1981

The Effects of Using Eighth Grade High-Achievers Versus Eighth Grade Low-Achievers as Tutors on Reading Achievement and Attitude of Urban Fourth Grade Students

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THE EFFECTS OF USING EIGHTH GRADE HIGH-ACHIEVERS VERSUS EIGHTH GRADE LOW-ACHIEVERS AS TUTORS ON READING ACHIEVEMENT AND ATTITUDE OF URBAN FOURTH GRADE STUDENTS

by

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A Dissertation Submitted to the Faculty of the Graduate School of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

January

1981

ACKNOWLEDGMENTS

I wish to express appreciation to the members of my dissertation committee for long hours of consultation and assistance. Dr. Gray provided insight, Dr. Berlin had faith in me, Dr. Cienkus encouraged me, Dr. Edwards helped me with many troublesome details, and Dr. Mayo provided advice.

I am indebted to the administrative staff, teachers, and students in District Seven, Chicago Public Schools, for their cooperation in this study.

My wife and my three children were very considerate and allowed me the privacy I needed to complete this study.

VITA

The author, Thomas J. Stewart, is the son of Thomas and Rosa (Rogers) Stewart. He was born March 30, 1934, in Starkville, Mississippi. He attended Oktibbeha County Training School, in said town, where he obtained his elementary and secondary education.

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He is married and is the father of three children; a girl and two boys.

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CHAPTER I

INTRODUCTION

Statement of the Problem

Although attention has been given to reading disability since 1900, there seem to be increasingly large numbers of students continuing to need specialized help. Thus there has been a resurgence of interest in using school children to tutor their peers. This interest in tutorial programs appears to have come about mainly because of the increase in the number of children experiencing difficulty in learning how to read. In 1974, the U. S. Office of Education stated that as many as 7 million children in grades 1 through 12 had reading handicaps. Hence, efforts were underway to develop a nation-wide Volunteer Reading Tutor-Training Program.[1] Elsewhere, the interest in tutorial programs has been evidenced by such programs as New York City's Hunter College Tutorial Program; New York City's Homework Helper Program; University City's (Missouri) Brittany Junior High School Tutorial

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[1]U. S. Department of Health, Education, and Welfare, Tutor Trainers' Resource Handbook, (Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office, 1974), p. 5.

Program; Salem's (Oregon) Public Schools Senior and Junior High School Program; Portland's (Oregon) Student Team Action Program; Overland Park's (Kansas) Primary School Program; and Baltimore's (Maryland) Future Teachers of America Program.[1]

Despite the increase in both the variety and number of tutorial programs, scholars have yet to determine with certainty the extent to which such programs bring about the desired effects.

Studies point to the fact that much effort is being expended in the hope of determining efficient and effective means for tutoring youngsters who have difficulty in reading. Much of the effort appears to be centered on the principle that learners can sometimes learn better from fellow learners than from their adult teachers. However, while focusing attention on the question of whether learners can learn from each other, many of these studies have not been concerned with the broader issue of the value of peer tutoring; it could be asked what kinds of tutors would bring about a greater degree of learning to other students? In particular, what kinds of outcomes can be expected from tutorial programs that utilize high-achievers as tutors as compared to tutorial programs that

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[1]Herbert A. Thelen, "Tutoring by Students," School Review 77 (1969): 229-244.

utilize low-achievers as tutors or regular programs that utilize no tutors at all? Questions such as these warrant further investigation.

The purpose of this study is to determine whether significant differences exist in reading achievement and attitude between fourth grade students who are tutored by eighth grade high-achievers and those who are tutored by eighth grade low-achievers.

The conceptual rationale for this study is based on role theory, which links the individual to the social system by means of the concept of social position, thus enacting the role of the teacher/tutor in the same way as enacting any role produces behavioral and cognitive changes that are consistent with role expectations. Hence the role expectations inherent in this study are: High-achievers are competent enough to have a favorable effect on reading achievement and attitude (Social Maturity, Self-Concept, Social Relations, and Attitude Toward School) of tutees; and low-achievers have similar cognitive constructs as the tutees, which are requisite to influence the tutees in reading achievement and attitude.

Definition of Terms

High-Achievers - This term refers to students who achieved a reading score of one year or more above the national norm as determined by the Iowa Tests Of Basic Skills--April, 1978.

Low-Achievers - This term refers to students who had a reading score of one year or more below the national norm as determined by the Iowa Tests Of Basic Skills--April, 1978.

Significance of the Study

In recent years, some school systems have spent considerable effort and resources to develop such things as special reading programs, resource centers, more training sessions for teachers, and reduced class sizes.

Some of these efforts are yielding dividends; for example, the Child-Parent Centers. The children participating in the Child-Parent Centers are reading at or above the national average.[1] However, reading results still show that millions of children in grades 1 through 12 are having difficulties in reading.[2]

The task now is to identify a successful and practical approach, with a view toward providing such an approach for some of the millions of children who have reading handicaps; especially for the children beyond second grade.

If the use of high-achievers or low-achievers in

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[1]Siegfried G. Mueller and Jeanelle Jennings, "The Chicago Child-Parent Center Revisited," Phi Delta Kappan 56 (September, 1974): 50.

[2]U. S. Department of Health, Education, and Welfare, p. 5.

a highly structured process produces significant reading achievement and positive attitude gains in the sample tested, it would seen that such a tutorial approach could warrant further study and/or application in urban public schools in which the children are reading a year or more below the national norm.

CHAPTER II

REVIEW OF RELATED RESEARCH AND LITERATURE

Importance of Tutoring

Bell[1] and Lancaster[2] made clear that the use of children to teach other children in the schools is not by any means a recent innovation; the idea has had a long and lively past. Bell devised a system which had as its basic and most novel component the use of older children to teach other children. Not only did the system appear to be successful as a means of providing elementary instruction but it also brought a marked improvement in behavior of the students.

As one means for dealing with the psychological problems associated with prolonged schooling in a technological society, Jerome Bruner[3] proposed giving

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[1]Sophie Bloom, Peer and Cross-Age Tutoring In The Schools: An Individualized Supplement To Group Instruction (Washington: National Institute of Education, 1976), p. 3.

[2]Herbert A. Thelen, "Tutoring by Students," School Review 77 (September - December, 1969): 229.

[3]Jerome Bruner, "Immaturity-Its Uses, Nature and Management," The Times Educational Supplement, October 27, 1972, pp. 62-63.

students more responsibility for the education of their fellow students. In his words, "I would strongly urge that we use the system of student-assisted learning from the start in our schools." In contrast to the traditional competitive structure in the school, Bruner urged that education should be a "communal understanding." By giving older children some responsibility for helping others--especially younger children--the "intermediate generation" of youth could gain a sense of purpose and useful participation all too often lacking in their lives.[1]

Bronfenbrenner reported that in the Soviet Union, there is a great deal of involvement of older children in the social life of younger children. Children in the USSR are explicitly taught in school to help each other, and especially to help younger children. It is common for an entire school or a class of older students to "adopt" a younger class; students take responsibility for the young children in many ways, such as escorting them to school, helping with school work, and reading stories.[2]

Echoing the same theme in a recent book, Coleman proposed that youth should have an opportunity for

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[1] Ibid.

[2] U. Bronfenbrenner, Two Worlds of Childhood (New York: Russell Sage Foundation, 1970).

responsibilities that affect the lives of other persons. Only with the experience of such responsibilities can youth move toward the mutually responsible and mutually rewarding involvement with others that constitute social maturity.[1]

In connection with student involvement, J. E. Lohman found that older age is positively valued by younger children; hence being a friend of a prestigeful older child can enhance a younger child's self-esteem.[2]

According to Cicirelli, young children can learn certain tasks more effectively if they are taught by a person closer to their age who understands their problems and viewpoint, and can communicate at the same language level, than if they are taught by an adult.[3]

Argyle purported that brighter children probably do have sufficient knowledge to teach others. The social skills involved in teaching one person are much less demanding than those involved in teaching an entire class; and the cognitive structure of older children is more

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[1]James S. Coleman, Youth: Transition To Adulthood (Chicago: University of Chicago Press, 1974), p. 3.

[2]J. E. Lohman, "Age, Sex, Socioeconomic Status and Youth's Relationships with Older and Younger Peers" (unpublished doctoral dissertation, U. of Michigan, 1969).

[3]Victor G. Cicirelli, "Siblings Teaching Siblings," in Children As Teachers: Theory and Research on Tutoring, ed: V. L. Allen (New York: Academic Press, 1976), p. 99.

similar to that of the pupil than is the cognitive structure of adult teachers.[1] Bonaruis found that similarity in cognitive constructs makes communication much easier.[2]

Peggy Lippitt concluded that it is clear that cross-age helping is an innovation that is consistent with many of the educational trends predicted for the future: individualization of instruction, participation by older students, collaboration with adults, use of volunteers in educational settings, and taking initiative for one's own learning.[3]

Findings of Studies

Ellson reported on the effectiveness of tutoring underachieving first grade pupils in reading. One thousand-two hundred sixty-five first grade students took part in the tutorial reading project for the full 1968-69 school year in Indianapolis. During the year, 33 of

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[1]Michael Argyle, "Social Skills Theory," in Children As Teachers: Theory and Research on Tutoring, ed. V. L. Allen (New York: Academic Press, 1976), pp. 67-68.

[2]J. Bonarius, "Research in The Personal Construct Theory of George A. Kelly: Role Construct Repertory Test and Basic Theory," in Progress In Experimental Personality Research, ed. B. A. Maher, II (New York: Academic Press, 1965), pp. 2-46.

[3]Peggy Lippitt, "Learning through Cross-Age Helping: Why and How," in Children As Teachers: Theory and Research on Tutoring, ed. V. L. Allen (New York: Academic Press, 1976), pp. 157-168.

the 39 schools included in the tutorial reading project used the Ginn Basal Reader Series in the first grade, and six schools used the Macmillan pre-primer, primer, and first grade reader and the accompanying workbooks. The tutorial program produced large and statistically significant improvement in reading achievement as determined by Stanford Achievement Tests. Roughly equivalent gains were made for children tutored in Ginn material and for children tutored in an experimental program designed for use with the Macmillan Basic Reader Series.[1]

Frager and Stern conducted a study to determine which of two types of tutor instruction in reading would have greater benefits for tutors and tutees. Forty-eight kindergarten pupils in need of remedial work in reading were chosen as tutees. An equal number of sixth graders were selected as tutors. Half of the tutors had scored high on a reading achievement test and half of them had low scores. The tutors were trained in one of two counseling methods. The first method consisted of a traditional instructional procedure in which the tutorial process was described, suggestions for working with the younger children presented, and questions on specific problems answered. The tutors were given the support they

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[1]D. G. Ellson, Tutorial Reading Project, Report of Results (Indianapolis: Indianapolis Public Schools, 1968-69).

needed to keep them involved. In the second counseling method tutors were taught a procedure which consisted of five basic steps: defining goals, defining obstacles, specifying alternatives, identifying consequences of specific alternatives, and making selections among alternatives. Within this framework, certain basic principles of learning were taught to the tutors during each of the five counseling sessions. Kindergarten tutees were assigned to either of the two experimental groups, or to a control (no tutoring) group. A criterion test provided with the McNeil ABC Learning Activities demonstrated that the tutored children performed better than untutored children regardless of the tutoring method. Of particular interest to Frager and Stern was the fact that tutors were equally effective whether they were high or low achievers.[1]

Liette studied the effects of a tutor-tutee relationship on the reading achievement and achievement motivation of underachieving black male children. A group of 41 tutees and their controls, as well as a group of 41 tutors and their controls, all matched from lower socio-economic backgrounds, were randomly selected. All subjects were given a nonverbal I.Q. test and were pre-

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[1]S. Frager and C. Stern, "Learning by Teaching," The Reading Teacher 23 (1970): 403-405.

tested and posttested on reading with a standardized reading achievement test. From the results of these tests, underachievers were determined. After matching potential tutors and tutees, random assignment was made. Tutor-subjects and their controls were then individually administered a series of eight trials of ten four-letter scrambled words and asked to unscramble as many as possible within the one minute-and-a-half time limit of each trial. After pretesting, tutoring sessions were conducted for a period of twelve weeks. The project was concluded with posttesting on reading achievement, for tutees, tutors, and their controls, as well as posttesting on standard-setting and affect-mediating self-evaluation for tutors and their controls. Analysis of obtained data yielded the following findings: 1. The tutees made significantly greater gains in reading achievement than their controls. 2. The tutors made significantly greater gains in reading achievement than their controls. 3. The tutors established a lower and more realistic standard than did the controls. 4. The tutors took less time to make self-evaluations. 5. The tutors did not have positive self-evaluations more frequently than their controls.[1]

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[1]E. E. Liette, "Tutoring: Its Effects on Reading Achievement, Standard-Stetting and Affect-Mediating Self-Evaluation for Black Male Underachievers In Reading" (Case-Western Reserve University, Department of Education, Cleveland, June, 1971).

In addition to finding positive results, Paoni also found the following negative results: 1. The tutoring program was not more effective for students acting as tutors than a traditional program for improving vocabulary or comprehension for sixth graders. 2. The tutoring program was not more effective for students being tutored than a traditional program in vocabulary for third graders in reading.[1]

Rogers[2] investigated the effects of using sixth grade underachievers as tutors for third graders whose reading scores were below grade level expectancy. The subjects were 60 sixth grade students and 40 third grade students. Most subjects were middle class Caucasians. The effects of tutoring on the reading achievement of all subjects were studied. The reported findings of the study were: 1. All sixth grade and third grade subjects showed statistically significant gains on posttest scores as determined by California Reading Tests. 2. No statistically significant differences in reading gains were found

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[1]F. J. Paoni, "Reciprocal Effects of Sixth Graders Tutoring Third Graders In Reading" (unpublished doctoral dissertation, Oregon State University, Corvallis, 1971).

[2]M. S. Rogers, "A Study of An Experimental Tutorial Reading Program In Which Sixth Grade Unachievers Tutored Third Grade Children Who Were Experiencing Difficulty In Reading" (unpublished doctoral dissertation, University of Alabama, Tuscaloosa, 1969).

among the three groups of sixth grade subjects. 3. Third grade tutees made gains statistically significant above gains made by the third grade control group.

Thomas investigated whether elementary school tutors can function as effectively as college age tutors to achieve reading gains with second grade tutees. Findings indicated that: 1. Elementary and college tutors were equally effective as tutors with materials below fourth grade level. 2. The two groups of tutors were equally effective in teaching comprehension and oral reading skills.[1]

Harrison and Brimley reported the results of using upper-elementary students trained in structured tutoring techniques to develop an individualized reading program for low achieving 6-year old subjects. The 33 subjects, all identified as being in the lower third of their kindergarten classes, were tutored by upper-elementary volunteers. Three elementary schools cooperated in the study. The tutors were trained to teach for specific objectives and were given responsibility for a tutee. The tutoring sessions were 15-20 minutes long and occurred on 5 days each week for 6 weeks. The tutors were

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[1]J. L. Thomas, "Tutoring Strategies And Effectiveness: A Comparison of Elementary Age Tutors and College Age Tutors" (unpublished doctoral dissertation, University of Texas, Austin, 1970).

supervised. The criterion objectives for the tutees were to recognize seven letters, five sight words, eight sounds, eight to ten phonetic words, and five to eight nonsense words. A criterion-referenced test was given at the conclusion of the 6 weeks. Three months after the subjects entered first grade, their teachers were asked to rank all members of their classes on reading ability. Only 5 of the 33 students who had received the structured tutoring were ranked in the lower third of their first grade class as determined by a criterion-referenced test.[1]

In summary, tutoring programs that use children as tutors for other children have indeed increased in number and variety since the late 1960s. Nevertheless, empirical support for generalizations about the effect of tutoring on tutors and tutees often has been inconclusive; moreover, some of the evidence concerning effectiveness of programs in the schools often has consisted of anecdotal reports rather than rigorous data. What is needed to make the above mentioned findings more coherent and useful is some kind of theoretical orientation that will suggest clear and distinct organization and interpretations.

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[1]G. V. Harrison and V. Brimley, "The Use of Structured Tutoring Techniques in Teaching Low-Achieving Six-Year-Olds to Read," paper presented at the Annual Meeting of the American Educational Research Association, New York, 1971.

Role Theory

Allen and Feldman asserted that role theory explicitly recognizes the interactive and complementary nature of social behavior. This theory links the individual to the social system by means of the concept of social position, thus enacting the role of the teacher in the same way as enacting any role produces behavioral and cognitive changes that are consistent with role expectations. They further asserted that the behavior of the older child who serves as tutor for a younger child can influence the tutee directly both in cognitive and social areas. The tutor may serve as a role model for the younger child; that is, the younger child may imitate the tutor, identify with him, and try to be like him.[1]

According to Vernon L. Allen,[2] one always learns a great deal about the complementary role when interacting with another person. Therefore, when interacting with an older child, the younger child also learns about a future stage in the life cycle that he soon will be entering; that is, anticipatory socialization can take place.

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[1]Vernon L. Allen and Robert S. Feldman, "Studies on the Role of Tutor," in Children As Teachers: Theory and Research on Tutoring, ed. V. L. Allen (New York: Academic Press, 1976), pp. 114-117.

[2]Vernon L. Allen, "The Helping Relationship and Socialization of Children: Some Perspectives on Tutoring," in Children As Teachers: Theory and Research on Tutoring, ed. V. L. Allen (New York: Academic Press, 1976), p. 23.

Whiting suggested that we most adequately learn and portray the roles of people whom we envy or admire. Once the individual has had his roles assigned, the individual tends to respond in terms of these roles. Thus, the roles assigned to an individual determine a fair portion of his behavior. The expectations and demands of all social groups of significance to the individual influence his behavior at all times, but their relative influences shift with the behavioral situation and the roles it requires.[1]

Also, Waller purported that many, if not most, social attitudes partake of the nature of roles, and he defines "role" as a social attitude reflected back upon the individual either actually or in his imagination. The role appears as the organization of the individual with reference to an entire situation; it is the response of the individual to the entire situation as it has taken shape in his mind.[2]

Sarbin stated that in the tutoring setting, the tutee acquires skills that he could not or would not acquire in the conventional classroom setting. He went

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[1]J. W. M. Whiting, "Resource Medication and Learning by Identification," in Personality Development in Children, ed. I. Iscoe and H. W. Stevenson (Austin: University of Texas Press, 1960), pp. 561-562.

[2]Willard Waller, The Sociology of Teaching (New York: Russell & Russell, 1961), pp. 321-322.

on to form the hypothesis that the success or failure of the tutorial process is related to the kind of role relations that emerged as a result of the one-to-one relationship, and to the extent that physical and psychological distance between the tutor and tutee is reduced.[1]

The key variable in role theory is role enactment, and in this context Sarbin and Allen[2] identified six variables that influence the appropriateness, propriety, and convincingness of role enactment: (1) accuracy of the actor's role expectations; (2) validity of the actor's location of self in his various social systems; (3) sensitivity of the actor to subtle role demands; (4) congruence of self (values) and role requirements; (5) role taking skills; and (6) reinforcing and guiding properties of relevant audiences. Hence, according to Sarbin and Allen, all of these variables are applicable to the role of pupil.

It is self-evident that role enactment is likely to be inappropriate, improper, or unconvincing if the actor fails to locate himself with reference to other actors

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[1]Theodore R. Sarbin, "Cross-Age Tutoring and Social Identity," in Children As Teachers: Theory and Research on Tutoring, ed. V. L. Allen (New York: Academic Press, 1976), p. 27.

[2]Theodore R. Sarbin and Vernon L. Allen, "Role Theory," in The Handbook of Social Psychology, 2nd ed., vol. 1: Historical Introduction/Systematic Positions, eds. G. Lindzey and E. Aronson (Reading, Massachusetts: Addison-Wesley Publishing Company, 1968), pp. 488-567.

who are participants in some form of social organization, according to Sarbin and Allen. Furthermore, they reported that subjects who enacted a particular role showed a change in attitude, and their interpretation is that role enactment opposite a relevant other, and being highly involved, produce changes in one's identity. Such changes influence conduct.[1]

Sarbin's and Allen's conceptualization of the relation between overt behavior and attitude is a simple one. It is assumed that occupancy of a social position entails the adoption of all components of role expectations, cognitive as well as motoric and expressive. Beliefs and opinions associated with a role are as much integral parts of the role as the motoric components. To validate occupancy of a new position one must engage in appropriate behavior, which includes not only overt motor performances but also the holding of certain beliefs and opinions. To validate occupancy of a position successfully requires satisfaction of all components of role expectations. According to this view, opinions and beliefs appropriate to a new role should be assumed at the same pace as new overt behavior. New attitudes are not seen as occurring consequent to behavior; rather, both attitudes and be-

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[1] Ibid.

havior occur concomitantly as the result of a new set of role expectations.[1]

Hence, role theory makes clear and distinct the interactive and complementary nature of social behavior; that the individual is linked to the social system by means of the concept of social position; that the tutor may serve as a role model for the tutee; and that the tutee may imitate the tutor, identify with the tutor, and try to be like the tutor. Furthermore, the behavior of the older child who serves as tutor for a younger child can influence the tutee directly; both in cognitive and attitude areas.

Summary

The research herein cited seems to have generated the following generalizations. Lohman found that older age is positively valued by younger children; hence being a friend of a prestigeful older child can enhance a younger child's self esteem. According to Cicirelli, young children can learn certain tasks more effectively if they are taught by a person closer to their age. Argyle purported that brighter children probably do have sufficient knowledge to teach others, while Bonarius asserted that similarity in cognitive constructs makes communication much easier.

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[1] Ibid.

In addition, Sarbin and Allen specified a theory of social identity arising from role enactment in which the occupancy of a social position entails the adoption of all components of role expectations, cognitive as well as affective.

The critical dimension seems to be that the success or failure of the tutorial process is related to the kind of role relations that emerge as a result of the one-to-one relationship, and to the extent that physical and psychological distance between the tutor and tutee is reduced.

Although Frager and Stern conducted a study to determine the effects of using six grade high and low achievers (tutors) on the reading achievement of kindergarten pupils (tutees), the present study goes beyond the Frager and Stern study to determine the effects of using eighth grade high and low achievers (tutors) on the reading achievement of fourth graders (tutees). Whereas Frager and Stern used criterion-referenced tests to gather their data, in the present study the investigator utilized norm-referenced tests to collect the statistical data, and as an added dimension the investigator also studied the effects of tutor type on tutee's attitude--that is, social maturity, self-concept capability, social relations, and attitude toward school.

Hypotheses

The hypotheses delineated below are based on three assumptions: (1) High-achievers (tutors) are competent enough to have a favorable effect on reading achievement and attitude/self-concept of tutees. (2) Low-achievers (tutors) have similar cognitive constructs as the tutees, which are requisite to influence the tutees in reading achievement and attitude/self-concept. (3) The roles assigned to an individual determine a fair portion of his or her behavior.

Thus the specific research task is centered on verifying or rejecting the following null hypotheses:

H1: There will be no significant differences in posttest reading achievement among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when pretest scores are used as the covariate.

H2: There will be no significant differences in reading achievement among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when pretest and posttest data are analyzed using a factorial design.

H3: There will be no significant differences in attitude among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when only posttest data are analyzed.

CHAPTER III

METHOD

Subjects

The reading ability or inability of metropolitan public school pupils remains a continuing concern, subject to continuing interpretation. The Board of Education, City of Chicago, Report On The-City Wide Testing Program In Reading Comprehension--1978-79, indicated that a trend in school performance, from high to low poverty levels, a difference of about two grade equivalent years for the younger student and over three grade equivalent years for the older student, exists.

Since reading instruction is a prime component of the curriculum, the investigator decided to focus on reading achievement in tutorial settings in schools where the students, on the average, were reading below the national norm.

The students were randomly selected from three urban public schools. The community consisted of a varied ethnic texture; that is, Polish, Slavic, Italian, German, Spanish, Korean, Afro-American, and other groups. It was a working class community; however, fifteen per-

cent of the students were from low-income families.

The tutees were drawn from the fourth grade level, and from schools in which the students were reading one or more years below the national norm as determined by the Iowa Tests of Basic Skills--April 1978.

The sample did not include educable mentally handicapped, learning disabled, socially maladjusted and physically handicapped students or gifted students. Student selection criteria limited the sample to students of normal intelligence.

The tutors were selected from the eighth grade level. The Iowa Tests of Basic Skills scores as of April, 1978, served as the basis for selecting the tutors.

The high-achievers (tutors) were reading a year or more above the national norm, and the low-achievers (tutors) were reading a year or more below the national norm.

Eighty-two fourth grade students constituted the experimental groups and 71 fourth grade students constituted the control group.

There were two levels of experimental treatment: 41 fourth grade students were tutored by eighth grade high-achievers, and 41 fourth grade students were tutored by eighth grade low-achievers. The control group, 71 fourth graders, did not receive any tutoring; however, they engaged in free-reading activities during the tutoring sessions.

Materials

Since determining the effectiveness of tutoring on the reading achievement of fourth grade tutees is one of the key objectives of this study, the investigator administered the Metropolitan Achievement Tests (Word Knowledge and Reading)--Elementary, Form F, as pre and post measures. Thus it is of considerable import that the aforementioned tests are related to the reading activities presented in the tutoring sessions.

Also, the Primary Attitude Scale was administered as a post measurement. The Primary Attitude Scale is designed to measure the effect of a program on the attitudes (social maturity, self-concept capability, social relations, and attitude toward school) of participants from age cycle 5 through age cycle 9.

TU-READ (Tutored Reading) Tutoring Program materials--Levels E, F, G, H (Primary), and J (Intermediate), which are published by the Board of Education, City of Chicago, were used.

The TU-READ program of tutorial instruction is designed to allow a teacher to enrich the educational program by having others give individualized help that will supplement the regularly scheduled group instruction. Hence, specific skill lessons are provided in the reading areas of both word-attack and comprehension. Tutoring Tips, Correlated Skill Materials, and Answer Keys manuals

were also used in this study. Word-attack and comprehension lessons (15 minutes each) were provided for the tutors; which were used during the tutoring sessions, for example:

Growing with Roots - Add Prefixes

In each of the next sentences there are more familiar root words to which un has been added to the beginning of the words to change their meanings. Tell your tutor how the meaning of the root word has been changed.

1. Anthony was unhappy because his bike was stolen.
2. The plans for our trip are very uncertain.
3. Judy is the most unpopular girl in the class.
4. Jeff was very unkind to me this afternoon.

What's Going On?

Read the following sentence.

1) The Jackson Five spend a lot of time writing songs and rehearsing so that they can perform on many television shows.

What is the sentence about? Write your idea of what the sentence is about on this line. _____

In order to assist the tutor with evaluating the tutee's performance, an answer key was provided for each lesson. The tutee had to master eighty per cent of the items in each lesson before moving on to the next lesson,

and completed lessons were recorded on the record sheet. If eighty percent (mastery of content) was not achieved on the initial attempt, the tutee had to repeat the lesson, with the assistance of the tutor, until the aforesaid standard was obtained. Also, a standard of ninety per cent attendance and participation was required of both the tutees and tutors as a criterion for data analysis.

Procedures

Pre and post standardized, norm-referenced, reading achievement tests were administered to the fourth grade tutees and to the control group, and the Primary Attitude Scale was administered as a post measure to both the experimental and control groups. The tests were administered by the investigator at the local school settings to about 30 students at a time during the morning sessions.

The tutors, both high and low achievers, received one week of inservice training conducted by the investigator prior to the tutoring sessions. Weekly feedback sessions were held for the tutors during the 10 week term of the tutoring sessions. The prime focus of the inservice sessions was to train the tutors on how to introduce the tutoring lessons and/or specific skills (word-attack and comprehension), and how to evaluate the lessons and/or skills to be mastered by the tutees.

The tutoring sessions took place in the regular

classrooms at 9:30 a.m., 10:30 a.m., and 11:30 a.m. on Tuesdays, Wednesdays, and Thursdays in the three urban public schools, respectively. The tutoring sessions were so arranged to accommodate the investigator--namely, so that the investigator was able to observe nearly all of the tutoring sessions. A classroom teacher was present in order to provide professional supervision; however, the classroom teacher was instructed not to engage in the tutorial process.

Record sheets were provided by the investigator for the tutors to record each lesson and tutee's participation. On the reverse side of the record sheet, the tutor maintained a tutoring diary, and the diary notes were utilized as input for the feedback sessions with the investigator, immediately after the tutoring sessions, individually or as a group.

Statistical Procedures

A Multivariate Analysis of Covariance in a 3 x 3 factorial arrangement, where group and school are regarded as the prime effects, was performed. The dependent variable is reading achievement standing at posttest with pretest scores treated as a covariate variable. A Multivariate Analysis of Variance with two independent variables, group and school, was performed on the Metropolitan Achievement Tests on the difference between pretest and posttest word

knowledge and reading scores in a 3 x 3 factorial design.

Also, a Multivariate Analysis of Variance was performed on the four subscale tests for the Primary Attitude Scale (PAS) with group and school as independent variables. The dependent variable is student attitude on posttest in a 3 x 3 factorial design, and a X^2 test of significance was performed with the scores arranged in "positive or negative" categories in order to determine the extent of the relationship existing between group and student attitude.

Designs for Data Analysis

Independent Variables:

Group - Tutoring by High-Achievers
Tutoring by Low-Achievers
Control--Non-Tutorial

School - Three

Dependent Variables: Metropolitan Achievement Tests-Elementary, Form F:

	Total Reading Scores	X_1
Subscales	Word Knowledge Scores	X_2
	Reading Scores	X_3

Hypothesis 1: MULTIVARIATE ANALYSIS OF COVARIANCE (3 x 3 Factorial)

Group -	High-Achievers Tutorial	Low-Achievers Tutorial	Control Non-Tutorial
School - 1	N $\geq$	N $\geq$	N $\geq$
2	N $\geq$	N $\geq$	N $\geq$
3	N $\geq$	N $\geq$	N $\geq$

(Pre and Post at .05 level)

Hypothesis 2: MANOVA (3 x 3 Factorial)

Independent Variables: Same as above

Dependent Variables: Same as above

Hypothesis 3: MANOVA (3 x 3 Factorial)

Independent Variables: Same as above

Dependent Variables: Primary Attitude Scale:

	Total Attitude Scores	X_1
Subscales	Social Maturity	X_2
	Self-Concept Capability	X_3
	Social Relations	X_4
	Attitude Toward School	X_5

(Post at .05 Level)

Hypothesis 3: CHI-SQUARE - ANALYSIS OF FREQUENCY

Independent Variables: Same as above

Dependent Variables: Same as above

Attitude -	Positive	Negative
Group - High-Achievers	N $\geq$	N $\geq$
Low-Achievers	N $\geq$	N $\geq$
Control	N $\geq$	N $\geq$

(Post at .05 level)

CHAPTER IV

RESULTS

This chapter analyzes the data collected in terms of each hypothesis. The statistical procedures for each hypothesis may be found in detail in the concluding section of Chapter III. The conclusions reached from these analyses and the implications of the study can be found in Chapter V.

Effects of Tutoring Type and School on Reading Achievement

In examining the data, the hypotheses will be considered separately. Null Hypothesis 1 looks for effects of tutoring and school in terms of reading achievement.

Null Hypothesis 1

> There will be no significant differences in post-test reading achievement among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when pretest scores are used as the covariate.

Since intact classes were assigned at random to the treatments; essentially the group means were used as the basic observations, and treatment effects were tested against variations in the means. Two methods of analysis

were used in view of controversies about ways of assessing change. The first method, a Multivariate Analysis of Covariance with two independent variables of school and tutoring type, was performed on the Metropolitan Achievement Tests posttest word knowledge and reading scores, adjusting for the pretest scores on these measures. It is of considerable import to note:

- There was a strong relation between the pretest and posttest scores for both word knowledge and reading.

  $r = .74$ for word knowledge
  $r = .93$ for reading

- There was linearity of relation for plotted pretest by posttest (straight line).

- There was homogeneity of regression plane (relation between pretest and posttest scores was not affected by tutoring types).

There was no effect of school on the adjusted word knowledge scores and reading comprehension scores [multivariate $F\ (4,284) = 1.21$, $p \geq .31$]. There was a significant effect of tutoring type on the adjusted word knowledge and reading scores [multivariate $F\ (4,284) = 2.46$, $p \leq .05$]. The interaction of school and tutoring type was highly significant [multivariate $F\ (8,284) = 3.22$, $p \leq .002$]. This interaction was highly significant for both the adjusted word knowledge and reading scores as depicted in Table 1.

Univariate Analysis of Variance data for each dependent variable are reproduced in Tables 2 and 3. In

TABLE 1

MANOVA TEST CRITERIA FOR THE EFFECTS OF TUTORING AND SCHOOL ON THE ADJUSTED ACHIEVEMENT SCORES

Source	D.F.	F Value	F Prob
Tutoring	4	2.46	.05*
School	4	1.21	.31
Tutoring & School	8	3.22	.002**
Error	284		

Note: N = 153

*p $\leq$ .05

**p $\leq$ .01

TABLE 2

ANALYSIS OF COVARIANCE FOR THE EFFECTS OF TUTORING AND SCHOOL ON ADJUSTED WORD KNOWLEDGE ACHIEVEMENT SCORES

Source	D.F.	S.S.	M.S.	F Value	F Prob
Tutoring	2	3.78	1.89	3.23	.0425
School	2	2.87	1.44	2.45	.0898
Tutoring & School	4	11.93	2.98	5.09	.007**
Error	144	84.42	0.59		

Note: N = 153

*p $\leq$ .05

**p $\leq$ .01

fact, there was a significant effect of tutoring on the adjusted word knowledge ($p \leq .0425$) and reading achievement ($p \leq .0306$) scores. There was no significant effect of school on the adjusted word knowledge and reading achievement scores. However, the interaction of tutoring and school was significant for both the adjusted word knowledge ($p \leq .007$) and reading achievement ($p \leq .0013$) scores.

TABLE 3

ANALYSIS OF COVARIANCE FOR THE EFFECTS OF TUTORING AND SCHOOL ON ADJUSTED READING ACHIEVEMENT SCORES

Source	D.F.	S.S.	M.S.	F Value	F Prob
Tutoring	2	1.05	0.53	3.57	.0306*
School	2	0.71	0.36	2.42	.0924
Tutoring & School	4	2.76	0.69	4.70	.0013**
Error	144	21.16	0.15		

Note: N = 153

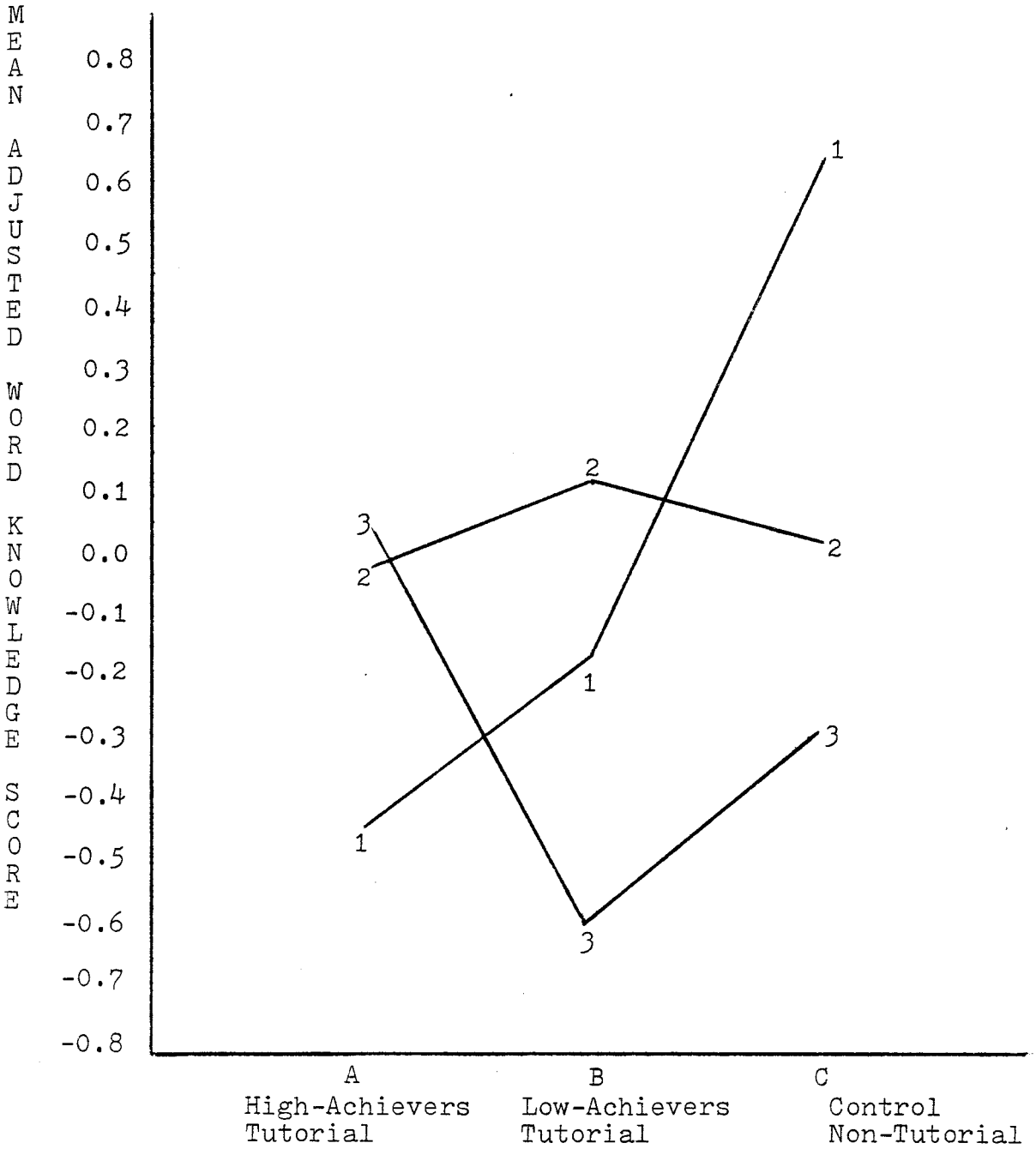
*$p \leq .05$

**$p \leq .01$

The mean scores for the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) by school are illustrated in Figures 1 and 2. It should be noted that the potential score for the Metropolitan Achievement Tests ranges from a grade equivalent of 1.0 to 9.9 for both word knowledge and reading achievement.

FIGURE 1

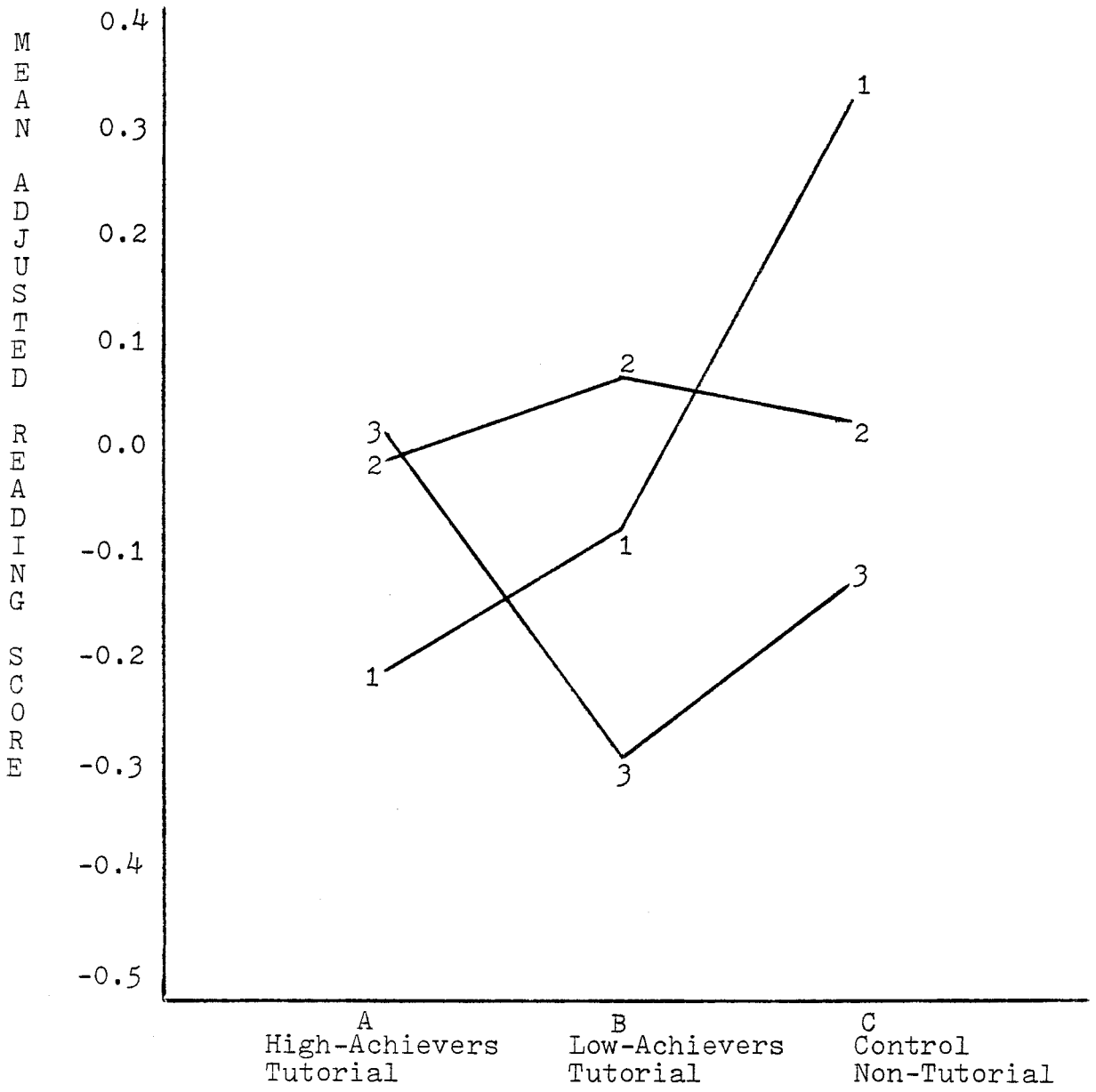
METROPOLITAN ACHIEVEMENT TESTS MEAN POSTTEST
WORD KNOWLEDGE SCORE ADJUSTED FOR PRETEST
BY TUTORING AND SCHOOL



NOTE: The plotted numbers represent the three schools.

FIGURE 2

METROPOLITAN ACHIEVEMENT TESTS MEAN POSTTEST
READING SCORE ADJUSTED FOR PRETEST
BY TUTORING AND SCHOOL



NOTE: The plotted numbers represent the three schools.

Minus scores are highlighted in the figures because the change scores between the pretest and posttest showed negative results.

The Control Non-Tutorial in school 1 showed the highest mean word knowledge and reading scores. The Low-Achievers Tutorial in school 3 had the lowest mean scores for both word knowledge and reading. Furthermore, the High-Achievers Tutorial in school 3 performed better than the same in school 2 and school 1, respectively. The Low-Achievers tutorial had the best performance in school 2. In fact, the three groups in each type had the same performance rank order for both word knowledge and reading. Doubtless there was a significant effect of tutoring condition on both the word knowledge and reading achievement scores--the presence of a strong interaction makes the effect equivocal--the difference being located entirely in school 1 for the Control Group (see Figures 1 and 2). Thus the statistical evidence shows that Null Hypothesis 1 should not be rejected.

Also, Null Hypothesis 2 looks for effects of tutoring and school in terms of reading achievement.

Null Hypothesis 2

> There will be no significant differences in posttest reading achievement among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when pretest and posttest data are analyzed using a factorial design.

The second method for testing change was a Multivariate Analysis of Variance (MANOVA) with two independent variables of school and tutoring type. The MANOVA was performed on the Metropolitan Achievement Tests on the difference (gain) between pretest and posttest word knowledge and reading scores.

There was no overall effect of tutoring on word knowledge and reading score differences [multivariate F (4,284) = 1.80, p $\geq$ .1285]. There was no overall effect of school on the word knowledge and reading score differences [multivariate F (4,284) = 2.12, p $\geq$ .0782]. However the interaction of school and tutoring on word knowledge and reading score differences was highly significant [multivariate F (8,284) = 3.74, p $\leq$ .003] as highlighted in Table 4.

TABLE 4

MANOVA TEST CRITERIA FOR THE EFFECTS OF TUTORING AND SCHOOL ON ACHIEVEMENT SCORE DIFFERENCES

Source	D.F.	F Value	F Prob
Tutoring	4	1.80	.1285
School	4	2.12	.0782
Tutoring & School	8	3.74	.003**
Error	284		

Note: N = 153

**p $\leq$ .01

Analysis of Variance data for each dependent variable are reproduced in Tables 5 and 6. Hence in connection with word knowledge achievement score differences, there were no significant effects relative to tutoring and school but there was a significant effect at the .0001 level relative to the interaction of tutoring and school (see Table 5).

TABLE 5

ANALYSIS OF VARIANCE FOR THE EFFECTS OF TUTORING AND SCHOOL ON WORD KNOWLEDGE ACHIEVEMENT SCORE DIFFERENCES PRETEST AND POSTTEST

Source	D.F.	S.S.	M.S.	F Value	F Prob
Tutoring	2	3.62	1.81	2.62	.0760
School	2	3.52	1.76	2.55	.0815
Tutoring & School	4	20.23	5.06	7.31	.0001**
Error	144	99.58	0.69		

Note: N = 153

**p $\leq$ .01

Also, there were no significant effects of tutoring, school, and interaction of tutoring and school on the reading achievement score differences (see Table 6).

The mean difference scores for each type are plotted in Figures 3 and 4, which depict the mean score changes for the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) by school.

TABLE 6

ANALYSIS OF VARIANCE FOR THE EFFECTS OF TUTORING AND SCHOOL ON READING ACHIEVEMENT SCORE DIFFERENCES PRETEST AND POSTTEST

Source	D.F.	S.S.	M.S.	F Value	F Prob
Tutoring	2	1.28	0.64	2.52	.0839
School	2	1.00	0.50	1.97	.1432
Tutoring & School	4	1.12	0.28	1.10	.3578
Error	144	36.24	0.25		

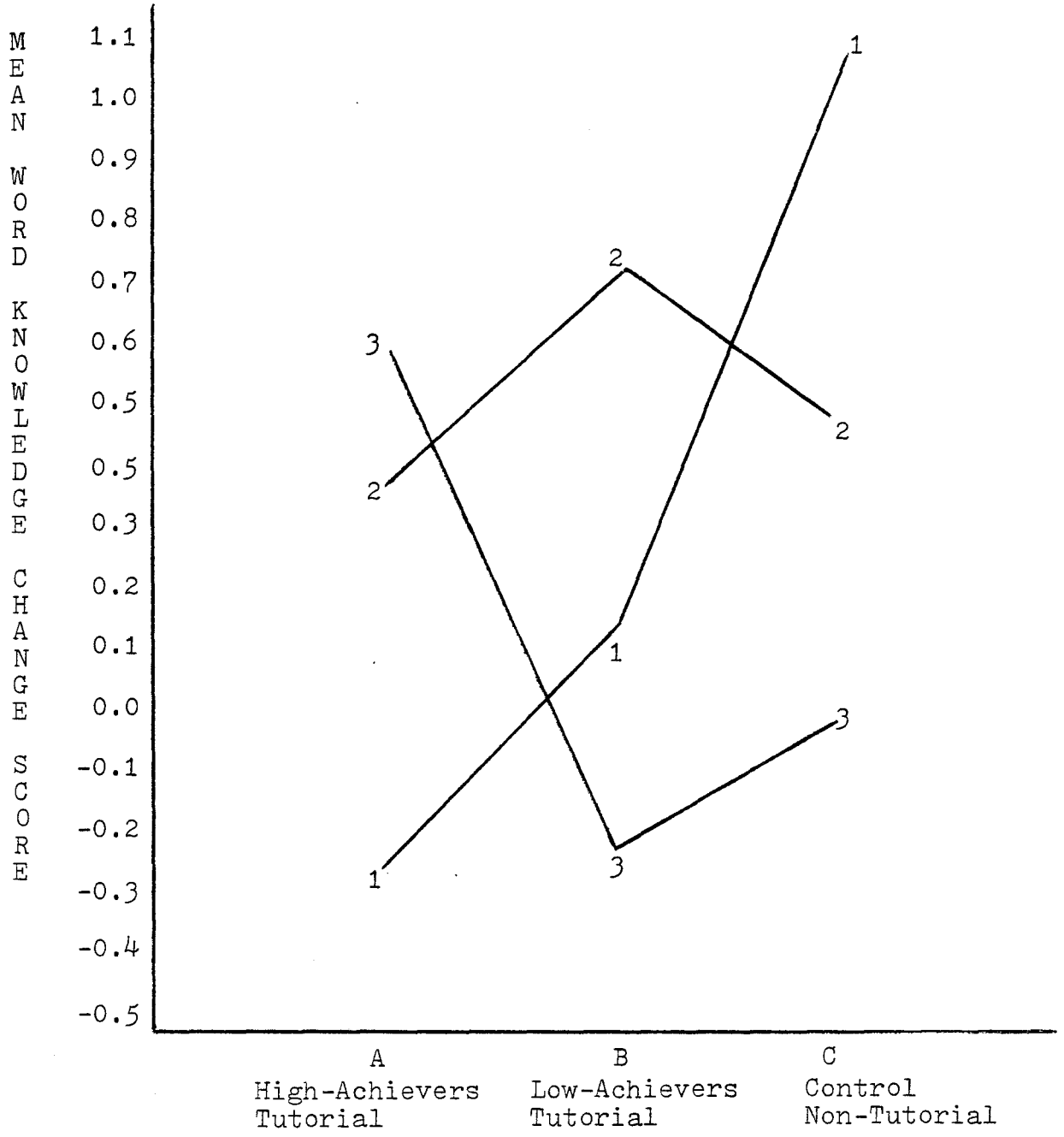
Note: N = 153

With the exception of the groups in school 2, the groups performed in the same rank order in connection with the word knowledge and reading achievement score differences as they did in connection with the adjusted word knowledge and reading achievement scores; with the control group in school 1 out performing all the other groups. The High-Achievers Tutorial (school 1), Low-Achievers Tutorial (school 3) showed from zero to negative mean scores. Six groups showed positive mean scores (see Figure 3) relative to word knowledge. The groups in school 2 performed rather consistently. In fact, there were no extreme mean scores for the groups in school 2 as there were for the groups in schools 1 and 3.

The groups in school 2 reversed their positions

FIGURE 3

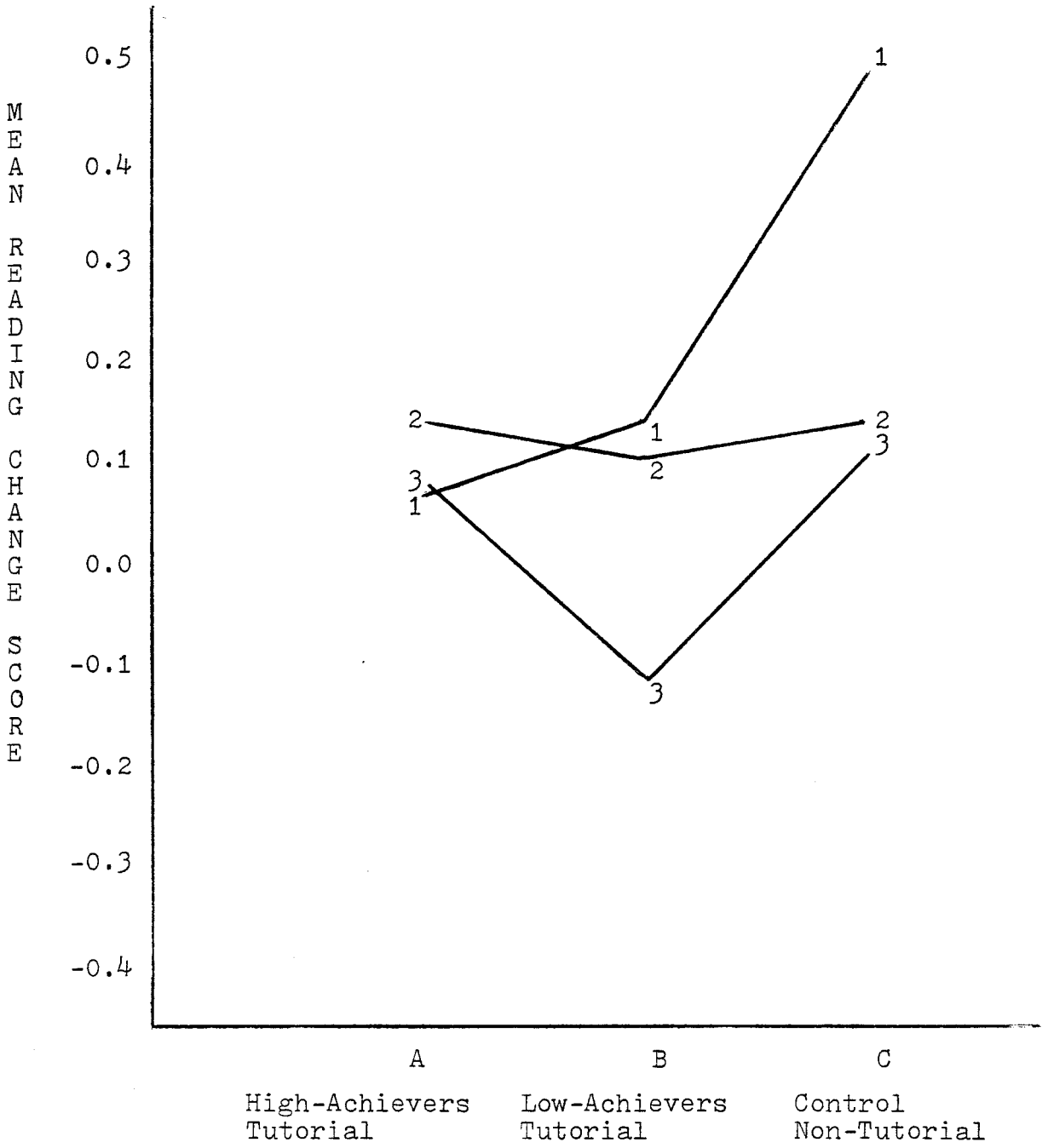
METROPOLITAN ACHIEVEMENT TESTS MEAN WORD KNOWLEDGE
PRETEST-POSTTEST SCORE CHANGE BY
TUTORING AND SCHOOL



NOTE: The plotted numbers represent the three schools.

FIGURE 4

METROPOLITAN ACHIEVEMENT TESTS MEAN READING PRETEST-POSTTEST SCORE CHANGE BY TUTORING AND SCHOOL



NOTE: The plotted numbers represent the three schools.

in relation to the word knowledge and reading achievement score differences as spotlighted in Figures 3 and 4. The tutees who were tutored by the high-achievers in school 3 outperformed the other two groups in school 3 in word knowledge score differences, with the tutees who were tutored by the low-achievers in school 3 showing a negative performance in both word knowledge and reading achievement score differences. The tutees in school 1 remained in the same rank order relative to reading achievement. In sum, only the control group in school 1 consistently outperformed the other groups. Thus the two different analyses yield different conclusions about the statistical significance of the main effect of tutoring and the interaction of both tutoring and school.

The overall word knowledge and reading change are shown in Table 7. The groups showed overall positive gains in both word knowledge and reading achievement scores. Sixty-three percent of the tutees tutored by high-achievers, 68% of the tutees tutored by low-achievers, and 65% of the control (free reading) showed positive gains as depicted in Table 8. The lowest percent of positive gain (36%) was shown by the tutees in school 1 who were tutored by the high-achievers. Sixty-two percent of the tutees in school 2 who were tutored by high-achievers had a positive gain, with 86% of the tutees in school 3 showing the highest positive gain in reading achievement change scores among the tutees who were tutored by high-achievers. In school 3,

TABLE 7

METROPOLITAN ACHIEVEMENT TESTS PRETEST-POSTTEST
OVERALL WORD KNOWLEDGE AND READING CHANGE

School	N	High-Achievers Tutorial	N	Low-Achievers Tutorial	N	Control
1	11	-.26	16	.04	26	.77
2	16	.26	14	.62	21	.40
3	14	.55	11	-.07	24	-.004
Overall	41	.22	41	.21	71	.40

Note: N = 153

TABLE 8

OVERALL PERCENT OF CHANGE BY TUTEES ON THE METROPOLITAN ACHIEVEMENT TESTS PRETEST-POSTTEST

School	High-Achievers Tutorial	Low-Achievers Tutorial	Control
1	+ = 4 (36%) -/0 = 7	+ = 10 (62%) -/0 = 6	+ = 19(73%) -/0 = 7
2	+ = 10 (62%) -/0 = 6	+ = 13 (93%) -/0 = 1	+ = 15(71%) -/0 = 6
3	+ = 12 (86%) -/0 = 2	+ = 5 (45%) -/0 = 6	+ = 12(50%) -/0 = 12
Overall	+ = 26 (63%) -/0 = 15	+ = 28 (68%) -/0 = 13	+ = 46(65%) -/0 = 25

Note: N = 153, + = tutees who made positive gain, -/0 = tutees who showed negative or no gain

45% of the tutees who were tutored by low-achievers had a positive gain, in school 1, 62% of the tutees who were tutored by low-achievers had a positive gain, and in school 2, 93% of the tutees who were tutored by low-achievers had

a positive gain, which was not only the highest gain for this tutoring condition but was the highest gain for all of the groups. In sum, the control group in school 3 had a positive gain (50%), said group in school 2 had a positive gain (71%), with the control group in school 1 showing the highest gain (73%) for this group.

In connection with the overall change scores for both word knowledge and reading achievement, the control group in school 1 had the greatest overall gain (.77); see Table 7. However there was no overall significant difference in change scores due to the tutorial approach. From examining the tables and figures, it can be seen that Null Hypothesis 2 should not be rejected.

Effects of School and Tutoring Type on Student Attitude

Null Hypothesis 3 is concerned with the effects of school and tutoring type in terms of student attitude.

Null Hypothesis 3

> There will be no significant differences in attitude among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when only posttest data are analyzed.

A Multivariate Analysis of Variance (MANOVA) was performed on the four subscale tests of the Primary Attitude Scale (PAS). There was a significant difference

in student attitudes among the three schools [multivariate F (8,280) = 3.35, p $\leq$ .001]; though not among the three tutoring types [multivariate F (8,280) = 1.08, p $\geq$ .37 . However, as with the achievement scores, there was a highly significant interaction between school and tutoring type [multivariate F (16,558) = 2.93, p $\leq$ .0001; see Table 9].

TABLE 9

MANOVA TEST CRITERIA FOR THE EFFECTS OF TUTORING AND SCHOOL ON STUDENT ATTITUDE

Source	D.F.	F Value	F Prob
Tutoring	8	1.08	.37
School	8	3.35	.001**
Tutoring & School	16	2.93	.0001**
Error	558		

Note: N = 153

**p $\leq$ .01

Analyses of Variance (ANOVA) for each dependent variable are reported in Tables 10, 11, 12, and 13. As noted, there was a significant effort of school on student attitude of social maturity, p $\leq$ .0073, but there were no significant effects of tutoring and interaction of tutoring and school on student attitude of social maturity as illustrated in Table 10.

TABLE 10

ANALYSIS OF VARIANCE FOR THE EFFECTS OF TUTORING AND SCHOOL ON STUDENT ATTITUDE OF SOCIAL MATURITY

Source	D.F.	S.S.	M.S.	F Value	F Prob
Tutoring	2	28.57	14.28	1.17	.3139
School	2	124.41	62.21	5.09	.0073**
Tutoring & School	4	60.22	15.06	1.23	.3004
Error	144	1761.51	12.23		

Note: N = 153

**p $\leq$ .01

As depicted below, there were no significant effects of tutoring, school, or interaction of these independent variables on student attitude of self-concept (see Table 11).

TABLE 11

ANALYSIS OF VARIANCE FOR THE EFFECTS OF TUTORING AND SCHOOL ON STUDENT ATTITUDE OF SELF-CONCEPT

Source	D.F.	S.S.	M.S.	F Value	F Prob
Tutoring	2	30.32	15.16	1.95	.1455
School	2	29.85	14.93	1.92	.1498
Tutoring & School	4	51.75	12.94	1.67	.1608
Error	144	1117.51	7.76		

Note: N = 153

Also, there were no significant effects of tutoring or school on student attitude of social relations; however, the interaction of tutoring and school had a significant effect on the said attitude, $p \leq .0014$, as reported in Table 12.

TABLE 12

ANALYSIS OF VARIANCE FOR THE EFFECTS OF TUTORING AND SCHOOL ON STUDENT ATTITUDE OF SOCIAL RELATIONS

Source	D.F.	S.S.	M.S.	F Value	F Prob
Tutoring	2	8.47	4.24	1.86	.1595
School	2	5.87	2.94	1.29	.2788
Tutoring & School	4	42.77	10.69	4.69	.0014**
Error	144	328.14	2.28		

Note: N = 153

**$p \leq .01$

Although there were no significant effects of tutoring on the attitudes mentioned in Tables 10, 11, and 12, tutoring did have a significant effect, $p \leq .0433$, on student attitude toward school (see Table 13). It should be noted that the independent variable of school did not have a significant effect on student attitude toward school. However, there was a significant effect of the interaction of tutoring and school on student attitude toward school as highlighted in Table 13.

TABLE 13

ANALYSIS OF VARIANCE FOR THE EFFECTS OF TUTORING AND SCHOOL ON STUDENT ATTITUDE TOWARD SCHOOL

Source	D.F.	S.S.	M.S.	F Value	F Prob
Tutoring	2	35.81	17.91	3.21	.0433*
School	2	23.66	11.83	2.12	.1237
Tutoring & School	4	113.96	28.49	5.11	.0007**
Error	144	803.60	5.58		

Note: N = 153

*p $\leq$ .05

**p $\leq$ .01

The mean scores for the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) by school are plotted in Figures 5, 6, 7, and 8. Consequently, it is of considerable import to note the potential scores for the Primary Attitude Scale Subtests that range from zero (0) to the following: Social Maturity--25, Self-Concept--15, Social Relations--10, and Attitude Toward School--10. Thus the school symbols plotted on Figures 5, 6, 7, and 8 represent the mean score for the three groups in each school, and not the individual score for each student in each school.

Upon review of the data plotted in Figure 5, it is readily determined that the tutees tutored by high-achievers

had the highest mean social maturity score, followed by the tutees in school 3, with the tutees in school 1 not only showing the lowest mean social maturity score for this tutoring type but a lower mean social maturity score than any other group in the three types. The tutees in school 2 who were tutored by low-achievers had a higher mean social maturity score than any other group. It is interesting to note that the control group in school 1 had next to the lowest mean social maturity score as compared to having the highest mean score for reading achievement.

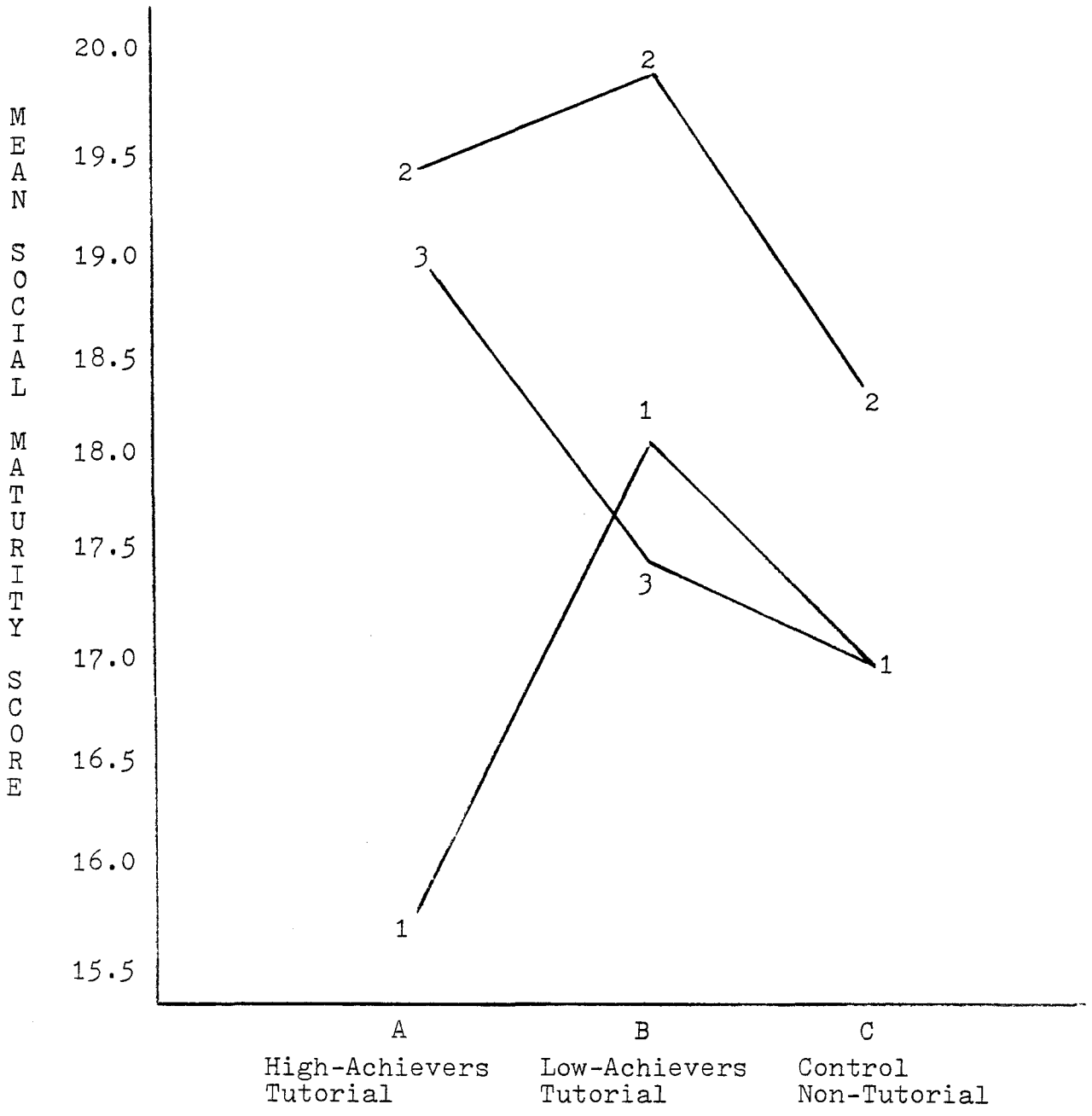
Concerning the mean self-concept score, the groups kept basically the same plotted positions except that the control group in school 1 had a higher mean score than the control groups in schools 2 and 3 (refer to Figure 6).

School 1 in the Low-Achievers Tutorial replaced school 2 as having the highest mean scores as mentioned above, with the control group in school 3 showing the lowest mean social relations score as illumed in Figure 7.

Basically, the same configuration of plotted data is illumed in Figure 8, with the tutees in school 1 who were tutored by high-achievers showing the lowest mean attitude toward school score, and the tutees in school 1 who were tutored by the low-achievers showed the highest mean score for the said attitude. Tutees in school 2 showed the highest mean score for the Control Non-Tutorial.

FIGURE 5

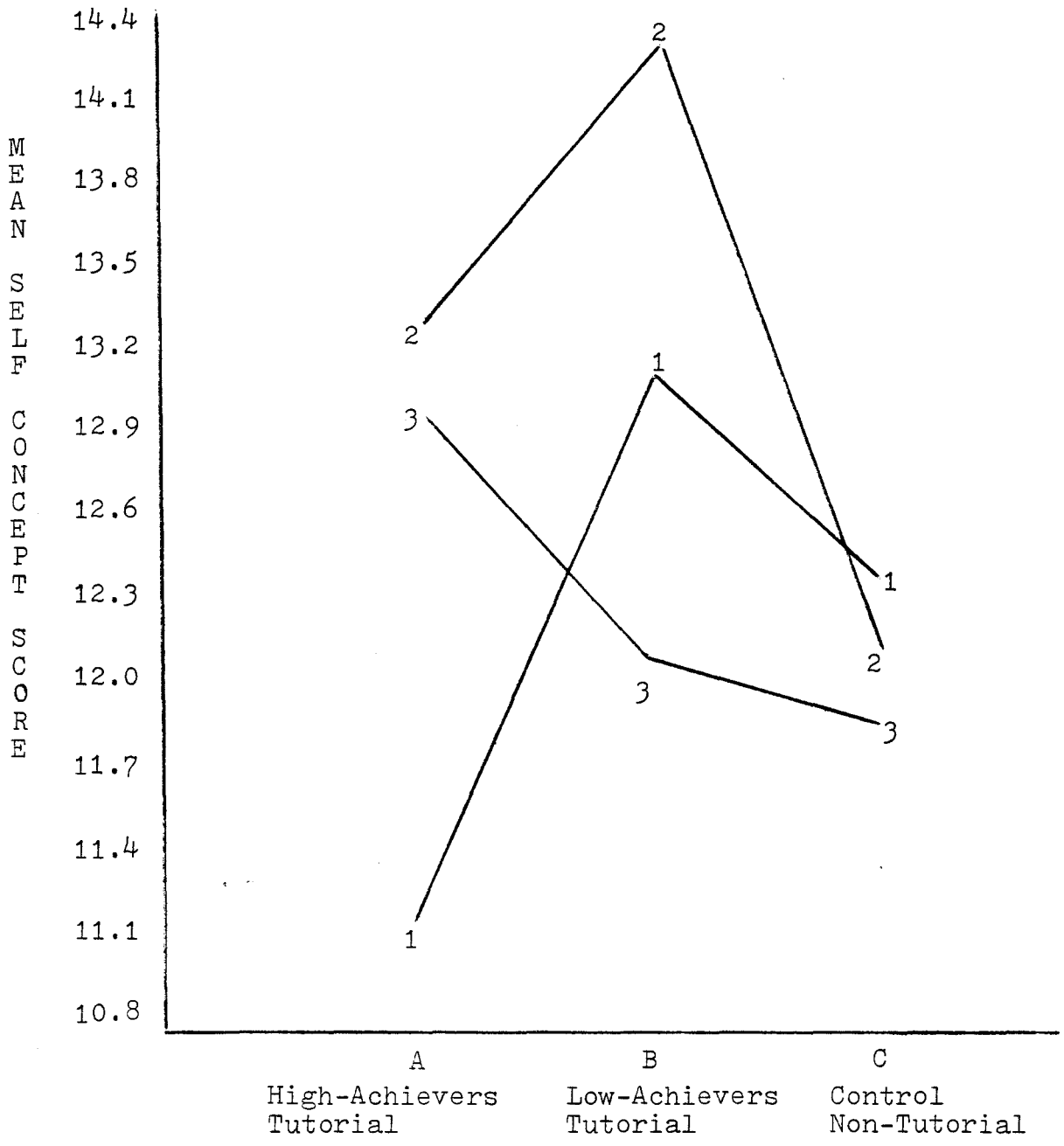
PRIMARY ATTITUDE SCALE MEAN SOCIAL MATURITY SCORE
BY TUTORING AND SCHOOL



NOTE: ONE SYMBOL HIDDEN. The plotted numbers represent the three schools.

FIGURE 6

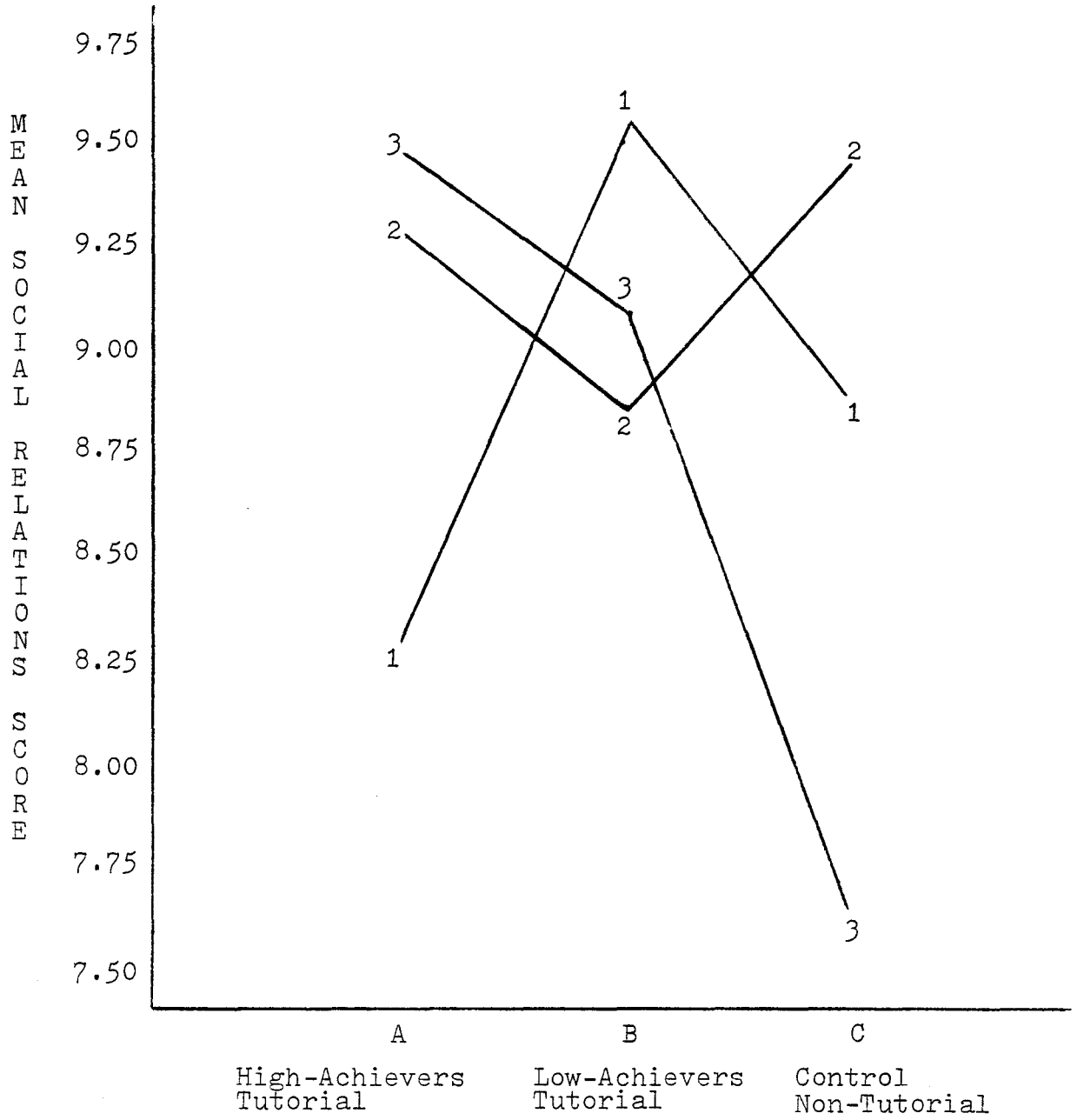
PRIMARY ATTITUDE SCALE MEAN SELF-CONCEPT SCORE
BY TUTORING AND SCHOOL



NOTE: The plotted numbers represent the three schools.

FIGURE 7

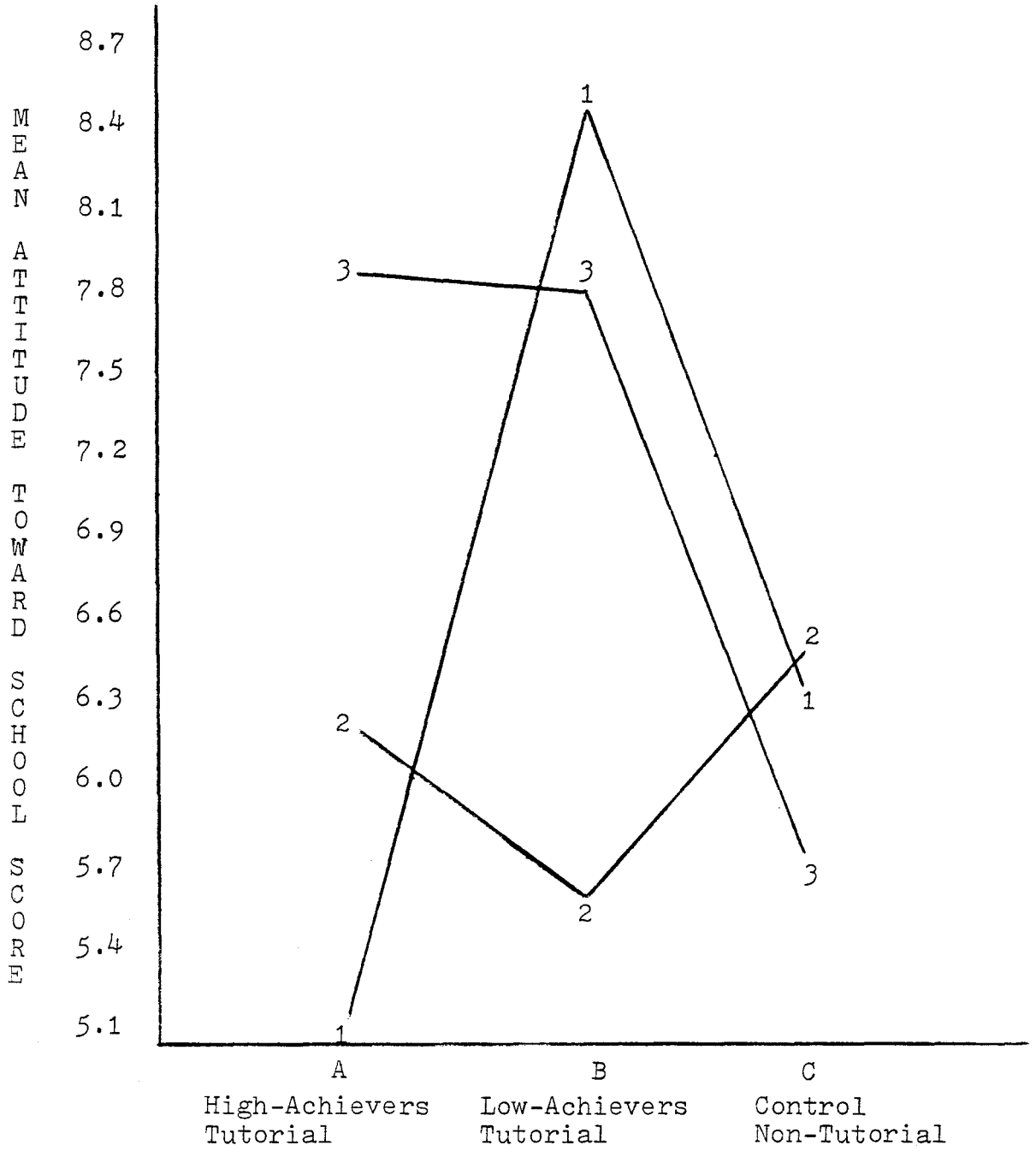
PRIMARY ATTITUDE SCALE MEAN SOCIAL RELATIONS SCORE
BY TUTORING AND SCHOOL



NOTE: The plotted numbers represent the three schools.

FIGURE 8

PRIMARY ATTITUDE SCALE MEAN ATTITUDE TOWARD SCHOOL SCORE BY TUTORING AND SCHOOL



NOTE: The plotted numbers represent the three schools.

Overall, scores on the Social Maturity Subscale were affected only by school; whereas the Social Relations and Attitude Toward School scores were primarily affected by the interaction of tutoring and school.

For internal purposes, the Chicago Board of Education, Department of Research and Evaluation, has defined criteria for a positive attitude on each subscale. For example, the critical scores are as follows: Social Maturity--17, Self-Concept--12, Social Relations--9, and Attitude Toward School--9. These cutoffs were used to dichotomize students' scores into "positive" or "negative" categories in order to perform a X^2 analysis of the frequency of positive attitudes within each condition. Chi-Square statistics for each dependent variable are reported in Tables 14, 15, 16, and 17.

In reference to the effects of tutoring type on student social maturity attitudes, 73% of the tutees who were tutored by high- or low-achievers had positive scores, and 62% of the Control Non-Tutorial had positive scores (see Table 14).

Whereas in connection with the effects of tutoring type on student self-concept attitudes, 78% of the Low-Achievers Tutorial, 68% of the High-Achievers Tutorial, and 67% of the Control Non-Tutorial had positive scores (see Table 15).

TABLE 14

CHI-SQUARE FOR THE EFFECTS OF TUTORING TYPE ON STUDENT SOCIAL MATURITY ATTITUDES

Group	Negative	Positive	N
High-Achievers Tutorial	11	30	41
Low-Achievers Tutorial	11	30	41
Control Non-Tutorial	27	44	71
N	49	104	153

STATISTICS FOR 2-WAY TABLE

CHI-SQUARE 2.192 D.F. = 2 F Prob = 0.3342

TABLE 15

CHI-SQUARE FOR THE EFFECTS OF TUTORING TYPE ON STUDENT SELF-CONCEPT ATTITUDES

Group	Negative	Positive	N
High-Achievers Tutorial	13	28	41
Low-Achievers Tutorial	9	32	41
Control Non-Tutorial	23	48	71
N	45	108	153

STATISTICS FOR 2-WAY TABLE

CHI-SQUARE 1.507 D.F. = 2 F Prob = 0.4706

When focusing on the effects of tutoring type on student social relations attitudes, it is readily seen that 82% of the tutees who were tutored by low-achievers, 75% of the tutees who were tutored by the high-achievers, and 67% of the control students who engaged in free reading had positive scores as illustrated in Table 16.

TABLE 16

CHI-SQUARE FOR THE EFFECTS OF TUTORING TYPE ON STUDENT SOCIAL RELATIONS ATTITUDES

Group	Negative	Positive	N
High-Achievers Tutorial	10	31	41
Low-Achievers Tutorial	7	43	41
Control Non-Tutorial	23	48	71
N	40	113	153

STATISTICS FOR 2-WAY TABLE

CHI-SQUARE 3.249 D.F. = 2 F Prob = 0.1970

Upon analysis of the fourth dependent variable, student attitudes toward school, it is apparent that the negative scores outweighed the positive scores. In fact, 76% of the control students who did not receive any tutoring, 73% of the tutees who were tutored by the high-achievers, and 68% of the tutees who were tutored by the low-achievers had negative scores in connection with attitudes toward school as reported in Table 17.

TABLE 17

CHI-SQUARE FOR THE EFFECTS OF TUTORING TYPE ON STUDENT ATTITUDE TOWARD SCHOOL

Group	Negative	Positive	N
High-Achievers Tutorial	30	11	41
Low-Achievers Tutorial	28	13	41
Control Non-Tutorial	54	17	71
N	112	41	153

STATISTICS FOR 2-WAY TABLE

CHI-SQUARE 0.799 D.F. = 2 F Prob = 0.6708

Thus, in examining the data generated for Null Hypothesis 3, it is seen that the hypothesis as stated was verified.

Correlation Between Student Attitude and Reading Achievement

There was no overall correlation of attitude with the adjusted word knowledge and reading achievement scores, and there was no overall correlation of attitude with the word knowledge and reading achievement change scores. In school 2, the tutees who were tutored by high-achievers showed a negative correlation (-.70, $p \leq .01$) between social relations and adjusted word knowledge scores; in school 3, tutees who were tutored by low-achievers showed a negative correlation (-.60, $p \leq .05$) between self-concept and adjusted word knowledge scores;

and in school 3, the control group showed a negative correlation (-.45, $p \leq .05$) between social maturity and adjusted word knowledge scores (see Table 18).

In connection with the adjusted reading achievement scores there was a negative correlation (-.45, $p \leq .05$) for the Control Non-Tutorial in school 3--social maturity; a negative correlation (-.61, $p \leq .05$) for the Low-Achievers Tutorial in school 3--self-concept; a negative correlation (-.70, $p \leq .01$) for the High-Achievers Tutorial in school 2--social relations; a positive correlation (.55, $p \leq .05$) for the Low-Achievers Tutorial in school 2--social relations; and a positive correlation (.60, $p \leq .05$) for the High-Achievers Tutorial in school 1--attitude toward school (see Table 19).

With reference to the change in word knowledge scores there were four instances of negative correlations and one instance of positive correlation with the attitude subscales for the following three groups: High-Achievers Tutorial school 2--social relations (-.59, $p \leq .05$), Low-Achievers Tutorial school 3--self-concept (-.64, $p \leq .05$) and attitude toward school (-.65, $p \leq .05$), and Control Non-Tutorial school 1 (.39, $p \leq .05$) and school 3 (-.52, $p \leq .05$)--social maturity (see Table 20). Finally, only the tutees who were tutored by the low-achievers in school 2 showed a correlation (.55, $p \leq .05$) between social relations and change in reading achievement (see Table 21).

TABLE 18

CORRELATIONS OF ATTITUDE SCALES WITH ADJUSTED WORD KNOWLEDGE SCORES

Tutoring Type	School	N	Social Maturity	Self-Concept	Social Relations	Attitude Toward School
High-Achievers Tutorial	1	11	.38	-.08	.25	.57
	2	16	-.16	-.05	-.70**	.03
	3	14	.13	-.07	.35	.17
Low-Achievers Tutorial	1	16	.46	-.19	.07	-.28
	2	14	.13	.39	.51	-.13
	3	11	-.26	-.60*	-.28	-.47
Control Non-Tutorial	1	26	.27	.31	.07	-.04
	2	21	-.22	-.25	-.08	-.16
	3	24	-.45*	-.03	-.03	-.04

Note: N = 153

*p $\leq$ .05

**p $\leq$ .01

TABLE 19

CORRELATIONS OF ATTITUDE SCALES WITH ADJUSTED READING SCORES

Tutoring Type	School	N	Social Maturity	Self-Concept	Social Relations	Attitude Toward School
High-Achievers Tutorial	1	11	.40	-.04	.24	.60*
	2	16	-.13	-.02	-.70**	.01
	3	14	.11	-.07	.36	.18
Low-Achievers Tutorial	1	16	-.46	-.19	.09	-.29
	2	14	.17	.48	.55*	-.12
	3	11	-.24	-.61*	-.31	-.44
Control Achievers Tutorial	1	26	.28	.31	.07	-.04
	2	21	-.23	-.26	-.08	-.17
	3	24	-.45*	-.05	-.04	-.04

Note: N = 153

*p $\leq$ .05

**p $\leq$ .01

TABLE 20

CORRELATIONS OF ATTITUDE SCALES WITH CHANGE IN WORD KNOWLEDGE SCORES

Tutoring Type	School	N	Social Maturity	Self-Concept	Social Relations	Attitude Toward School
High-Achievers Tutorial	1	11	.38	.09	.00	.52
	2	16	-.22	.03	-.59*	-.07
	3	14	-.01	-.22	.19	.10
Low-Achievers Tutorial	1	16	-.38	-.14	.20	-.29
	2	14	.14	.28	.42	-.14
	3	11	-.35	-.64*	-.32	-.65*
Control Non-Tutorial	1	26	.39*	.38	.11	.04
	2	21	-.37	-.34	-.24	-.28
	3	24	-.52*	-.15	-.09	-.06

Note: N = 153

*$p \leq .05$

TABLE 21

CORRELATIONS OF ATTITUDE SCALES WITH CHANGE IN READING SCORES

Tutoring Type	School	N	Social Maturity	Self-Concept	Social Relations	Attitude Toward School
High-Achivers Tutorial	1	11	.23	-.20	.43	.42
	2	16	.07	-.12	-.38	.14
	3	14	.21	.20	.48	.25
Low-Achievers Tutorial	1	16	-.43	-.19	-.05	-.22
	2	14	.18	.52	.55*	-.11
	3	11	-.03	-.33	-.08	-.21
Control Non-Tutorial	1	26	.03	.08	-.06	-.16
	2	21	.08	.00	-.16	.05
	3	24	.01	.25	.11	.04

Note: N = 153

*p $\leq$ .05

In sum, there were five instances of correlations of social relations, four instances of correlations of social maturity, three instances of correlations of self-concept, and two instances of correlations of attitude toward school with reading achievement as reported in Tables 18, 19, 20, and 21. However, to reiterate, there were no overall correlations of attitude subscales with reading achievement.

Summary

In studying the preceding data and the statistical analyses, the following results are noted.

1. There was a significant effect (.05 level) of tutoring type on the adjusted word knowledge and reading scores, and a highly significant effect (.002 level) of the interaction of tutoring and school, which makes the effect equivocal with the difference being located entirely in one school and with the Control Group. The overall effect of school on the adjusted word knowledge and reading scores was not significant (.31 level). Hence Null Hypothesis 1 was not rejected.
2. From observation of Tables 3, 4, and 5, and Figures 3 and 4, it is noted that there were no overall effects of tutoring type

(.1285 level) and school (.0782 level) on the word knowledge and reading score differences, and the interaction effect was evident for word knowledge scores alone. Thus Null Hypothesis 2 was not rejected.

3. There was a significant difference ($p \leq .001$) in student attitudes among the three schools; though not among the three tutoring types ($p \geq .37$). In examining the Chi-Square statistics in Tables 14, 15, 16, and 17 (Social Maturity - F Prob = 0.3342, Self-Concept - F Prob = 0.4706, Social Relations - F Prob = 0.1970, and Attitude Toward School - F Prob = 0.6708), it is seen that Null Hypothesis 3 was not rejected.
4. There were both positive and negative correlations of attitude subscales with word knowledge and reading scores as reported in Tables 18, 19, 20, and 21. However there was no overall correlation of attitude subscales with reading achievement.

Chapter V will present the interpretations, limitations, and the recommendations of this research.

CHAPTER V

DISCUSSION

Research Hypothesis

The present experiment tested the general hypothesis that there would be no significant differences in reading achievement and attitude among fourth grade students who were tutored by eighth grade high-achievers, fourth grade students who were tutored by eighth grade low-achievers, and fourth grade students who were not tutored at all.

The conceptual rationale for the present study was based on role theory, which links the individual to the social system by means of the concept of social position, thus enacting the role of the teacher/tutor in the same way as enacting any role produces behavioral and cognitive changes that are consistent with role expectations. Hence the role expectations inherent in the present study are that high-achievers are competent enough to have a favorable effect on reading achievement and attitude of tutees, and low-achievers have similar cognitive constructs as the tutees, which are requisite to influence the tutees in reading achievement and attitude.

The assumptions mentioned above should not be discarded based on the evidence presented in Tables 18, 19, 20, and 21, which highlighted the fact that social relations, social maturity, self-concept, and attitude toward school are related to reading achievement in some instances, thereby linking the tutees to the social system.

Also the notion that high-achievers are competent enough to have a positive impact on the tutees cannot be ruled out because the evidence presented in Table 5 showed that 63% of the tutees who were tutored by high-achievers made positive gains in reading.

Furthermore, in connection with the similar cognitive construct assumption, it is worthy to note that 68% of the tutees who were tutored by low-achievers made positive gains in reading achievement.

Thus it appears that the aforementioned role theory assumptions are appropriate for tutoring research.

Major Findings Related To Statistical Hypotheses

Null Hypothesis 1

> There will be no significant differences in posttest reading achievement among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when pretest scores are used as the covariate.

Analyses of the results in general showed that there was no overall effect of the independent variable of school on the adjusted word knowledge and reading comprehension

scores. There was a significant effect of the independent variable of tutoring type on word knowledge and reading achievement scores, and the interaction of school and tutoring type was highly significant for both the adjusted word knowledge and reading achievement scores. Though there was a significant effect of tutoring type on both test scores--the presence of a strong interaction makes the effect equivocal--the difference being located entirely in one school, and for the control group in that particular school, which did not receive any tutoring. The control group was limited to free reading activities during the tutoring sessions, so perhaps self-motivation was a key variable when the tutees were engaged in reading activities free of distorting pressure that might be caused by the tutoring situation. For example, in the tutoring situation the tutee must adjust to the tutor and to the role she or he must play. But in the free reading situation the tutee, basically, has only to contend with oneself. Therefore in some situations one may assume that free reading activities might be more productive than tutoring activities in connection with reading achievement.

Furthermore, it appears that the achievement of the control group in school 1 could also have been affected by an intervening variable--that is, the personality and teaching style of the regular classroom teacher before and after the

tutoring sessions, since it was not possible to perfectly counterbalance nor analyze for this variable (instructor effect).

However, the data presented in Chapter IV show that on the average all three groups gained in reading, and that this gain was somewhat higher in the control group than in the two tutoring groups. The interaction arose also because high-achieving tutors were most effective in school 3, low-achieving tutors were most effective in school 2, and control--non-tutorial was most effective in school 1; and because of the unique population of each school.

Nevertheless, there were no significant differences in posttest reading achievement among the students participating in the three groups.

Null Hypothesis 2

> There will be no significant differences in reading achievement among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when pretest and posttest data are analyzed using a factorial design.

In connection with Null Hypothesis 2, analyses of the results showed that there was no overall effect of tutoring by high-achievers or low-achievers on word knowledge and reading score differences ($p \geq .1285$), and there was no overall effect of school on the word knowledge and reading score differences ($p \geq .0782$). However, the

interaction of school and tutoring on word knowledge and reading score differences was highly significant ($p \leq .003$). Again, it is important to note that the percent of students who gained in reading was about the same (65%) in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial).

Nevertheless, in addition to the intervening variables of instructor effect and self-motivation, there is a possibility that the equivocal effect was caused by the "interaction of selection" since the significant difference was only reported in one school--namely, with the control group as depicted in Figures 3 and 4.

It is expected that interactions are decidedly likely in schools that differed in various characteristics, for example, varied ethnic texture and income. Therefore, it is necessary to acknowledge that the varied ethnic subjects were selected for the present study so that generalizations could be made in relation to urban school settings. Thus the three schools included in the present study differed in various characteristics. Consequently, the statistical data plotted in Figures 1, 2, 3, and 4 represent an extreme form of interaction in which neither school nor tutoring has any main effect (no general rules emerge as to which level of either is better) but in which the interactions are strong and definite, thus limiting the generalizability of effects.

Null Hypothesis 3

There will be no significant differences in attitude among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when only posttest data are analyzed.

A Multivariate Analysis of Variance was performed on the four subscale tests (Social Maturity, Self-Concept, Social Relations, and Attitude Toward School) of the Primary Attitude Scale. There was significant difference in student attitudes among the three schools ($p \leq .001$). However, it appears that this can be accounted for partially due to the interaction of selection since there were no significant differences in student attitudes among the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial), at the .37 level.

As with the achievement scores, there was highly significant interaction between school and tutoring type at the .001 level. Also, as with the achievement scores, the statistical data plotted in Figures 5, 6, 7, and 8 represent an extreme form of interaction in which neither school nor tutoring has any main effect, thus limiting the generalizability of effects.

Upon analysis of the statistical data as presented herein, there was no overall correlation between reading achievement and student attitude. But there were 14 instances of both positive and negative correlations of the attitude subscales with word knowledge and reading

scores. Furthermore, it is informative to spotlight the correlation of attitude with reading achievement concerning the three groups that had the greatest percent of overall reading change scores. Thus the control group in school 1 had only one instance of correlation between attitude and reading achievement, the low-achievers tutorial group in school 2 had three instances of correlation between attitude and reading achievement, and the high-achievers tutorial group in school 3 showed no instances of correlation between attitude and reading achievement. By chance, the positive and negative correlations were mainly affected by the large number of correlations (144) in ratio to the small number of students in the nine subgroups rather than by the interaction among the three tutoring types (refer to Tables 18, 19, 20, and 21).

Of the attitude subscales, social relations and social maturity had the highest instances of correlation with reading achievement. This finding is consistent with the current thinking in role theory. In the current thinking, self-concept occupies a less central role in the understanding of interaction than the concept of social identity.[1]

It appears that the role enactment within the three groups accounts for the extreme form of interaction. Hence, upon analysis of the statistical data as presented herein, there was no overall correlation between reading achievement

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[1]Sarbin and Allen, op. cit., pp. 550-558.

and student attitude.

Finally, in examining the Chi-Square statistical data: Social Maturity ($p \geq .3342$), Self-Concept ($p \geq .4706$), Social Relations ($p \geq .1970$), and Attitude Toward School ($p \geq .6708$), there were no significant differences in attitude among the students participating in the three groups as listed above.

Relationship To Previous Research

These results do not support the assumptions postulated by Cicirelli[1] and Argyle[2] that young children can learn certain tasks more effectively if they are taught by a person closer to the children's age, and who understands their problems and viewpoint. In fact, these results are in accord with the negative result reported by Paoni[3]--namely, that tutoring programs are not any more effective academically for students being tutored than traditional programs. Also, the results rejected the finding reported by Frager and Stern[4] that tutored children performed better than untutored children regardless of the tutoring method. However, the present study's results affirmed their finding that high-achievers and low-achievers

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[1]Cicirelli, op. cit., p. 99.

[2]Argyle, op. cit., pp. 67-68.

[3]Paoni, op. cit.

[4]Frager and Stern, op. cit., pp. 403-405.

were equally effective as tutors.

In connection with the affective dimension of the present experiment, the results did not support the assertion of J. E. Lohman[1] that older age is positively valued by younger children; hence enhancing a younger child's self-esteem. Actually the statistical data reproduced and plotted in Chapter IV indicate that there was no distinct effect of the type of tutor on the attitude of the tutee. Concomitantly, there was no correlation between student achievement and student attitude.

Limitations

Substantial evidence was not provided in order to determine whether the previous research cited herein controlled for the "interaction of selection" effect. Ostensibly this was one of the prime limitations of the present study. Subsequently, there remains the possibility that the effects reported in Chapter IV in connection with the reading achievement of the Control Group in school 1, and in connection with the attitude scores of the students in the three schools hold only for the unique student population from which the experimental and control groups were jointly selected. Almost certainly the characteristics of the three schools caused the extreme interaction effect that was plotted in the figures in Chapter IV.

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[1]Lohman, op. cit.

While perfect sampling representativeness is impossible to achieve, it can and should be emphasized as a desideratum in research on tutoring. One way to increase it is to reduce the number of students or classrooms participating from a given school or grade and to increase the number of schools and grades in which the experiment is carried on.

Another methodological weakness of this experiment had to do with the temporal factor. Specifically, this study was conducted for only 10 weeks--three 30 minute sessions per week--with 15 minutes devoted to the teaching of word-attack skills and 15 minutes allotted to the teaching of reading comprehension skills. In consequence, the total instructional time (tutoring and classroom) was not held constant; possibly affecting the results of this study.

The literature on tutoring apparently does not contain any studies comparing differing amounts of time spent in tutoring. However, most investigators hold the view that the longer the tutoring program, the more positive the effects will be.[1]

Competing Hypotheses and Rationale for Their Rejection

Palpably, the results delineated herein are contrary

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[1]Robert S. Feldman, Linda Devin-Sheehan, and Vernon L. Allen, "Children Tutoring Children: A Critical Review of Research," in Children As Teachers: Theory and Research on Tutoring, ed. V. L. Allen (New York: Academic Press, 1976), p. 242.

to one of the findings reported by Frager and Stern.[1] Thus, one could raise the question that the result was affected by the Hawthorne effect and/or the "reactive arrangements" effect; that is, the patent artificiality of the experimental setting and the student's knowledge that he/she was participating in an experiment. In the present study, the said effect was negated by moving the randomization to the classroom as a unit as suggested by Campbell and Stanley.[2]

A further argument can be raised that Frager and Stern's results are due to "interaction of testing" effect caused by the use of criterion-referenced tests. Hence the more obvious the connection between the experimental and the posttest content, the more likely this effect becomes. This effect was likely negated in the present study by the use of norm-referenced tests, which are used on an ongoing basis by the three schools that participated in the present experiment. Therefore, it seems most plausible to conclude that when said interaction effect and reactive arrangements effect are controlled in tutoring experiments that there will be no significant differences among students who are tutored by high or low

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[1]Frager and Stern, op. cit., pp. 403-405.

[2]Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research (Chicago: Rand McNally College Publishing Company, 1963, pp. 20-22.

achievers or among students who are not tutored at all.

Whether or not the tutee will improve more from being tutored by a particular type of tutor is still an open question because of the limitations of this study.

The task of identifying a successful and practical approach for some of the millions of children who have reading handicaps remains a worthy endeavor. Thus, ideas for making tutoring models applicable to schools as they exist should be explored.

Recommendations

The preceding analysis and results seem to justify the following recommendations.

1. The study should be replicated reducing the number of students or classrooms per school. (The present study involved two classrooms with approximately 50 students.) The number of schools and grades should be increased. (The present study involved three schools and only fourth grade.) In this way, it might improve the sampling representativeness thereby negating the negative "interaction of selection" effect.
2. Replication should also focus on the temporal factor by extending the duration of the experiment from 10 weeks to five months, and by keeping the total instructional (classroom

and tutoring) time constant.

3. Also, replication should focus on the type of tutors by using a testing instrument for selecting high and low achieving tutors who score high on attitude scales of "social relations and social maturity." By making social relations and social maturity key independent variables, perhaps knowledge can be acquired concerning interaction effects which can be used to enhance a positive correlation between student attitude and reading achievement.
4. In addition, replication should focus on the interaction effect by matching a particular type of tutor with a particular type of tutee through the use of attitude scales and video tapes.
5. Finally, replication should focus on free reading as opposed to tutoring.

SUMMARY

The Nature of the Problem

Although attention has been given to reading disability since 1900, there seem to be increasingly large numbers of students continuing to need specialized help. Thus there has been a resurgence of interest in using school children to tutor their peers.

Despite the increase in both the variety and number of tutorial programs, scholars have yet to determine with certainty the extent to which such programs bring about the distinct desired effects.

The question before the researcher came to be formulated as follows: What kinds of tutors would bring about a greater degree of learning to other students?

The conceptual rationale for the present study was based on role theory, which links the individual to the social system by means of the concept of social position, thus enacting the role of the teacher/tutor in the same way as enacting any role produces behavioral and cognitive changes that are consistent with role expectations. Hence the role expectations inherent in this study were: High-achievers are competent enough to have a favorable effect

on reading achievement and attitude of tutees; and low-achievers have similar cognitive constructs as the tutees, which are requisite to influence the tutees in reading achievement and attitude.

The Purpose

The purpose of the present study was to determine whether significant differences exist in reading achievement and attitude between fourth grade students who were tutored by eighth grade high-achievers and those who were tutored by eighth grade low-achievers.

Null Hypotheses

1. There will be no significant differences in reading achievement among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when pretest scores are used as the covariate.

2. There will be no significant differences in reading achievement among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when pretest and posttest data are analyzed using a factorial design.

3. There will be no significant differences in attitude among the students participating in the three groups (High-Achievers Tutorial, Low-Achievers Tutorial, and Control--Non-Tutorial) when only posttest data are

analyzed.

Subjects

The students were randomly selected from three urban public schools. The community consisted of a varied ethnic texture; that is, Polish, Slavic, Italian, German, Spanish, Korean, Afro-American, and other groups. It was a working class community; however, fifteen per cent of the students were from low-income families.

There were two levels of experimental treatment: 41 fourth grade students were tutored by eighth grade high-achievers, and 41 fourth grade students were tutored by eighth grade low-achievers. The control group, 71 fourth graders, did not receive any tutoring; however, they engaged in free-reading activities during the tutoring sessions.

Materials

The investigator administered the Metropolitan Achievement Tests (Word Knowledge and Reading)--Elementary, Form F, as pre and post measures. Also, the Primary Attitude Scale was administered as a post measure.

TU-READ (Tutored Reading) Tutoring Program materials--Levels E, F, G, H (Primary), and J (Intermediate), which are published by the Board of Education, City of Chicago, were used.

Procedures

Pre and post standardized, norm-referenced, reading achievement tests were administered to the fourth grade tutees and to the control group, and the Primary Attitude Scale was administered as a post measure to both the experimental and control groups.

The tutors, both high and low achievers, received one week of inservice training conducted by the investigator prior to the tutoring sessions. The principal focus of the inservice sessions was to train the tutors on how to introduce the tutoring lessons (word-attack and comprehension), and how to evaluate the lessons. The sessions were held three times a week for 30 minutes each session.

Statistical Procedures

H1: Multivariate Analysis of Covariance in a 3 x 3 factorial arrangement, where tutoring and school type are regarded as the prime effects. The dependent variable is reading achievement standing at posttest with pretest scores treated as a covariate variable.

H2: Multivariate Analysis of Variance, where tutoring and school type are regarded as independent variables. The dependent variable is reading achievement between pretest and posttest in a 3 x 3 factorial design.

H3: Multivariate Analysis of Variance, where tutoring and school type are regarded as independent variables. The

dependent variable is student attitude on posttest in a 3 x 3 factorial design. Also, an Analysis of Crossbreaks in a contingency arrangement followed by X^2 test of significance to determine the extent of the relationship existing between treatment and student attitude was used.

Results

The statistical analysis of the data yielded the following results.

1. Although there was a significant effect (.05 level) of tutoring type on the adjusted word knowledge and reading scores, and a highly significant effect (.002 level) of the interaction of tutoring and school, which makes the effect equivocal with the difference being located entirely in one school and with the Control Group (see Figures 1 and 2, pp. 35-36). The overall effect of school on the adjusted word knowledge and reading scores was not significant ($p \geq .31$). Hence Null Hypothesis 1 was not rejected.
2. From observation of data relative to Hypothesis 2, it was noted that there were no overall effects of tutoring type (.1285 level) and school (.0782 level) on the word knowledge and reading score differences, and the inter-

action effect was evident for word knowledge scores alone. Thus Null Hypothesis 2 was not rejected.

3. There was a significant difference ($p \leq .001$) in student attitudes among the three schools; though not among the three tutoring type ($p \geq .37$). In examining the Chi-Square statistics in Tables 14, 15, 16, and 17 (Social Maturity - F Prob = 0.3342, Self-Concept - F Prob = 0.4706, Social Relations - F Prob = 0.1970, and Attitude Toward School - F Prob = 0.6708), it is seen that Null Hypothesis 3 was not rejected.
4. There were both positive and negative correlations of attitude subscales with word knowledge and reading scores as reported in Tables 18, 19, 20, and 21. However there was no overall correlation of attitude subscales with reading achievement.

Discussion

Analyses of the results in general showed that there was no overall effect of the independent variable of school on the adjusted word knowledge and reading achievement scores. Though there was a significant effect of tutoring type on both test scores--the presence of a strong interaction makes the effect equivocal--the difference

being located entirely in one school, and for the control group in that particular school, which did not receive any tutoring. Hence, it appears that the aforesaid interaction effect was caused by an "intervening variable;" that is, the instructor effect--since it was not possible to perfectly counterbalance nor analyze for this variable.

In connection with Null Hypothesis 2, analyses of the results showed that there was no overall effect of tutoring by high-achievers or low-achievers on word knowledge and reading score differences (.1285 level), and there was no overall effect of school on the word knowledge and reading score differences (.0782 level). However the interaction of school and tutoring on word knowledge and reading score differences was highly significant (.003 level).

Nevertheless, in addition to the instructor effect mentioned above, it is plausible to surmise that the strong interaction was caused by the unique characteristics of the three schools; for example, varied ethnic texture and income level of the subjects.

In relation to Null Hypothesis 3, there was a significant difference in student attitudes among the three schools (.001 level). However, it appears that this was caused by the interaction of selection since there were no significant differences in student attitudes among the three groups (High-Achievers Tutorial, Low-Achievers Tu-

torial, and Control--Non-Tutorial), at the .37 level.

Also in examining the Chi-Square statistical data, it was readily seen that there were no significant differences in attitude among the students who participated in the present study.

Palpably, the results delineated herein are contrary to the hypothesis of previous research, which asserts that tutored children performed better than untutored children regardless of the tutoring method. Thus, one could raise the question that previous research results were affected by reactive arrangements, interaction of testing, and interaction of selection effects. Therefore, it seems most plausible to conclude that when the above external effects are controlled in tutoring experiments that there will be no significant differences among students who are tutored by high or low achievers or among students who are not tutored at all.

Limitations

The interaction of selection effect ostensibly was one of the prime limitations of the present study. Subsequently, there remains the possibility that the effects reported in the present study in connection with the reading achievement of the control group in school 1, and in connection with the attitude scores of the students in the three schools hold only for the unique student population from which the experimental and control groups

were jointly selected. Almost certainly the characteristics of the three schools caused the extreme interaction effect that was reproduced or plotted in the present study.

Another methodological weakness of this experiment had to do with the temporal factor. Specifically, this study was conducted for only 10 weeks--three 30 minute sessions per week--with 15 minutes devoted to the teaching of word-attack skills and 15 minutes allotted to the teaching of reading comprehension skills. In consequence, the total instructional time (tutoring and classroom) was not held constant; possibly affecting the results of this study.

Conclusions

The results highlighted herein showed that there was no overall significant difference in reading achievement and attitude among the students who were tutored by high or low achievers or among the students who were not tutored at all. Therefore, it seems most plausible to conclude that when interaction of testing, interaction of selection, and reactive arrangements effects are controlled in tutoring experiments that there will be no significant differences among the subjects participating in such experiments.

Whether or not the tutee will improve more from being tutored by a particular type of tutor is still an open question because of the limitations of the present

study.

The task of identifying a successful and practical approach for some of the millions of children who have reading handicaps remains a worthy endeavor. Thus, ideas for making tutoring models applicable to schools as they exist should be explored.

Recommendations

The preceding analysis and results seem to justify the following recommendations.

1. The study should be replicated reducing the number of students or classrooms per school. (The present study involved two classrooms with approximately 50 students.) The number of schools and grades should be increased. (The present study involved three schools and only fourth grade.) In this way, it might improve the sampling representativeness thereby negating the negative "interaction of selection" effect.
2. Replication should also focus on the temporal factor by extending the duration of the experiment from 10 weeks to five months, and by keeping the total instructional (classroom and tutoring) time constant.
3. Also, replication should focus on the type of tutors by using a testing instrument for

selecting high and low achieving tutors who score high on attitude scales of "social relations and social maturity." By making social relations and social maturity key independent variables, perhaps knowledge can be acquired concerning interaction effects which can be used to enhance a positive correlation between student attitude and reading achievement.

4. In addition, replication should focus on the interaction effect by matching a particular type of tutor with a particular type of tutee through the use of attitude scales and video tapes.
5. Finally, replication should focus on free reading as opposed to tutoring.

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APPENDIX A

February 28, 1979

Dear Parents:

A cross-age tutoring project, using eighth year students to tutor fourth year students, is being implemented at the _____ School.

The purpose of this study is to determine the effectiveness of tutoring on the reading achievement of elementary students, while assisting the students with the mastery of the Continuous Progress Reading Skills.

The tutoring sessions will be held three times a week for approximately 30 minutes per session. TU-READ Tutoring Program (Board Of Education) materials will be used. Thus, specific skill lessons in both word-attack and comprehension will be emphasized during each tutoring session. Also, adequate supervision will be provided.

Both tutors and tutees can benefit from participating in a tutoring program. If your son/daughter can participate in this tutoring project, please sign (below) and return this letter to the _____ School.

Sincerely,

Thomas J. Stewart
Principal/Investigator
Prescott School

PARENTAL CONSENT

I give permission for my son/daughter,_____

_____, to participate in the above mentioned cross-age tutoring project.

_____ _____

Parent's Signature Date

APPENDIX B

PRE AND POST READING TEST SCORES

METROPOLITAN ACHIEVEMENT TESTS FORM F

GROUP I - FOURTH GRADE

TUTEES TUTORED BY HIGH-ACHIEVERS

		Pre-Test			Post-Test			
Student	School	Word Know.	Reading	Total Reading	Word Know.	Reading	Total Reading	Total Reading Diff.
001	3	3.5	3.6	3.6	4.8	4.3	4.6	1.0
002	3	5.3	5.3	5.3	5.4	5.9	5.7	0.4
003	3	4.5	3.6	4.1	5.0	4.8	4.9	0.8
004	3	4.8	5.2	5.0	6.7	6.5	6.6	1.6
005	3	4.4	4.1	4.3	3.7	2.1	2.9	-1.4
006	3	3.9	3.4	3.7	5.0	4.4	4.7	1.0
007	3	6.5	6.1	6.3	6.5	7.8	7.2	0.9
008	3	5.2	4.5	4.9	4.4	4.4	4.4	-0.5
009	3	5.6	5.9	5.8	7.9	6.5	7.2	1.4
010	3	5.2	3.8	4.5	5.5	4.2	4.9	0.4
011	3	4.1	5.5	4.8	5.0	5.1	5.1	0.3
012	3	5.0	4.9	5.0	5.0	5.5	5.3	0.3
013	3	1.8	4.1	3.0	3.3	4.3	3.8	0.8
014	3	3.2	2.8	3.0	3.4	4.0	3.7	0.7
015	2	4.7	4.3	4.5	6.3	5.3	5.8	1.3
016	2	4.4	3.8	4.1	4.8	4.3	4.6	0.5
017	2	5.0	5.1	5.1	5.6	4.9	5.3	0.2
018	2	4.5	5.5	5.0	4.7	1.3	3.0	-2.0
019	2	3.2	4.3	3.8	3.9	4.9	4.4	0.6
020	2	3.8	3.8	3.8	4.1	2.8	3.5	-0.3

GROUP I

TUTEES TUTORED BY HIGH-ACHIEVERS

		Pre-Test			Post-Test			
Student	School	Word Know.	Reading	Total Reading	Word Know.	Reading	Total Reading	Total Reading Diff.
021	2	5.0	2.8	3.9	5.2	5.5	5.4	1.5
022	2	2.8	1.4	2.1	2.3	1.7	2.0	-0.1
023	2	5.3	4.4	4.9	4.2	3.8	4.0	-0.9
024	2	2.8	4.4	3.6	3.8	4.5	4.2	0.6
025	2	3.0	2.8	2.9	3.3	3.6	3.5	0.6
026	2	2.8	4.4	3.6	2.8	3.4	3.1	-0.5
027	2	3.9	4.3	4.1	5.6	6.1	5.9	1.8
028	2	5.4	5.3	5.4	4.7	4.5	4.6	-0.8
029	2	4.8	4.7	4.8	5.6	5.7	5.7	0.9
030	2	4.2	4.8	4.5	4.9	5.5	5.2	0.7
031	1	2.5	3.8	3.2	2.8	2.0	2.4	-0.8
032	1	2.8	3.8	3.3	2.8	3.6	3.2	-0.1
033	1	3.0	3.1	3.1	2.3	2.6	2.5	-0.6
034	1	4.2	3.6	3.9	4.5	3.4	4.0	0.1
035	1	3.7	3.8	3.8	2.6	2.8	2.7	-1.1
036	1	4.1	4.1	4.1	3.8	2.6	3.2	-0.9
037	1	3.8	4.5	4.2	3.7	3.8	3.8	-0.4
038	1	3.0	3.4	3.2	3.2	3.1	3.2	0.0
039	1	3.2	3.6	3.4	2.8	3.1	3.0	-0.4
040	1	4.8	4.8	4.8	5.3	5.1	5.2	0.4
041	1	5.4	4.1	4.8	5.2	6.1	5.7	0.9

PRE AND POST READING TEST SCORES

METROPOLITAN ACHIEVEMENT TESTS FORM F

GROUP II - FOURTH GRADE

TUTEES TUTORED BY LOW-ACHIEVERS

		Pre-Test			Post-Test			
Student	School	Word Know.	Reading	Total Reading	Word Know.	Reading	Total Reading	Total Reading Diff.
042	3	8.1	7.3	7.7	7.3	8.7	8.0	0.3
043	3	2.3	3.1	2.7	2.6	3.1	2.9	0.2
044	3	6.7	6.5	6.6	6.3	6.7	6.5	-0.1
045	3	4.2	5.0	4.6	4.7	4.3	4.5	-0.1
046	3	4.2	3.4	3.8	3.7	3.1	3.4	-0.4
047	3	3.9	3.6	3.8	2.3	3.6	3.0	-0.8
048	3	2.8	3.4	3.1	2.5	2.0	2.3	-0.8
049	3	3.3	4.1	3.7	4.1	4.1	4.1	0.4
050	3	2.3	2.3	2.3	3.0	2.4	2.7	0.4
051	3	2.1	3.1	2.6	2.4	3.3	2.9	0.3
052	3	3.8	4.4	4.1	3.5	4.3	3.9	-0.2
053	2	6.0	6.5	6.3	7.7	6.0	6.9	0.6
054	2	3.0	3.1	3.1	3.3	3.8	3.6	0.5
055	2	5.2	5.5	5.4	7.1	6.0	6.6	1.2
056	2	3.4	3.4	3.4	3.7	4.5	4.1	0.4
057	2	5.4	4.5	5.0	6.1	5.3	5.6	0.6
058	2	4.4	5.1	4.8	5.8	6.1	6.0	1.2
059	2	5.6	4.5	5.1	5.6	6.0	5.8	0.7
060	2	6.7	6.3	6.5	7.7	5.9	6.8	0.3

GROUP II

TUTEES TUTORED BY LOW-ACHIEVERS

Student	School	Pre-Test Word Know.	Pre-Test Read-ing	Pre-Test Total Reading	Post-Test Word Know.	Post-Test Read-ing	Post-Test Total Reading	Total Read-ing Diff.
061	2	5.3	6.5	5.9	6.0	7.5	6.8	0.9
062	2	3.2	3.8	3.5	3.7	3.4	3.6	0.1
063	2	3.7	2.6	3.2	3.9	2.6	3.3	0.1
064	2	3.3	3.6	3.5	3.3	3.6	3.5	0.0
065	2	2.0	1.4	1.7	2.3	3.4	2.7	1.0
066	2	7.7	7.8	7.8	9.1	8.7	8.9	1.1
067	1	4.5	5.8	5.2	4.7	4.5	4.6	-0.6
068	1	3.8	4.9	4.4	3.9	5.0	4.5	0.1
069	1	3.2	4.3	3.8	3.5	2.8	3.2	-0.6
070	1	3.8	3.1	3.5	3.3	4.3	3.8	0.3
071	1	3.8	4.4	4.1	3.3	4.1	3.7	-0.4
072	1	4.4	6.3	5.4	5.4	5.1	5.3	-0.1
073	1	3.8	3.8	3.8	4.8	2.4	3.6	-0.2
074	1	3.8	4.9	4.4	4.1	4.4	4.3	-0.1
075	1	5.0	6.1	5.6	4.7	6.1	5.4	-0.2
076	1	5.2	5.7	5.4	5.4	4.5	5.0	-0.4
077	1	3.5	2.0	2.8	4.5	2.8	3.7	0.9
078	1	3.9	3.9	3.9	4.2	2.6	3.4	-0.5
079	1	3.9	4.3	4.1	3.8	5.1	4.5	0.4
080	1	3.5	3.4	3.5	4.7	4.4	4.6	1.1
081	1	3.7	3.6	3.7	3.8	3.6	3.7	0.0
082	1	7.3	5.3	6.3	8.1	6.5	7.3	1.0

PRE AND POST READING TEST SCORES

METROPOLITAN ACHIEVEMENT TESTS FORM F

GROUP III - FOURTH GRADE

CONTROL--NON-TUTORIAL

		Pre-Test			Post-Test			
Stu- dent	School	Word Know.	Read- ing	Total Reading	Word Know.	Read- ing	Total Reading	Total Read- ing Diff.
083	1	5.2	5.9	5.6	5.0	5.9	5.5	-0.1
084	1	3.8	4.4	4.1	6.1	3.1	4.6	0.5
085	1	5.6	5.5	5.6	6.9	6.0	6.5	0.9
086	1	2.1	8.2	5.2	9.1	8.7	8.9	3.7
087	1	4.5	5.5	5.0	5.0	5.1	5.1	0.1
088	1	7.3	9.9	8.6	9.1	9.9	9.5	0.9
089	1	5.3	4.1	4.7	5.8	2.3	4.1	-0.6
090	1	3.0	2.6	2.8	4.5	2.8	3.7	0.9
091	1	3.7	3.6	3.7	3.0	2.4	2.7	-1.0
092	1	2.5	4.8	3.7	5.4	6.0	5.7	2.0
093	1	3.2	4.5	3.9	5.3	5.5	5.4	1.5
094	1	3.3	3.1	3.2	4.1	4.8	4.5	1.3
095	1	3.9	4.8	4.4	5.0	3.6	4.3	-0.1
096	1	4.4	5.3	4.9	6.9	4.8	5.9	1.0
097	1	3.5	3.1	3.3	3.2	2.4	2.8	-0.5
098	1	4.7	5.7	5.2	4.7	5.1	4.9	-0.3
099	1	2.3	3.4	2.9	3.2	3.6	3.4	0.5
100	1	4.5	3.1	3.8	3.7	1.9	2.8	-1.0
101	1	4.4	4.3	4.4	5.2	4.1	4.7	0.3

GROUP III

CONTROL--NON-TUTORIAL

Student	School	Pre-Test Word Know.	Pre-Test Read-ing	Pre-Test Total Reading	Post-Test Word Know.	Post-Test Read-ing	Post-Test Total Reading	Total Read-ing Diff.
102	1	4.8	5.9	5.4	6.7	5.9	6.3	0.9
103	1	3.9	4.1	4.0	5.8	4.8	5.3	1.3
104	1	4.8	4.3	4.6	6.1	4.1	5.1	0.5
105	1	3.8	5.7	4.8	6.1	5.1	5.6	0.8
106	1	9.7	7.3	8.5	9.9	8.2	9.1	0.6
107	1	5.4	3.4	4.4	6.9	4.3	5.6	1.4
108	1	5.6	6.5	6.1	9.1	6.7	7.9	1.8
109	3	3.7	3.8	3.8	4.1	3.8	4.0	0.2
110	3	2.3	3.1	2.7	3.5	3.6	3.6	0.9
111	3	3.0	3.8	3.4	3.8	4.5	4.2	0.8
112	3	4.1	5.3	4.7	5.4	4.5	5.0	0.3
113	3	4.2	3.1	3.7	4.8	4.1	4.5	0.8
114	3	1.8	1.7	1.8	2.5	2.4	2.5	0.7
115	3	3.9	4.1	4.0	3.7	4.1	3.9	-0.1
116	3	3.8	5.1	4.5	4.4	5.9	5.2	0.7
117	3	3.9	3.6	3.8	3.5	2.6	3.1	-0.7
118	3	2.6	2.5	2.6	3.7	3.4	3.6	1.0
119	3	3.7	4.3	4.0	5.2	5.1	5.2	1.2
120	3	5.6	6.3	6.0	6.9	6.1	6.5	0.5
121	3	6.1	6.0	6.1	5.6	5.3	5.5	-0.6
122	3	6.5	7.5	7.0	7.1	8.1	7.6	0.6
123	3	6.1	5.5	5.8	4.8	4.3	4.6	-1.2

GROUP III

CONTROL--NON-TUTORIAL

Student	School	Pre-Test			Post-Test			Total Reading Diff.
		Word Know.	Reading	Total Reading	Word Know.	Reading	Total Reading	
124	3	4.5	5.5	5.0	4.8	4.1	4.5	-0.5
125	3	4.4	5.1	4.6	5.2	4.8	5.0	0.4
126	3	4.4	4.9	4.7	4.1	4.3	4.2	-0.5
127	3	3.5	3.8	3.7	3.7	3.4	3.6	-0.1
128	3	5.4	4.9	5.2	5.4	3.8	4.6	-0.6
129	3	4.1	6.5	5.3	2.8	2.4	2.6	-2.7
130	3	3.8	2.8	3.3	3.0	2.8	2.9	-0.4
131	3	2.6	3.4	3.0	2.8	2.0	2.4	-0.6
132	3	5.6	6.5	6.1	5.2	6.5	5.9	-0.2
133	2	3.3	4.9	4.1	4.1	6.0	5.1	1.0
134	2	9.0	6.0	7.5	9.7	6.7	8.2	0.7
135	2	5.2	5.7	5.5	4.1	4.4	4.3	-1.2
136	2	2.3	4.4	3.4	3.7	4.4	4.1	0.7
137	2	2.3	3.1	2.7	3.5	2.6	3.1	0.4
138	2	2.1	3.1	2.6	3.5	2.4	3.0	0.4
139	2	2.3	3.4	2.9	2.8	2.6	2.7	-0.2
140	2	2.1	4.4	3.3	3.9	4.3	4.1	0.8
141	2	1.6	2.6	2.1	4.1	2.6	3.4	1.3
142	2	6.7	5.7	6.2	6.5	5.5	6.0	-0.2
143	2	4.1	4.8	4.5	5.0	5.1	5.1	0.6
144	2	5.0	6.5	5.8	6.3	6.7	6.5	0.7
145	2	3.9	3.8	3.9	3.8	3.6	3.7	-0.2

GROUP III

CONTROL--NON-TUTORIAL

Student	School	Pre-Test Word Know.	Pre-Test Reading	Pre-Test Total Reading	Post-Test Word Know.	Post-Test Reading	Post-Test Total Reading	Total Reading Diff.
146	2	7.3	8.7	8.0	8.7	8.2	8.5	0.5
147	2	4.2	3.8	4.0	4.4	5.7	5.1	1.1
148	2	5.6	5.1	5.4	5.6	5.9	5.8	0.4
149	2	5.6	5.3	5.5	4.4	5.1	4.8	-0.7
150	2	4.2	4.4	4.3	4.4	5.1	4.8	0.5
151	2	2.3	1.9	2.1	2.3	1.2	1.8	-0.3
152	2	2.6	2.6	2.6	4.5	3.6	4.1	1.5
153	2	4.0	3.5	3.8	4.7	3.8	4.3	0.5

APPENDIX C

CROSS-AGE TUTORING RECORD SHEET

CODE _____

NAME OF TUTOR _____

NAME OF TUTEE _____

SCHOOL _____

DATE	LESSON

NOTE: Record your notes on the opposite side of this sheet.

(Opposite Side)

TUTOR'S DIARY

Date	Session Notes

APPENDIX D

PRIMARY ATTITUDE SCALE

INSTRUCTIONS FOR TEACHERS

The Primary Attitude Scale has been designed to measure the effect of a Title I program on the attitudes of Title I participants from age cycle 5 through age cycle 9 (as of 12/1/78). To ensure the accuracy of this measure, it is requested that the teacher administer the test in the morning after the children have had sufficient time to settle into the day's activities. Avoid days just before and just after a vacation, holiday or major school function. The Primary Attitude Scale should take 30 - 35 minutes to administer. A short break should be provided after question #30 for all kindergarten pupils and may be provided in any class administration if the teacher feels it is advisable.

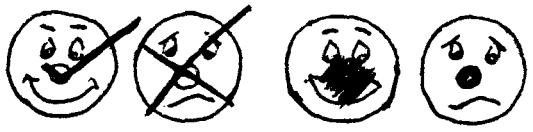
Instructions to the pupils are to be read from the attached sheet titled "TO BE READ TO THE PUPILS." The questions are to be read to the pupils one at a time using the question number and symbol to help the pupils keep their places. Please be certain all pupils use a #2 pencil to mark their answer sheets.

All pupils should be assured that there are no right or wrong answers and that the purpose of the Primary Attitude Scale is to find out how they really feel about certain things.

After the pupils have marked the first question, please check to see if each pupil is marking their answer sheet correctly. Help any pupil who is having trouble without making any comment on their choice of response. Continue reading questions at a steady pace, referring to the small symbol in the box to help pupils keep their places. Do not allow pupils to verbalize their responses as this may affect other pupils' choices. Questions may be read more than once if the teacher feels it is necessary.

TO BE READ TO PUPILS:

Listen carefully. I will read you some questions and you will mark how you feel about the questions. Mark your answer in the small circle inside the face. Fill in just the circle. (Draw these faces on the board.)



Only the last face is marked correctly.

There are lots of boxes with a happy face and a sad face. I will read some questions which ask how boys and girls feel about themselves, other people, and school. If the question is <u>not</u> true for you, fill in the small circle inside the sad face. Remember, the happy face says "yes" to the question, the sad face says "no".

Let's try an example on the blackboard. (Draw both faces with circles inside.) Do you like ice cream? Raise your hand if this is true for you. Which face would you mark to show that this is true for you? Now, raise your hand if you don't like ice cream. Which face would <u>you</u> mark?

Choose only <u>one</u> <u>answer</u> for each sentence. Pick the face which tells best how <u>you</u> feel about the things mentioned. If you can't make up your mind which one to mark, pick the answer you thought of first. Answer all questions. There is a small picture in each box. Listen carefully when I tell you which picture goes with each question so you can mark your answer in the right place.

There are no right or wrong answers. Remember, the happy face says the question is true for you, the sad face says it is not true for you.

We will begin with the box with the cup. Put your finger on the box with the cup. Now, listen carefully while I read the question. If it is true for you, fill in the small circle inside the happy face. If it is not true for you, fill in the small circle inside the sad face.

(Check to make certain pupils are marking their answer sheets correctly. Continue on reading each question. Be sure to read the symbol with each question. This will help pupils respond in the proper boxes.)

(cup)	1.	Do you like to go to school?
(fish)	2.	Is school a happy place?
(scissors)	3.	Do you cry a lot?
(cat)	4.	Are you easy to like?
(little star)	5.	If the work is too hard do you quit?
(nail)	6.	Are you afraid your classmates will laugh at you?
(tree)	7.	Do you always want to be first in line?
(fork)	8.	Are you a happy person?
(dog)	9.	Are things too hard for you to do?
(bird)	10.	Do you follow directions in school?
(ice cream cone)	11.	Do you like to sing in school?
(apple)	12.	Do you act like a baby?
(flower)	13.	Do you try to make other people feel good?
(chair)	14.	Are your ideas better than your friends' ideas?
(key)	15.	Are you fun to be with?
(heart)	16.	Are you nervous in school?
(airplane)	17.	Do you often feel bad in school?
(ball)	18.	Do you like to read in school?
(safety pin)	19.	Are you afraid that your classmates will call you names?
(mop)	20.	Do people like you?
(little star)	21.	Are you a poor reader?
(cat)	22.	Do you like to help people?
(scissors)	23.	Do you often get sick in the morning?

(fish) 24. Do you like to answer questions in school?

(cup) 25. Do you like to come to school every day?

(bird) 26. When you don't understand something are you afraid to ask your teacher questions?

(dog) 27. Can you usually do your work without help?

(fork) 28. Are you good in your school work?

(tree) 29. Do people make fun of you a lot?

(nail) 30. Do you wish you were a baby?

(ice cream cone) 31. Do you try hard to learn a lot?

(apple) 32. Do you think your teacher likes you?

(flower) 33. Do you cause trouble to your family?

(chair) 34. Are you a good reader?

(key) 35. Can you do your school work quickly?

(heart) 36. Do your friends act better in school than you do?

(airplane) 37. Do you like the teacher to ask you questions?

(ball) 38. Do you get mad when you can't have your way?

(safety pin) 39. Do other children in your class think you are a good worker?

(mop) 40. Are you good-looking?

(little star) 41. Do you like to learn about arithmetic?

(cat) 42. Do people listen to what you have to say?

(scissors) 43. Can you only do your work if someone helps you?

(fish) 44. Do you feel lonely very often?

(cup)	45.	Can you do your work without very much help?
(bird)	46.	Do you think most grown-ups care about you?
(dog)	47.	Do you like to work with other children?
(fork)	48.	Do you make lots of mistakes when you try to do things?
(tree)	49.	Do you laugh when your friends make a mistake?
(nail)	50.	Does your teacher like your work?
(key)	51.	Do you feel sad?
(chair)	52.	Are you a good leader?
(flower)	53.	Do you like your teacher?
(apple)	54.	Are you pretty good at everything?
(ice cream cone)	55.	Do most of the children in your class like you?
(mop)	56.	Do you cry when you can't do something right?
(safety pin)	57.	Do you have a lot of friends?
(ball)	58.	Do you like to learn new things?
(airplane)	59.	Is school a good place to see people you like?
(heart)	60.	Do you like to stay home from school?

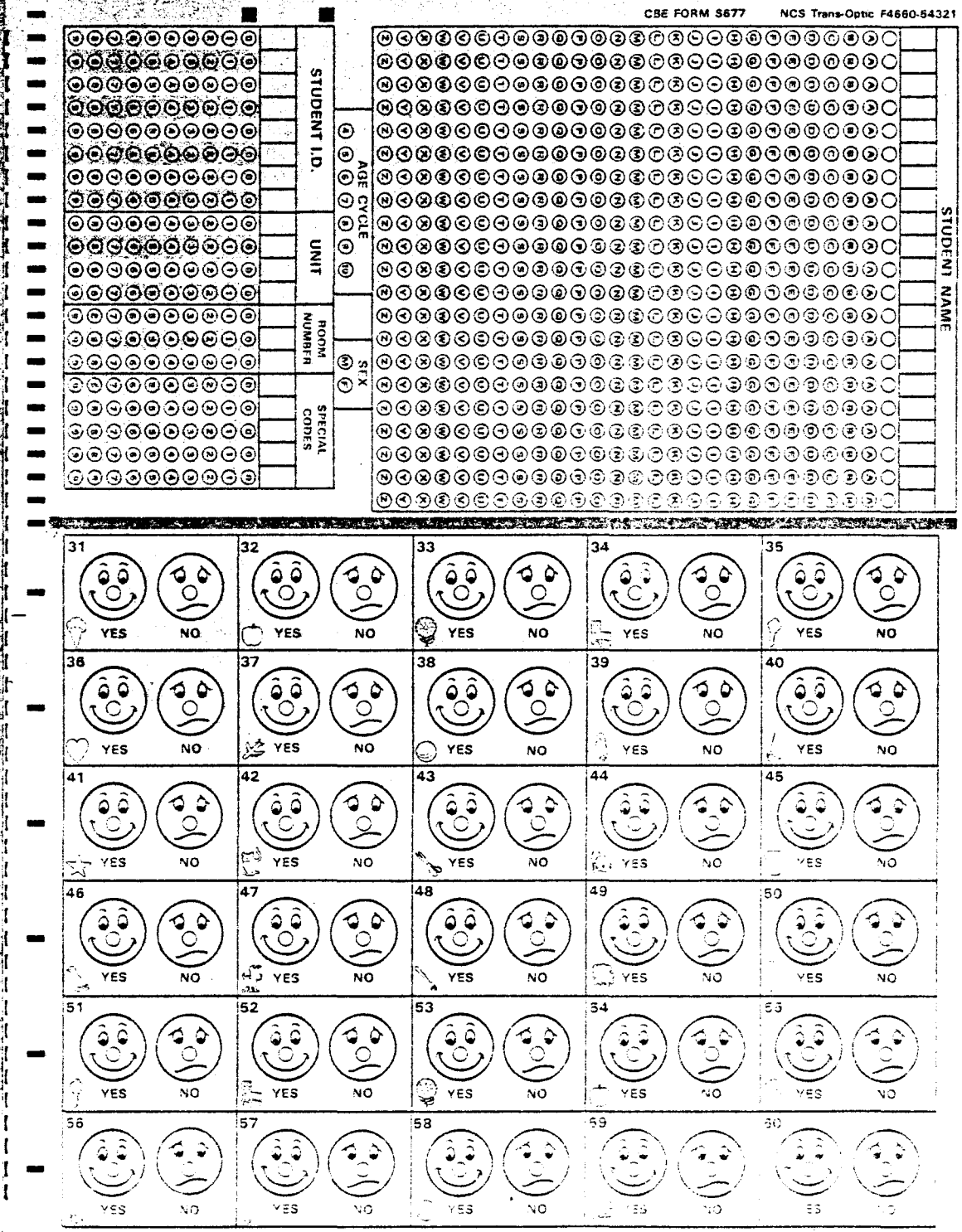
PRIMARY ATTITUDE SCALE

EXAMPLES

WRONG WRONG WRONG RIGHT

DO NOT MARK ABOVE THIS LINE

1 YES NO	2 YES NO	3 YES NO	4 YES NO	5 YES NO
6 YES NO	7 YES NO	8 YES NO	9 YES NO	10 YES NO
11 YES NO	12 YES NO	13 YES NO	14 YES NO	15 YES NO
16 YES NO	17 YES NO	18 YES NO	19 YES NO	20 YES NO
21 YES NO	22 YES NO	23 YES NO	24 YES NO	25 YES NO
26 YES NO	27 YES NO	28 YES NO	29 YES NO	30 YES NO


CBE FORM S677
NCS Trans-Optic F4660-54321
STUDENT I.D.
UNIT
ROOM NUMBER
SPECIAL CODES
AGE CYCLE
SEX
STUDENT NAME
31 YES NO
32 YES NO
33 YES NO
34 YES NO
35 YES NO
36 YES NO
37 YES NO
38 YES NO
39 YES NO
40 YES NO
41 YES NO
42 YES NO
43 YES NO
44 YES NO
45 YES NO
46 YES NO
47 YES NO
48 YES NO
49 YES NO
50 YES NO
51 YES NO
52 YES NO
53 YES NO
54 YES NO
55 YES NO
56 YES NO
57 YES NO
58 YES NO
59 YES NO
60 YES NO

APPENDIX E

PRIMARY ATTITUDE SCALE SCORES

GROUP I

TUTEES TUTORED BY HIGH-ACHIEVERS

Student No.	School	Social Maturity Test 1	Self-Concept Test 2	Social Relations Test 3	School Attitude Test 4	Total
1	3	19	11	9	8	47
2	3	20	14	9	8	51
3	3	19	13	10	8	50
4	3	15	9	10	7	41
5	3	19	15	10	7	51
6	3	20	13	9	10	52
7	3	18	13	9	9	49
8	3	22	13	9	10	54
9	3	20	16	10	8	54
10	3	23	12	10	9	54
11	3	16	16	10	8	50
12	3	13	11	10	6	40
13	3	21	13	8	3	45
14	3	21	13	10	9	53
15	2	14	9	8	8	39
16	2	19	16	8	6	49
17	2	22	13	10	4	49
18	2	23	13	8	9	53
19	2	21	16	10	9	56
20	2	20	14	10	5	49

GROUP I

TUTEES TUTORED BY HIGH-ACHIEVERS

Student No.	School	Social Maturity Test 1	Self-Concept Test 2	Social Relations Test 3	School Attitude Test 4	Total
21	2	21	15	9	6	51
22	2	13	14	10	5	42
23	2	23	15	10	8	56
24	2	21	16	10	7	54
25	2	15	11	10	2	38
26	2	22	14	10	9	55
27	2	23	14	8	5	50
28	2	17	7	10	3	37
29	2	20	16	8	10	54
30	2	16	9	10	3	38
31	1	9	7	7	5	28
32	1	17	11	9	1	38
33	1	17	9	7	3	36
34	1	19	9	9	5	42
35	1	11	10	7	1	29
36	1	20	13	10	8	51
37	1	20	14	10	9	53
38	1	20	14	10	9	53
39	1	9	12	9	2	32
40	1	17	11	9	7	44
41	1	14	12	4	6	36

PRIMARY ATTITUDE SCALE SCORES

GROUP II

TUTEES TUTORED BY LOW-ACHIEVERS

Student No.	School	Social Maturity Test 1	Self-Concept Test 2	Social Relations Test 3	School Attitude Test 4	Total
42	3	22	14	10	8	54
43	3	16	13	10	8	47
44	3	16	15	10	7	48
45	3	20	10	9	6	45
46	3	20	14	10	9	53
47	3	20	14	10	9	53
48	3	22	13	9	9	53
49	3	16	10	9	7	42
50	3	12	8	8	7	35
51	3	18	8	6	8	40
52	3	10	14	9	8	41
53	2	21	16	10	8	55
54	2	20	15	10	8	53
55	2	17	15	10	7	49
56	2	21	15	8	5	49
57	2	21	16	10	8	55
58	2	22	15	9	5	51
59	2	17	13	4	4	38
60	2	21	16	10	3	50
61	2	22	16	9	6	53

GROUP II

TUTEES TUTORED BY LOW-ACHIEVERS

Student No.	School	Social Maturity Test 1	Self-Concept Test 2	Social Relations Test 3	School Attitude Test 4	Total
62	2	21	14	9	8	52
63	2	21	16	10	1	48
64	2	16	12	8	7	43
65	2	17	9	7	5	38
66	2	21	13	10	3	47
67	1	19	14	9	7	49
68	1	23	16	10	8	57
69	1	17	13	10	8	48
70	1	17	11	10	9	47
71	1	20	15	9	9	53
72	1	22	15	10	10	57
73	1	16	11	10	9	46
74	1	16	8	9	9	42
75	1	20	14	10	10	54
76	1	21	15	10	10	56
77	1	13	13	10	8	44
78	1	12	11	7	6	36
79	1	18	13	9	9	49
80	1	16	13	10	5	44
81	1	18	14	10	10	52
82	1	21	14	10	9	54

PRIMARY ATTITUDE SCALE SCORES

GROUP III

CONTROL--NON-TUTORIAL

Student No.	School	Social Maturity Test 1	Self-Concept Test 2	Social Relations Test 3	School Attitude Test 4	Total
83	1	13	9	9	8	39
84	1	15	12	9	6	42
85	1	18	15	10	4	47
86	1	20	16	10	9	55
87	1	17	13	9	8	47
88	1	19	13	9	6	47
89	1	21	12	10	10	53
90	1	16	15	10	8	49
91	1	16	15	10	7	48
92	1	14	14	8	6	42
93	1	19	13	10	9	51
94	1	20	12	10	7	49
95	1	15	11	10	5	41
96	1	21	16	9	7	53
97	1	9	15	8	8	40
98	1	20	10	9	6	45
99	1	19	11	8	9	47
101	1	15	9	7	3	34
102	1	20	15	10	7	52
103	1	21	13	10	5	49

GROUP III

CONTROL--NON-TUTORIAL

Student No.	School	Social Maturity Test 1	Self-Concept Test 2	Social Relations Test 3	School Attitude Test 4	Total
104	1	22	15	10	7	54
105	1	12	4	6	1	23
106	1	13	8	6	3	30
107	1	18	15	10	2	45
108	1	20	14	7	9	50
109	3	18	14	10	5	47
110	3	7	3	2	0	12
111	3	14	9	6	3	32
112	3	15	12	4	2	33
113	3	12	8	10	9	39
114	3	20	11	9	9	49
115	3	21	15	10	9	55
116	3	16	4	2	3	25
117	3	15	12	9	8	44
118	3	16	16	8	7	47
119	3	11	10	8	7	36
120	3	17	15	9	6	47
121	3	22	16	10	7	55
122	3	21	15	9	9	54
123	3	23	12	3	1	39
124	3	21	14	7	6	48

GROUP III

CONTROL--NON-TUTORIAL

Student No.	School	Social Maturity Test 1	Self-Concept Test 2	Social Relations Test 3	School Attitude Test 4	Total
125	3	17	12	8	5	42
126	3	19	16	9	5	49
127	3	23	16	10	9	58
128	3	16	12	7	5	40
129	3	20	12	9	8	49
130	3	13	8	7	3	31
131	3	17	12	7	4	40
132	3	15	11	9	5	40
133	2	12	8	8	4	32
134	2	21	16	10	9	56
135	2	22	15	10	9	56
136	2	18	14	10	8	50
137	2	17	10	9	2	38
138	2	16	9	10	4	39
139	2	16	7	10	8	41
140	2	19	14	10	6	49
141	2	11	4	7	2	24
142	2	23	15	10	10	58
143	2	19	11	9	4	43
144	2	17	13	7	1	38
145	2	19	13	10	10	52

GROUP III

CONTROL--NON-TUTORIAL

Student No.	School	Social Maturity Test 1	Self-Concept Test 2	Social Relations Test 3	School Attitude Test 4	Total
146	2	17	13	10	7	47
147	2	18	12	9	9	48
148	2	22	13	10	6	51
149	2	19	15	10	6	50
150	2	22	13	10	9	54
151	2	21	15	10	9	55
152	2	13	9	10	6	38
153	2	22	14	10	8	54
Critical Scores		17	12	9	9	47

NOTE: A score at or above the critical score is considered a "positive" score, and a score below the critical score is considered a "negative" score.

APPROVAL SHEET

The dissertation submitted by Thomas J. Stewart has been read and approved by the following Committee:

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Associate Professor and Chairman of Curriculum and Instruction, Loyola

Dr. Robert C. Cienkus
Associate Professor of Curriculum and Instruction, Loyola

Dr. John D. Edwards
Associate Professor of Psychology, Loyola

Dr. Samuel T. Mayo
Professor of Educational Foundations, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August 20, 1980
Date

Mary Jane Gray
Director's Signature