A COMPARISON OF COUNSELOR ATTENTION, COUNSELOR ATTENTION PLUS MODELING, AND SUPERVISED STUDY CONTROL TREATMENTS IN CHANGING STUDY HABITS, ATTITUDES, BEHAVIORS, AND GRADES

by

Margaret R. Bray

A Dissertation Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Greensboro
1978

Approved by

Marilu K. Scott, Ph.D.
Dissertation Advisor

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at The University of North Carolina at Greensboro.

Dissertation Adviser Marilee K. Scaff

Committee Members John Christian Bard

P. Scott Lawrence

W. Harry Stone

Fredrick W. Gunsell

January 23, 1978
Date of Acceptance by Committee

BRAY, MARGARET R. A Comparison of Counselor Attention, Counselor Attention Plus Modeling, and Supervised Study Control Treatments in Changing Study Habits, Attitudes, Behaviors, and Grades. (1978) Directed by: Dr. Marilee Scaff. Pp. 145.

Purpose

The purpose of this study was to compare counselor attention, counselor attention plus modeling, and supervised study control treatments in changing students' study habits and attitudes, grades, and class behaviors. Several hypotheses were investigated. Among them were: (1) counselor attention will produce significantly greater change in appropriate study habits, behaviors, and attitudes, and in grade point averages than will the control condition; (2) modeling plus counselor attention procedures will produce significantly greater change in appropriate study habits, behaviors, and attitudes, and in grade point averages than will the control condition; (3) IQ levels and treatment levels will interact. Other relevant contrasts were examined as they appeared.

Method

Twenty-seven high school sophomore volunteers were stratified by IQ level, then randomly assigned to either a counselor attention, a counselor attention plus modeling, or a supervised study control group.

Treatment for the attention group consisted of nine meetings which involved initial rules and instructions and

later discussions of grades, study behaviors and attitudes toward school. The investigator reinforced subjects with praise, smiles, nods, and physical contact for expressing positive attitudes toward school and for working efficiently at the correct time.

Treatment for the counselor attention plus modeling group was the same as that for the counselor attention subjects, except that two upperclassmen models were included in the group. Both subjects and models were reinforced for expression of appropriate ideas, attitudes, and work behaviors.

The control group received initial rules as to expected study behaviors but no discussion, modeling, or reinforcement through counselor attention.

A pretest-posttest experimental design was employed. Independent variables were time (posttest and delayed posttest), IQ (average, low, and very low), and treatment (counselor attention, counselor attention plus modeling, and control). Dependent variables were study habits and study attitudes scores, grade point averages, teacher ratings, and observed working, attending, and speaking behaviors. To evaluate the hypotheses, the investigator used analysis of variance procedures.

Results

No significant treatment effect differences existed for study habits, study attitudes, or grade point averages.

For the study habits variable, the counselor attention treatment mean was significantly higher than means for the modeling or control condition at the low IQ level.

Significant treatment main effects were found for teacher rating 3 ("speaks positively of school and own work"), but these were qualified by an interaction of treatment method and IQ. Within the average IQ level the ratings for the counselor attention condition and for the modeling condition subjects were significantly more favorable than those for students in the control condition. Within the low IQ level, counselor attention treatment subjects received significantly more favorable teacher ratings than those of the modeling or control groups.

Analysis of variance on subject behaviors observed in the treatment sessions revealed no main effect differences among the three treatment conditions on the work variable. No interaction was found. For the attending behaviors, significant main effects were detected for treatment and for time. However, a treatment by time interaction was also discovered, with means for the attention condition exceeding those for the modeling condition in all analyzed sessions except the last. Analysis of the speaking behaviors variable revealed a main effect for treatment, with counselor attention proving superior to modeling or control conditions.

The hypothesis that the experimental treatment groups would be significantly different from the control group after

treatment was not fully supported. The investigator concluded that treatments were differentially effective across levels of IQ for the study habits, study attitudes, and expressed attitude toward school (teacher rating 3) variables.

ACKNOWLEDGEMENT

The author wishes to express her appreciation to the members of her doctoral committee, Dr. Marilee Scaff, Dr. John C. Busch, Dr. Scott Lawrence, Dr. Larry Osborne, and Dr. Don Russell, for their assistance and support throughout her doctoral program and the preparation of this dissertation.

The author also wishes to acknowledge the special help and encouragement of the late Dr. Wallace Phillips, without whom this study would never have materialized.

TABLE OF CONTENTS

III.

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Many professional counselors now recognize a need for an empirical approach to counseling and research in guidance areas. This chapter will examine the plausibility of applying behavioral techniques and experimental research methods to some components of the guidance services. It will then present a problem statement followed by several hypotheses. Some assumptions and limitations, followed by several definitions of concepts, will conclude the chapter.

Problem Area

Since the inception of formal counseling in the secondary schools, research on its effectiveness has revealed some disagreement as to appropriate outcomes of the counselor's work. Another problem has been a lack of specificity of treatment. Many researchers have labeled the treatment as counseling, applied it to experimental groups, withheld it from control groups, then analyzed differences among criterion variables. Often these criterion variables were grade point averages or social adjustment, each of which could easily be operationally defined and assessed using pretreatment and posttreatment measures. However, uncertainty as to what had actually been done in the counseling process often

impaired applicability of research findings and hampered replication of treatments.

Certain problems are common to many of these studies. In several, the subjects were nonvolunteers, a condition which could well militate against counseling effectiveness (Searles, 1962). There is a growing amount of evidence suggesting that a client's choice of and commitment to a particular therapy are closely related to the reduction of resistive behavior in the treatment (Goldstein, Heller, & Sechrest, 1966). Indeed, Goldstein et al. (1966) point out that a client's choice of a particular type of counseling treatment, or his objection to it, may well enhance or prove an impediment to effective counseling. Ewing and Gilbert (1967) found that motivation toward counseling did in fact play an important role in improved achievement after counseling treatment. Also, small samples, nonrandom selection, and selection of population extremes have seriously jeopardized external validity.

A recent trend among the behavioral sciences has now extended to education. As practitioners have come to recognize the necessity of clearly delineating counseling treatment and expected outcomes, they have also begun to adapt the treatment modalities of behavioral engineers such as Bandura (1969), Homme and Tosti (1971), Skinner (1953), and Wolpe (1969) to school counseling. Some are beginning to recognize

the need for a technology which can be proven to effect change, and have adapted behavioral techniques to their work.

However, most research dealing with the application of behavior management techniques in the educational environment has been restricted to the classroom. For example, Ward and Baker (1968) suggested that by positively reinforcing task-relevant behaviors with favorable attention, one can significantly increase the number of task-relevant behaviors emitted, even among disruptive students. Hall, Lund, and Jackson (1968), demonstrated that amount of studying behavior could be increased by teacher attention contingencies. Walker and Buckley (1968) were able to condition attending behavior by awarding points for increasing intervals of the desired response.

One problem with these studies is the fact that, while each showed that apparent study behavior or attending behavior could be increased through conditioning, an improved grade point average did not necessarily follow, because the experiments did not control the quality of subjects' work. In an attempt to establish such control, Kirby and Shields (1972) designed a study to measure the effects of immediate correctness feedback on arithmetic response rate and attending behavior. Both correct arithmetic responses and attending behavior increased.

It seems reasonable that a counselor working with small groups of students to increase study skills and grades could

readily adapt such behavioral techniques as immediate praise, other positive reinforcement, and correctness feedback to school situations. Further, teachers could be helped to employ such methods.

Another concept much used by behavioral scientists is that of modeling. Lovass, Berberick, Periof, and Schaeffer (1966) showed that relatively complex behavioral repertoires can be built up in schizophrenic children by combining modeling and reinforcement procedures. Of more interest to the educator or school counselor is the evidence that children can acquire new patterns of behavior simply by observing another person modeling a particular behavior (Bandura & Houston, 1963; Bandura & Mischel, 1965; Hicks, 1965). The use of modeling to produce vicarious learning has been employed primarily with subjects having social fears or deficits, and has been efficacious when either live or filmed models were used (Hansen, Niland, & Zani, 1969; Horan, de Girolomo, Hill, & Shute, 1974; Naito, 1972). Moreover, presentation of multiple live models has been shown to be more effective than live or filmed single modeling (Bandura & Menlove, 1968) for teaching of appropriate responses. Also, persons low in intelligence and self-esteem seem more imitative than more competent observers (Bandura & Walters, 1963; Lanzetta & Knareff, 1959; Salomon, 1974; Strichart, 1974). It appears that as a behavioral procedure, modeling is adaptable for use by the school counselor, and that a small

group could be conditioned to greater and more effective study behaviors through the use of live peer models and systematic reinforcement of appropriate predesignated responses.

Statement of the Problem

It was, therefore, the purpose of this study to explore some ways in which behavioral management techniques could be used to increase the effectiveness of group guidance for changing study attitudes and habits, and its effectiveness in changing grade point averages.

The research design used four sets of dependent variables: (1) study attitudes and habits as measured by Survey of Study Habits and Attitudes (Brown & Holtzman, 1967), (2) grade point averages, (3) subjects' observed studying behaviors, and (4) teacher ratings. These dependent variables were examined as functions of three independent variables. The first was group guidance treatment with three levels: (a) counselor attention for prespecified study behaviors, (b) counselor attention plus modeling, and (c) supervised study control group with no treatment. The second independent variable was intelligence, with levels set at average IQ, low IQ, and very low IQ as measured by The Henmon Nelson Tests of Mental Ability (Lamke and Nelson, 1957). Two levels of time (posttest and delayed posttest) comprised the third independent variable. One broad problem was investigated: which group guidance treatment procedure would be most effective in changing positive study

attitudes and habits and in changing grade point averages? Relevant contrasts were examined as they emerged.

Hypotheses

Among the possible hypotheses examined, several were of particular interest:

1. Counselor attention will produce a significantly greater change in appropriate study habits, behaviors, and attitudes and in grade point averages than will be found in the control group.
2. Counselor attention plus modeling procedures will produce a significantly greater change in appropriate study habits, behaviors, and attitudes and in grade point averages than will be found in the control group.
3. IQ levels and treatment levels will interact, with very low IQ subjects responding significantly more than other subjects to modeling, and average IQ level subjects responding significantly more than other subjects to counselor attention reinforcement.

Need for Research

The value of such findings lies in their applicability to the practicing counselor's everyday problems. If modeling and counselor attention are indeed effective for improving study habits, creating attitudes more favorable to studying, and helping students earn higher grade point averages, counselors can begin to apply these behavioral procedures to students who indicate a need for such behavioral change.

Assumptions and Limitations

The scope of this study was limited to exploration of ways in which two behavioral procedures could be employed by school counselors to help volunteers change study habits, study attitudes, and grade-getting behaviors. Since it was carried out within the behavior modification paradigm, which presupposes that the counselor is willing to take a major part in directing treatment, the results of this research may well be of practical value only for those counselors who are willing to accept such a directive role.

A limitation of even greater significance is that of generalizability to the larger school population. Ethical and experimental considerations precluded drawing a nonvolunteer sample. Since only volunteeer subjects were used, results may generalize only to those students of southern midsize senior high schools who are motivated to volunteer for help in changing study habits and grade point averages. Because all volunteers were in academic difficulty, generalizability is also limited to such students.

The problems investigated were limited to the use of live models in effecting change in high school students in small group situations, and to the role of teacher or counselor attention as reinforcement of subjects.

Definitions of Concepts

1. Behavioral management procedures: the repertoire of techniques used by the behavioral engineer to change

behavior, such as contingency management and conditioning.

2. Behavioral change: a change which occurs in the observable behaviors of an organism.

3. Positive reinforcement: any consequence of a response which acts to increase the probability of the recurrence of that response.

4. Social reinforcement: positive reinforcement resulting from social interaction, such as praise.

5. Conditioning: the procedure of introducing positive reinforcement immediately following a response, with a resultant increase in the frequency of that response (Whaley & Malott, 1971).

6. Contingency management: procedures for the arrangement of events so that reinforcements are contingent upon, or dependent upon, the execution of certain behaviors.

7. Modeling: exposing an individual or individuals to the preplanned, specified behaviors of another individual or other individuals with the aim of increasing in subjects those acts being exhibited by the models.

8. Imitation: behavior which is similar to that of a model as a function of the subject's having observed that model (Thelen & Rennie, 1972).

9. Small voluntary counseling group: a group of 6-10 students who participate voluntarily in two group sessions weekly for 6-8 weeks with the aim of changing their study habits and grade point averages.

10. Appropriate grade-getting behavior: any teacher-acceptable behaviors which result in a student's obtaining grades or approximations to grades of the level he desires.

11. Grade point average: a numerical average from 0-4 based upon assigning to grades for all units a weighted number (A=4, B=3, C=2, D=1, F=0) and dividing the total by the number of units attempted.

12. Study Habits (SH): a measure of academic behavior as measured by Brown's and Holtzman's Survey of Study Habits and Attitudes (Brown & Holtzman, 1967).

13. Study Attitudes (SA): a measure of scholastic beliefs as measured by Brown's and Holtzman's Survey of Study Habits and Attitudes (Brown & Holtzman, 1967).

CHAPTER II

RELATED RESEARCH

This chapter will present an overview of the terms and principles of behavior modification and develop a theoretical rationale for using the behavioral technique of modeling. A review of several studies which compare the efficacy of modeling with that of verbal contingent reinforcement, and of several which place the use of imitative learning within educational settings will be presented. An examination of relevant literature which covers the interaction effects of sex, prestige, and subject ability variables upon response classes will be presented next. Finally, a summary of major areas of agreement and disagreement and some methodological considerations will be set forth before directions for further research are suggested.

Behavior Modification: An Overview

Reviewing the literature of behavior modification, Krasner (1971) attempted to define the terms and trace the development of alternative and overlapping terminology for the various behavioral procedures. Within a broad general framework, the terms "behavior modification," "behavioral engineering," and "behavior therapy" (Lindsley, Skinner, & Solomon, 1953) are interchangeable, although certain

nuances attach to each. For purposes of this chapter, the terms behavior therapy and behavior modification will be used interchangeably within the stimulus-response-reinforcement paradigm, which aims to alter the individual's transactions with his environment (Keehn & Webster, 1969).

Studies reviewed will subscribe to Bandura's (1969) social learning conceptualization of behavior therapy, which stresses controlled techniques requiring a clear specification of the treatment conditions and an objective assessment of the outcomes. That is not to say, however, that only laboratory studies will be reviewed. Rather, those studies which suggest possibilities for extending controlled laboratory techniques to classroom or guidance office experimentation will be considered.

In recent years educators have recognized a need to improve academic performance of students. Using behavior modification techniques, some have exerted increased efforts to manipulate incentives or consequences to enhance school learning (Lipe & Jung, 1971). Lipe and Jung point out that those aspects of learning theories which concern the relationships of stimuli and behavioral consequences to future performance are highly relevant to incentive manipulation of performance. Like Krasner (1971) they observe that no one behavior theory can provide a complete design for planning the most effective use of incentives to induce learning achievement. However, they see operant learning theories as

being perhaps more relevant, since these include contingent placement of incentives, or the giving and withholding of immediate rewards and punishments.

Theoretical Rationale

Motivation of performance. Two classes of theory seem relevant to the motivation of human performance. One class hypothesizes that which occurs within the human organism to direct and energize its behavior. Various theories of personality and cognitive development have been employed in an attempt to describe the internal devices which cause a striving to learn. For example, McClelland (1951) hypothesized a "need for achievement" which varies among individuals. Lipe and Jung (1971) point out that such a trait is difficult to measure reliably, and, being relatively enduring within an individual, it may be of little educational importance unless instructional treatments can be found which positively interact with it. The second class of theory deals with events outside the human organism, events which Lipe and Jung say may be described as incentives to influence the organism's performance.

Bandura (1969) summarizes some ways in which incentive theories of motivation can be applied to enhance academic strivings:

> Incentive theories of motivation assume that behavior is largely activated by anticipation of reinforcing consequences. From this point of view, motivation can be regulated

> through arrangement of incentive conditions and by means of satiation, deprivation, and conditioning operations that affect the relative efficacy of various reinforcers at any given time. Thus, for example, in producing intellectual strivings in children who display little interest in academic pursuits, one would arrange favorable conditions of reinforcement with respect to achievement behavior rather than attempt to create in some ill-defined way an achievement motive, the presence of which is typically inferred from the behaviors it presumably actuates (pp. 226-227)

This latter class of theory, then, views motivation or lack of it as a behavioral response to environmental contingencies. Moreover, if a student in a certain educational setting fails to achieve the desired objectives, the problem is seen to lie not with the student, but with the setting. Therefore, a behaviorist would insist that the setting be restructured in order to help the student achieve the educational goals appropriate for him. One approach to rearranging environmental conditions so as to produce greater motivation toward a desired behavior is that of modeling.

Reinforcement theories of modeling. Albert Bandura (1971) has commented that human behavior is apparently transmitted, whether deliberately or inadvertently, largely through social models who facilitate imitation or the reproduction of discrete responses.

Theorists have long hypothesized conditions under which such imitative learning will occur. Miller and Dollard (1941), for example, posited three necessary conditions:

(1) observers must be motivated to act, (2) modeling cues for the requisite behavior must be provided, and (3) observers must perform matching responses and must be positively reinforced.

The assumption that imitative behavior must be reinforced if it is to be learned is common among such reinforcement oriented theorists as Baer and Sherman (1964), Gerwirtz and Stingle (1968), and Miller and Dollard (1941). However, Bandura's social learning theory (1969) opposes that stance. Bandura instead distinguishes between acquisition and performance of matching behavior, and rejects operant analysis of imitation since such analysis is dependent upon reinforcement. Bandura's dualistic approach postulates that performance alone depends upon reinforcement, but that acquisition may occur through observation of modeled behavior, even when neither model nor observer is reinforced.

Modeling of unreinforced behavior. While discrepant theories exist as to why imitation learning occurs, there is overwhelming evidence that modeling does in fact produce it. Some research in both reinforced and nonreinforced modeled behaviors will be discussed below.

Working with near-mute schizophrenics, Wilson and Walters (1966) compared model reinforced, or operant, with nonreinforced, or vicarious, procedures. While both groups realized increases in verbal behavior over that of the

control group, gains were higher in the model-reinforcement subjects. The study also indicated that although the operant procedures produced higher acquisition rates, the behaviors acquired in the nonreinforced groups were more resistant to extinction.

Oliver and Hoppe (1974) addressed the question of whether or not modeling of unreinforced behavior exerts control over children's behavior by providing information about other types of behavior more likely to be reinforced. After learning that reinforcement was available, kindergarten, second-grade, and fourth-grade children observed an adult model emit either an unreinforced or a reinforced response. The adult then remained to monitor the subjects' subsequent behavior. Compared to children in a no-model control group, all subjects except those of kindergarten age emitted more reinforced responses after observing the model being reinforced. Only second-grade children showed performance changes after seeing the unreinforced model. The authors concluded that the unreinforced model serves not only as a source of information but also as a cue for unreinforced imitation. Although Oliver and Hoppe failed to comment upon the matter, it seems likely that the failure of the kindergarten age group to imitate reinforced responses could have resulted from less well developed attention and perception than the attention and perception of the older age group.

In an investigation of methodological variables, Phillips (1968a) working with undergraduate volunteers, compared vicarious reinforcement through modeling, direct reinforcement of subjects, and modeling with no reinforcement. This study revealed significant gains in the critical responses within all the treatment modalities. Phillips concluded that neither vicarious nor direct reinforcement is responsible for increases in response rates, but that such increases may be produced by simply exposing subjects to nonreinforced modeling. Phillips' conclusions, are, however, incompatible with most other research literature (Bourdon, 1970). The study of Kanfer and Marston (1963) as well as much of Bandura's work (1969a) indicates that actual performance of imitative behavior is generally assumed to be contingent on that behavior being reinforced.

A second study by Phillips (1968b) suggested that direct reinforcement was more effective in increasing response rates than was vicarious reinforcement or no reinforcement. Again, Phillips' results run counter to those in most modeling research. Bourdon (1970) comments that the use of a base rate in this study rather than a control group with an unreinforced model, as used in Phillips' (1968a) other investigations seems largely responsible for this discrepancy.

Modeling Compared to Verbal Reinforcement

The preponderance of research designs involving modeling seem to compare some form of direct subject reinforcement with vicarious reinforcement through modeling, often with significant increases of target behaviors in both treatments. In one such comparison, Kanfer and Marston (1963) found that each treatment produced significantly more learning than that of the control group, but that adding direct to vicarious reinforcement produced no additional learning increases. Each method applied separately appeared equally effective.

Five studies in the mid-1960's shared designs and rationale. They applied imitation or modeling theory to the counseling process (Krumboltz & Thoresen, 1964; Krumboltz & Schroeder, 1965; Schroeder, 1964; Thoresen, 1964; Thoresen & Krumboltz, 1967). Two main treatments were used in all studies: (a) reinforcement counseling consisting of verbal conditioning in which agreement and approval were administered verbally and by gesture as reinforcement for the subjects' performance of desired verbal behavior; (b) model reinforcement counseling in which the same verbal conditioning treatment was given to subjects, with the addition of two 15-minute tape-recorded modeling counseling sessions. The same verbal response class was reinforced by the model counselor for the model subject. In each study the dependent variable being reinforced was information-seeking

behavior. Both treatments produced significantly more information-seeking behavior than did the control group procedure. Both were equally effective for female subjects, but model-reinforcement counseling was more effective for male subjects than was reinforcement counseling alone.

Modeling in Educational Settings

Several modeling effectiveness studies have been done in educational environments, with response variables ranging through academic achievement (Beach, 1969; Horan, de Girolomo, Hill & Shute, 1974), sociometric status (Hansen, Niland & Zani, 1969), alienation (Warner & Hansen, 1970), on task behavior (Randolph & Wallin, 1973), minimal goal discrepancy (Warner, Niland, & Maynard, 1971), and information seeking (Krumboltz & Thoresen, 1964; Krumboltz & Schroeder, 1965; Schroeder, 1964; Thoresen, 1964; Thoresen & Krumboltz, 1967). Several of these studies will be examined in detail.

In a 1969 study, Beach investigated the effect of group model reinforcement on seventh- and eighth-grade underachievers, with modeling done symbolically using a five-minute tape. Throughout the seven weekly sessions the counselor verbally reinforced achievement oriented responses in the modeling groups. The instructional groups talked of the value of education and of study techniques. Male subjects in both experimental groups improved significantly over the control, although by the middle of the following year only eighth-grade males who had received instruction maintained higher grade point averages. Findings among

female subjects were inconsistent.

Allen (1968) also explored the effects of audiovisual materials in changing attitudes. He combined the showing of experimental slides and conducting interviews with disadvantaged black and nonblack junior high school boys. In the interviews, subjects were also exposed to a young adult black youth who had bettered himself through education. The two sets of variables studied were (1) students either receiving or not receiving an opportunity to choose slides they would view next, and (2) subjects being given a chance to respond overtly into a microphone. Only the method which combined a multichoice format with active participation was significantly effective in producing attitudinal changes, and blacks with lower IQ showed the greatest attitude change. Another study employed the use of model-reinforced videotape procedures in increasing the vocational information seeking behavior of college students (Fisher, 1976), and results indicated increased frequency and type of information-seeking behavior for students viewing the model videotape.

Hansen, Niland, and Zani (1969) reported having studied the effectiveness of model reinforcement group counseling with elementary school children, using sociometric status as a criterion. Eighteen students who measured low in sociometric status received counseling in six groups with sociometric stars as models; eighteen others, all low sociometric students, received group counseling with no models;

eighteen low sociometric students served as a no-treatment control. The difference of change in social acceptance among the three treatment groups was computed by an analysis of covariance, which indicated that low sociometric students in the model reinforcement groups made significantly more gain in social acceptance than either those receiving counseling without models or those in the control group. A two-month follow-up showed that the gains were retained.

Using alienation as the response variable, Warner and Hansen (1970) investigated the effects of model-reinforcement and verbal-reinforcement group counseling with juniors from three high schools. Within each school, students who had scored at least one standard deviation above the mean on a scale of alienation were randomly assigned to one of four treatment groups: model-reinforcement, verbal-reinforcement, placebo, and control. Chosen from the junior class of the same high schools, models were selected because of their overall adjustment to society. Two female and two male models were assigned to each model-reinforcement group. Using a pretest-posttest-control group design, and analyzing results by multivariate analysis of variance, Warner and Hansen found that (a) both reinforcement counseling groups were effective in reducing students' feelings of alienation; (b) there were no significant differences between the effects of verbal-reinforcement and model-reinforcement counseling;

(c) there was no significant interaction between counselors and treatments or between sex of the students and treatments; and (d) the placebo treatment had no significant effect on alienation.

When they compared the effectiveness of classroom management and modeling-reinforcement group counseling, Randolph and Wallen (1973) discovered that both treatment groups of fifth-and sixth-grade students significantly increased on-task behavior and grade point average over those of the no-treatment control group. However, no significant changes were reported in school attitude. The authors concluded that supplementary classroom behavior management with model-reinforcement group counseling may be well worth the additional time spent by the pupil personnel specialist, but that change in attitudes toward school might be much more difficult to effect. They further suggested the use of treatment strategies designed to deal more directly with attitudes.

Another study compared model-reinforcement group counseling with an open-ended counselor-led discussion group as a means of altering feelings of students whose minimal goals were beyond their capacity (Warner et al., 1971). The sample of children whose goals seemed discrepant with their ability was drawn from a population of fifth-and sixth-grade students in three elementary schools. The subjects were randomly assigned to either a model-

reinforcement counseling or to an open-ended discussion placebo treatment. The data analysis indicated that the proportion of students who were less discrepant after treatment was significantly greater in the modeling than in the placebo group. Further analysis seemed to indicate that the sex and grade level variables made no differences in treatment effects.

Fox and Schwarz (1967) also obtained indications that academic achievement and attendance can be increased in second-grade low achievers as a result of the encouragement and friendship of successful fifth-grade models. However, data relevant to social and personal adjustment were not consistently supportive. Further, the six-month followup data showed that teachers' ratings of the subjects were generally negative, particularly on pupils' peer group and classroom participation. The authors suggested that the somewhat tutorial relationship between the older and younger children might have inhibited the younger pupils' ability to participate in peer-group situations.

A recent study (Horan, de Girolomo, Hill, & Shute, 1974) also investigated the function of participant modeling by specially trained adolescent paraprofessional tutors. Forty eighth-grade students who had failed mathematics during the third quarter of the academic year were stratified by sex and classroom, then randomly assigned to experimental and control conditions. Instruments measuring attitudes toward school, attitudes toward

math, and math achievement were administered. Treatment for the group receiving modeling by peer tutors consisted of ten tutor-models spending the first 15 minutes of the 45-minute session displaying math skills which their students were expected to demonstrate later in class. The second 15-minute period was used for the student to duplicate the modeled response, and the final period of the same length was reserved for feedback and positive reinforcement of the students by the tutors. Students in the traditional treatment control group were given a talk on the importance of good grades and met with their counselors to discuss any problems they were experiencing. Separate 2 x 2 x 2 (treatment by sex by repeated measure) analysis of variance followed by Tukey WSD post hoc comparisons were conducted on each of the six dependent variables. The teacher-assigned grades for the experimental group alone showed significant improvement. According to teacher ratings of attitudes, only the experimental group improved, but both experimental and control groups displayed significant improvement in math achievement. Attendance figures increased significantly in both groups, but neither group's attitudes toward school or toward math showed significant changes as measured by the attitude scale posttest.

The findings of Hansen et al. (1969) suggest that participant modeling can be taught to high school age tutors and that brief exposure to older-peer participant models

can greatly increase academic performance. These findings are consistent with those of Randolph and Wallin (1973) and Beach (1967) who also discovered that modeling produced improved achievement. Although the use of the models differs, the unifying factor of older prestigious students demonstrating some behavior to be imitated threads through all these experiments. There is in all three either direct reinforcement for the subjects or the implicit suggestion that reinforcement for a demonstrated behavior may be available to subjects.

Another commonality of the studies of Randolph and Wallin (1973) and Horan et al. (1973) is the notion that attitudes toward school are extremely resistant to change. Both teams of investigators concluded that if attitudinal changes are deemed important, the investigator would do well to extend the treatment period and to change his behavioral strategies to deal more directly with attitudes. Horan suggests that it would be more parsimonious to define the behaviors which might indicate a particular attitudinal state, instruct the participant models in their display, and reinforce the students for matching responses.

Effects of Sex, Prestige, and Subject Ability Upon Response Classes

A great number of studies have revealed that sex of the model and of the subject, intelligence of the subject, and prestige of the models affect the results of treatment.

Perhaps the most extensively studied of these variables is that of sex.

Sex as a variable. While investigating imitation in kindergarten children, Rosenblith (1959) found that male models were more effective for subjects of either sex than were female models. He postulated that the school setting caused this effect by setting up a deprivation of male relationships, thereby enhancing the reward value of males. However, Rosenblith failed to consider society's attribution of greater status to males, a condition which at the time of his study might well have transformed the sex variable into a prestige variable.

Hicks (1965) found in working with aggressive behavior in children that male peer and male adult models were more effective in shaping behavior than females were. Bandura, Ross, and Ross (1963), also studying the modeling of aggression, found significant interaction effects attributable to sex of the model and of the learner. Not only did male children show more imitative aggression than female children displayed, but male models were more effective for both male and female subjects. In general, females seemed to perform fewer imitative responses even with positive incentives as added inducement.

Results of three studies which compared reinforcement and model-reinforcement counseling indicated that males imitated more frequently than did females (Krumboltz &

Schroeder, 1965; Schroeder, 1964; Thoresen, 1964). All three studies used male models, and the authors speculated that the males might have displayed predominantly male interests and concerns which seemed irrelevant to female subjects.

Another modeling study was aimed specifically at sex variables (Thoresen, Krumboltz & Varenhorst, 1965). Four factors were investigated in a quasi-counseling situation: sex of student, sex of counselor, sex of model student, and sex of model counselor. A three week follow-up was conducted to determine the type and frequency of the treatment responses. Results suggested that for male students the male student model and the male counselor model were most effective. In general, the female subjects did not perform as many after-treatment responses as males did, whatever the sex of the model.

Thoresen, Krumboltz, and Varenhorst (1967) also examined the effects of sex of counselor and model on subjects' career information seeking behavior. They learned that male subjects responded best when males were in all other roles (counselor, model counselor, and model student) and that female subjects responded best when the counselor was male and when the models were either all males or all females. Females were found not to respond to model reinforcement as well as males, but for both male and female subjects, male counselors seemed more effective.

Similar findings derived from a study by O'Sullivan, Gilmer, and Krinski (1973), who noted that male subjects responded equally well to either sex model in reduction of snake phobia, making significant improvement over the no-model group. However, female subjects realized no gains throughout the study.

Taken together, results of these several studies suggest (1) that males respond more favorably than females to modeling treatment,and (2) that male models and counselors are more effective with both male and female subjects. One may hypothesize that these situations result from a deprivation of male models at the elementary school level, or from overemphasis upon male interests in counseling situations. This latter condition could be a function of a society long dominated by males, a society which seems characteristically to have valued males more highly, thereby increasing male prestige and influence.

Model prestige as a variable. Albert Bandura (1971) states

> It has been abundantly documented in social-psychological research that models who are high in prestige, power, intelligence and competence are emulated to a greater degree than models of subordinate standing.

Numbers of investigations support this premise. Thoresen and Krumboltz (1968) investigated differential effects of models who exhibited varying degrees of athletic ability and academic success on the acquisition of information -

seeking behavior. They found that different levels of athletic ability did in fact produce different levels of response, but that levels of models' academic success did not produce differential acquisition of information seeking behavior.

Work by Krumboltz, Varenhorst, and Thoresen (1967) compared model counselors high in attentiveness and prestige with those presented to subjects as less trained, less prestigious, and less well dressed, showing that none of these variables produced significant differences in the frequency of information-seeking behavior. However, a study by Bandura, Ross, and Ross (1963) revealed that the behavior of a successful model was imitated and generalized while the behavior of an unsuccessful model was not. The punishment or reward for the modeled aggressive behavior determined the amount of imitative learning. Bandura and Ross stressed the concept of vicarious reinforcement in suggesting that the observer acquires conditioned emotional responses even though he receives no aversive stimulation himself. One obvious difference in the two studies is that the response variable in the former was information seeking, while that of the latter was aggression. Clearly, the two studies are not comparable. Further, the contingencies were quite different, as the Bandura study included punishment.

A recent investigation by Havelick and Vane (1974) addressed the interactions of race, competency, and achievement levels of models. Using 95 white and 93 black male fifth and sixth graders, they established two levels of competency for the black and white models. It was found

that the high competence model was imitated significantly more than the low competency model, but that the amount of modeling across all conditions was low. Questionnaires revealed that the subjects correctly perceived the competence of models. White subjects rated black and white models equally competent. Black subjects rated black models more competent but imitated white models significantly more. These results seem to suggest that while the black subjects were rating the models on a conscious level, the modeling behavior occurred without conscious awareness of the subjects and reflected years of societal conditioning to the premise that "white is better." If such were the case, the black subjects' greater imitation of white models might be simply one more instance of greater modeling of high prestige than of low prestige figures. Other studies have produced what may be a similar phenomenon among undergraduate college students. Doster and McAllister (1973) found that high status adult models affected subjects more than did peer models. While Bandura and Barob (1973), Kazdin (1973), and Rachman (1972) all suggest that greater similarity of model to subject increases the rate of imitation, evidence indicates that many other factors interact with model effectiveness, and that at least some elements of higher status and ability lead to increased imitation. Indeed, Bandura and Barob (1973) concluded that subjects improved in fear reduction regardless of similarity to the model. They hypothesized that fear reduction in children

and adults occurred for different reasons: that in adults such reduction resulted from vicarious extinction, while in children it resulted from motivational inducement.

Other variables influencing degree of modeled behavior. Countless other factors seem to influence the effects of modeling on subjects' behavior. For example, Midlarsky, Bryan, James, and Brickman (1973) conducted two experiments exploring the interrelationships of modeling and reinforcement. They found that subjects imitated donation behavior of altruistic appearing models significantly more than they imitated donation behavior of selfish models, although models of both types expressed approval of subjects' donation behavior. These findings seem to indicate that subjects are more likely to imitate models whose behaviors appear generally consistent.

Other variables which seem to influence the degree of imitation are the amount of emotion expressed by the model, with more expressed emotion producing greater imitation (Berger & Johansson, 1968); the degree of expression with which the model is given reinforcement (Berger & Ellsbury, 1969); and the intelligence, ability levels and self-esteem of subjects (Bandura & Walters, 1963; Lanzetta & Knareff, 1959; Salomon, 1974; Strichart, 1974). These studies indicate that behaviors are more frequently imitated and are more resistant to extinction if reinforcement is administered and received with expression, and that persons who are low

in intelligence, ability, and self-esteem are more imitative than are competent observers.

Summary

Recent experimental studies reveal that both model reinforcement and verbal reinforcement counseling can be used to increase grade achievement, information seeking, verbal response, appropriate social behavior, and appropriate goal setting. Neither procedure seemed to show significant results in changing attitudes, although no studies reviewed addressed attitude change alone. Frequently, model-reinforcement procedures were more effective than was verbal reinforcement. Frequently, too, interactions were detected between sex, prestige, and attractiveness of the model and the subject. Most literature suggests that the more able and attractive model is more likely to be imitated, and that low self-esteem, low ability subjects are most likely to imitate. Also, males are more likely to perform imitative behavior than females are, and both males and females tend to imitate male models more than they do females.

Directions for Research

Counseling and psychotherapy are experiencing a plethora of model reinforcement and verbal reinforcement research. There is, however, a need for application of effective behavioral techniques to improve the quality of life in the natural environment, to help students adjust

and feel successful. More research is needed to ascertain most efficient methods of insuring imitation. Particularly unexplored in either clinical or laboratory settings is the question of how modeling techniques can improve students' attitudes toward school, and whether they can simultaneously increase his grade-getting behaviors.

CHAPTER III

PROCEDURES

This study examined the effectiveness of two different treatment conditions, counselor attention, and counselor attention plus modeling, in helping high school sophomores increase appropriate study habits, attitudes, and grade point averages. It also explored the effect of the treatment conditions on teacher ratings and in-session studying behaviors for each subject. The procedures used for testing the relative efficacy of the two treatment modalities studied will be described below. First, the method of subject selection and assignment will be explained and the experimental design presented. The next section will examine the validity of the Survey of Study Habits and Attitudes, the research instrument for measuring two dependent variables, study habits and study attitudes. It will also explain techniques for defining grade point average, the second criterion variable, and for gathering data representing studying behaviors and teacher ratings. The three levels of the independent variable, group guidance, will be defined in the treatment procedures section, and the use of IQ levels and repeated measures will also be described. Final sections will discuss methods of data collection and control of variables, methods of data

analysis, and expected significance levels.

Subject Selection and Assignment to Treatment Groups

Subjects were drawn from the sophomore class at T. Wingate Andrews High School, High Point, North Carolina, at the end of the first nine weeks grading period of the 1976-1977 academic year. A list of those to be invited for group work to improve study habits, study attitudes, and grade point averages was compiled by the counselor-experimenter. This list came from the records of the sophomore homeroom teachers and included all the 160 sophomores who had failed or received a D in at least one subject for the preceding nine weeks. At that time all teachers who had issued a D or F to a sophomore were asked to complete a rating scale describing those students' studying behaviors (Appendix A). The investigator then met in small groups with all students who had seventh period study halls and who were on this failure list. She explained the planned study and permitted students to volunteer for participation. The investigator emphasized the fact that she was interested in group rather than individual data in order to lessen the possible evaluation apprehension suggested by Rosenberg (1965).

Although 160 sophomores had received at least one D or F, only 32 were available during the time period when the sessions could be conducted, and 27 volunteered to participate. The others had athletic commitments at seventh period or assisted teachers. While these numbers limit the generalizability of results, it appears that the practical value to

counselors makes the study worthwhile. Counselors do work with such small available and volunteer groups.

After volunteers were identified, a time and place were set for administration of the pretreatment Survey of Study Habits and Attitudes (SSHA), and all participants completed the instrument. They were asked to make a major effort to complete the experiment. A signed pledge was not requested. This procedure had not seemed particularly effective in a pilot study which the investigator had conducted the previous school year to test the workability of instructions and instruments. Those subjects who had signed such a pledge did not appear to regard it as a commitment to attend all sessions. Further, some students in the pilot study had expressed negative feelings about similar contracts to which they had been exposed in classes. A parental permission slip (Appendix B) was sent home to be signed and returned before treatment began.

Next the investigator categorized subjects into three relative ability levels: average, low, and very low. These groups were defined around a mean of 91.48 (standard deviation = 9.93) using scores from the Henmon Nelson Test of Mental Ability administered in September, 1976. This mean was considerably lower than that obtained in the previous year's pilot study. Data for the eighteen subjects in the earlier study had yielded a mean of 99.66 with a standard deviation of 15.74. However, the earlier subjects had been second-semester juniors whose lower ability classmates might already have withdrawn from school.

Subjects for the present study, after being assigned to one of the three stratified IQ categories, were randomly assigned to one of three nine-subject groups: (1) counselor attention treatment; (2) counselor attention plus modeling treatment; and, (3) a supervised study control group. The first two groups received nine treatment sessions over a nine-week grading period. Seven meetings were 55 minutes in length, but two sessions for each treatment group were shortened to twenty-five minutes each. This change of plans was necessary because unscheduled snow holidays shortened the semester. The control group met an equal number and length of sessions, but received no treatment other than basic information. In the first meeting, control subjects were told how their study time was to be structured, and in each subsequent session they were told to begin work as soon as the bell sounded, and were reminded when approximately half their study time had elapsed. Subjects in all three groups received a schedule of their meeting days before the first treatment session was scheduled.

Subject Description

The subjects, all high school sophomores, ranged in age from fifteen years, one month to sixteen years, eleven months. Sixty-seven percent were male, 33 percent female. There was a preponderance of black subjects with only ten of the 27 being white (see Table 1). Stratification by IQ was determined as average (95-114), low (84-94), and very low (77-83). This stratification assured fairly equitable distribution of ability levels within treatment groups, but random assignment produced

unequal divisions of race and sex within treatment groups. The numbers of white males and females were roughly equivalent within each group. However the modeling group contained a heavy proportion of black males, and the control group a relatively small number of black males (see Table 1). This distribution could have been the source of a confounding effect.

Experimental Design

The experimental design used was the pretest-posttest control group true experimental design by Campbell and Stanley (1963). While this design is widely recognized for its strength of internal validity, it is, according to Campbell and Stanley, subject to some external validity limitations. First, they suggest the danger of the pretests sensitizing subjects to treatment and thereby producing testing-treatment interaction. The authors do, however, point out that the few available published reports show either no effect or an interaction effect of a dampening order.

A more serious threat to external validity results from possible interaction of selection and the treatment. The investigator recognized the fact that results might be of limited generalizability. Further, the investigator recognized the danger of reactive arrangements to external validity. It appeared, however, that the planned treatment was effected in a fairly natural set of conditions. Students do have supervised study time in school, and are also

TABLE 1

Subject Assignment to Treatment Groups

Treatment Group	IQ Level	Race and Sex				Total
		Black Males	Black Females	White Males	White Females	
Counselor Attention	Average (99-114)	1	0	1	1	3
	Low (90-91)	2	1	0	0	3
	Very Low (77-83)	1	1	1	0	3
Counselor Attention Plus Modeling	Average (101-109)	0	0	2	1	3
	Low (84-93)	3	0	0	0	3
	Very Low (81-82)	3	0	0	0	3
Supervised Study Control	Average (95-105)	0	0	1	2	3
	Low (84-94)	2	1	0	0	3
	Very Low (78-83)	0	2	1	0	3
Total		12	5	6	4	27

accustomed to periodic testing. Therefore, the threat presented by artificiality was probably minimized.

This study examined the effects of three levels of the independent variable, group guidance treatment. Levels were counselor attention, counselor attention plus modeling, and a supervised study control. Repeated measures (time) and IQ levels also functioned as independent variables.

The dependent variables were, (1) a combination of study habits and attitudes, (2) grade point average, (3) the number of appropriate studying behaviors emitted in sessions, and (4) ratings by teachers.

Measures of study habits and attitudes were obtained by a pretest, posttest, and delayed posttest administration of the SSHA, while nine-week grade point averages were also calculated at the same nine-week intervals to determine the second dependent variable. Data to determine significant changes in the number of appropriate studying behaviors were gathered by two observers recording at intervals throughout each treatment session and in a single session for each group nine weeks after treatment ended. Teacher rating scales for subjects also yielded data for repeated measures of pretreatment, posttreatment, and delayed posttreatment behaviors.

Research Instruments

Four means of assessment were used as pretreatment, posttreatment, and delayed posttreatment measures. These were averages of the subjects' nine-week grades, a standardized survey of study habits and attitudes (SSHA), a teacher-rating scale, and session-by-session rater observations. A standardized mental ability test was used to establish IQ levels.

Grade point averages. Subjects' grade point averages were determined by assigning numerical weights to the letter grades of one-unit courses for a nine-week period: A=4; B=3; C=2; D=1; F=0. Any course receiving two units of credit was assigned double the value of the letter grade earned, and a course receiving only one-half credit was given one-half the numerical value of the same letter grade for a one-unit course. All numerical values of grades were added, and the total was divided by the number of units pursued to determine a grade point average. The pretreatment grade point average was that of the nine-week grading period just prior to treatment, and the posttreatment grade point average was that earned in the nine weeks during which the treatment occurred. The delayed posttreatment measure was based on the nine weeks period following treatment.

A great amount of research has been done using grade point averages as a dependent variable, and results have been generally discouraging (Broedel, Ohlsen, Proff, & Southhard,

1960; Gilliland, 1968; Hill & Grieneeks, 1966; Ivey, 1962; Winkler, Tiegland, Munger, & Kranzler, 1965). However, the independent variable was nearly always traditional counseling, and the subjects were usually nonvolunteers. This study used specified behavioral counseling treatment procedures with all volunteer subjects and it was felt that perhaps the change in parameters would result in a change in grade point averages.

Study habits and attitudes. Brown and Holzman's Survey of Study Habits and Attitudes (SSHA) (1967) was used for pre-, post-, and delayed posttest assessment of study habits and attitudes. This instrument yields raw scores from 0 to 50 in Delay Avoidance (DA) and in Work Methods (WM), and combines these measures for raw scores from 0 to 100 in Study Habits (SH). It also provides scores with ranges of 0 to 50 for Teacher Approval (TA) and Education Acceptance (EA), then combines these two attitudinal measures into a single score from 0 to 100 for Study Attitudes (SA). Finally, the Survey of Study Habits and Attitudes profile includes an overall Study Orientation (SO) score based on both the Study Habits and Study Attitudes scales discussed above.

The Form H, or high school level, of the Survey of Study Habits and Attitudes has been validated in junior and senior high schools throughout the United States. The criterion used in most of these studies was a one semester grade point average based on academic courses such as English, science, mathematics, language, and social studies. Morris (1961) studied the concurrent validity of the SSHA - Form H

and found that by using the counseling key it is possible to locate those students who are doing poor work and separate them from those who are doing good work. A 1964 administration of the SSHA - Form H to 3,731 students enrolled in grades seven through twelve yielded significant correlations between the SSHA total score (SO) and grades. Correlations ranged from .31 to .85 with a mean of .55 (Brown and Holzman, 1967). The authors report that the correlation between SO scores and measured scholastic aptitude is consistently low, with mean values ranging from .20 in grade twelve to .32 in grade seven. This finding suggests the plausibility of using the SSHA - Form H in providing measures of personal traits that are relevant to academic success but are not covered by scholastic aptitude tests.

Reliability of the college level SSHA - Form C, has been computed using the Kuder-Richardson Formula 8, with 465 college freshmen as subjects. Further evidence of reliability is provided by the results of two test-retest studies. One was on a sample of 144 college freshmen with a four-week interval between administrations and the other study used 51 college freshmen with a fourteen-week interval. The test-retest coefficients with a four-week interval were .93, .91, .88, and .90, respectively for the Delay Avoidance, Work Methods, Teacher Approval, and Education Acceptance Scales. Coefficients for the fourteen-week interval were .88, .86, .83, and .85 respectively.

Although Form C for college students is quite similar to the high school survey, Form H, additional study was done using Form H. Two hundred thirty-seven ninth graders were given the SSHA - Form H twice, with a four-week interval between sessions. The test-retest reliability coefficients were .95, .93, .93, and .94, respectively for the Delay Avoidance, Work Methods, Teacher Approval, and Educational Acceptance scales, and .95 for the SSHA total score. The means and the standard deviations for SSHA total score changed very little over the four-week interval.

IQ Scores. Authors of the Henmon-Nelson Tests of Mental Ability (Lamke and Nelson, 1957), which was used to assign the subjects to IQ levels, report adequate validity and reliability data. Several studies of concurrent validity administrations in Wisconsin, New York, and Iowa yielded validity coefficients of .75, .79, and .71 when scores were correlated with the nonlanguage total and with verbal scores of the California Test of Mental Maturity. Correlation with the Iowa Tests of Educational Development and the California Achievement Test produced coefficients ranging from .62 to .84. When the Henmon-Nelson scores were correlated with earned grades of students in Illinois, Wisconsin, and Iowa, coefficients ranged from .51 to .73 with the exception of that for grades in vocational subjects.

Lamke and Nelson (1957) report odd-even reliability coefficients from .90 to .94 for both Form A and Form B. Because

the odd-even method is considered more suitable for computing coefficients for "power" tests, and because the Henmon-Nelson has a specified time limit, alternate-forms reliability coefficients from .89 to .94 were also presented.

Teacher rating of subjects. Teacher assessments of studying behaviors were obtained at the end of the first nine weeks of school, the end of the treatment period, and once more after a third nine weeks grading period. Each teacher was asked to complete a rating sheet (Appendix A) for any sophomore to whom he had assigned a D or F for the first nine weeks of school. For those students who became subjects, teachers also completed rating scales after treatment and again after the third nine weeks of school. Behaviors on which subjects were rated were: (1) sits at desk and orients directly to book or other work materials; (2) orients directly to teacher or speaker addressing group; (3) speaks in a positive way about school, his own work habits, and grades; (4) brings appropriate study materials to class; and, (5) brings assigned homework or projects.

Recording student and investigator behaviors in treatment groups. Throughout the treatment, observers recorded the number of studying behaviors emitted by subjects and models, and the number of reinforcements emitted by the investigator. An interaction code (Appendix C) enabled each observer to record appropriate student and investigator

behaviors. Each observer also noted absences of subjects in order to determine the necessity of adjusting later for subject mortality.

Instructions to Observers

Four seniors were trained to observe and record student and investigator behavior in the categories specified on the rating sheet. On alternate days, alternate pairs of observers recorded the behavior of the student and the investigator in a given session and interval.

Before the start of every session, each of the two observers for the day received a sheet for recording the behaviors of each subject over a specified two-minute block of the discussion period and a second sheet for recording the behaviors of each subject over a second two-minute block in the study time. Within the two-minute period in the discussion part of treatment, each observer (1) monitored the behaviors of the specified student for 10 seconds, and monitored the investigator's behaviors at the same time; (2) used the next 10 seconds to record the student's behaviors by circling the appropriate code(s) in the first half of row one, and to record the investigator's behaviors by circling the correct code(s) in the second half of row one; and (3) repeated the procedure for the same student in the next five 20-second time intervals. Observers were instructed to move to the next subject on their lists if a given

subject were absent, after indicating the absence with an AB designation. Once each subject had been observed in the discussion period, a similar procedure was followed in the study time. For the control group, two sets of observations were made in study time, since there were no discussions.

All sessions were audio tape recorded in order that an external analysis of the instructions and reinforcers for each group could be made. All observers were trained to record the following student and investigator behaviors.

Student behaviors.

Work--symbol W

Purpose: to monitor the amount of time the student spends attending his school assignments

Description: student orients directly to work materials such as textbooks, notes, library books, while sitting at desk for entire interval

Excludes: orientation to such nonschool materials as comic books and magazines

Attending--symbol A

Purpose: to monitor the amount of time a student spends attending the investigator or another speaker

Description: direct orientation to the speaker for the entire 10-second interval

Excludes: attending a speaker who is not addressing the group

Speaking--symbol S

Purpose: to monitor the amount of time spent addressing the group or the investigator positively

Description: student speaks in a favorable way about school, work habits, grades, or teachers, such as, "Most teachers seem fair."

Excludes: unfavorable or neutral speech or talk which is not a part of the group discussion

Investigator behaviors toward students

Contact--symbol C

Purpose: to monitor the amount of positive physical contact the investigator makes with a student

Description: any touching intended to be agreeable, such as touching a student's arm or patting his shoulder

Excludes: accidental appearing contact

Praise--symbol P

Purpose: to monitor positive verbal reinforcement of appropriate behaviors

Description: any comments indicating approval or commendation, such as, "That's good." "Fine!"

Facial Attention--symbol F

Purpose: to monitor investigator's nonverbal reinforcement of appropriate behaviors

Description: investigator orients head in direction of student and smiles, nods, or gives some other nonverbal noncontact approval

Instruction--symbol I

Purpose: to monitor time spent in neutral directions

Description: statement of rules for the group, the amount of time remaining, and the like

Group Praise--symbol G

Purpose: to monitor time spent in group praise for appropriate behaviors

Description: Any comments addressed to the group and indicating approval or commendation.

Two pairs of observers were trained in simulated sessions over the eight school days before treatment began. They observed behaviors as the investigator interacted in a discussion with make-believe subjects (upperclassmen who never came in contact with the real subjects). After short periods of observation, the investigator and observer would compare results and clarify misunderstandings. By the final three days of training the length and number of observation periods closely approximated the real treatment sessions.

Treatment Procedures

Counselor attention treatment. The counselor attention group met nine times during the last period of the day, with days randomized over the entire treatment period. Session one was used to explain to subjects that 20 minutes of each meeting would be spent in talking with the investigator about their most difficult courses and their progress as well as their thoughts about school. They were asked to select the class or classes most troublesome and to report back to the group their latest grades, and were told that these grades would be posted on the bulletin board. The last 35 minutes were used for study and for investigator reinforcement of predesignated appropriate studying behaviors.

Sessions two through nine followed a similar pattern each time. The treatment included a great deal of interaction among the investigator and the participants, with no models present. First, subjects reported progress in their target courses. The investigator used as positive reinforcers praise, attention, and a display of her own interest and excitement at each student's successive approximation of appropriate grades and study behaviors. She ignored the lack of such behaviors.

A deliberate attempt was made to draw the subjects into discussion of specific points related to the positive study habits and attitudes measured by the SSHA. Using the scoring key to aid in discrimination, the investigator had divided

the SSHA statements into eight categories: (1) What Good Is School to Me? (2) Good Grades: Who Makes Them? How? Why? (3) Effective Studying and Planning; (4) Attitudes toward Teachers and School; (5) Effective Behavior in Class; (6) Effective Reading and Studying Techniques; (7) Test Taking Techniques; and (8) Outside Influences on Studying. As subjects responded with successive approximations of behaviors designated appropriate, the investigator reinforced these students with smiles, agreement, and praise. Comments which failed to reflect the desired attitudes or behaviors were ignored. After the initial 20-minute discussion in each treatment session, the remaining 35 minutes were spent in studying, with the investigator continuing to reinforce appropriate behaviors.

Counselor attention and modeling treatment. The modeling treatment included techniques planned to stimulate vicarious learnings of appropriate study habits and attitudes. This approach exposed subjects to two models who received positive reinforcement for exhibiting appropriate studying behavior and attitudes. The models were chosen on the basis of a better than average rate of success in school: an average of "C" or better, and participation in at least one sport, club or extracurricular activity. Models who were unusually gifted academically were avoided since subjects might have found such students too unlike themselves for identification with them. A black female and a white male served as models.

The modeling treatment group met nine times at the last period of the day, with days randomized over the nine weeks. The first meeting was used to establish rules. The other eight treatments consisted of having the successful upperclassmen models interact with the investigator and subjects in conversation revealing positive attitudes toward school and a desire to attain good grades. The investigator conducted the second through ninth treatment sessions in the same manner as she did those of the student reinforcement treatment group with one major exception. The models as well as the subjects were drawn into appropriate statements and studying behaviors, and were reinforced along with the subjects. Each session was structured around the same sets of SSHA concepts as were used in the student reinforcement treatment.

Control group: supervised study. This group also met nine times through the treatment period in the same room which the modeling and reinforcement groups used, and at the same period rotating with the other two groups. They were administered pretests, posttests, and delayed posttests when the other groups received them. Their activities at all other sessions were those acceptable in normal study hall situations, and the investigator behaved as a study hall supervisor enforcing regular school rules for a study hall. She set basic rules, such as the requirement to be seated before the starting bell rang, and to have study materials,

just as she did with the other two groups, but avoided the modeling and reinforcement procedures used with the two treatment groups.

Rules for all Groups

The beginning of the first session for each group was used to clarify basic rules which applied to all three treatment conditions. The Counselor Attention Group (T_1), Counselor Attention and Modeling Group (T_2), and Control Group: Supervised Study (T_3) were told that everyone would observe the following rules:

(1) Every student will attend the group every assigned day. All will receive a calendar with their group's days designated, and will receive reminders every day they are scheduled to meet.

(2) Each student will be assigned a seat. He will enter, find and pin on his name tag, and be in his seat before the 2:35 bell sounds.

(3) Each student will use all his study time to work on school assignments; or, if he has no assignments, to read a library book or work quietly on something else.

(4) Each student will work quietly so as not to disturb those around him.

(5) The investigator will announce at the appropriate time that about 25 minutes of study time remains,

and later that only one minute in the period remains.

(6) Everyone will remain seated until the bell sounds, at which time the investigator will dismiss the group.

Basic Procedures for T_1, T_2, and T_3

After the basic rules were established, each student in T_1 and T_2, including models in T_2, was asked to designate a course in which he would like to improve his grades. The investigator recorded each student's name and selected course on a sheet which was posted on the bulletin board, and asked each student to report his progress for posting at each meeting.

Both T_1 and T_2 were told that some time would be used in each meeting to discuss school, homework, teachers, and work habits in an attempt to improve students' grades, and that the final 35 minutes of each meeting would be used for study. Subjects in T_3 were instructed to use the entire meeting period for study.

Questions for Discussions in T_1 and T_2

The eight discussions in groups T_1 and T_2 lasted for approximately 20 minutes. The first ten minutes were taken for reviewing each student's progress in the class he had targeted for improvement, with the investigator reinforcing any reported improvement and ignoring lack of progress.

The second ten minutes were spent in discussion of the open-ended questions based on concepts from the SSHA. The investigator reinforced student responses which were similar to those specified in Appendix D and ignore other kinds of responses. The subjects received reinforcement in T_1 while subjects and models were reinforced in T_2.

In order to help elicit a great many desired responses which could be reinforced in T_2, the investigator, two days before session 1, gave both models the planned questions and examples of appropriate responses listed in Appendix D, with instructions to make their replies seem natural and spontaneous. No subjects received in advance either questions or suggested responses.

Reliability of observations

Pairs of trained student observers recorded the frequency of subject and investigator behaviors throughout treatment sessions. The purpose of observing subjects was to supply data for analysis of treatment effects; the purpose of observing the investigator was to provide a check for equality of reinforcements and instructions given by the investigator to the two experimental treatment groups.

Reliability of data on subject behavior was adequate. In order to establish this fact, the investigator had trained the observers in simulated group sessions before treatment began. Reliability of observations was established by dividing the smaller frequency count by the larger frequency count,

a method recommended by Lipinski and Nelson (1973) for use with low frequency target behaviors. Intervals in which neither observer recorded a behavior were not counted. Ninty percent reliability was reached in training. Coefficients for subject behaviors recorded throughout treatment sessions are reported in Table 2. The data from sessions five through nine, which was used for analysis of treatment effects, had reliability coefficients averaging .92 for the reinforcement treatment and .94 for the modeling treatment. Coefficients for the delayed posttest session, however, reveal an acute drop in reliability for the two observers. Two factors probably account for this decrease. First, nine weeks had elapsed between session nine and the delayed posttest session. Second, the two students who made the delayed posttest observations had not worked as a pair in the previous sessions although each had worked with another observer earlier.

Examination of observation data on the investigator revealed some problems, but it was eventually possible to conclude that investigator treatment to the two treatment groups had been comparable. The two problem areas were, (1) low reliability for observation of investigator data, and, (2) decreasing frequency of investigator behaviors over sessions as recorded by the observers.

Table 3 reports the reliability coefficients over sessions for both experimental treatments. It is noteworthy that although coefficients were quite low, they were

comparably low for the attention and the modeling group. Because of this low reliability, however, Pearson product moment correlations were computed on observed and audiotaped verbal reinforcers in the discussion periods of each session. It was not expected that the observers would record verbal reinforcers for subjects other than that one being observed at a given interval. Thus the number of reinforcers heard on the audiotape should have exceeded those recorded by observers. However, it was hoped that a high correlation would exist between the audiotaped and observed reinforcers for each session. For the attention group, the coefficient was .15; for the modeling group, .35. These low coefficients indicate that the observer data on investigator behavior was inconsistent with that recorded from audiotape, and was probably less reliable than had been hoped.

Nevertheless, a sign test for two correlated samples (Ferguson, 1971) comparing the two experimental groups on verbal plus facial reinforcers, instructions, and group praise, as recorded by the observers, fell far short of the .05 level of significance. This fact suggests that differential investigator behavior in the treatment conditions did not occur. Moreover, correlation across sessions of the reinforcers and instructions counted from the audiotapes produced a coefficient of .80 for the two experimental treatment groups. This result strongly suggests that the two groups received comparable instructions and verbal reinforcers.

The second problem with the observer recorded investigator behaviors, that of decreasing frequency, seems unfortunate but explicable. It appears that as the observers concentrated more and more upon accurate recording of subject behaviors, they noted fewer and fewer investigator behaviors. It would have been desirable for the investigator to intervene as this tendency emerged, and to prompt the observers to attend to her behaviors more carefully. As this was not done, results of this set of data must be viewed with a degree of caution. Data from the audiotapes, summarized in Table 4, reveals that the investigator's verbal reinforcers did decrease. However, they did not approach zero as the observer data suggests.

In summary, one may draw two conclusions. Although observer data on investigator behavior is not as trustworthy as one would hope, it does indicate that the two experimental treatment conditions received comparable investigator reinforcers and instructions. This assumption is supported by data recorded from the audiotapes. It may also be concluded that observer data on subject behavior was sufficiently reliable to be analyzed for treatment effects. This analysis was completed, and results are reported in Chapter IV.

Delayed Posttreatment Session

Nine weeks after the treatment ended all students were reassembled for administration of the SSHA. In order to

TABLE 2

Reliability of Observations on Subjects

Session	Coefficients (Attention Treatment)				Coefficients (Modeling Treatment)				Coefficient (Control Treatment)
	Work	Attending	Speaking	Total	Work	Attending	Speaking	Total	Work
1	.97	.82	1.00	.91	1.00	.70	*	.83	.93
2	1.00	.39	.67	.55	.93	.96	1.00	.93	1.00
3	.98	.69	.60	.87	1.00	1.00	1.00	1.00	1.00
4	1.00	.90	.67	.93	.98	.83	*	.93	1.00
5	1.00	.75	1.00	.93	.93	.78	1.00	.90	1.00
6	1.00	.95	*	.96	1.00	.72	*	.87	.95
7	*	.98	.80	.96	1.00	.91	*	.98	1.00
8	1.00	.84	.33	.79	.90	1.00	*	.93	1.00
9	1.00	.93	*	.94	*	1.00	*	1.00	1.00
Delayed Posttest	*	.68	.43	.63	1.00	.74	.75	.81	1.00
Mean (Sessions 1-9)				.87				.93	.93

*No behaviors observed

TABLE 3

Reliability of Observations
on Investigator

Session	Reliability Coefficients (Reinforcement Treatment)	Reliability Coefficients (Modeling Treatment)
1	.73	.00
2	.44	.37
3	.16	1.00
4	.60	.25
5	.67	.00
6	.00	0 observations
7	0 observations	0 observations
8	.50	1.00
9	0 observations	.00
Delayed Posttest	.00	.00
Mean (Sessions 1-9)	.44	.37

TABLE 4

Frequency of Investigator Behaviors

Session	Verbal Reinforcers				Facial* Reinforcers		Verbal & Facial* Reinforcers		Instruction*		Contact*		Group* Praise	
	T_1*	T_1**	T_2*	T_2**	T_1	T_2	T_1	T_2	T_1	T_2	T_1	T_2	T_1	T_2
1	0	15	0	21	2	0	2	0	0	0	0	0	5	0
2	1	24	1	24	1	0	2	1	2	1	0	0	4	1
3	0	27	0	21	0	5	0	5	0	2	0	0	1	3
4	1	21	1	22	1	0	2	1	0	0	0	0	2	0
5	0	21	0	18	1	0	1	0	0	0	0	0	1	0
6	0	14	0	12	0	0	0	0	0	0	0	0	0	0
7	0	12	0	8	0	0	0	0	0	0	0	0	0	0
8	0	24	0	26	0	0	0	0	0	0	0	0	0	0
9	0	15	0	9	0	0	0	0	0	1	0	0	0	0
Total	2	152	2	161	6	5	8	7	2	4	0	0	13	4

* Investigator behaviors recorded by observers.

** Verbal reinforcers from audiotape.

T_1 = Reinforcement treatment.

T_2 = Reinforcement plus modeling treatment.

obtain delayed-posttreatment measures of student behaviors, a single session was also held for each separate treatment group within the same week. In this final session, a follow-up discussion of grades in the target courses preceded a brief summary discussion of points covered in the eight treatment meetings. Observers recorded student behaviors exactly as they had done in earlier treatments, and the final 35 minutes were used for studying just as in the earlier sessions. Because spring sports necessitated some subjects leaving school early for games at other schools, no group had 100 percent attendance at these delayed posttest meetings. For this reason, and because of inadequate observer reliability for these last sessions, the delayed posttest data on observed subject behaviors were not analyzed.

Control of Variables

Intelligence scores were taken from the Henmon Nelson Test of Mental Ability which had been administered to all subjects at the beginning of their sophomore year. Scores were low, as might be expected since the subjects were all in academic difficulty. The investigator assigned subjects to either an average intelligence group, with IQ scores 95 and above, a low group, with IQ scores ranging from 84 to 94, or a very low intelligence group with scores of 83 and below. This assignment controlled for variation by building intelligence into the design as an independent variable.

Within each IQ level, three treatment levels (Counselor Attention; Counselor Attention plus Modeling; Supervised Study Control) were established through random assignment to control for motivational differences (Kerlinger, 1973).

The investigator attempted to control the attrition rate of subjects in two ways: (1) each subject was asked initially to promise to attend each session if possible; (2) the investigator each day made some personal contacts and sent reminders to all subjects in the group which was to meet that day. Attendance seemed reasonable for this group of students, some of whom were often absent from school before the treatment began as well as after it ceased. One subject dropped school after the second meeting, and a second left school a few days after the sessions were completed.

Analysis of Data

Data for the analysis derived from four main sources. One was the grade point averages of subjects for the first nine weeks (pretest), the second nine weeks (posttest), and the third nine weeks (delayed posttest) of school.

Scores on the SSHA - Form H were a second set of data. This instrument provided Study Habits scores based on items assessing delay avoidance and work methods. It also yielded scores for Study Attitudes, based on items assessing teacher approval and education acceptance. Additional

data were derived from observers' recordings of student studying behaviors, and from teacher ratings of subjects.

Data were gathered immediately prior to treatment, immediately after treatment, and nine weeks after treatment for the study habits, study attitudes, and grade point average variables. Observed data were gathered throughout the nine treatment sessions.

The data were analyzed with a three-way factorial analysis of variance. Factor A consisted of the three levels of counseling treatment; factor B was made up of the three levels of IQ; factor C was a time variable with two levels, post- and delayed posttest. Comparability of the three groups at pretest was determined by a one-way analysis of variance. Interactions as well as individual comparisons were made with the level of significance set at the .05 level.

CHAPTER IV

PRESENTATION AND INTERPRETATION OF DATA

The purpose of this study was to explore the effectiveness of counselor attention and counselor attention plus modeling in changing grade point averages, study habits, study attitudes, and classroom behaviors. The research design included three factors. Factor A was treatment, with three levels: counselor attention, counselor attention plus modeling, and supervised study control. Factor B was three levels of IQ: average, low, and very low. Factor C was two levels of time: posttest and delayed posttest measures spaced over a nine-week interval.

Three major categories of dependent variables were used. The first group of variables, derived from standardized instruments and other objective measures, included a study habits score, a study attitudes score, and a grade point average. Another group of dependent variables was obtained from an investigator-constructed teacher rating sheet. It contained several statements about subjects whom classroom teachers rated on a graduated scale. Answers closest to number one were most favorable, and answers nearest five denoted undesirable behaviors. There were five teacher rating items: (1) sits at desk and orients directly to book or other study materials; (2) orients directly to teacher or

other speaker addressing group; (3) speaks in a positive way about school, personal work habits, and grades; (4) brings appropriate study materials to class; and, (5) brings assigned homework or projects. A third group of dependent variables came from observers' records of subjects' working, attending, and speaking behaviors during the experimental period.

Some hypotheses to be tested postulated that after treatment both experimental treatment groups would differ from the control group, and that treatment effects would vary among IQ levels. The modeling plus attention (reinforcement) treatment was expected to produce greater positive change in very low IQ than in low or average IQ subjects. Counselor attention alone was expected to produce greater differences for the average IQ than for the low or very low IQ subjects. The literature is replete with studies in which reinforcement or reinforcement plus modeling produce significant increases in behaviors (Kanfer & Marston, 1963; Krumboltz & Shroeder, 1965; Krumboltz & Thoresen, 1964; Oliver & Hoppe, 1966; Phillips, 1968a; Phillips, 1968b; Thoresen & Krumboltz, 1967; Wilson & Walters, 1966). However, little work investigating interactions of modeling, reinforcement, and IQ has been reported. There is some indication that persons low in intelligence, ability, and self-esteem are more imitative than are brighter individuals observing models (Lanzetta & Knareff, 1959; Salomon, 1974; Strichart, 1974).

Several statistical procedures were employed to test the assumptions to be met and to test the hypotheses under consideration. First, a one-way analysis of variance was used on the pretest data to verify an initial lack of significant differences among treatment groups. Next, a three-way (3 X 3 X 2) analysis of variance (treatment by IQ by time) was performed on posttest and delayed posttest data as an omnibus F to determine statistically significant effects and to test the substantive hypotheses. Significant interactions were then graphed, and simple effects were analyzed when appropriate. The Neuman-Keuls procedure was employed to test for significant differences among cell means when the analysis of simple effects and the design made this appropriate.

Test of Basic Assumptions

The one-way analysis of variance of pretest data was performed to test the A factor main effects for all dependent variables and to determine whether a significant initial difference existed among the three treatment groups. The resulting F values were less than 1.00 for teacher ratings 1, 2, and 5, and were 2.57, 3.31, 1.50, 1.61, and 3.06 for teacher ratings 3 and 4, grade point average, study habits, and study attitudes respectively. All these critical values were far below the .05 level of significance. Therefore, the investigator concluded that the three treatment groups were not significantly different on these variables before

treatment. These tables of pretest means may be found in Appendices E through H.

When analyzing data derived from a repeated measures design, one might employ an adjustment described by Greenhouse and Geisser (1959). This adjustment addresses the assumption that the variance-covariance matrices be homogeneous over the treatment levels. It enlarges the size of the critical value by adjusting degrees of freedom. However, the degrees of freedom for analyses in this study were already at the lowest and therefore most conservative level possible, so use of the Greenhouse-Geisser procedure was inappropriate. An unadjusted three-way analysis of variance was used to test the hypotheses being considered.

Treatment Results

Study habits, study attitudes, and grade point averages. Results of the analysis of variance are reported in the following tables: Table 5 (Study Habits), Table 7 (Study Attitudes), and Table 9 (Grade Point Averages). Analysis of main effects for the three treatment conditions revealed no significant differences among means on study habits, study attitudes, or grade point average variables. Further, there were no significant interactions on the grade point average. However, for the study habits criterion, there was a significant interaction between treatment and IQ levels. The means for this interaction are presented in Table 6 and Figure 1

depicts the treatment by IQ interaction. Analysis of simple effects for this interaction showed significant treatment differences among means at the low IQ level ($F=4.32$, $p < .05$) The effects for treatment at average and at very low IQ levels were not significant. The Neuman-Keuls analysis on treatment means within the low IQ level showed that the attention treatment group mean ($\bar{X}=47.33$) was significantly higher ($p < .05$) than the modeling group mean ($\bar{X}=19.40$). Differences between the attention and control group ($\bar{X}=38.33$), and between the modeling and control group were not significant. This last analysis indicates that for low IQ students, the attention treatment produced significantly higher study habits scores than the modeling plus attention or the control condition produced. This was a somewhat surprising result, since attention plus modeling was expected to produce greater positive change among very low ability students. It is likely, however, that the very low ability students were still operating at a concrete level of understanding. Therefore they might have lacked the grasp of abstract concepts needed to master and apply the ideas discussed by models for earning higher grades.

Analysis of the study attitudes scores revealed a similar interaction of treatment and IQ. These means are summarized in Table 8, and the interaction is graphed in Figure 2. Although means of study attitudes scores appeared to follow the same general form as did means of study habits

TABLE 5

Analysis of Variance of Study Habits

Source	df	Ms	F
Between subjects			
Treatment (A)	2	94.71	<1.00
IQ (B)	2	123.43	<1.00
AB	4	883.26	3.02*
Subj. w. groups (error (between))	17	293.83	
Within subjects			
Time (C)	1	24.50	1.13
AC	2	3.06	<1.00
BC	2	3.99	<1.00
ABC	4	28.73	1.32
C X subj. w. groups (error (within))	16	21.68	

*$p < .05$.

TABLE 6

Means for Levels of Treatment by IQ Levels for Study Habits

	Treatment			
IQ	Attention	Attention Plus Modeling	Control	$\bar{X}$
Average	28.83	39.50	23.83	30.72
Low	47.33	19.40	38.83	35.18
Very Low	23.25	30.16	40.50	31.30
$\bar{X}$	33.13	29.68	34.38	32.40

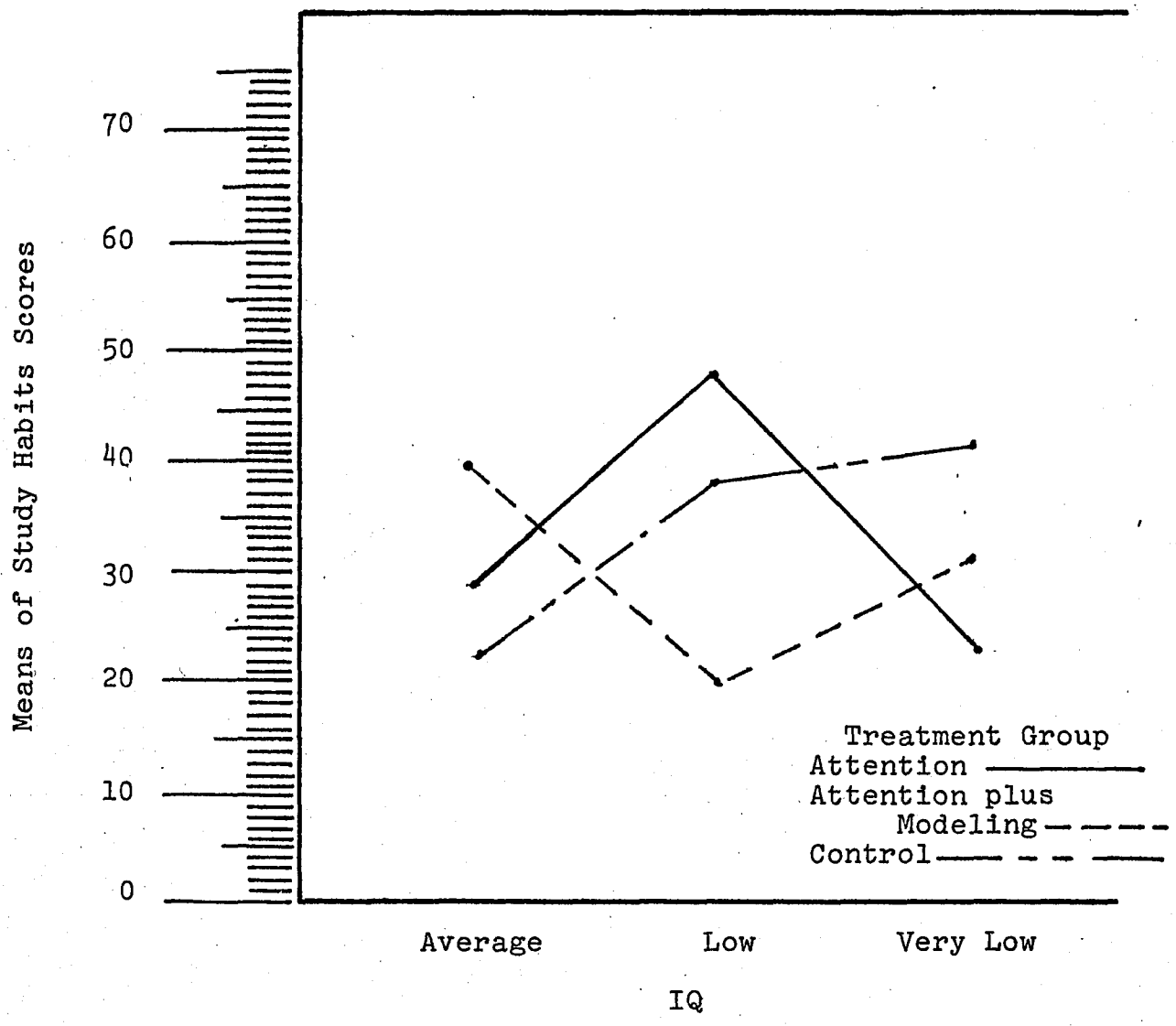

Fig. 1. Interaction of treatment level by IQ for study habits variable.

TABLE 7

Analysis of Variance of Study Attitudes

Source	df	Ms	F
Between subjects			
Treatment (A)	2	57.61	< 1.00
IQ (B)	2	357.40	< 1.00
AB	4	1861.51	3.31*
Subj. w. groups (error (between))	17	561.77	
Within subjects			
Time (C)	1	2.00	< 1.00
AC	2	20.27	< 1.00
BC	2	152.30	< 1.00
ABC	4	27.31	< 1.00
C X subj. w. groups	16	37.47	

*$p < .05$

TABLE 8

Means for Levels of Treatment by IQ Levels for Study Attitudes

IQ	Treatment			
	Attention	Attention Plus Modeling	Control	$\bar{X}$
Average	29.50	50.83	33.16	37.83
Low	54.66	30.00	37.50	40.72
Very Low	22.25	31.50	49.33	34.36
$\bar{X}$	35.47	37.44	39.99	37.63

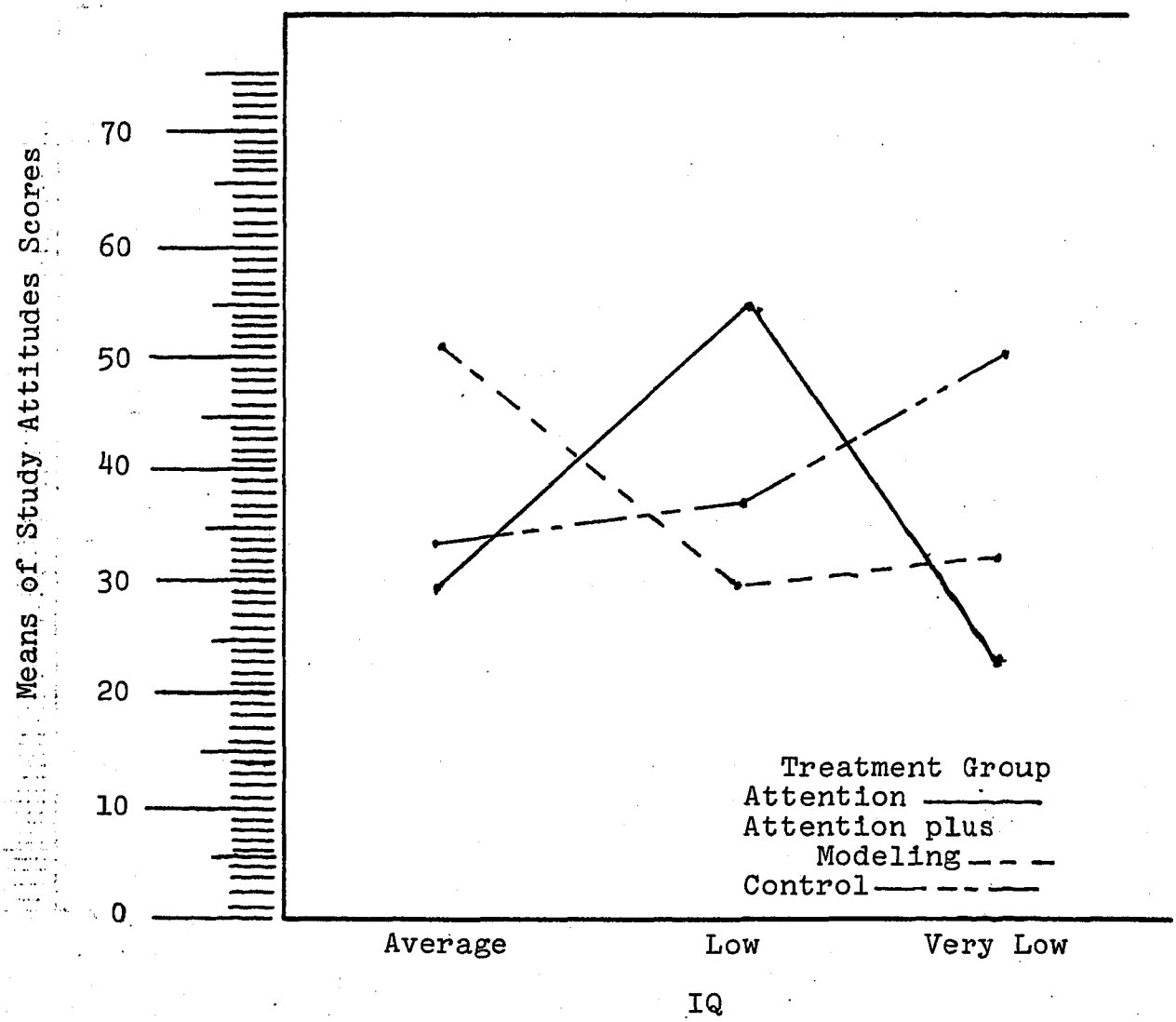

Fig. 2 Interaction of treatment level by IQ for study attitudes variable.

TABLE 9

Analysis of Variance of Grade Point Average

Source	df	Ms	F
Between subjects			
Treatment (A)	2	.64	< 1.00
IQ (B)	2	.13	< 1.00
AB	4	2.26	2.59
Subj. w. groups (error (between))	17	.87	
Within subjects			
Time (C)	1	.41	2.27
AC	2	.25	1.38
BC	2	.01	< 1.00
ABC	4	.25	1.38
C X subj. w. groups (error (within))	17	.18	

scores, an analysis of the treatment by IQ interaction failed to reveal a similar pattern of significant simple effects. There were no statistically significant differences for treatments at either average, low, or very low IQ levels. However, a significant interaction existed, and, as no simple effects were found for treatment at levels of IQ, there seemed a possibility of differences between means for IQ groupings at levels of treatment. Therefore the investigator performed an analysis of simple effects for B at levels of A. There were significant simple effects for IQ within the attention condition ($F=3.20$, $p < .10$), but the Neuman-Keuls procedure (with $p < .05$) for individual comparisons of the cell means yielded no significant results. This apparent discrepancy is explicable since the simple effects significance was at the .10 level, but the significance level for the Neuman-Keuls was set at .05.

There were no significant treatment effects or interactions for the grade point average dependent variable.

Teacher ratings. The following tables report results of analysis of variance on the teacher rating items: Teacher Rating 1 (Table 10); Teacher Rating 2 (Table 12); Teacher Rating 3 (Table 14); Teacher Rating 4 (Table 16); and Teacher Rating 5 (Table 17). Raw scores appear in Appendices L through P. This analysis revealed no significant treatment effects and no significant treatment by IQ

interactions for teacher rating 1 (orients to work materials) or teacher rating 2 (orients to speaker). However, for both of these variables there was a significant interaction between the IQ and time variables. Although these interactions are not germane to the hypotheses of this study, they are of some interest. Table 11 contains the means for teacher rating 1, and Figure 3 displays the interaction. The means for teacher rating 2 are listed in Table 13, while Figure 4 graphically depicts the interaction. Inspection of Figures 3 and 4 indicates a similar pattern of mean scores for the "orients to work" and "orients to speaker" variables. For both dependent variables, the average and low level IQ subjects attained lower, and thus more desirable, scores than did the very low IQ subjects. This condition existed at both posttest and delayed posttest times of measurement. There was, however, a decrease in differences between scores of very low and of low and average IQ subjects at the delayed posttest. Since the IQ by time interactions were not of primary importance in this study, no simple effects analysis was done on the teacher ratings 1 and 2 variables.

There were significant treatment main effects for teacher rating 3 ("speaks positively of school"). The results of this analysis of variance appear in Table 14. However, a significant interaction between treatment method and IQ also was found. Means for this interaction are reported in Table 15, and Figure 5 depicts the interaction graphically. The

TABLE 10

Analysis of Variance of Teacher Rating 1
(Orients to work materials)

Source	df	Ms	F
Between subjects			
Treatment (A)	2	.62	< 1.00
IQ (B)	2	2.61	1.33
AB	4	1.70	< 1.00
Subj. w. groups (error (between))	17	1.95	
Within subjects			
Time (C)	1	.37	1.76
AC	2	.29	1.38
BC	2	.99	4.71*
ABC	4	.49	2.33
C X subj. w. groups (error (within))	17	.21	

*p < .05.

TABLE 11

Means for Levels of IQ by Time for Teacher Rating 1
(Orients to work material)

	IQ Levels			
Time	Average	Low	Very Low	$\bar{X}$
Posttest	2.40	2.27	3.41	2.69
Delayed Posttest	2.77	2.69	3.05	2.83
$\bar{X}$	2.58	2.48	3.23	2.76

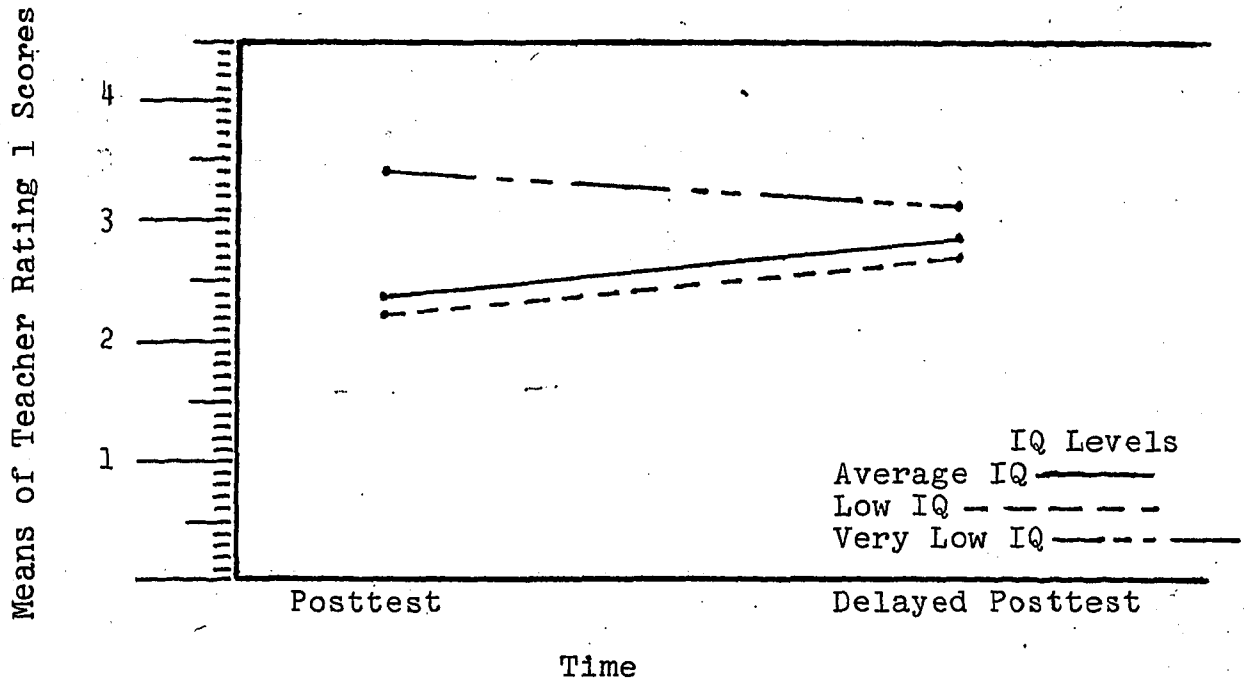

Fig. 3. Time by IQ interaction on teacher rating 1 (Orients to work material).

TABLE 12

Analysis of Variance of Teacher Rating 2
(Orients to speaker)

Source	df	Ms	F
Between subjects			
Treatment (A)	2	1.60	< 1.00
IQ (B)	2	2.55	1.94
AB	4	2.65	2.02
Subj. w. groups (error (between))	17	1.31	
Within subjects			
Time (C)	1	.54	1.35
AC	2	.52	1.30
BC	2	1.41	3.52*
ABC	4	.29	< 1.00
C X subj. w. groups (error (within))	17	.40	

*$p < .05$.

TABLE 13

Means for Levels of IQ by Time for Teacher Rating 2
(Orients to speaker)

Time	IQ Levels			
	Average	Low	Very Low	$\bar{X}$
Posttest	2.40	2.15	3.41	2.65
Delayed Posttest	2.71	2.48	3.06	2.75
$\bar{X}$	2.55	2.31	3.23	2.70

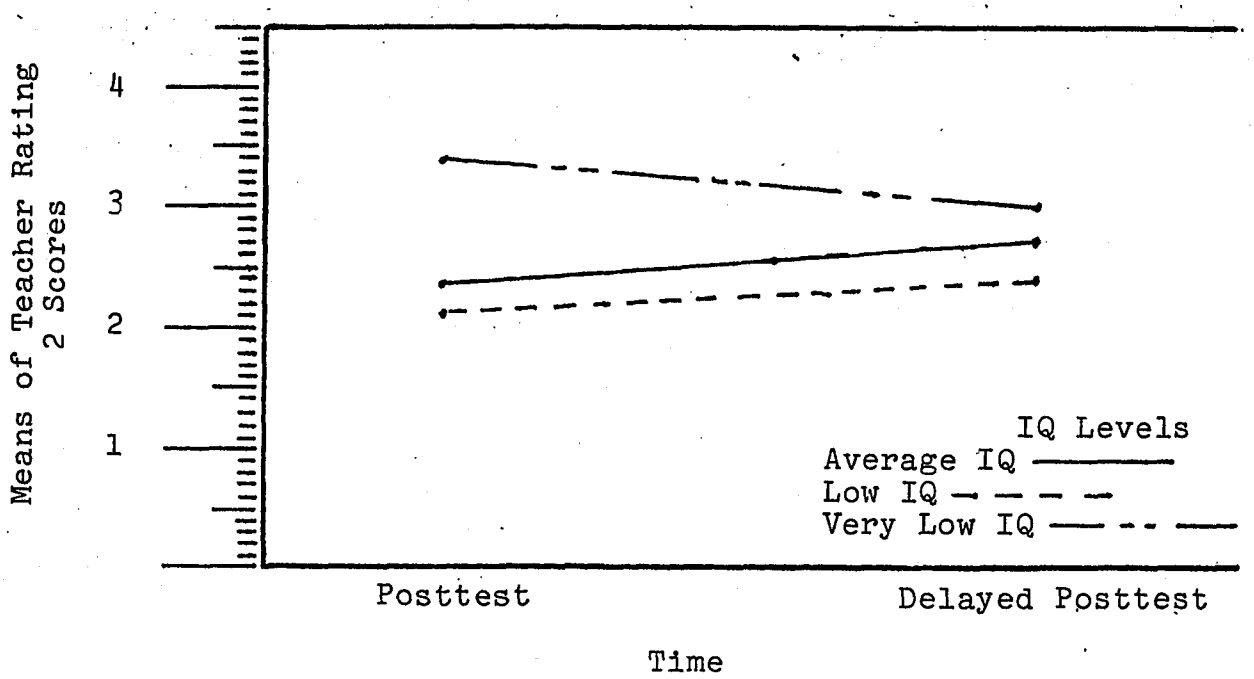

Fig. 4. Time by IQ interaction on teacher rating 2 (Orients to speaker).

TABLE 14

Analysis of Variance on Teacher Rating 3
(Speaks positively of school)

Source	df	Ms	F
Between subjects			
Treatment (A)	2	6.39	4.84*
IQ (B)	2	.73	< 1.00
AB	4	4.51	3.41*
Subj. w. groups (error (between))	17	1.32	
Within subjects			
Time (C)	1	.71	2.73
AC	2	.30	1.15
BC	2	.15	< 1.00
ABC	4	.19	< 1.00
C X subj. w. groups (error (within))	17	.26	

*$p < .05$.

TABLE 15

Means for Levels of Treatment by IQ Levels for Teacher Rating 3 (Speaks positively of school)

	Treatment			
IQ	Attention	Attention Plus Modeling	Control	$\bar{X}$
Average	2.33	2.50	4.50	3.11
Low	2.33	4.42	2.91	3.22
Very Low	3.20	3.63	3.75	3.52
$\bar{X}$	2.62	3.51	3.72	3.28

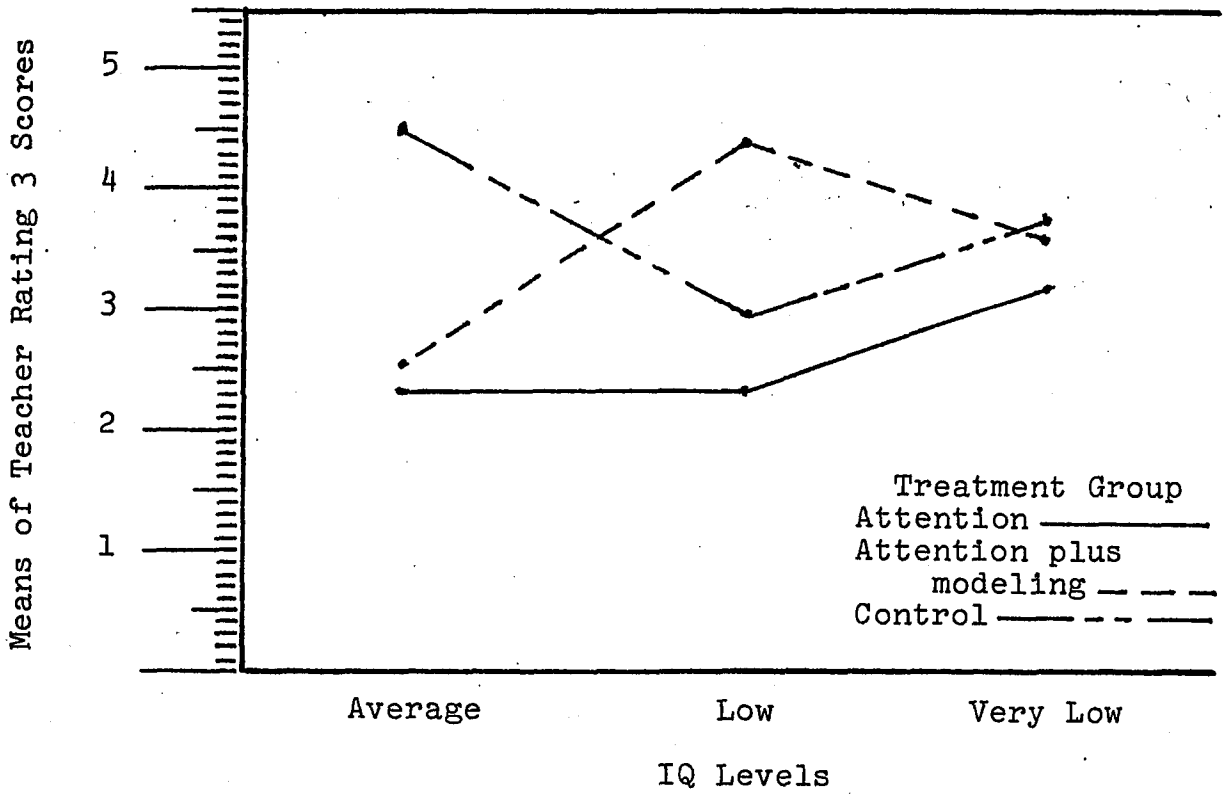

Fig. 5. Interaction of treatment level by IQ for teacher rating 3 (Speaks positively of school).

TABLE 16

Analysis of Variance on Teacher Rating 4
(Brings appropriate study materials)

Source	df	Ms	F
Between subjects			
Treatment (A)	2	3.55	1.68
IQ (B)	2	.69	< 1.00
AB	4	3.43	1.62
Subj. w. groups (error (between))	17	2.11	
Within subjects			
Time (C)	1	.40	1.33
AC	2	.11	< 1.00
BC	2	.15	< 1.00
ABC	4	.10	< 1.00
C X Subj. w. groups (error (within))	17	.30	

TABLE 17

Analysis of Variance on Teacher Rating 5
(Brings assigned homework)

Source	df	Ms	F
Between subjects			
Treatment (A)	2	1.66	< 1.00
IQ (B)	2	2.12	1.08
AB	4	1.26	< 1.00
Subj. w. groups (error (between))	17	1.95	
Within subjects			
Time (C)	1	.00	< 1.00
AC	2	1.71	2.94
BC	2	.35	< 1.00
ABC	4	.34	< 1.00
C X subj. w. groups (error (within))	17	.58	

investigator performed a test of simple main effects to determine whether treatment effects were uniform at each level of IQ. Results indicated significant differences for treatment at the average ($F=6.26$, $p < .01$), and the low ($F=4.97$, $p < .05$) IQ levels. Post-hoc analysis using the Neuman-Keuls procedure yielded the following information. Within the average IQ level, there was a significant difference ($p < .01$) between scores for the attention ($\bar{X}=2.33$) and control ($\bar{X}=4.50$) conditions, with subjects who received attention treatment attaining the lowest and thus most favorable scores. The subjects who received modeling plus counselor attention ($\bar{X}=2.50$) attained scores which were significantly more favorable than those of the control subjects ($p < .05$). No significant differences were found between attention and attention plus modeling treatments at the average IQ level.

The Neuman-Keuls analysis within the low IQ level showed significant differences between the attention and the attention plus modeling treatment groups ($p < .05$). The attention group ($\bar{X}=2.33$) received significantly more favorable teacher ratings for speaking positively about school than the modeling group ($\bar{X}=4.42$) received. A significant difference was also detected between the control ($\bar{X}=2.91$) and the modeling groups ($p < .05$), with the modeling group rated less favorably on teacher rating 3 than was the control group. No significant differences were found between the attention and control treatment conditions within the low IQ level.

Table 16 reports analysis of variance results for teacher rating 4 (brings appropriate study materials) and Table 17 contains the F table for teacher rating 5 (brings assigned homework). No significant treatment or interaction effects were found for these variables.

Behaviors observed in treatment sessions. A two way analysis of variance (treatment by time) was performed using the Greenhouse and Geisser (1959) adjustment, on behaviors recorded by observers during the treatment sessions. Results of these analyses appear in Table 18 (Work Behaviors), Table 20 (Attending Behaviors), and Table 22 (Speaking Behaviors). Raw scores for individual subjects are included in Appendices Q, R, and S. Tables 19, 21, and 23 contain the means for working, attending, and speaking behaviors respectively.

Analysis of variance on work behaviors yielded no main effect differences among the three treatment conditions. No significant treatment by time interaction was found.

For the attending behaviors variable, there was a significant treatment and a significant time effect. However, a treatment by time interaction was also found. This interaction is shown graphically in Figure 6. Analysis of the simple effects for treatment at levels of time (sessions 5 through 9) showed significant differences at session 6 ($p < .05$), session 7 ($p < .01$), and session 9 ($p < .05$). Since the control group was not expected to exhibit attending

behaviors, and indeed had little opportunity to do so, differences between control and experimental groups were not analyzed. The differences between attention and modeling treatment means for sessions 6, 7, and 9 were analyzed using the Neuman-Keuls procedure. For sessions 6 and 9, the differences fell slightly short of the .05 significance level. For session 7, the attention mean ($\bar{X}$=8.00) was significantly greater ($p < .05$) than the modeling group mean ($\bar{X}$=4.12).

Analysis of variance on speaking behaviors showed significant main effects for treatment. The Neuman-Keuls analysis on treatment means revealed that the attention mean was significantly greater ($p < .05$) for speaking behaviors than were means for the modeling or control conditions.

TABLE 18

Analysis of Variance of Work Behaviors

Source	df	Ms	F
Between subjects			
Treatment (A)	2	36.29	2.08
Subj. w. groups (error (between))	23	17.40	
Within subjects			
Time (B)	4	9.92	2.03
AB	8	13.80	2.82
B X subj. w. groups (error (within))	67	4.88	

TABLE 19

Means for Work Behaviors

Time	Treatment			
	Attention	Attention Plus Modeling	Control	$\bar{X}$
5	4.00	3.50	2.12	3.20
6	1.83	2.50	4.40	2.91
7	.00	1.75	3.42	1.72
8	.16	4.50	6.00	3.55
9	1.50	0.00	3.42	1.64
$\bar{X}$	1.49	2.45	3.87	2.60

TABLE 20

Analysis of Variance on Attending Behaviors

Source	df	Ms	F
Between subjects			
Treatment (A)	2	231.34	17.51**
Subj. w. groups (error (between))	23	13.21	
Within subjects			
Time (B)	4	62.33	10.72**
AB	8	20.88	3.59*
B X subj. w. groups (error (within))	68	5.81	

*p <.01. **p <.001.

TABLE 21

Means for Attending Behaviors

Time	Treatment			
	Attention	Attention Plus Modeling	Control	$\bar{X}$
5	1.20	.87	.00	.69
6	6.00	3.16	.00	3.05
7	8.00	4.12	.00	4.04
8	5.28	2.25	.00	2.51
9	6.25	9.42	1.50	5.72
$\bar{X}$	5.34	3.96	.30	3.20

TABLE 22

Analysis of Variance of Speaking Behaviors

Source	df	Ms	F
Between subjects			
Treatment (A)	2	1.44	6.55*
Subj. w. groups (error (between))	23	.22	
Within subjects			
Time (B)	4	.38	2.72
AB	8	.24	1.74
B X subj. w. groups (error (within))	70	.14	

*$p < .01$

TABLE 23

Means for Speaking Behaviors

Time	Treatment			
	Attention	Attention Plus Modeling	Control	$\bar{X}$
5	.60	.25	.00	.28
6	.66	.00	.16	.27
7	.66	.00	.00	.22
8	.25	.00	.00	.08
9	.00	.00	.00	.00
$\bar{X}$	.43	.05	.03	.17

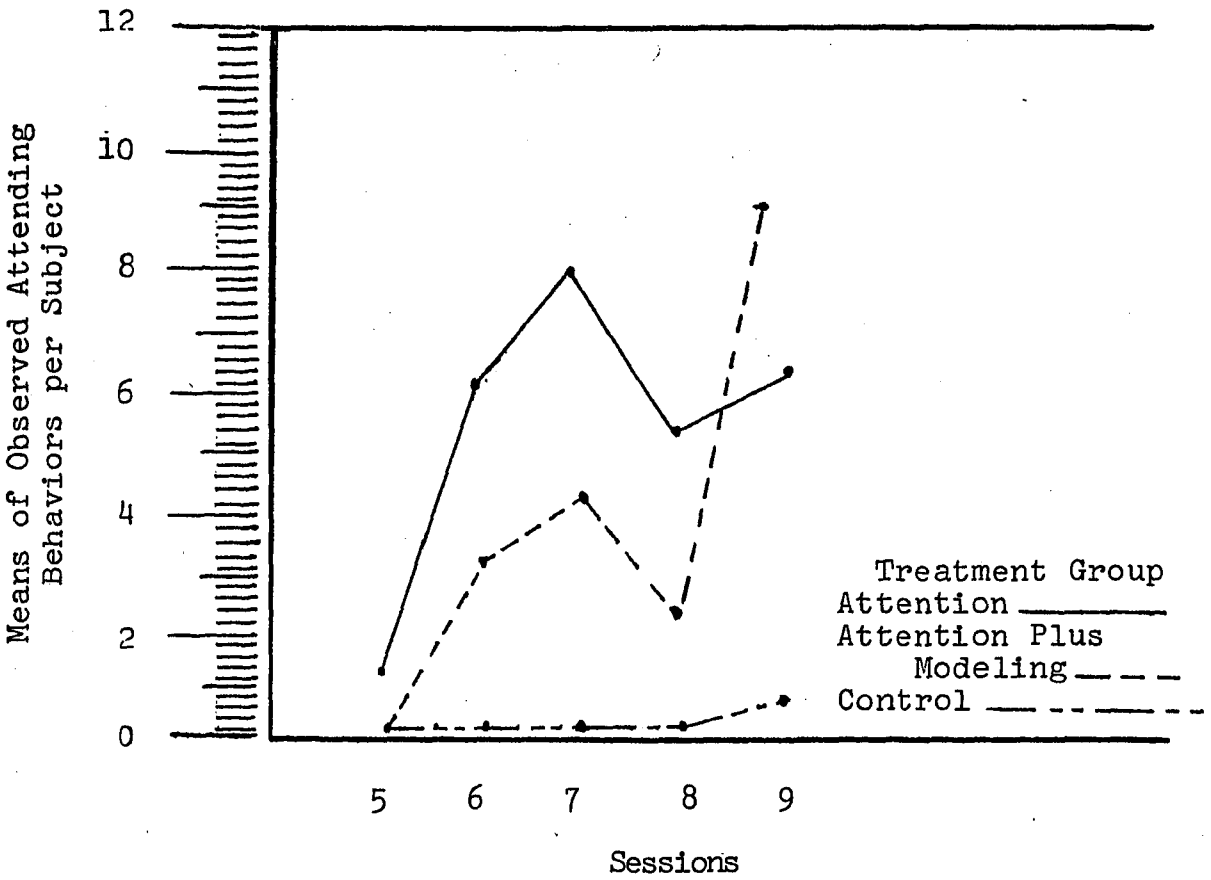

Fig. 6. Interaction of treatment levels by sessions for attending behaviors.

CHAPTER V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Summary of Major Results

The broad problem addressed by this study was whether or not two experimental treatment conditions would produce significantly different levels of performance on the response variables from those the control condition would elicit. A second basic question asked whether IQ and treatment levels would interact. It was hypothesized that very low IQ students would make a greater number of positive responses in the attention plus modeling condition than would very low IQ students in the attention or control groups. Subjects in the average IQ level of the attention group were expected to emit more positive responses than were average ability students receiving the modeling or control treatment.

A three-factor (treatment by IQ ~~by time~~) design was employed. After subjects were stratified by IQ levels they were randomly assigned either to one of the experimental treatments or to a control group receiving supervised study. Three measures were taken on the eight dependent variables. The pretest data were analyzed to ascertain that the initial groupings were equivalent and the posttest and delayed

posttest data were analyzed to determine overall treatment effects and significant interactions.

The analyses which were performed revealed no significant main effects and no significant treatment by IQ interactions for grade point average, teacher rating 1 ("orients to work materials"), teacher rating 2 ("orients to speaker"), teacher rating 4 ("brings appropriate study materials"), or teacher rating 5 ("brings assigned homework"). For the teacher rating 3 variable ("speaks positively of school"), the significant treatment main effects were qualified by a treatment by IQ interaction. A test of simple main effects indicated significant differences for treatment at the average and low IQ levels. At the average IQ level the scores of the attention and the modeling groups were significantly more favorable than those of the control condition; the attention and modeling group means did not differ significantly from each other. At the low IQ level, both the attention and the control conditions produced mean scores significantly more favorable than scores of the modeling condition. Means for the attention and control conditions did not differ significantly from each other.

Although there were no significant main effect differences for the study habits variable, there was a significant interaction between treatment and IQ levels. The significant difference ($p < .05$) proved to be among means at the low IQ level, where the attention treatment mean was significantly

higher than the modeling treatment mean. No significant differences were found between the attention and control or the modeling and control group means.

When the study attitudes scores were analyzed, a significant treatment by IQ interaction was detected. Although there were simple effects for IQ levels within the attention treatment, the probability level was .10, and a Neuman-Keuls analysis of the cell means revealed no significant differences at the .05 level of probability.

The analysis of observed work behaviors showed no main effects and no treatment by time of session interaction.

A significant treatment by time interaction was found on the attending behaviors variable. Analysis of simple effects showed significant differences at sessions 6, 7, and 9. Differences between the reinforcement and modeling treatment means for sessions 6 and 9 fell slightly short of the .05 significance level. The reinforcement group mean was significantly greater than that of the modeling group at session 7.

Two questions arise when one examines these treatment group means on attending behaviors across sessions. The first asks why the attention means were consistently higher than those of the modeling group until session 9, at which time the modeling mean far surpassed the reinforcement mean in frequency (See Table 21). The investigator found little explanation other than the fact that the models assumed a great deal of responsibility for the discussions in their

treatment group. It seems possible that subjects in this group might have felt far less personal involvement in these discussions, and might have attended less than subjects in the attention group. There seems little explanation for the dramatic increase in attending behaviors for the modeling group in session 9. A second question asks why the control group greatly increased attending frequency in session 9. This increase is easily explained. In the final session it was necessary for the investigator to explain the arrangements to be made later for the delayed posttest meeting, thereby providing something to which control subjects could attend.

On the speaking behaviors variable, the significant main treatment effects were examined. The attention mean was significantly higher than those of the modeling or control conditions.

Because the control subjects had no discussion to which they could respond, it was expected that their responses would be significantly fewer. The modeling subjects' low rate of speaking behaviors seems explicable in light of the fact that models supplied most of the responses in their discussion periods. Further, these sophomore, failure-prone subjects might have felt somewhat intimidated by their older academically successful models. The subjects in the attention treatment condition, however, had full opportunity to respond in the discussions, and did so.

Discussion

Results of this study are not entirely consistent and do not show one treatment superior to the other on the teacher rating, study habits, and study attitudes variables. However, the differences detected suggest that for average and low IQ subjects the attention treatment produced generally more favorable results than the modeling or control conditions did. Neither treatment condition was significantly different from the control group at the very low IQ level. This situation might be explained by the fact that the lowest ability level students were perhaps unable to benefit from the somewhat abstract discussion in the treatments; they might have been more affected by concrete examples of the study behaviors covered in the discussions. Further, these same students might have been more sensitive than higher ability subjects to several adjunct factors or unanticipated events. For example, very low ability students might well have responded with greater excitement or distractability to (1) anticipation of the school's state championship football game on a reinforcement treatment meeting day, (2) a makeup session which had to be scheduled for the reinforcement treatment group on the last day before Christmas vacation, (3) makeup meetings for all three groups necessitated by snow cancellations, and (4) half hour sessions also necessitated by snow cancellations.

One other factor may explain why all three IQ levels did not show greater treatment effects. The fact that all subjects were of average to very low ability and were in academic difficulty before treatment would suggest that their study habits and attitudes would be particularly resistant to positive change. Such students would have been more likely to experience learning difficulty and to have been conditioned by years of failure experiences to expect little academic success. Consequently, their failure-inducing habits and attitudes were likely to prove extremely recalcitrant.

Results of this study differ from findings of some other researchers. Kanfer and Marston (1963) found that vicarious reinforcement using models significantly increased subjects' performance, and the work of Krumboltz and Thoresen (1964) indicated that modeling was more successful than direct reinforcement. The attention treatment in the present study was generally more effective in changing dependent variables than modeling plus counselor attention was. One explanation for this difference may be that the choice of models in this study was less than optimal. The female model was an articulate black girl whose grades and extra-curricular activities were above average. The second model was a white male athlete with slightly above average grades. The volunteer subjects randomly assigned to the modeling treatment were predominantly black males. Although it might seem reasonable that a same-race model would enhance imitation among such

subjects, research by Clark and Pasework (1976) did not support this premise. Further, Thelen and Kirkland (1976) have found more imitation of high status than of low status models. Little is known about the status which a black male adolescent attributes to a black female adolescent, however. It is possible that such models have low status to such students. Finally, it was observed that the female model spoke more frequently than the white male model. Both were well attended when they spoke, but the male was absent from three sessions. He thus had fewer opportunities for modeling the target behaviors, and consequently for making an impact on subjects. Given this confounding variable, it appears reasonable that the modeling effects might have been less than had been anticipated. Moreover, studies by Phillips (1968b) using a control group showed significantly greater performance for directly reinforced subjects than for those vicariously reinforced through models. Thus, the present findings are more consistent with Phillips' study, and the experimental design using a control group is similar to his design.

It is of some interest, also, that although most subjects in both experimental conditions seemed to attend to the discussion and were never disruptive, the behaviors discussed apparently failed to generalize to the classroom. The third teacher rating item indicates that the expressed attitudes of average and low ability students changed.

Nevertheless, these changed attitudes failed to lead to improved work and study behaviors in class. This situation may be explained by Bandura's theory that one may learn a behavior by watching another perform it, but might not actually perform that behavior unless he has seen it reinforced (Bandura, 1971). It may be that the "reinforcers" being delivered to the models and subjects were not in fact reinforcing to the subjects. It is possible that the reinforcers were perceived as desirable by the two models, but that many of the subjects did not regard praise and attention by adult authority figures as pleasant. If that were true the subjects were not receiving vicarious reinforcement.

The investigator, in an attempt to clarify this point after posttest data had been gathered, talked informally with the subjects about their views of the sessions. Most stated that they had not minded coming, but they seemed merely acceptant of all which had occurred in the meetings. It appeared that this activity was to them simply another school activity in which they were expected to participate. Some reported that it was "better than study hall." When asked how they had felt when the investigator praised them or seemed to pay particular attention to them, one said, "It was nice." Others simply reported, "It was OK." The investigator's failure to reinforce those who did not perform the desired behaviors did not go unnoticed. One young man who performed none of the target behaviors, replied,

"Yes," when the group was asked whether any ever felt that they were being ignored. It appears, then, that the investigator's behaviors were perceived as reinforcing by some subjects but not necessarily by all. Also, students who failed to emit target behaviors perceived that they were not being attended by the investigator.

Finally, one must consider a possibility suggested by Lanzetta and Kanareff (1959) when discussing work of several earlier researchers. These earlier studies had reported a low level of imitative responses in adolescents and adults, even when such responses could have led to success in tasks. In light of these earlier studies, Lanzetta and Kanaref hypothesized that failure to imitate resulted from the threat of negative social sanctions. They found that imitative responses significantly increased when expectation of positive social sanctions for imitation were induced. Subjects in the present study might have for so long been exposed to negative comments about school from peers and even family, that academic success might promise negative rather than positive sanctions from significant others in these low achieving students' lives.

Implications for Counseling Practice

Certain conclusions seem reasonable in light of this study. Several relate to the use of modeling as a device for changing student behaviors.

First, the modeled behaviors should probably be planned so that they are extremely specific to the students' needs. Models should be trained to demonstrate the desired behaviors, then to encourage subjects to demonstrate them in an alternate trial format. After the subjects display appropriate behavior, they should be reinforced by the models as well as the investigator. Great care should be taken to insure that the contingencies are, in fact, reinforcing. The use of more models per number of subjects would probably produce greater behavioral change in students. A 1:2 model to student ratio seems reasonable.

A second consideration is whether or not modeling is the most parsimonious means of effecting behavioral change in the high school setting. Given the commonly accepted fact that direct reinforcement is usually as effective as modeling, a practicing behavioral counselor might better use his time in training teachers to reinforce positively the student behaviors they wish to increase.

Recommendations

Several possibilities for future research are presented below. The first suggestions are means of modifying this study in an effort to produce precise and more powerful tests of the research questions. The second group of suggestions are more general.

Modifications of present study. A similar study using a different set of behavior modification techniques and

reinforcers would be worthwhile. As the present study progressed, it appeared to the investigator that a greater variety of presentation methods could have been used to elicit appropriate behaviors to reinforce. Although the group discussions seemed well accepted by the subjects, greater results might have been obtained through more novel approaches to the topics. This set of techniqes could include games, role playing, assignments on a contract basis, and a reinforcement menu from which subjects would choose preferred reinforcers available in a school setting. Another study should also attempt to insure a male and a female model's presence at every session: This might be managed through a contract with the models, or through use of material reinforcers such as payment for them. If these measures were not feasible, securing two male models, along with two female ones, seems preferable to risking sessions with no male model in attendance. An alternate method of selecting subjects also seems to have merit. Insofar as possible, it would be desirable to stratify the available subjects by race as well as IQ levels before random assignment to treatment groups. This step could avoid the uneven racial distribution among groups which occurred in the present study.

Another such study might also select subjects from the total study hall population rather than limit subject selection to those who were sophomores in academic difficulty. By doing this an investigator would greatly increase his

subject pool, and also be likely to obtain more generalizable results. He would also secure a racial distribution more representative of the school population.

Finally, any such future study should be scheduled to begin at the start of a grading period rather than a few weeks into the period. Although such a delay was necessary in the present study to allow time for screening grades and selecting students who qualified, such would not be the case if one were not limiting the population to failing and near-failing subjects. One great advantage would result from an earlier start in the grading period. There would be adequate time to schedule the nine sessions without including days just before vacation or having to shorten sessions in order to include all of them. These changes might greatly increase treatment results.

Suggestions for future research. More generally, future research might compare three treatments such as those in this study, but might involve groups of normal class size (20 - 30). In addition to the reinforcement of individual subjects as much as possible, the investigator might also use a great deal more group praise. The modeling condition might also include several models rather than two; the models would continue to supply reinforcable responses if no one else in the group did so, but would be cautioned not to dominate the activities otherwise. This change would give subjects in the modeling condition an

opportunity to receive more reinforcement than they might if the models seized most of the speaking opportunities.

A somewhat different study, involving either small groups of 8 to 10 or larger class size groups, could compare four treatment conditions: (1) direct reinforcement; (2) modeling in which both subjects and models receive direct reinforcement; (3) modeling in which only models receive direct reinforcement; and, (4) no treatment control.

Finally, videotaping all sessions would be extremely desirable with any of the research proposed above. This addition would not only assure a check for equitable treatment to groups, but would serve as an additional record of subject and experimentor behaviors. Although live observers would be necessary to record behaviors from tapes, such recording could be done more accurately than recording in the treatment sessions.

BIBLIOGRAPHY

Allen, W. Effects of Audiovisual Materials on Changing Attitudes of Culturally Disadvantaged Youth, Final Report. Los Angeles: University of Southern California, 1968. (ERIC Document Reproduction Service No. ED 020298).

Baer, D., & Sherman, J. Reinforcement control of generalized imitation in young children. Journal of Experimental Child Psychology, 1964 I, 37-49.

Bandura, A. Social learning theory of identification processes. In D. Goslin & D. Clan (Eds.), Handbook of Socialization Theory and Research, Chicago: Rand McNally, 1969 (a).

Bandura, A. Principles of Behavior Modification. New York: Holt, Rinehart and Winston, 1969 (b).

Bandura, A. Psychological Modeling. Chicago: Aldine Atherton, Inc., 1971.

Bandura, A., & Barob, D. Processes governing disinhibitory effects through symbolic modeling. Journal of Abnormal Psychology, 1973, 82, 7-9.

Bandura A., & Houston, A. Identification as a process of incidental learning. Journal of Abnormal and Social Psychology, 1963, 67, 274-281.

Bandura, A., & Menlove, F. Factors determining vicarious extinction through symbolic modeling. Journal of Personality and Social Psychology, 1968, 8, 99-108.

Bandura, A., & Mischel, W. Modification of self-imposed delay of reward through exposure to live and symbolic models. Journal of Personality and Social Psychology, 1965, 2, 698-705.

Bandura, A., Ross, D., and Ross, S. Imitation of film-mediated aggressive models. Journal of Abnormal and Social Psychology, 1963, 66, 3-11.

Bandura, A., & Walters, A. Social Learning and Personality Development. New York: Holt, Rinehart, and Winston, 1963.

Beach, A. The effect of group model-reinforcement counseling on achievement behavior of seventh and eighth grade students. Unpublished doctoral dissertation, Stanford University, 1967.

Berger, S., & Ellsbury, S. The effect of expressive verbal reinforcements on incidental learning by models and observers. American Journal of Psychology, 1969, 82, 333-341.

Berger, S., & Johansson, S. Effect of model's expressed emotions on an observer's resistance to extinction. Journal of Personality and Social Psychology, 1968, 10, 53-58.

Bergin, A. The effects of psychotherapy: Negative results revisited. Journal of Counseling Psychology, 1969, 16, 45-49.

Bergin, A., & Garfield, S. Handbook of Psychotherapy and and Behavior Change. New York: John Wiley and Sons, Inc. 1971.

Bergin, A., & Solomon, S. Personality and performance correlates of empathic understanding in psychotherapy. American Psychologist, 1963, 18, 393.

Bourdon, R. Imitation: Implications for counseling and therapy. Review of Educational Research, 1970, 40, 429-457.

Broedel, J., Ohlsen, M., Proff, F. and Southhard, C. The effects of group counseling on gifted underachieving adolescents. Journal of Counseling Psychology, 1960, 7, 163-170.

Brown, W., & Holtzman, W. Survey of Study Habits and Attitudes. New York: The Psychological Corporation, 1967.

Campbell, D., & Stanley, J. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally, 1963.

Caplan, S. The effect of group counseling on junior high school boys' concepts of themselves in school. Journal of Counseling Psychology, 1965, 12, 388-394.

Clark, R., & Pasework, R. Racial similarity and adult modeling of uncooperative behavior. Journal of Clinical Psychology, 1976, 32, 174-176.

Cohen, H. L. MODEL: Motivationally oriented designs for an ecology of learning. In H. Cohen, J. Filipczak, and R. Pooley (Eds.), Training professionals in procedures for the establishment of educational environment. Silver Spring, Md.: Educational Facility Press-IBR, 1968.

Doster, J., & McAllister, A. Effect of modeling and model status on verbal behavior in an interview. Journal of Consulting Clinical Psychology, 1973, 40,240-243.

Ewing, T., & Gilbert, W. Controlled study of the effects of study on the scholastic achievement of students of superior ability. Journal of Counseling Psychology, 1967, 14, 235-239.

Ferguson, G. Statistical Analysis in Psychological Education. New York: McGraw Hill, 1971.

Fisher, T. Increasing information-seeking behavior with a model-reinforced videotape. Journal of Counseling Psychology, 1976, 23, 234-237.

Fox, D., & Schwarz, P. Effective Interaction between Older and Younger Pupils in an Elementary School "Peace Corps" Project. Final Report. New York: City University of New York, New York City College, School of Education, 1967. (ERIC Document Reproduction Service no. ED 015223).

Gerwirtz, J., & Stingle, K. Learning of generalized imitation as the bases for identification. Psychological Review, 1968, 75, 374-397.

Goldstein, A., Heller, K., and Sechrest, L. Psychotherapy and the Psychology of Behavior Change. New York: Wiley, 1966.

Greenhouse, A., & Geisser, S. On methods in the analysis of profile data. Psychometrics, 1959, 24, 95-112.

Gilliland, B. Small group counseling with negro adolescents in a public high school. Journal of Counseling Psychology, 1968, 15, 147-152.

Hall, R., Lund, D., & Jackson, D. Effects of teacher attention on study behavior. Journal of Applied Behavior Analysis, 1968, 1, 1-12.

Hansen, J., Niland, T., & Zani, L. Model reinforcement in group counseling with elementary children. Personnel and Guidance Journal, 1969, 47, 741-744.

Havelick, R., & Vane, J. Race, competency, and level of achievement: Relationship to modeling in elementary children. Journal of Psychology, 1974, 87, 53-58.

Hicks, D. J. Imitation and retention of film-mediated aggressive peer and and adult models. Journal of Personality and Social Psychology, 1965, 2, 97-100.

Hill, A., & Grieneeks, L. An evaluation of academic counseling of under- and over-achievers. Journal of Counseling Psychology, 1966, 13, 325-328.

Homme, L., & Tosti, D. Behavior Technology: Motivation and Contingency Management. San Rafael, Calif. 1971.

Horan, J., de Girolomo, M., Hill, R., & Shute, R. The effect of older-peer participant models on deficient academic performance. Psychology in the Schools, 1974, 11, 207-212.

Ivey, A. E. The academic performance of students counseled at a university counseling service. Journal of Counseling Psychology, 1962, 9, 347-352.

Jackson, B., & Van Zoost, B. Changing study behaviors through reinforcement contingencies. Journal of Counseling Psychology, 1972, 19, 192-195.

Kanfer, F., & Marston, A. Human reinforcement: vicarious and direct. Journal of Experimental Psychology, 1963, 65, 292-296.

Kazdin, A. Covert modeling and the reduction of avoidance behavior. Journal of Abnormal Psychology, 1973, 81, 87-95.

Keehn, G. Internalization of filmic schematic operations in interaction with learners' aptitudes. Journal of Educational Psychology, 1974, 66, 499-511.

Keehn, J., & Webster, C. Behavior therapy and behavior modification. Canadian Journal of Psychology, 1969, 10, 69-73.

Kerlinger, F. Foundations of Behavioral Research. New York: Holt, Rinehart, and Winston, Inc. 1973.

Kirby, F., & Shields, F. Modification of arithmetic response rate and attending behavior in a seventh-grade student. Journal of Applied Behavior Analysis, 1972, 5, 79-84.

Kranzler, G., Mayer, G., Dyer, D., and Munger, P. Counseling with elementary school children: an experimental study. Personnel and Guidance Journal, 1966, 44, 944-949.

Krasner, L. Behavior therapy. Annual Review of Psychology, 1971, 22, 483-532.

Krasner, L. The therapist as a reinforcement machine. In Research in Psychotherapy, Washington, D.C.: American Psychological Association, 1962.

Krumboltz, J., & Shroeder, W. Promoting career planning through reinforcement. Personnel and Guidance Journal, 1965, 44, 19-26.

Krumboltz, J., & Thoresen, C. The effects of behavioral counseling in group and individual settings on information seeking behavior. Journal of Counseling Psychology, 1964, 11, 324-333.

Krumboltz, J., Varenhorst, B., & Thorensen, C. Non-verbal factors in effectiveness of models in counseling. Journal of Counseling Psychology, 1967, 14, 412-418.

Lamke, T., & Nelson, M. The Henmon-Nelson Tests of Mental Ability. Boston: Houghton Mifflin, 1957.

Lanzetta, J., & Kanareff, V. The effects of monetary reward on the acquisition of an imitative response. Journal of Abnormal and Socail Psychology, 1959, 59, 120-127.

Lindsley, O., Skinner, B., and Solomon, H. Studies in Behavior Therapy. Status Report 1. Waltham, Mass.: Metropolitan State Hospital, 1953.

Lipe, D., & Jung, S. Manipulating incentives to enhance school learning. Review of Educational Research, 1971, 41, 249-280.

Lipinski, D., & Nelson R. Problems in the use of naturalistic observation as a means of behavioral assessment. Behavior Therapy, 1974, 5, 341-351.

Lovaas, O. Learning theory approach to the treatment of childhood schizophrenia. In Behavior Theory and Therapy. California Mental Health Research Symposium No. 2, State of California, Department of Mental Hygiene, Bureau of Research, 1968.

Lovaas, O., Berberick, J., Periof, B., & Schaeffer, B. Acquisition of imitative speech by schizophrenic children, Science, 1966, 151, 705-707.

McClelland, D. C. Personality. New York: Holt, Rinehart, and Winston, 1951.

Midlarsky, E., Bryan, J., James, H., & Brickman, P. Aversive approval: Interactive effects of modeling and reinforcement on altruistic behavior. Child Development, 1973, 44, 321-328.

Miller, N., & Dollard, J. Social Learning and Imitation. London, Oxford University Press, 1941.

Morris, F. The validity of the Brown-Holtzman Survey of Study Habits and Attitudes 1960 Experimental Revision for Grades 7 - 12. Unpublished master's thesis, Wayne State University, 1961.

Naito, A. The effect in young children of mimicry and training by play. Japanese Journal of Educational Psychology, 1972, 20, 69-80.

Oliver, P., & Hoppe, A. Factors effecting non-reinforced imitation. The model as a source of information on social control. Journal of Experimental Child Psychology, 1974, 17, 383-398.

O'Sullivan, M., Gilmer, F., & Krinski, R. The influence of sex of experimenter on modeling in the reduction of fear. Behavior Therapy, 1973, 4, 535-542.

Phillips, R. Comparison of direct and vicarious reinforcement and an investigation of methodological variables. Journal of Experimental Psychology, 1968, 78, 666-669. (a)

Phillips, R. Vicarious reinforcement imitation in a verbal learning situation. Journal of Experimental Psychology, 1968, 76, 669-670. (b).

Rachman, S. Clinical application of observational learning, imitation, and modeling. Behavior Therapy, 1972, 3, 379-397.

Randolph, D., & Wallin, K. A comparison of behavioral consultations with model-reinforcement group counseling for children who are consistently off-task. The Journal of Education Research, 1973, 67, 103-107.

Rosenberg, M. When dissonance fails: On eliminating evaluation apprehension from attitude measurement. Journal of Personality and Social Psychology, 1965, 1, 18-42.

Rosenblith, J. Learning by imitation in kindergarten children. Child Development, 1959, 30, 69-80.

Ryan, T., & Krumboltz, J. Effect of planned reinforcement counseling on client decision-making behavior. Journal of Counseling Psychology, 1964, 11, 315-323.

Salomon, G. Internalization of filmic schematic operations in interaction with learners' aptitudes. Journal of Educational Psychology, 1974, 66, 499-511.

Searles, A., Jr. The effectiveness of limited counseling in improving the academic achievement of superior college freshmen. Personnel and Guidance Journal, 1962, 50, 630-633.

Shroeder, W. The effect of reinforcement counseling and model-reinforcement counseling on information-seeking behavior of high school students. Unpublished doctoral dissertation, Stanford University, 1964.

Skinner, B. Science and Human Behavior. New York: Macmillan & Co. 1953.

Strichart, S. Effects of competence and nurturance on imitation of non-retarded peers by retarded adolescents. American Journal of Mental Deficiency, 1974, 78, 665-673.

Thelen, M., & Kirkland, K. On status and being imitated: Effects on reciprocal imitation and attraction. Journal of Personality and Social Psychology, 1976, 33, 691-697.

Thelen, M., & Rennie, D. The effect of vicarious reinforcement on imitation: A review of the literature. Progress in Experimental Personality Research, 1972, 6, 83-108.

Thoresen, C. An experimental comparison of counseling techniques for producing information seeking behavior. Unpublished doctoral dissertation, Stanford University, 1964.

Thoresen, C., & Krumboltz, J. Relationship of counselor reinforcement of selected responses to external behavior. Journal of Counseling Psychology, 1967, 14, 140-144.

Thoresen, C., & Krumboltz, J. Similarity of social models and clients in behavioral counseling: two experimental studies. Journal of Counseling Psychology, 1968, 15, 393-401.

Thoresen, C., Krumboltz, J., & Varenhorst, B. The sex factor in model-reinforcement counseling. Proceedings of the 73rd Annual Convention of the American Psychological Association, 1965, 349-350.

Thoresen, C., Krumboltz, J., & Varenhorst, B. Sex of counselors and models: effects of client career exploration. Journal of Counseling Psychology, 1967, 14, 503-508.

Walker, H., & Buckley, N. The use of positive reinforcement in conditioning attending behavior. Journal of Applied Behavior Analysis, 1968, 1, 245-252.

Ward, M., & Baker, B. Reinforcement therapy in the classroom. Journal of Applied Behavior Analysis, 1968, 1, 323-328.

Warner, R., & Hansen, J. Verbal reinforcement and model reinforcement group counseling with alienated students. Journal of Counseling Psychology, 1970, 17, 168-172.

Warner, R., Niland, T., & Maynard, P. Model-reinforcement group counseling with elementary school children. Elementary School Guidance and Counseling, 1971, 248-255.

Whaley, D., & Malott, R. Elementary Principles of Behavior. New York: Appleton-Century-Croft, 1971.

Wilson, F., & Walters, R. Modification of speech output of near-mute schizophrenics through social-learning procedures. Behavior Research and Therapy, 1966, 4, 59-67.

Winkler, R., Teigland, J., Munger, P., & Kranzler, G. The effects of selected counseling and remedial techniques on underachieving elementary school students. Journal of Counseling Psychology, 1965, 12, 384-387.

Wolpe, J. The Practice of Behavior Therapy. New York: Pergamon Press, 1969.

Appendix A

TEACHER RATING SCALE FOR STUDY BEHAVIORS

Please check the blank which most closely describes the studying behaviors exhibited by the following student.

Student's Name _____ Date _____

Teacher's Name _____ Subject Taught ___

1. Student sits at desk and orients directly to book or other study materials:

   Nearly Always __ Frequently __ An Average Amount __
   Seldom __ Never __

2. Student orients directly to teacher or speaker addressing group (He pays attention!):

   Nearly Always __ Frequently __ An Average Amount __
   Seldom __ Never __

3. Student speaks in a positive way about school, his own work habits, his grades:

   Nearly Always __ Frequently __ An Average Amount __
   Seldom __ Never __

4. Student brings appropriate study materials to class (books, notebook, pens, specified work materials):

   Nearly Always __ Frequently __ An Average Amount __
   Seldom __ Never __

5. Student brings assigned homework or projects:

   Nearly Always __ Frequently __ An Average Amount __
   Seldom __ Never __

Appendix B

PERMISSION TO PARTICIPATE IN A STUDY OF
WAYS TO IMPROVE STUDY HABITS AND GRADES

Dear Parents:

In an effort to learn more about ways to help high school students improve their study habits, attitudes, and grades, I am conducting some research in which selected sophomores will spend nine study periods with me over a several week period. They will come from their regular study hall, so no class time will be lost.

At best, your son or daughter could improve study habits and interests in school; at worst, no change at all could occur. I shall be happy to have you call me at home if you have any questions. My number is 887-1233.

If you agree to let your student participate, please sign the permission form below and have him return it to my office tomorrow.

Thank you for your cooperation.

Very truly yours,

(Mrs.) Margaret Bray
Guidance Counselor

Date _____

Dear Mrs. Bray:

I give my permission for _____ to participate in your study.

_____

Signature of parent or guardian

Appendix C

INTERACTION CODE

Date ________ OBSERVER ________ ACTIVITY (CK ONE) DISCUSSION __
STUDY __

	Interval	Student Behaviors	Investigator Behaviors
Student	1	W A S	C P F I G
	2	W A S	C P F I G
________	3	W A S	C P F I G
	4	W A S	C P F I G
	5	W A S	C P F I G

	Interval	Student Behaviors	Investigator Behaviors
Student	1	W A S	C P F I G
	2	W A S	C P F I G
________	3	W A S	C P F I G
	4	W A S	C P F I G
	5	W A S	C P F I G

	Interval	Student Behaviors	Investigator Behaviors
Student	1	W A S	C P F I G
	2	W A S	C P F I G
________	3	W A S	C P F I G
	4	W A S	C P F I G
	5	W A S	C P F I G

	Interval	Student Behaviors	Investigator Behaviors
Student	1	W A S	C P F I G
	2	W A S	C P F I G
________	3	W A S	C P F I G
	4	W A S	C P F I G
	5	W A S	C P F I G

	Interval	Student Behaviors	Investigator Behaviors
Student	1	W A S	C P F I G
	2	W A S	C P F I G
________	3	W A S	C P F I G
	4	W A S	C P F I G
	5	W A S	C P F I G

W - Work

A - Attending

S - Speaking

C - Contact Reinforcer

P - Praise for Individual

F - Facial Reinforcer

I - Instruction

G - Group Praise

Appendix D

QUESTIONS AND RESPONSES FOR SESSIONS TWO THROUGH NINE

Questions and Responses for Session Two: What Good Is School to Me?

1. Why do you attend school? Why do others? What good is high school? (Reinforce ideas such as the need for a diploma for nearly any job; for the training some courses provide; for self-satisfaction; for pleasing someone whose opinion matters to the subject.)
2. How can school help someone who cannot be certain what he wishes to do later? (Reinforce ideas that the better high school background one has, the wider is his range of options later.)
3. Why must one take subjects for which he can see no later use, such as biology, algebra, English: (Reinforce the concept that one can never be certain of his plans or of what courses will be useful later, particularly if plans do change.)
4. Why should one work for the best grades of which he is capable, when a D is passing? (Reinforce the ideas that although low grades are passing they may later prove an obstacle to further training or job getting; that low grades often indicate a lack of knowledge which could hamper success.)

Questions for Session Three: Grades: Who Makes Good Ones? Why? How?

1. What kind of people earn high grades? Only the very bright? Only those who do nothing except study? Only those who agree with the teacher? (Reinforce the idea of those who do many diverse things, such as cheerleading, playing sports, joining clubs; of those who actively participate in class discussions; of average students who study effectively.)
2. What types of things can the students who appear to make good grades be seen doing in class? (Reinforce such replies as taking notes; asking questions; paying attention; doing homework; making comments about subject; working on assignments which may be difficult.)
3. How do you feel about asking questions when you fail to understand a point in class, or what is expected on an assignment? (Reinforce such responses as asking teacher for help, trying to find some assistance from a good student, rereading assignment for clarification, taking notes and later comparing with text or with friend who does good work).
4. How do you react when a subject seems too difficult, or extremely long? (Reinforce ideas of becoming even more determined to do it well, studying all the harder, attempting to "figure things out.")

Questions for Session Four: Effective Studying and Planning

1. Is there a way to avoid last minute extended studying for tests: (Reinforce such replies as doing daily assignments on a regular basis; studying at least an hour a day; starting to prepare as soon as a long range assignment is made; having a set study time when no interruptions or procrastination will be permitted.)
2. How can one avoid having projects and assignments accumulate to be done all at once? (Reinforce such replies as beginning a project early; asking teachers about work which might have been missed as a result of absences.)
3. What is the best plan for using one's study time if there are three assignments: one easy, one very difficult, and one medium in difficulty? (Reinforce idea of doing the most difficult task first, the next hardest second, and the easiest last.)
4. How can one keep up interest in a subject he doesn't really enjoy? (Reinforce such ideas as trying to make a game of the tasks; of studying it when feeling fresh and rested; of taking short activity breaks; of forcing self to study until he feels competent even if he dislikes the material.)
5. How important are orderliness and neatness? (Reinforce such responses as fact that some teachers

subtract points for untidiness; that others may not be able to understand a correct but illegible answer; that orderliness helps the student organize material in his own mind.)

Questions for Session Five: Attitudes toward Teachers and School

1. How do your teachers seem to feel about their students? (Reinforce expressions of the belief that teachers like and respect students; that they want to help students; and that they try to treat everyone fairly.)
2. How do your teachers seem to feel about their subject matter and their jobs? (Reinforce the ideas that most teachers enjoy teaching, like their subject matter, and think that their courses are important.)
3. Why do some teachers assign homework? (Reinforce concepts of giving homework to strengthen or provide practice in work done in class.)
4. How do you feel about your teachers? (Reinforce such replies as liking the teachers, feeling that they understand the students, and believing that teachers are reasonable and that they understand students.)

Questions for Session Six: Effective Behavior in Class

1. Can you name some good ways to keep your mind on the lecture or discussion? (Reinforce statements

stressing attempts to think of all one already knows about the subject; of mentally arguing with the speaker; of trying to understand what is being said; of presenting ideas in class discussion.)

2. What helps one recognize important points in a lecture? (Reinforce such suggestions as noting what the teacher repeats or asks in several different ways; of noting what the teacher writes on the board or on a projector; of listening for changes in voice; of trying to pick the topic in a series of questions.)
3. How can one know what notes to take in a lecture, or what is important? How can he organize his notes for better understanding later? (Reinforce any of the ideas from item 2; of using headings, underlining, and a good outline form for notes; of looking up words and ideas which are not understood.)
4. What is the best way to clear up questions and misunderstandings about points discussed in class or assignments to be done later? (Reinforce such points as asking the teacher in class or after class; of hunting examples or guides in a book or from another student.)
5. How can one proft from errors on a test or an assignment? (Reinforce the idea of correcting and trying to understand errors on returned papers.)

Questions for Session Seven: Effective Reading and Studying Techniques

1. What is a good way to remember what assignments are due? (Reinforce plan of keeping an assignment book, or a place in the front of the notebook for each subject; of writing details of the assignment and the date due when the assignment is made.)
2. How do you study a long reading assignment so as to remember the material? (Reinforce ideas of skimming headings; asking self questions about what to expect; reading carefully section by section and pausing to rethink main points in sections as completed, and at the end of total assignment; of outlining material and reviewing notes later.)
3. Is there a way to recognize important points in a reading assignment? (Reinforce suggestions of major points being contained in subtopic headings and italicized print; of the first sentence in many subsections containing a main idea with details following; of graphs, charts, and pictures illustrating major ideas.)
4. Why are graphs, pictures, and charts included in textbooks? (Reinforce the idea of their being used to clarify major points and illustrate details.)
5. What techniques help one keep his mind on his

studies? (Reinforce the plan of forcing mind back to the speaker or book when attention wanders; of mentally arguing with the speaker or writer; of trying to link what is said with facts already known.

Questions for Session Eight: Test Taking Techniques

1. How does one organize his study material for a test? (Reinforce answers that imply some logical way, such as by topics, chronological order, degree of importance, questions and answers.)
2. How can you avoid panic when taking a test? How calm self? (Reinforce notions of quickly glancing through and noting parts which will be easy; of considering the test a puzzle, and saving the most puzzling parts to do last.)
3. How can planning at the start of a test save you points? (Reinforce such statements as planning to do the quick, easy parts first; answering all possible then returning to more difficult parts; attempting to supply at least some reasonable answers for all parts; trying to write for an essay answer a beginning, a major section, and summary at the end, and trying to include at least a few main points and some examples in the major section.)
4. Are there any pointers for using time at the end of the test? After it has been returned? (Reinforce

idea of reviewing test to check spelling, punctuation, and careless errors; to leave the first answers when in doubt about multiple choice items; reinforce responses to question two that stress correcting tests which have been returned and using them for unit or semester review later.)

Questions for Session Nine: Outside Influences on Studying

1. What kinds of influences either in or out of school might prevent people's studying? Can anything be done about them? (Reinforce idea that a student can make up his own mind to do well in school despite lack of interest of parents or peers.)
2. Do your friends study at home? At school? (Reinforce any indication that students study their own assignments regardless of friend's behaviors.)
3. Why do some people work hard in school even when their parents don't seem to care whether or not they do well? (Reinforce students' own wishes to do well; expressions of intention to continue trying even when work is difficult or dull.)

Appendix E

Pretest Means for Teacher Ratings 1-5

Teacher Ratings	Attention Group	Attention Plus Modeling Group	Control Group
1	2.77	3.33	2.85
2	2.70	3.08	2.88
3	2.86	3.57	3.85
4	2.24	3.03	1.96
5	2.78	3.47	3.13

Appendix F

Pretest Means for Study Habits Scores

Attention Group	40.55
Attention Plus Modeling Group	33.55
Control Group	32.77

Appendix G

Pretest Means for Study Attitudes Scores

Attention Group	49.44
Attention Plus Modeling Group	40.55
Control Group	38.00

Appendix H

Pretest Means for Grade Point Average

Attention Group	1.68
Attention Plus Modeling Group	1.82
Control Group	2.05

Appendix I

Raw Scores for All Subjects on Study Habits Variable

Subjects	Time		
	Pretest	Posttest	Delayed Posttest
Attention Group			
1	37	34	61
2	26	26	13
3	54	28	32
4	55	37	47
5	30	53	86
6	40	51	69
7	56	25	6
8a	31		
9	36	30	18
Attention Plus Modeling Group			
1	58	59	52
2	38	35	39
3	41	22	30
4	37	14	11
5	31	16	17
6b	25	39	
7	14	33	22
8	29	37	29
9	29	24	36
Control Group			
1	32	32	28
2	30	23	21
3	24	19	20
4	41	28	26
5	61	66	60
6	36	31	22
7	22	56	60
8	24	27	29
9	23	34	37

a This subject left school and supplied no posttest or delayed posttest measures.

b This subject left school and supplied no delayed posttest measures.

Appendix J

Raw Scores for All Subjects on Study Attitudes Variable

Subjects	Time		
	Pretest	Posttest	Delayed Posttest
Attention Group			
1	64	57	35
2	35	13	22
3	38	22	28
4	65	45	33
5	75	78	65
6	57	62	45
7	45	19	15
8a	26		
9	39	32	23
Attention Plus Modeling Group			
1	63	62	51
2	47	64	61
3	42	28	39
4	41	28	23
5	38	27	31
6b	39	41	
7	23	24	24
8	38	53	30
9	34	30	28
Control Group			
1	53	40	40
2	61	31	33
3	35	31	24
4	43	21	35
5	50	58	62
6	32	23	26
7	14	77	82
8	25	30	36
9	29	44	27

a This subject left school and supplied no posttest or delayed posttest measures.
b This subject left school and supplied no delayed posttest measures.

Appendix K

Grade Point Averages for All Subjects

Subjects	Time		
	Pretest	Posttest	Delayed Posttest
	Attention Group		
1	2.20	1.40	1.80
2	1.40	1.60	2.50
3	1.80	3.00	2.20
4	1.60	2.00	1.60
5	2.60	2.00	1.60
6	2.40	2.60	2.80
7	1.40	1.60	2.00
8a	.80		
9	1.00	.80	1.00
	Attention Plus Modeling Group		
1	2.60	2.80	2.75
2	2.80	2.00	2.20
3	2.20	1.20	1.60
4	.80	1.40	1.60
5	2.40	1.40	.50
6	1.60	.00	.20
7	2.00	1.80	1.40
8	1.20	2.80	2.40
9	1.60	1.20	.60
	Control Group		
1	2.00	2.00	.00
2	1.60	.40	.40
3	2.40	1.80	1.40
4	1.80	1.80	2.00
5	2.40	2.00	2.20
6	1.80	1.60	1.20
7	2.25	2.80	2.00
8	2.20	1.20	.60
9	2.00	2.40	2.60

a This subject left school and supplied no posttest or delayed posttest measures.

Appendix L

Average Raw Scores for Teacher Rating 1 (Sits at Desk and Orients to Work)

Subjects	Time		
	Pretest	Posttest	Delayed Posttest
	Attention Group		
1	4.00	4.00	4.00
2	3.66	3.33	3.33
3	1.00	1.00	1.00
4	3.00	2.00	3.00
5	2.00	2.00	2.00
6	2.00	1.00	1.50
7	3.66	3.00	2.60
8a	1.00		
9	3.33	3.66	4.00
	Attention Plus Modeling Group		
1	1.00	1.00	1.00
2	4.00	3.00	3.00
3	1.66	2.33	2.77
4	2.50	1.50	1.00
5	3.33	3.33	3.00
6	5.00	4.50	4.75
7	3.50	3.50	3.00
8	4.00	3.00	3.00
9	5.00	4.66	4.33
	Control Group		
1	4.00	2.00	4.00
2	2.50	1.50	3.00
3	3.50	3.50	3.00
4	1.66	1.66	2.50
5	2.00	1.00	3.00
6	3.00	3.50	3.50
7	3.00	3.00	2.00
8	3.00	3.00	3.00
9	3.00	3.50	2.50

a This subject left school and supplied no posttest or delayed posttest measures.

Appendix M

Average Raw Scores for Teacher Rating 2 (Orients to Teacher or Appropriate Speaker)

Subjects	Time		
	Pretest	Posttest	Delayed Posttest
	Attention Group		
1	4.00	4.00	4.00
2	3.33	3.33	2.60
3	1.00	1.00	1.00
4	2.00	1.50	2.50
5	3.00	2.00	2.00
6	2.00	1.00	1.00
7	3.66	3.33	2.00
8a	1.00		
9	3.00	3.66	3.30
	Attention Plus Modeling Group		
1	1.00	1.00	1.00
2	3.00	2.00	3.00
3	1.33	2.33	2.30
4	2.00	1.00	1.00
5	3.00	2.33	3.33
6	5.00	4.75	4.50
7	3.50	4.00	3.00
8	4.00	3.00	3.00
9	5.00	4.33	3.67
	Control Group		
1	4.00	2.00	4.00
2	2.50	2.50	3.00
3	3.50	3.50	3.50
4	2.00	1.33	2.50
5	3.00	2.00	3.00
6	3.00	3.50	2.50
7	2.00	3.00	3.00
8	3.00	3.00	4.00
9	3.00	3.00	2.50

a This subject left school and supplied no posttest or delayed posttest data.

Appendix N

Average Raw Scores for Teacher Rating 3 (Speaks Positively of School and Work)

Subjects	Time		
	Pretest	Posttest	Delayed Posttest
Attention Group			
1	3.00	3.00	3.00
2	3.00	3.00	3.00
3	1.00	1.00	1.00
4	3.00	2.50	2.50
5	3.00	1.00	3.00
6	2.50	2.00	3.00
7	4.00	3.33	3.00
8a	1.00		
9	3.33	2.50	4.00
Attention Plus Modeling Group			
1	1.00	1.00	1.00
2	5.00	3.00	4.00
3	2.33	3.33	2.70
4	4.00	4.00	5.00
5	3.66	4.00	4.30
6	4.50	4.50	4.75
7	4.00	4.00	3.50
8	3.00	3.00	3.00
9	4.66	4.33	4.00
Control Group			
1	5.00	5.00	5.00
2	4.00	4.00	4.00
3	4.00	4.00	5.00
4	3.66	2.50	3.00
5	3.00	2.00	3.00
6	3.00	4.00	3.00
7	3.00	2.00	3.00
8	5.00	5.00	5.00
9	4.00	4.00	3.50

a This subject left school and supplied no posttest or delayed posttest data.

Appendix O

Average Raw Scores for Teacher Rating 4 (Brings Appropriate Materials to Class)

Subjects	Time		
	Pretest	Posttest	Delayed Posttest
Attention Group			
1	3.00	4.00	4.00
2	2.66	2.00	3.00
3	1.00	1.00	1.00
4	1.50	1.50	2.00
5	2.00	2.00	3.00
6	2.00	1.00	1.00
7	3.66	2.66	2.66
8a	1.00		
9	2.33	3.33	3.33
Attention Plus Modeling Group			
1	1.00	1.00	1.00
2	3.00	3.00	3.00
3	1.33	2.00	1.70
4	1.50	1.50	1.00
5	3.33	3.00	3.00
6	4.50	4.25	5.00
7	4.00	3.00	3.50
8	4.00	3.00	3.00
9	4.66	4.33	4.00
Control Group			
1	1.00	1.00	2.00
2	2.00	2.00	2.50
3	2.50	2.00	2.50
4	1.66	1.33	1.50
5	2.00	1.00	3.00
6	3.50	5.00	3.00
7	1.00	2.00	2.00
8	2.00	1.00	1.00
9	2.00	1.00	1.00

a This subject left school and supplied no posttest or delayed posttest measures.

Appendix P

Average Raw Scores for Teacher Rating 5 (Brings Assigned Homework or Projects)

Subjects	Time		
	Pretest	Posttest	Delayed Posttest
Attention Group			
1	4.00	4.00	2.00
2	3.33	3.00	3.00
3	1.00	1.00	1.00
4	2.00	2.50	3.50
5	1.00	2.00	3.00
6	2.50	1.00	1.00
7	4.00	3.00	2.66
8a			
9	4.33	3.66	4.00
Attention Plus Modeling Group			
1b		1.00	1.00
2	3.00	4.00	3.00
3	2.33	3.66	2.30
4	2.00	2.50	1.00
5	3.00	3.33	3.67
6	4.66	4.75	4.75
7	4.00	3.50	2.00
8c		4.00	3.00
9	5.00	4.33	4.00
Control Group			
1	4.00	2.00	4.00
2	3.50	3.00	2.50
3	3.00	3.00	3.50
4	1.66	1.00	2.00
5	1.00	1.00	3.00
6	4.00	4.50	2.50
7	4.00	2.00	4.00
8	4.00	4.00	4.00
9	3.00	2.00	2.50

a This subject's teacher failed to rate him on this item on the pretest measure. He subsequently left school and provided no posttest or dealyed posttest measures.

b, c These students' teachers did not rate them on this pretest item.

Appendix Q

Observed Work Behaviors

Subjects	Sessions					
	Attention Group					
	5	6	7	8	9	Total
1	12	6	0	*	6	24
2	6	0	0	0	0	6
3	2	0	0	0	6	8
4	*	5	0	1	0	6
5	*	*	*	0	0	0
6	0	*	*	0	0	0
7	*	0	0	0	0	0
8	*	*	*	*	*	0
9	0	0	0	0	0	0
	Attention Plus Modeling Group					
1	10	6	0	6	0	22
2	6	6	0	6	0	18
3	5	*	*	6	*	11
4	0	0	2	6	0	8
5	0	0	6	0	0	6
6	*	*	0	*	0	0
7	0	0	0	0	0	0
8	5	*	6	6	*	17
9	2	3	0	6	0	11
	Control Group					
1	5	*	6	*	6	17
2	6	*	6	6	*	18
3	0	*	0	0	0	0
4	4	6	0	6	6	22
5	0	6	6	6	6	24
6	0	*	*	6	0	6
7	2	6	*	6	6	20
8	*	0	0	0	0	0
9	0	5	6	6	0	17

*These subjects were absent at the times designated.

Appendix R

Observed Attending Behaviors

Subjects	Sessions				
	Attention Group				
	5	6	7	8	9
1	0	2	8	*	2
2	0	6	7	7	6
3	0	7	7	9	6
4	*	4	9	7	6
5	*	*	*	3	12
6	3	*	*	6	6
7	*	8	8	5	6
8	*	*	*	*	*
9	3	9	9	0	6
	Attention Plus Modeling Group				
1	1	2	12	2	12
2	2	6	12	6	12
3	2	*	*	4	*
4	0	4	4	4	6
5	0	7	0	0	12
6	*	*	5	*	12
7	0	0	0	0	0
8	2	*	0	0	*
9	0	0	0	2	12
	Control Group				
1	0	*	0	*	0
2	0	*	0	0	*
3	0	0	0	0	0
4	0	0	0	0	6
5	0	0	0	0	0
6	0	*	*	0	0
7	0	0	*	0	6
8	*	0	0	0	0
9	0	0	0	0	0

*These subjects were absent at the times designated.

Appendix S

Observed Speaking Behaviors

Subjects	Sessions				
	5	6	7	8	9
Counselor-Attention Group					
1	0	1	1	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	*	2	2	0	0
5	*	*	*	0	0
6	1	*	*	2	0
7	*	1	1	0	0
8	*	*	*	*	*
9	2	0	0	0	0
Counselor Attention Plus Modeling					
1	0	0	0	0	0
2	0	0	0	0	0
3	1	*	*	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	*	*	0	*	0
7	0	0	0	0	0
8	1	*	0	0	*
9	0	0	0	0	0
Control Group					
1	0	*	0	*	0
2	0	*	0	0	*
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	*	*	0	0
7	0	0	*	0	0
8	*	0	0	0	0
9	0	1	0	0	0

*These subjects were absent at the times designated.