389 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 7b was rejected.

#### Data Related to Hypothesis 7c

The statement of Hypothesis 7c is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the higher ability control students on the grade point average.

The data relative to Hypothesis 7c are shown in Table XXI.

In the comparison of the adjusted means on the grade point average between the higher ability experimental tutors and the higher ability control students in Grade VIII, the experimental group exceeded the control group by 0.0816. The resultant F-ratio of 0.1643 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 7c was rejected.



TABLE XXI

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
 BETWEEN THE HIGHER ABILITY TUTORS AND THE  
 HIGHER ABILITY CONTROLS IN GRADE VIII  
 (GROUP A<sub>1</sub> X GROUP B<sub>1</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
Grade Point Average	5.4039	5.3223	0.1643	0.6918

Data Related to Hypothesis 8a

The statement of Hypothesis 8a is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the higher ability control students on the Attitude Toward School Scale.

The data relative to Hypothesis 8a are shown in Table XXII.

In the comparison of adjusted means on the Attitude Toward School Scale between the higher ability experimental tutees and the higher ability control students in Grade VI, the control group exceeded the experimental group by 6.1536. The resultant F-ratio of 0.4951 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 8a was rejected.

TABLE XXII

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE HIGHER ABILITY TUTORS AND THE HIGHER ABILITY CONTROLS IN GRADE VI (GROUP C<sub>1</sub> X GROUP D<sub>1</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
<u>Attitude Toward School Scale</u>	84.7982	90.9518	0.4951	0.4941

Data Related to Hypothesis 8b

The statement of Hypothesis 8b is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the higher ability control students on the Self-Esteem Inventory.

The data relative to Hypothesis 8b are shown in Table XXIII.

In the comparison of adjusted means on the Self-Esteem Inventory between the higher ability experimental tutees and the higher ability control students in Grade VI, the experimental group exceeded the control group by 3.3580. The resultant F-ratio of 0.2110 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 8b was rejected.

TABLE XXIII

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY  
 BETWEEN THE HIGHER ABILITY TUTEES AND THE  
 HIGHER ABILITY CONTROLS IN GRADE VI  
 (GROUP C<sub>1</sub> X GROUP D<sub>1</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
<u>Self-Esteem Inventory</u>	70.7415	67.3835	0.2110	0.6536

Data Related to Hypothesis 8c

The statement of Hypothesis 8c is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the higher ability control students on the grade point average.

The data relative to Hypothesis 8c are shown in Table XXIV.

In the comparison of adjusted means on the grade point average between the higher ability experimental tutees and the higher ability control students in Grade VI, the control group exceeded the experimental group by 0.1224. The resultant F-ratio of 0.3459 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 8c was rejected.

TABLE XXIV

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE HIGHER ABILITY TUTEES AND THE  
HIGHER ABILITY CONTROLS IN GRADE VI  
(GROUP C<sub>1</sub> X GROUP D<sub>1</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Experimental	Higher Control		
Grade Point Average	5.0844	5.2068	0.3459	0.5665

Data Related to Hypothesis 9a

The statement of Hypothesis 9a is as follows: At the elementary level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the experimental lower ability tutors on the Attitude Toward School Scale.

The data relative to Hypothesis 9a are shown in Table XXV.

In the comparison of the adjusted means on the Attitude Toward School Scale between the higher ability experimental tutors and the lower ability experimental tutors in Grade V, the lower ability experimental tutors exceeded the higher ability experimental tutors by 2.4742. The resultant F-ratio of 0.0826 was not sufficient to verify difference

at the .05 level of significance. Therefore, Hypothesis 9a was rejected.

TABLE XXV

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE HIGHER ABILITY EXPERIMENTAL TUTORS AND THE LOWER ABILITY EXPERIMENTAL TUTORS IN GRADE V (GROUP E<sub>1</sub> X GROUP E<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutors	Lower Exp. Tutors		
<u>Attitude Toward School Scale</u>	99.0129	101.4871	0.0826	0.7783

## Data Related to Hypothesis 9b

The statement of Hypothesis 9b is as follows: At the elementary level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the experimental lower ability tutors on the Self-Esteem Inventory.

The data relative to Hypothesis 9b are shown in Table XXVI.

In the comparison of the adjusted means on the Self-Esteem Inventory between the higher ability experimental tutors and the lower ability experimental tutors in Grade V, the lower ability experimental tutors exceeded the higher ability experimental tutors by 4.6065. The

resultant F-ratio of 1.5505 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 9b was rejected.

TABLE XXVI

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY BETWEEN THE HIGHER ABILITY TUTORS AND THE LOWER ABILITY TUTORS IN GRADE V (GROUP E<sub>1</sub> X GROUP E<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutors	Lower Exp. Tutors		
<u>Self-Esteem Inventory</u>	76.5718	81.1783	1.5505	0.2350

Data Related to Hypothesis 9c

The statement of Hypothesis 9c is as follows: At the elementary level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the experimental lower ability tutors on the grade point average.

The data relative to Hypothesis 9c are shown in Table XXVII.

In the comparison of the adjusted means on the grade point average between the higher ability experimental tutors and the lower ability experimental tutors in Grade V, the lower ability experimental

tutors exceeded the higher ability experimental tutors by 0.1290.

The resultant F-ratio of 0.1467 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 9c was rejected.

TABLE XXVII

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE HIGHER ABILITY TUTORS AND THE  
LOWER ABILITY TUTORS IN GRADE V  
(GROUP E<sub>1</sub> X GROUP E<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutors	Lower Exp. Tutors		
Grade Point Average	4.6580	4.7870	0.1467	0.7079

Data Related to Hypothesis 10a

The statement of Hypothesis 10a is as follows: At the elementary level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the experimental lower ability tutees on the Attitude Toward School Scale.

The data relative to Hypothesis 10a are shown in Table XXVIII.

TABLE XXVIII

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE HIGHER ABILITY TUTEES AND THE LOWER ABILITY TUTEES IN GRADE III  
(GROUP  $G_1$  X GROUP  $G_2$ )

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutees	Lower Exp. Tutees		
<u>Attitude Toward School Scale</u>	87.0589	98.6911	4.1683	0.0620

In the comparison of the adjusted means on the Attitude Toward School Scale between the higher ability experimental tutees and the lower ability experimental tutees in Grade III, the lower ability experimental tutees exceeded the higher ability experimental tutees by 11.6322. The resultant F-ratio of 4.1683 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 10a was rejected. Although the hypothesis was rejected, the differences approached significance with the difference in numerical scores favoring the lower ability experimental tutees.

#### Data Related to Hypothesis 10b

The statement of Hypothesis 10b is as follows: At the elementary level, the adjusted mean score for the experimental higher



ability tutees will be significantly higher than the adjusted mean score for the experimental lower ability tutees on the Self-Esteem Inventory.

The data relative to Hypothesis 10b are shown in Table XXIX.

TABLE XXIX

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY BETWEEN THE HIGHER ABILITY TUTEES AND THE LOWER ABILITY TUTEES IN GRADE III (GROUP  $G_1$  X GROUP  $G_2$ )

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutees	Lower Exp. Tutees		
<u>Self-Esteem Inventory</u>	70.9523	65.2977	0.8954	0.3613

In the comparison of the adjusted means on the Self-Esteem Inventory between the higher ability experimental tutees and the lower ability experimental tutees in Grade III, the higher ability experimental tutees exceeded the lower ability experimental tutees by 5.6546. The resultant F-ratio of 0.8954 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 10b was rejected.

## Data Related to Hypothesis 10c

The statement of Hypothesis 10c is as follows: At the elementary level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the experimental lower ability tutees on the grade point average.

The data relative to Hypothesis 10c are shown in Table XXX.

TABLE XXX

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE HIGHER ABILITY TUTEES AND THE  
LOWER ABILITY TUTEES IN GRADE III  
(GROUP  $G_1$  X GROUP  $G_2$ )

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutees	Lower Exp. Tutees		
Grade Point Average	4.6541	4.9609	2.3775	0.1471

In the comparison of the adjusted means on the grade point average between the higher ability experimental tutees and the lower ability experimental tutees in Grade III, the lower ability experimental tutees exceeded the higher ability experimental tutees by 0.3068. The resultant F-ratio of 2.3775 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 10c was rejected.

## Data Related to Hypothesis 11a

The statement of Hypothesis 11a is as follows: at the middle-school level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the experimental lower ability tutors on the Attitude Toward School Scale.

The data relative to Hypothesis 11a are shown in Table XXXI.

TABLE XXXI

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE HIGHER ABILITY TUTORS AND THE LOWER ABILITY TUTORS IN GRADE VIII  
(GROUP A<sub>1</sub> X GROUP A<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutors	Lower Exp. Tutors		
<u>Attitude Toward School Scale</u>	108.6510	114.5990	0.9272	0.3532

In the comparison of the adjusted means on the Attitude Toward School Scale between the higher ability experimental tutors and the lower ability experimental tutors in Grade VIII, the lower ability experimental tutors exceeded the higher ability experimental tutors by 5.9480. The resultant F-ratio of 0.9272 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 11a was rejected.

## Data Related to Hypothesis 11b

The statement of Hypothesis 11b is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the experimental lower ability tutors on the Self-Esteem Inventory.

The data relative to Hypothesis 11b are shown in Table XXXII.

TABLE XXXII

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY  
BETWEEN THE HIGHER ABILITY TUTORS AND THE  
LOWER ABILITY TUTORS IN GRADE VIII  
(GROUP A<sub>1</sub> X GROUP A<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutors	Lower Exp. Tutors		
<u>Self-Esteem Inventory</u>	82.0467	74.8283	1.7958	0.2032

In the comparison of the adjusted means on the Self-Esteem Inventory between the higher ability experimental tutors and the lower ability experimental tutors in Grade VIII, the higher ability experimental tutors exceeded the lower ability experimental tutors by 7.2184. The resultant F-ratio of 1.7958 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 11b was rejected.

## Data Related to Hypothesis 11c

The statement of Hypothesis 11c is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutors will be significantly higher than the adjusted mean score for the experimental lower ability tutors on the grade point average.

The data relative to Hypothesis 11c are shown in Table XXXIII.

TABLE XXXIII

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE HIGHER ABILITY TUTORS AND THE  
LOWER ABILITY TUTORS IN GRADE VIII  
(GROUP A<sub>1</sub> X GROUP A<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutors	Lower Exp. Tutors		
Grade Point Average	4.7364	4.7411	0.0004	0.9851

In the comparison of the adjusted means on the grade point average between the higher ability experimental tutors and the lower ability experimental tutors in Grade VIII, the lower ability experimental tutors exceeded the higher ability experimental tutors by 0.0047. The resultant F-ratio of 0.0004 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 11c was rejected.

## Data Related to Hypothesis 12a

The statement of Hypothesis 12a is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the experimental lower ability tutees on the Attitude Toward School Scale.

The data relative to Hypothesis 12a are shown in Table XXXIV.

TABLE XXXIV

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE HIGHER ABILITY TUTEES AND THE LOWER ABILITY TUTEES IN GRADE VI  
(GROUP C<sub>1</sub> X GROUP C<sub>2</sub>)

Variable	Adjusted Mean Scores		F	P
	Higher Exp. Tutees	Lower Exp. Tutees		
<u>Attitude Toward School Scale</u>	84.1924	87.5576	0.1238	0.7306

In the comparison of the adjusted means on the Attitude Toward School Scale between the higher ability experimental tutees and the lower ability experimental tutees in Grade VI, the lower ability experimental tutees exceeded the higher ability experimental tutees by 3.3652. The resultant F-ratio of 0.1238 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 12a was rejected.

## Data Related to Hypothesis 12b

The statement of Hypothesis 12b is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the experimental lower ability tutees on the Self-Esteem Inventory.

The data relative to Hypothesis 12b are shown in Table XXXV.

TABLE XXXV

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY BETWEEN THE HIGHER ABILITY TUTEES AND THE LOWER ABILITY TUTEES IN GRADE VI (GROUP C<sub>1</sub> X GROUP C<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Higher Exp. Tutees	Lower Exp. Tutees		
<u>Self-Esteem Inventory</u>	62.2499	67.5001	0.5748	0.4619

In the comparison of the adjusted means on the Attitude Toward School Scale between the higher ability experimental tutees and the lower ability experimental tutees in Grade VI, the lower ability experimental tutees exceeded the higher ability experimental tutees by 5.2502. The resultant F-ratio of 0.5748 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 12b was rejected.

## Data Related to Hypothesis 12c

The statement of Hypothesis 12c is as follows: At the middle-school level, the adjusted mean score for the experimental higher ability tutees will be significantly higher than the adjusted mean score for the experimental lower ability tutees on the grade point average.

The data relative to Hypothesis 12c are shown in Table XXXVI.

TABLE XXXVI

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE HIGHER ABILITY TUTEES AND THE  
LOWER ABILITY TUTEES IN GRADE VI  
(GROUP C<sub>1</sub> X GROUP C<sub>2</sub>)

Variable	Adjusted Mean Scores		F	P
	Higher Exp. Tutees	Lower Exp. Tutees		
Grade Point Average	4.5829	4.7859	0.9942	0.3369

In the comparison of the adjusted means on the grade point average between the higher ability experimental tutees and the lower ability experimental tutees in Grade VI, the lower ability experimental tutees exceeded the higher ability experimental tutees by 0.2030. The resultant F-ratio of 0.9942 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 12c was rejected.



## Data Related to Hypothesis 13a

The statement of Hypothesis 13a is as follows: At the elementary level, the adjusted mean score for the experimental lower ability tutors will be significantly higher than the adjusted mean score for the lower ability control students on the Attitude Toward School Scale.

The data relative to Hypothesis 13a are shown in Table XXXVII.

TABLE XXXVII

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE LOWER ABILITY TUTORS AND THE LOWER ABILITY CONTROLS IN GRADE V  
(GROUP E<sub>2</sub> X GROUP F<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutors	Lower Control		
<u>Attitude Toward School Scale</u>	101.3694	95.3806	0.8844	0.3642

In the comparison of adjusted means on the Attitude Toward School Scale between the experimental lower ability tutors and the lower ability control students in Grade V, the experimental lower ability tutors exceeded the lower ability control students by 5.9888. The resultant F-ratio of 0.8844 was not sufficient to verify difference

at the .05 level of significance. Therefore, Hypothesis 13a was rejected.

#### Data Related to Hypothesis 13 b

The statement of Hypothesis 13b is as follows: At the elementary level, the adjusted mean score for the experimental lower ability tutors will be significantly higher than the adjusted mean score for the lower ability control students on the Self-Esteem Inventory.

The data relative to Hypothesis 13b are shown in Table XXXVIII.

TABLE XXXVIII

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY  
BETWEEN THE LOWER ABILITY TUTORS AND THE  
LOWER ABILITY CONTROLS IN GRADE V  
(GROUP E<sub>2</sub> X GROUP F<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutors	Lower Control		
<u>Self-Esteem Inventory</u>	80.1709	72.8291	1.3893	0.2596

In the comparison of adjusted means on the Self-Esteem Inventory between the experimental lower ability tutors and the lower ability control students in Grade V, the experimental lower ability tutors exceeded the lower ability control students by 7.3418. The

resultant F-ratio of 1.3893 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 13b was rejected.

#### Data Related to Hypothesis 13 c

The statement of Hypothesis 13c is as follows: At the elementary level, the adjusted mean score for the experimental lower ability tutors will be significantly higher than the adjusted mean score for the lower ability control students on the grade point average.

The data relative to Hypothesis 13c are shown in Table XXXIX.

TABLE XXXIX

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE LOWER ABILITY TUTORS AND THE  
LOWER ABILITY CONTROLS IN GRADE V  
(GROUP E<sub>2</sub> X GROUP F<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutors	Lower Control		
Grade Point Average	4.4032	4.1943	0.9308	0.3523

In the comparison of adjusted means on the grade point average between the experimental lower ability tutors and the lower ability control students in Grade V, the experimental lower ability tutors exceeded the lower ability control students by 0.2089. The resultant

F-ratio of 0.9308 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 13c was rejected.

#### Data Related to Hypothesis 14a

The statement of Hypothesis 14a is as follows: At the elementary level, the adjusted mean score for the experimental lower ability tutees will be significantly higher than the adjusted mean score for the lower ability control students on the Attitude Toward School Scale.

The data relative to Hypothesis 14a are shown in Table XL.

TABLE XL

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE LOWER ABILITY TUTEES AND THE LOWER ABILITY CONTROLS IN GRADE III  
(GROUP G<sub>2</sub> X GROUP H<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutees	Lower Control		
<u>Attitude Toward School Scale</u>	99.0322	77.8428	6.6737	0.0227*

\*Significant at or beyond the .05 level

In the comparison of the adjusted means on the Attitude Toward School Scale between the experimental lower ability tutees and

the lower ability control students in Grade III, the experimental lower ability tutees exceeded the lower ability control students by 21.1894. The resultant F-ratio of 6.6737 was sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 14a was retained.

#### Data Related to Hypothesis 14b

The statement of Hypothesis 14b is as follows: At the elementary level, the adjusted mean score for the experimental lower ability tutees will be significantly higher than the adjusted mean score for the lower ability control students on the Self-Esteem Inventory.

The data relative to Hypothesis 14b are shown in Table XLI.

TABLE XLI

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY BETWEEN THE LOWER ABILITY TUTEES AND THE LOWER ABILITY CONTROLS IN GRADE III (GROUP G<sub>2</sub> X GROUP H<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutees	Lower Control		
<u>Self-Esteem Inventory</u>	66.0912	72.9088	0.8726	0.3673

In the comparison of the adjusted means on the Self-Esteem Inventory between the experimental lower ability tutees and the lower

ability control students in Grade III, the lower ability control students exceeded the experimental lower ability tutees by 6.8176. The resultant F-ratio of 0.8726 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 14b was rejected.

#### Data Related to Hypothesis 14c

The statement of Hypothesis 14c is as follows: At the elementary level, the adjusted mean score for the experimental lower ability tutees will be significantly higher than the adjusted mean score for the lower ability control students on the grade point average.

The data relative to Hypothesis 14c are shown in Table XLII.

TABLE XLII

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE LOWER ABILITY TUTEES AND THE  
LOWER ABILITY CONTROLS IN GRADE III  
(GROUP  $G_2$  X GROUP  $H_2$ )

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutees	Lower Control		
Grade Point Average	5.0184	5.2041	0.4066	0.5348

In the comparison of the adjusted means on the grade point average between the experimental lower ability tutees and the lower

ability control students in Grade III, the lower ability control students exceeded the experimental lower ability tutees by 0.1857. The resultant F-ratio of 4.4066 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 14c was rejected.

#### Data Related to Hypothesis 15a

The statement of Hypothesis 15a is as follows: At the middle-school level, the adjusted mean score for the experimental lower ability tutors will be significantly higher than the adjusted mean score for the lower ability control students on the Attitude Toward School Scale.

The data relative to Hypothesis 15a are shown in Table XLIII.

TABLE XLIII

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE LOWER ABILITY TUTORS AND THE LOWER ABILITY CONTROLS IN GRADE VIII  
(GROUP A<sub>2</sub> X GROUP B<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutors	Lower Control		
<u>Attitude Toward School Scale</u>	113.4218	98.9531	2.6758	0.1259

In the comparison of adjusted means on the Attitude Toward School Scale between the experimental lower ability tutors and the lower ability control students in Grade VIII, the experimental lower ability tutors exceeded the lower ability control students by 14.4687. The resultant F-ratio of 2.6758 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 15a was rejected.

#### Data Related to Hypothesis 15 b

The statement of Hypothesis 15b is as follows: At the middle-school level, the adjusted mean score for the experimental lower ability tutors will be significantly higher than the adjusted mean score for the lower ability control students on the Self-Esteem Inventory.

The data relative to Hypothesis 15b are shown in Table XLIV.

In the comparison of the adjusted means on the Self-Esteem Inventory between the experimental lower ability tutors and the lower ability control students in Grade VIII, the experimental lower ability tutors exceeded the lower ability control students by 5.3614. The resultant F-ratio of 0.5979 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 15b was rejected.



TABLE XLIV

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY  
 BETWEEN THE LOWER ABILITY TUTORS AND THE  
 LOWER ABILITY CONTROLS IN GRADE VIII  
 (GROUP A<sub>2</sub> X GROUP B<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutors	Lower Control		
<u>Self-Esteem Inventory</u>	70.1807	64.8193	0.5979	0.4532

Data Related to Hypothesis 15c

The statement of Hypothesis 15c is as follows: At the middle-school level, the adjusted mean score for the experimental lower ability tutors will be significantly higher than the adjusted mean score for the lower ability control students on the grade point average

The data relative to Hypothesis 15c are shown in Table XLV.

In the comparison of the adjusted means on the grade point average between the experimental lower ability tutors and the lower ability control students in Grade VIII, the experimental lower ability tutors exceeded the lower ability control students by 0.6397. The resultant F-ratio of 7.6861 was sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 15c was retained.

TABLE XLV

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
 BETWEEN THE LOWER ABILITY TUTORS AND THE  
 LOWER ABILITY CONTROLS IN GRADE VIII  
 (GROUP A<sub>2</sub> X GROUP B<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutors	Lower Control		
Grade Point Average	4.1911	3.5514	7.6861	0.0158*

\*Significant at or beyond the .05 level

#### Data Related to Hypothesis 16a

The statement of Hypothesis 16a is as follows: At the middle-school level, the adjusted mean score for the experimental lower ability tutees will be significantly higher than the adjusted mean score for the lower ability control students on the Attitude Toward School Scale.

The data relative to Hypothesis 16a are shown in Table XLVI.

In the comparison of the adjusted means on the Attitude Toward School Scale between the experimental lower ability tutees and the lower ability control students in Grade VI, the experimental lower ability tutees exceeded the lower ability control students by 4.1406. The resultant F-ratio of 0.2689 was not sufficient to verify difference

at the .05 level of significance. Therefore, Hypothesis 16a was rejected.

TABLE XLVI

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN THE LOWER ABILITY TUTEES AND THE LOWER ABILITY CONTROLS IN GRADE VI (GROUP C<sub>2</sub> X GROUP D<sub>2</sub>)

Variable	Adjusted Mean Scores		F	P
	Lower Exp. Tutees	Lower Control		
<u>Attitude Toward School Scale</u>	94.4453	90.3047	0.2689	0.6128

Data Related to Hypothesis 16b

The statement of Hypothesis 16b is as follows: At the middle-school level, the adjusted mean score for the experimental lower ability tutees will be significantly higher than the adjusted mean score for the lower ability control students on the Self-Esteem Inventory.

The data relative to Hypothesis 16b are shown in Table XLVII.

In the comparison of the adjusted means on the Self-Esteem Inventory between the experimental lower ability tutees and the lower ability control students in Grade VI, the lower ability control students exceeded the experimental lower ability tutees by 1.9898. The

resultant F-ratio of 0.0503 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 16b was rejected.

TABLE XLVII

A COMPARISON OF SCORES ON THE SELF-ESTEEM INVENTORY BETWEEN THE LOWER ABILITY TUTEES AND THE LOWER ABILITY CONTROLS IN GRADE VI (GROUP C<sub>2</sub> X GROUP D<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutees	Lower Control		
<u>Self-Esteem Inventory</u>	72.1926	74.1824	0.0503	0.8260

Data Related to Hypothesis 16c

The statement of Hypothesis 16c is as follows: At the middle-school level, the adjusted mean score for the experimental lower ability tutees will be significantly higher than the adjusted mean score for the lower ability control students on the grade point average.

The data relative to Hypothesis 16c are shown in Table XLVIII.

In the comparison of the adjusted means on the grade point average between the experimental lower ability tutees and the lower ability control students in Grade VI, the lower ability control students exceeded the experimental lower ability tutees by 0.0576. The

resultant F-ratio of 0.1141 was not sufficient to verify difference at the .05 level of significance. Therefore, Hypothesis 16c was rejected.

TABLE XLVIII

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN THE LOWER ABILITY TUTEES AND THE  
LOWER ABILITY CONTROLS IN GRADE VI  
(GROUP C<sub>2</sub> X GROUP D<sub>2</sub>)

Variable	Adjusted Mean Scores		F	p
	Lower Exp. Tutees	Lower Control		
Grade Point Average	4.8537	4.9113	0.1141	0.7409

#### Discussion of Findings

In this section, findings are discussed in terms of the groups and variables investigated in the study. Brief consideration will be given to the tutor-tutee effect, school-level effects, and the criteria variables which were attitude toward school, self-esteem, and grade average gain.

#### Effects on Tutors

The literature and previous research such as that of Cloward (2) and Thelen (12) indicate that tutors can be expected to profit from the tutor-tutee relationship. An examination of all findings in

the present study indicates that, at the .05 level of significance, this was not borne out. The results of this study, then, do not add further to the theory that tutors profit significantly on the selected personal and academic measures.

#### Effects on Tutees

In the literature reviewed and the research performed by Lippitt (7) and Gartner, Kohler, and Riessman (6), indications are that tutees benefit in a tutor-tutee relationship. However, an examination of all findings in the present study indicates that, at the .05 level of significance, this was not the case. The numerical differences (which were not significant except in Hypothesis 14a) tended to favor the groups of tutees. Therefore, the results of this study do not add further evidence to the theory that tutees profit significantly on the selected personal and academic measures.

#### Age Level of Tutors

The literature and previous research such as that of Ramirez (10) and Fleming (14) indicate that the age level of tutors is related to how much they can profit from the tutor-tutee relationship. An examination of all findings in the present study indicates that this was not generally the case. However, in two instances, significant differences favoring eighth-grade tutors were revealed:

(1) comparisons of the total number of experimental and control students of the eighth-grade tutors resulted in a beyond the .01 level of confidence difference in attitude toward school which was significant; (2) comparisons of the lower ability experimental and lower ability control eighth-grade students resulted in a 0.0158 level of significant difference in grade average gain, again favoring the experimental subjects.

Since no such variations were noted in the case of the fifth-grade tutors, there is some indication that the effect of tutoring was stronger on the older student tutors.

#### Age Level of Tutees

In the literature surveyed and the research performed by Niedermeyer and Ellis (9), indications are that the age level of tutees is related to selected personal and academic gains of these students. However, an examination of all findings in the present study indicates that, at the .05 level of significance, this was not found to be true. Comparisons of the experimental and control students of the third-grade tutees resulted in findings which may be specified as follows: (1) one difference (0.0606) which approached significance favoring the experimental group of third-grade tutees over the related control group on the Attitude Toward School Scale; and (2) one significant difference (0.0227) favoring the lower ability experimental over their

control counterparts on the Attitude Toward School Scale. Therefore, there seems to be some trend in which the attitude toward school is favorably affected in the younger tutees by the tutoring program.

Conversely, the older tutees, the sixth graders, were not significantly higher than their controls in any instance, with numerical differences being mixed as to their direction. There is minimal evidence from this study which indicates that the attitude toward school of younger tutees is more extensively affected than with older tutees.

#### I.Q. Level of Tutors

The literature and previous research such as that of Thelen (12) and Frager and Stern (5) indicate that the I.Q. level of tutors is related to how much the tutor can be expected to profit from the tutor-tutee relationship. However, an examination of all findings in the present study indicates that, at the .05 level of significance, this was not borne out. The numerical differences, though not significant, tended to favor the lower ability experimental tutors of average or above I.Q. in five of the six hypotheses formulated. Comparisons of these lower ability experimental tutors and the lower ability control students in both Grade 5 and Grade 8 resulted in one significant difference (0.0158 level) on grade average gain favoring lower ability eighth-grade tutors. The limited data in which findings were significant suggest that any significant effects of the tutoring program on the tutor occurred with lower ability students.



### I. Q. Level of Tutees

In the literature reviewed and the research performed by Morita (8) and Frager and Stern (5), indications are that I. Q. of tutees is related to how much the tutee can be expected to benefit from the tutor-tutee relationship. However, an examination of all findings in the present study indicates that, at the .05 level of significance, this was not the case. In no instance were numerical differences significant. Since no significant variations were noted in either the third- or sixth-grade tutees, there seems some indication that the effect of tutoring was stronger on the experimental tutor students than on the experimental tutees. Apparently, the I. Q. level of tutees was not a factor which was related to the effects of the tutorial program.

### Self-Esteem Variable

The literature and previous research such as that of Lippitt (7), Read (11), and Thelen (12) indicate that both tutors and tutees benefit in enhancement of self-esteem from the tutoring relationship. An examination of all findings in the present study indicates that, at the .05 level of significance, this was not the case. In comparisons of experimental tutees and their controls for both third and sixth grades, no significant differences on self-esteem were found. The tutees of both grades were not significantly higher than their controls

in any instance. The findings indicate that the self-esteem of the experimental subjects was not changed.

#### Attitude Toward School Variable

The findings most favorable to the tutoring program in this study are related to tutoring effects on attitude toward school. These findings indicate that two significant differences are revealed: (1) comparisons of all experimental eighth-grade tutors and all eighth-grade control students resulted in a high degree of significant difference (0.0032) in attitude toward school favoring the experimental group; and (2) comparisons of lower ability experimental third-grade tutees and lower ability third-grade control students resulted in a high degree of significant difference (0.0227) on attitude toward school, again favoring the experimental group. Other comparisons of experimental third-grade tutees and their controls resulted in a numerical difference approaching significance (0.0606), favoring the experimental group. Comparisons of higher ability experimental eighth-grade tutors and higher ability eighth-grade control students resulted in a numerical difference approaching significance (0.0567) on attitude toward school, favoring the experimental group. Comparisons of higher ability experimental third-grade tutees and higher ability third-grade control students resulted in a numerical difference approaching

significance (0.0620) on attitude toward school, favoring the experimental group.

Comparisons of experimental and control students on attitude toward school, though not always not significant, generally favored the experimental groups. In two instances the findings were significant. Therefore, the findings in respect to attitude toward school are mixed with differences being found which favor experimental subjects in grades three and eight. In no instance were these significant differences in either of grades five or six.

#### Grade Average Gain Variable

One significant finding in respect to grade average gain was revealed. Comparison of the lower ability experimental eighth-grade tutors resulted in a numerical difference at the 0.0158 level of significance. The lower ability eighth-grade tutors had significantly higher grade average gains than their controls. The effect of the experimental condition resulted in the most distinct positive impact being on the eighth-grade tutors. No significant effects were found in comparing data on third-, fifth-, and sixth-grade levels. Generally, the tutoring program did not result in increased grade averages except for certain eighth graders.

## Ancillary Data

Findings Using I.Q. as a Covariate

As an added approach to examining the impact of this study on the subjects, the post-test scores were examined using I.Q. as the covariate. The results of equating scores and producing adjusted mean scores on the basis of I.Q. were generally insignificant. Of forty-eight comparisons made, two were found to be significant at the .05 level of confidence. These differences are reported in Tables XLIX and L.

TABLE XLIX

A COMPARISON OF SCORES ON THE ATTITUDE TOWARD SCHOOL SCALE BETWEEN TUTORs AND CONTROLS IN GRADE VIII USING I.Q. AS A COVARIATE

Variable	Adjusted Mean Scores		F	p
	Experimental	Control		
Attitude Toward School Scale	112.1036	98.8464	10.6508	0.0024*

\*Significant at or beyond the .01 level

An analysis of the data in Table XLIX indicates one significant difference when mean scores on attitude toward school are adjusted on the basis of I.Q. The eighth-grade experimental subjects were

significantly higher than their controls. This indicates that when the measure of intelligence is entered as a variable affecting attitude toward school, the effects of the experimental condition of cross-age tutoring were increased for students of this age and grade.

TABLE L

A COMPARISON OF SCORES ON GRADE POINT AVERAGE  
BETWEEN TUTEES AND CONTROLS IN GRADE VI  
USING I.Q. AS A COVARIATE

Variable	Adjusted Mean Scores		F	p
	Exp. Tutors	Controls		
Grade Point Average	4.5948	5.3927	10.7937	0.0022*

\*Significant at or beyond the .01 level

An analysis of the data in Table L indicates one significant difference when grade point average scores are adjusted on the basis of I.Q. The sixth-grade control subjects were significantly higher than the experimental subjects. This indicates that when the measure of intelligence is entered as a variable affecting grade point average, the effects of the experimental condition, cross-age tutoring, resulted in a negative influence on students at this age and grade.

Because of the mixed nature of the differences, the assumption can be made that the I. Q. variable had little effect on the results of the study.

### Classroom Behavior Data

The Coopersmith Behavior Rating Form (Appendix C) was completed by the teacher for each subject in the study. This measure was a post measure only. The measure was added after implementation of the study in an attempt to sample overt classroom reactions of experimental and control subjects. It was thought that the impact of tutoring could result in improved classroom behavior. The basic comparison data from the Coopersmith Behavior Rating Form are reported in Table LI.

TABLE LI

POST SCORE COMPARISONS OF EXPERIMENTAL TO CONTROL GROUPS ON THE COOPERSMITH BEHAVIOR RATING FORM

	Experimental Mean	Control Mean	F	p
Third-Grade Tutees	67.63	71.40	1.40	0.24
Fifth-Grade Tutors	56.00	62.05	5.27	0.03*
Sixth-Grade Tutees	61.56	59.95	0.39	0.53
Eighth-Grade Tutors	61.00	60.35	0.07	0.80

\*Significant at or beyond the .05 level

An analysis of the data reveals no consistent trend of differences. It may be noted that the experimental condition apparently had no effect on classroom behavior except at fifth-grade level where control students scored significantly higher. The absence of pre-test data raises questions in respect to concluding the improvement or deterioration of behavior during the experimental period. Since the results are not consistent across all groups, it is difficult to verify classroom behavior trends.

#### Summation

The review of literature presented in Chapter II revealed that empirical support for cross-age tutoring programs is abundant. Objective research findings have not always supported the alleged benefits of such programs. Findings of the present study in which but three of forty-eight hypotheses produced superior results for subjects involved in cross-age tutoring seem consistent with the previous findings. The consistency is extended when it is noted that the response of participants in this study were supportive and enthusiastic, as has generally been reported in the literature.

The question of minimal gains gives rise to several explanations: (1) one possibility is that of longevity of the program; maximum benefits may not be obtained in a sixteen-week period; (2) the demands of supervision and direction by teachers and the

degree to which these demands were met could be a factor; maximum results may not have been effected where such direction was lacking; (3) another possible explanation could relate to the sample in this study; the sample did not contain a large proportion of slow learners or low I.Q. children; also, the total number of students may not have been large which created the need for demonstrating larger differences for significance; and (4) further questions could be raised in regard to the instruments used to measure the variables in this study. It could be that the instruments used were not the best or most appropriate for the specific purpose intended. For example, grade averages, sensitive to the vagaries of teacher subjectivity, probably are not the most objective index of academic growth and are not readily subject to change over the time period in this study. A more specific measure of academic achievement seems advisable in future studies. The self-esteem and attitude toward school measures appear to be the most well-researched. A perplexing aspect of this observation is that no significant findings related to self-esteem were noted.

All, or a combination of the previously noted factors could have contributed to the lack of significant results in this study. Such speculation is without proof but may add further perspective to the frame of reference of the reader. Without further evidence, the only defensible inference that could be made was that the experimental



condition was the central factor tested by the selected measures and that differences were minimal.

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CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND  
RECOMMENDATIONS

In Chapter V the writer has presented a summary of the nature and proceedings of the investigations, conclusions based on the findings, and recommendations for further consideration.

Summary

The purposes of this study were to measure the effects of student tutoring upon the attitude toward school, self-esteem, and academic achievement of both the experimental and control groups; and to interpret and analyze these data in order to make comparisons between the total experimental and control groups, higher ability students, and lower ability students.

A total of 160 children from grades three, five, six, and eight from two schools were chosen for this study. The study was a pre-test, post-test type design with one group acting as experimental and the other group as control. In January, 1974, the orientation session for the tutors was initiated. The purpose of the tutorial program was presented to the student tutors as a way for tutors to

increase their own academic ability while helping the younger tutees. Pre-tests were administered to all students involved in the tutoring program. In this tutoring program, third- and sixth-grade participating students served as the tutees; fifth- and eighth-grade students served as the tutors. The program lasted for sixteen weeks. Post-tests were administered in May, 1974.

Following the selection of subjects for the study, the tutors underwent daily sessions of training for a period of one week. Subsequently, the tutors met weekly as a group with the teacher of the tutees to whom they were assigned to discuss problems encountered.

The data collected in the study were subjected to computer treatment and analysis. Data were arranged to include treatment on higher and lower ability students, both tutors and tutees, as well as on the total number of experimental and control students involved.

The tutoring took place in the tutees' classrooms three times weekly at 8:25 in the morning under the supervision of the teachers of the tutees. The tutoring session was thirty minutes.

The instruments for testing were selected on the criteria of usability, practicality, and evidence of validity. The Attitude Toward School Scale was used to measure changes in attitude. The Self-Esteem Inventory was used to measure changes in self-esteem. Grade averages were obtained from school records.

The pre-testing average was taken from the grades at the end of the first semester of the school year 1973-74; the post-testing average was taken from the grades at the end of the second semester of the school year 1973-74. The Behavior Rating Form was completed by the teacher for each child in the study on a post-test basis. The results were studied as to the effects of tutoring on both tutors and tutees in respect to classroom behavior.

The statistical technique used to treat the data was the analysis of covariance. The data were interpreted in order to ascertain findings and draw conclusions.

### Findings

Based on the experimental data collected in this study (reported in Chapter IV), the following findings are warranted:

1. The data related to attitude toward school of those involved in the tutor-tutee relationship imply that this variable is the most sensitive to the tutoring program. The program resulted in a definitely superior attitude toward school for eighth graders and one sub-group of third graders.
2. The effect of cross-age tutoring on the self-esteem of children as defined in this study was not significant. The self-esteem of the experimental group was not apparently enhanced by the tutoring effect.

3. The data related to grade average gains imply mixed results. Generally, the experimental condition of the tutor-tutee relationship did not result in higher grade average gains. This finding applies to experimental tutors and tutees in grades three, five, and six.

4. The data related to grade average gains in regard to lower ability eighth-grade students resulted in gains higher than their controls to a highly significant degree.

5. The eighth grade is a good level for students to benefit from a tutorial program. The attitude toward school and grade average variables of the experimental group of eighth-grade tutors was significantly enhanced by the tutoring effect.

6. The effects of the experimental condition were greater on those groups identified as lower ability groups than with higher ability groups. Two significant effects were found favoring lower ability experimental students over their controls. Lower ability third-grade experimental students were significantly higher than their controls on attitude toward school. Lower ability eighth-grade experimental students were significantly higher than their controls on grade average gains. No significant effects were identified for higher ability students.

7. The effects of cross-age tutoring on students at the fifth- and sixth-grade levels were not significant.

### Conclusions

Based on the findings and limitations of this study, the following conclusions may be drawn:

1. The implementation of a cross-age tutoring program can be expected to result in an improved attitude toward school on the part of children in specific age levels.
2. Programs of cross-age tutoring cannot be supported as indirect means of improving the self-esteem of children.
3. For children of elementary-grade levels, the assumption of either role in cross-age tutoring cannot be expected to improve academic standing.
4. Lower-ability eighth-grade students acting as tutors in a cross-age tutoring program can be expected to improve their academic standing.
5. A program in cross-age tutoring in which eighth graders are used as tutors is promising as a means of helping those involved raise their academic standing and attitudinal reaction toward school.
6. A cross-age tutoring program can be expected to produce greater results on certain attitudinal and academic effects with lower ability students (as defined in this study).



7. A program of cross-age tutoring for students at the fifth- and sixth-grade levels cannot be expected to produce improved results on attitude toward school and grade point average.

#### Recommendations

Based on the results and the conclusions of this study, the following recommendations for future investigations are projected:

1. Children of either third-grade or eighth-grade level identified as having a poor attitude toward school should be placed in either of the tutor or tutee roles in an attempt to effect an attitudinal improvement.
2. Research is needed to expand the findings for the most effective age level for tutoring to take place, especially for the tutee.
3. Research is needed to expand the findings of effects of other variables, isolated or combined, on students involved in the tutoring relationship.
4. More research is needed to find the most effective time, place, and length of tutoring sessions.
5. A lack of data suggested that research is needed on the type of school organization and in-service training of personnel necessary to coordinate the tutoring program in schools at all levels.
6. The implementation of cross-age tutoring with lower ability students at middle-school level (tutoring) and primary level

(tutee) should be attempted as an approach to improvement of learning.

7. Carefully selected eighth-grade students, particularly lower ability students, should be used as tutors in school settings in which a program of cross-age tutoring is to be implemented.

8. More refined instruments such as achievement tests to measure academic gains are needed in future studies.

APPENDIX A

ATTITUDE TOWARD SCHOOL SCALE\*

Name \_\_\_\_\_ School \_\_\_\_\_

Class \_\_\_\_\_ Date \_\_\_\_\_

Directions: Please answer each of the questions below by putting a check mark (X) under one of the four headings given in the columns to the right of the question.

These four columns are:

- (1) Nearly Always or most of the time      (2) Sometimes  
 (3) Seldom      (4) Never

	1 Nearly Always	2 Some- times	3 Seldom	4 Never
1. During school hours I would rather be in school than anywhere else				
2. Whenever I find something or make something which I think the other students and the teacher will like, I bring it to school.				
3. Whenever I make something like a booklet, or a picture, or write a story, or have a good test paper, I take it home.				

\*The Attitude Toward School Scale was developed by Merl Bonney of North Texas State University, Denton, Texas.

	1 Nearly Always	2 Some- times	3 Seldom	4 Never
4. During play periods everyone has a fair chance to play and do well.				
5. My abilities are recognized and given a fair place in this school.				
6. When a student doesn't like something in this school there is someone who will listen to him.				
7. When I see a way that I can help out another student, I try to do it.				
8. I believe my school work is fairly judged or graded by my teachers.				
9. My teachers are eager for me to learn new things.				
10. My teachers expect me to do my best in all of my school-work.				
11. When a problem comes up in our school groups, we discuss with the teachers how best to deal with it.				
12. I like to go to school.				
13. I feel free to ask my teachers anything.				

	1 Nearly Always	2 Some- times	3 Seldom	4 Never
14. I get along O.K. with boys. (girls only)				
15. I get along O.K. with girls. (boys only)				
16. I am glad to see other students do well in their schoolwork.				
17. I feel that my teachers like me.				
18. My parents are pleased with my schoolwork.				
19. I feel that I am succeeding in school.				
20. I like my teachers.				
21. My teachers seem cheerful and happy.				
22. I feel free to get up out of my seat without asking permission of the teacher, to talk to another child about schoolwork, or to borrow a pencil, a book, or something.				
23. Most other students that I know in this school like me.				
24. In class discussions I raise my hand to volunteer information.				
25. I am encouraged to work on topics or projects of special interest to me.				

	1 Nearly Always	2 Some- times	3 Seldom	4 Never
26. I feel free to speak out in class and tell other students what I think of things they have said or done.				
27. Most of the other students like to see me do well in school.				
28. My teachers do all they can to help me learn all that I am supposed to know.				
29. Our required homework is about right.				
30. When I break a school rule or a group rule, spill or break something, I feel free to admit it to my teachers.				
31. When I need to, I can work quietly in this class without being disturbed.				
32. I hope that I can go to school for many more years.				
33. I am proud of my school.				
34. I enjoy our play periods.				
35. My teachers understand how I feel about things.				
36. I have sat near or worked with other students whom I wanted to be with.				

	1 Nearly Always	2 Some- times	3 Seldom	4 Never
37. A student in this class can be different from others in some ways and not be made fun of or avoided.				
38. When a student annoys others or interferes with what the group is trying to do, he is controlled or punished.				
39. A student who has a sense of humor is really appreciated in this class.				
40. A smart student who is very good in his schoolwork is admired in this class.				
41. In this classroom I have felt relaxed and at ease.				
42. My class work is interesting.				
43. The rules of the school are enforced with fairness to everyone.				
44. When it comes to being strict, the teacher of this class is about right.				
45. There are plenty of books for our needs in the school library.				
46. I feel that what I am learning in school will be valuable to me in later life.				
47. I try hard to make a good record in all my school subjects.				

APPENDIX B

SELF-ESTEEM INVENTORY\*

Name \_\_\_\_\_ School \_\_\_\_\_

Class \_\_\_\_\_ Date \_\_\_\_\_

Please mark each statement in the following way:  
 If the statement describes how you usually feel, put a check (X) in the column "LIKE ME."

If the statement does not describe how you usually feel, put a check (X) in the column "UNLIKE ME."

There are no right or wrong answers.

	Like Me	Unlike Me
Example: I'm a hard worker. _____		
1. I spend a lot of time day-dreaming.		
2. I'm pretty sure of myself.		
3. I often wish I were someone else.		
4. I'm easy to like.		
5. My parents and I have a lot of fun together.		
6. I'm never sorry about anything.		
7. I find it very hard to talk in front of the class.		
8. I wish I were younger.		
9. There are lots of things about myself I'd change if I could.		

\*The Self-Esteem Inventory (SEI) was developed by Stanley Coopersmith of the University of California, Davis, California.



	Like Me	Unlike Me
10. I can make up my mind without too much trouble.		
11. I'm a lot of fun to be with.		
12. I get upset easily at home.		
13. I always do the right thing.		
14. I'm proud of my schoolwork.		
15. Someone always has to tell me what to do.		
16. It takes me a long time to get used to anything new.		
17. I'm often sorry for the things I do.		
18. I'm popular with kids my own age.		
19. My parents usually consider my feelings.		
20. I'm never unhappy.		
21. I'm doing the best work I can.		
22. I give in easily.		
23. I can usually take care of myself.		
24. I'm pretty happy.		
25. I would rather play with children younger than me.		
26. My parents expect too much of me.		
27. I like everyone I know.		
28. I like to be called on in class.		
29. I understand myself.		

	Like Me	Unlike Me
30. It's pretty tough to be me.		
31. Things are all mixed up in my life.		
32. Kids usually follow my ideas.		
33. No one pays much attention to me at home.		
34. I never get scolded.		
35. I'm not doing as well in school as I'd like to.		
36. I can make up my mind and stick to it.		
37. I really don't like being a boy--girl.		
38. I have a low opinion of myself.		
39. I don't like to be with other people.		
40. There are many times when I'd like to leave home.		
41. I'm never shy.		
42. I often feel upset in school.		
43. I often feel ashamed of myself.		
44. I'm not as nice looking as most people.		
45. If I have something to say, I usually say it.		
46. Kids pick on me often.		
47. My parents understand me.		
48. I always tell the truth.		
49. My teachers make me feel I'm not good enough.		
50. I don't care what happens to me.		

	Like Me	Unlike Me
51. I'm a failure.		
52. I get upset easily when I'm scolded.		
53. Most people are better liked than I am.		
54. I usually feel as if my parents are pushing me.		
55. I always know what to say to people.		
56. I often get discouraged in school.		
57. Things don't usually bother me.		
58. I can't be depended on.		

## APPENDIX C

### BEHAVIOR RATING FORM (BRF)

1. Does this child adapt easily to new situations, feel comfortable in new settings, enter easily into new activities?

5 always    \_\_\_ usually    3 sometimes    \_\_\_ seldom    1 never

2. Does this child hesitate to express his opinions, as evidenced by extreme caution, failure to contribute, or a subdued manner in speaking situations?

5 always    \_\_\_ usually    3 sometimes    \_\_\_ seldom    1 never

3. Does this child become upset by failures or other strong stresses as evidenced by such behaviors as pouting, whining, or withdrawing?

5 always    \_\_\_ usually    3 sometimes    \_\_\_ seldom    1 never

4. How often is this child chosen for activities by his classmates? Is his companionship sought for and valued?

5 always    \_\_\_ usually    3 sometimes    \_\_\_ seldom    1 never

5. Does this child become alarmed or frightened easily? Does he become very restless or jittery when procedures are changed, exams are scheduled or strange individuals are in the room?

5 always    \_\_\_ usually    3 sometimes    \_\_\_ seldom    1 never

6. Does this child seek much support and reassurance from his peers or the teacher, as evidenced by seeking their nearness or frequent inquiries as to whether he is doing well?

5 always    \_\_\_ usually    3 sometimes    \_\_\_ seldom    1 never

\*The Behavior Rating Form (BRF) was developed by Stanley Coopersmith of the University of California, Davis, California.



APPENDIX D

JUNIOR TUTOR'S RECORD

Tutor: \_\_\_\_\_ Tutee: \_\_\_\_\_ Date: \_\_\_\_\_

	Tuesday	Wednesday	Thursday

Achievement Entries:

Book and Page Number:

Attitude Entries: + Very Good  
 = O.K.  
 - Not Good

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